



COVERSHEET

Minister	Hon Dr Megan Woods	Portfolio	Energy and Resources
Title of Cabinet Paper	<i>Engagement with very large emitters: investment package for second significant decarbonisation proposal and report back on New Zealand Steel</i>	Date to be published	28 August 2023

List of documents that have been proactively released

Date	Title	Author
July 2023	Engagement with very large emitters: investment package for second significant decarbonisation proposal and report back on New Zealand Steel	Office of the Minister of Energy and Resources
17 July 023	Engagement with very large emitters: investment package for second significant decarbonisation proposal and report back on New Zealand Steel CAB-23-MIN-0309 Minute	Cabinet Office
July 2023	Climate Impact Policy Assessment Disclosure Form	MBIE
2 June 2023	Engagement with very large emitters: progress update on second large emitter partnership	MBIE

Information redacted

YES

Any information redacted in this document is redacted in accordance with MBIE's policy on Proactive Release and is labelled with the reason for redaction. This may include information that would be redacted if this information was requested under the Official Information Act 1982. Where this is the case, the reasons for withholding information are listed below. Where information has been withheld, no public interest has been identified that would outweigh the reasons for withholding it.

Some information has been withheld for the reasons of commercial information; legally professional privilege; confidential advice to government; constitutional conventions; and free and frank opinion.

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Office of the Minister of Energy and Resources

Engagement with very large emitters - second investment package for significant decarbonisation proposal and report back on New Zealand Steel partnership

Proposal

- 1 This paper seeks agreement for the Crown to provide up to NZD \$90 million as a grant via the Government Investment in Decarbonising Industry Fund (GIDI) to Fonterra to support the acceleration of a decarbonisation programme of its manufacturing sites across New Zealand.
- 2 This project would result in accelerated emissions reductions estimated at 2,080,000¹ tonnes of CO₂e:
 - 2.1 1.17 million tonnes of CO₂e (2.69 per cent) of the emissions reductions required in the second emissions budget (EB2 – 2026-2030) and 830,000 tonnes of CO₂e (1.13 per cent) of the reductions required in EB3 (2031-2035), with the balance made up in EB1 and EB4.
 - 2.2 7.27 per cent of the Energy & Industry sector sub-target (as laid out in the first Emissions Reduction Plan) in EB2 and 4.31 per cent in EB3.

Relation to government priorities

- 3 The Climate Change Response Act 2002 (CCRA) sets a domestic target for Aotearoa to reduce greenhouse gas emissions (except for biogenic methane) to net zero by 2050.
- 4 Accelerating decarbonisation of industrial process heat through the expansion of the Government Investment in Decarbonising Industry (GIDI) Fund is a key deliverable in the Government's first emission reduction plan.
- 5 In 2021, following advice from the Climate Change Commission, the Government updated New Zealand's first Nationally Determined Contribution (NDC1) to make it compatible with efforts to limit the increase in global average temperatures to 1.5 degrees Celsius above pre-industrial levels under the Paris Agreement. NDC1 was set on the basis that it would be achieved through a mix of domestic emission reductions, forestry removals and international cooperation [CAB-21-MIN-0435 refers].
- 6 The proposals in this paper relate to the Labour Party's 2020 election manifesto policy to "support businesses to reduce costs, be more energy efficient, and electrify process heat." The proposals also relate to the Cooperation Agreement between the Labour and Green Parties. Achieving the purpose and goals of the 2019 zero carbon amendments to the CCRA is an agreed area of cooperation.

¹ Total estimated abatement over emissions budgets 1-4.

Executive Summary

- 7 This paper proposes the Government provide up to NZD \$90 million as a grant via the GIDI Fund to support the acceleration of a decarbonisation programme for Fonterra at its manufacturing sites across New Zealand.
- 8 This grant requires Fonterra to increase its existing commitment to reduce manufacturing emissions by 30 per cent by 2030 to a 50 per cent reduction target (both measured from its 2018 baseline year) which will be measured at the completion of the 2031 financial year. The grant will require Fonterra to significantly reduce coal use at its manufacturing sites and will be tied to various targets and decarbonisation capital investments.
- 9 The funding is split into two tranches to achieve this, each worth \$45 million.
 - a. Tranche A is tied to the 50 per cent emissions reduction target.
 - b. Tranche B is designed to secure abatement within EB2, by bringing forward coal use reduction projects to meet that budget.
- 10 If Fonterra does not meet the targets set out in this proposal, it will be subject to clawbacks proportionate to the degree to which its emissions reduction targets have not been met.
- 11 Fonterra is subject to the same constraints as other industrial firms targeted by GIDI. Decarbonisation projects compete for capital internally. Without Government co-funding, many decarbonisation projects would present too high an upfront cost to Fonterra, with too low a corresponding return, to be prioritised over more productive capital projects.
- 12 This grant achieves additional emissions reductions by bringing forward in time Fonterra's actions to decarbonise its manufacturing processes. It also provides greater certainty that the increased reductions will occur by 2030 by contractually requiring Fonterra to reach its 50 per cent reduction target, at the risk of clawbacks. GIDI funding ensures that faster decarbonisation occurs before 2030, which will contribute to the emissions reductions required in New Zealand's second emissions budget and reduce New Zealand's NDC liability under the Paris Agreement. This would reduce our reliance on purchasing abatement overseas.
- 13 Officials have estimated that the marginal abatement cost (MAC - the cost to the Crown per tonne of CO₂e abated) of co-funding Fonterra's decarbonisation programme is approximately \$43 per tonne. The average MAC from the yet-to-be announced fifth contestable GIDI round is also approximately \$43 per tonne. The MAC for this proposal represents good value for money and is in line with the Crown's previous co-funding of industrial decarbonisation projects and expected abatement.
- 14 This agreement differs from the first large emitter partnership with New Zealand Steel (NZ Steel) because it involves multiple decarbonisation projects across multiple sites over a period of nearly seven years. Instead of requiring a specific quantum of annual abatement, this agreement requires Fonterra to deliver a 50 per cent reduction in emissions by 31 July 2031 while preserving Fonterra's ability to manage the sequencing

and types of projects it undertakes to meet this target. This means uncertainty remains about the exact mix of projects that will be undertaken to achieve the 50 per cent reduction in Fonterra's emissions. An indicative, commercially sensitive, project schedule is included at Annex Two to outline Fonterra's preliminary assessment of the decarbonisation programme. Officials consider the deal supports the purposes of the GIDI fund and the Government's wider climate change mitigation policy by incentivising greater and faster abatement by one of New Zealand's largest process heat users.

Background

- 15 Reducing emissions from industry is essential to meet the Government's net zero 2050 targets and transition New Zealand to a high-wage, low-emissions economy. Reducing industry emissions is also a critical part of satisfying the Executive's statutory obligation under the CCRA to meet the emissions budgets adopted by Government in 2022.
- 16 While the New Zealand Emissions Trading Scheme (ETS) incentivises emissions reductions, Government grants in support of decarbonisation projects can address barriers and accelerate emissions reductions required to achieve New Zealand's emissions budgets. Without Government co-funding, many decarbonisation projects would present too high an upfront cost to a business, with too low a corresponding return, to be prioritised or proceed. Co-funding can help unlock new ideas, businesses and markets that would have been uneconomic at lower emissions prices and play a critical role in bringing forward decarbonisation projects that may have occurred at a later point in time.
- 17 Expanded funding of around \$650 million over four years from the Climate Emergency Response Fund (CERF) was allocated to the existing GIDI Fund through Budget 2022. The CERF was capitalised with funding equivalent to the available cash proceeds from the ETS, meaning government climate action is funded with money recycled from the emissions price paid by emitters. The expanded GIDI Fund has created flexibility for a broader range of co-investment approaches, including partnerships with large emitters on projects of national significance which can meaningfully contribute to achieving New Zealand's domestic and international targets, such as the recent agreement with NZ Steel.
- 18 To date, GIDI has supported around 66 projects² which will result in a projected reduction of 1,191,000 tonnes per annum of CO₂e emitted. This includes the recently announced first GIDI large emitters partnership with NZ Steel, which if it goes unconditional, will avoid 800,000 tonnes of CO₂e emissions per annum.³
- 19 Additionality is an important criterion for GIDI-supported projects. Projects will only be funded if they are unlikely to be implemented at all or unlikely to be implemented until a later date, without Government support. Most businesses have competing demands on their resources (including capital, expertise, and attention). Government investment has helped to get projects across the line and implemented in a much faster

² Constitutional conventions

³ Note the agreement with NZ Steel has not yet become unconditional.

timeframe than otherwise would have happened, unlocking larger and earlier emissions reductions for New Zealand.

We have an opportunity to enhance Fonterra’s decarbonisation programme, in particular the transition of its coal-using sites

20 Fonterra is a dairy co-operative owned by more than 9,000 dairy farmers. Fonterra is responsible for approximately 30 per cent of global dairy exports and is New Zealand’s largest exporter and company, operating over 30 manufacturing sites across the country. Fonterra currently processes around 80 per cent of New Zealand’s milk.

21 Fonterra is one of New Zealand’s largest emitters. As of October 2022, Fonterra reported a total of 1.577 million tonnes of CO₂e per annum from its New Zealand manufacturing operations. The current source of these emissions is approximately:

- 21.1 Commercial Information
- 21.2 [Redacted]
- 21.3 [Redacted]
- 21.4 [Redacted]
- 21.5 [Redacted]

22 Coal boilers are still used at six of Fonterra’s sites⁴ across the country and account for approximately 48 per cent of Fonterra’s total scope 1 and 2 emissions in New Zealand.⁵

23 Emissions produced on farms supplying the Fonterra cooperative (i.e., scope 3 emissions) are considered separately to Fonterra’s scope 1 and 2 manufacturing emissions. For the 2022 financial year, Fonterra suppliers’ global on-farm emissions are estimated at 22,341,000 tonnes of CO₂e.

Fonterra has existing plans and commitments to reduce its process heat emissions and coal use . . .

24 In 2017, Fonterra committed to achieving a 30 per cent reduction in its absolute emissions from manufacturing sites by 2030, based on its 2018 emission levels. In 2018, Fonterra’s total estimated scope 1 and 2 emissions were 1.7 million tonnes of CO₂e.⁶ Fonterra’s current plan to achieve a 30 per cent reduction by 2030, while subject to some uncertainty, is the most robust counterfactual position which would occur should the Crown not invest in this proposed decarbonisation programme. Fonterra will stop using coal for industrial heat processes by 2037 given the Government’s ban on low and medium temperature coal boilers from 2037.⁷

25 Fonterra has been using a variety of approaches to reduce emissions, including energy efficiency initiatives, heat pump technology, and converting to biomass energy.

⁴ Hautapu is currently in the midst of a project that retires coal use from the site.
⁵ Scope 1 emissions are direct emissions from sources owned or controlled by a company (i.e., within the organisational boundary). Scope 2 emissions are indirect emissions from the generation of purchased energy (in the form of electricity, heat or steam) that the organisation uses. Scope 3 emissions are other indirect emissions occurring because of the activities of the organisation but generated from sources that it does not own or control.
⁶ The exact 2018 financial year baseline emissions used for the purposes of the Crown’s funding agreement with Fonterra is still being finalised.
⁷ National Direction on Industrial Greenhouse Gases – Gazetted on 29 July 2023.

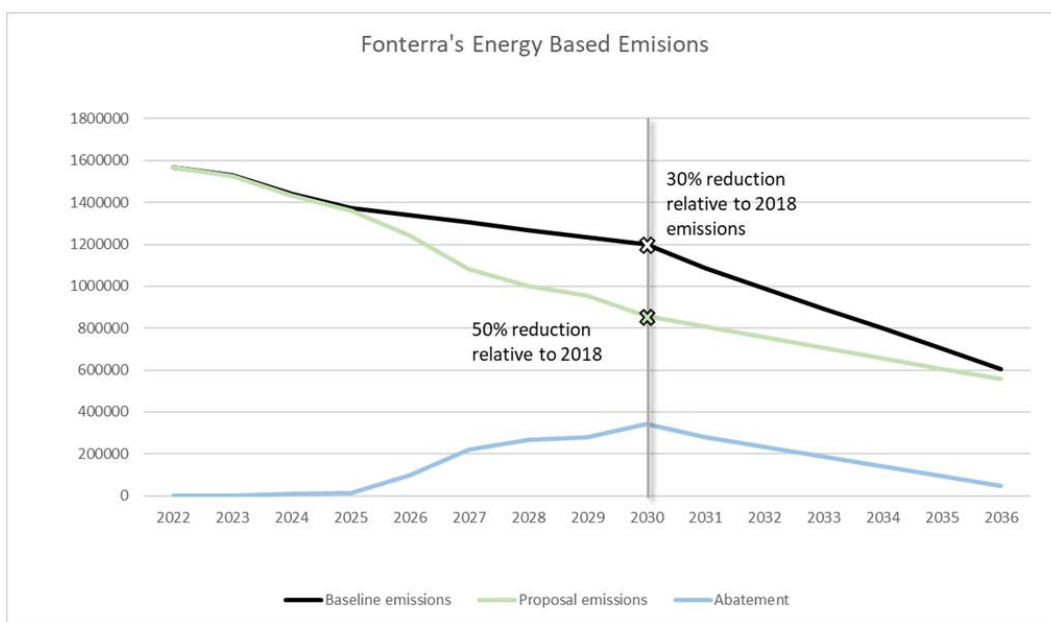
Projects committed to date are estimated to cost Commercial Information and will reduce emissions by approximately 240,000 tonnes, which is 47 per cent of its 2030 target. Fonterra's plans to remove coal use by 2037 and achieve its 2030 target will likely be achieved through decarbonisation initiatives, including:

- 25.1 Ongoing conversion of coal-using sites in the North and South Islands to biomass
 - 25.2 Ongoing smaller energy efficiency projects across many manufacturing sites
 - 25.3 The installation of heat pump technology for hot water production initially and, if the technology proves effective, steam heat pumps to dry milk into milk powder
 - 25.4 Other ancillary projects including biogas capture and the electrification of the Fonterra milk collection tanker fleet.
- 26 An indicative, commercially sensitive, project schedule is included at Annex Two to outline Fonterra's preliminary assessment of its decarbonisation programme. The projects required to achieve the balance of the reductions for the 30 per cent target are yet to be fully identified, as are the capital costs of these projects.

. . . but to secure this planned abatement and achieve accelerated emissions reductions, government co-funding is required

- 27 While Fonterra faces a number of economic drivers to decarbonise its operations (for example, the emission reduction targets of large international consumers of its products), these alone are unlikely to result in the pace of emissions reductions possible with government intervention. Without government co-funding, many decarbonisation projects would occur at a slower pace, as they present too high an upfront cost to Fonterra, with too low a corresponding return, to be prioritised over more productive capital projects.
- 28 Modelling completed by EECA (Figure 1) shows that the proposed co-funding could bring forward substantial emissions reductions, through a faster transition from coal, which would otherwise be likely to occur closer to the 2037 ban on low and medium-temperature coal boilers. The graph is linear and represents a smoother decarbonisation rate than the likely reality. In reality, abatement would likely occur irregularly (in relation to the commissioning of specific decarbonisation projects). The assumptions supporting this modelling are outlined at Annex One.

Figure 1: Baseline and projected emissions by Fonterra from energy use⁸



29 Figure 1 shows the projected additionality of the deal (the lower line). The middle (green) line shows the likely energy-based emissions under the partnership, while the upper (black) line shows the baseline emissions under a do-nothing scenario consistent with Fonterra’s 30 per cent target. The deal would prevent an estimated 2,080,000 tonnes of carbon from entering the atmosphere, compared to the baseline. The estimated emissions and abatement by emissions budget and NDC period is outlined in Table 1.

Table 1: Estimated emissions and abatement by emissions budget & Nationally Determined Contribution

Budget Period & NDC Period	Emissions (baseline – tonnes)	Emissions (proposal – tonnes)	Abatement (tonnes, rounded to 10K)
EB1 & NDC1 ⁸ (2021-2025)	2,570,970	2,511,337	60,000
EB2 & NDC1 (2026-2030)	3,391,732	2,220,580	1,170,000
EB3 & NDC2 (2031-2035)	1,910,676	1,079,694	830,000
EB4 & NDC3 (2036-2040)	42,962	24,277	20,000
Total	7,916,340	5,835,888	2,080,000

EECA has negotiated a funding agreement to incentivise Fonterra to enhance and accelerate its decarbonisation plans

30 EECA and Fonterra have negotiated a GIDI funding partnership agreement on a substantial decarbonisation programme that would materially contribute to EB2.

⁸ This modelling focuses on coal-based emissions reductions as these are almost entirely what would be brought forward by the proposed co-funding.

- 31 The proposed partnership would provide up to \$90 million to enhance Fonterra's decarbonisation of scope 1 and 2 greenhouse gas emissions. The funding agreement splits the total \$90 million into two tranches of \$45 million to advance two separate objectives. The first objective is to incentivise Fonterra to achieve a 50 per cent emissions reduction from its 2018 level by a specific point in time (tranche A). The second objective is to accelerate Fonterra's decarbonisation progress by bringing forward emissions reductions relating to its coal use within EB2 (tranche B).

Tranche A

- 32 Tranche A commits Fonterra to publicly increasing its existing emission reduction target which will be measured at the completion of the 2031 financial year. Fonterra's target will be to achieve a 50 per cent overall reduction in carbon emissions in its New Zealand manufacturing operations by 31 July 2031 (from its baseline measurement year of 2018).⁹ At the 50 per cent target, Fonterra's scope 1 and 2 emissions would not exceed approximately 850,000 tonnes of CO₂e.
- 33 The \$45 million allocated to tranche A will be paid toward coal-reduction projects as Fonterra achieves abatement that bridges the gap from its current 30 per cent target to the revised 50 per cent target.
- 34 In other words, Tranche A reserves half the overall funding available to Fonterra and puts it at risk of clawback if it fails to meet the 50 per cent target.

Tranche B

- 35 Tranche B is based on Fonterra's performance over time and is intended to secure cumulative abatement in EB2 by enabling or accelerating a range of decarbonisation projects on Fonterra's coal-using sites by 2030. Funding for tranche B requires Fonterra to deliver 1,230,000 tonnes of cumulative abatement by the end of 2030.
- 36 Projects in tranche B will be commissioned between 2024–2030, and funding will be earmarked for Fonterra's remaining coal-burning sites in Canterbury (Clandeboye, Studholme and Darfield), Southland (Edendale), Tasman (Tākaka), and Waikato (Waitoa).
- 37 If Fonterra implements all eligible projects in tranche B by 2030, that will result in estimated emissions reductions of 328,000 tonnes of CO₂e per annum – the equivalent of taking 120,000 cars off the road.
- 38 For clarity, the emission reductions achieved through the coal projects in tranche B are not additional to the abatement required under tranche A. Two distinct targets were needed in the funding agreement because the counterfactual case of only having a single target could have resulted in poorer emissions reduction outcomes.
- 39 For example, a single target tied to Fonterra's annual emissions in 2030 could result in a lower level of overall abatement for EB2 if projects were delayed. Conversely, a single target associated with Fonterra's cumulative abatement from identified coal

⁹ This represents an increase in ambition to reduce their emissions from their current target of a 30 per cent relative to the 2018 baseline.

usage reduction projects in EB2 could have led to its annual emissions still being higher than the 50 per cent target by 31 July 2031.

The funding will not exceed 18 per cent of Fonterra's total decarbonisation capital costs and is subject to clawbacks should Fonterra not deliver the agreed targets

- 40 The overall capital investment required for all Fonterra decarbonisation projects undertaken to 31 December 2030 is currently in the range of \$500 - \$790 million. The funding agreement ensures Crown funding will not exceed 18 per cent of Fonterra's total decarbonisation capital costs, should the total capital costs of the entire programme be less than \$500 million. The total funding available will be capped at the lower of either \$90 million or 18 per cent of the total eligible project costs for Fonterra decarbonisation projects.
- 41 Fonterra can claim funding on a quarterly basis at a rate of 50 per cent of the project costs incurred as it implements eligible decarbonisation projects, up until the total funding has been paid. Funding must be claimed before 31 December 2028. The structure of the agreement is intended to making funding available to Fonterra as early as possible, to ensure that its decarbonisation projects are implemented as soon as possible and within the timeframes to contribute to EB2.
- 42 However, Fonterra will still be subject to clawbacks proportionate to the degree to which they do not meet either the target set in tranche A or tranche B of the funding agreement. Funding will be clawed back with interest. Any funding clawed back would likely be returned to the CERF. The funding agreement also contains EECA's standard terms and conditions.

I propose Cabinet approves up to \$90 million of co-funding for Fonterra

- 43 I propose Cabinet approves a funding agreement providing up to \$90 million in co-funding as outlined above. This co-funding will enhance Fonterra's decarbonisation plans and help New Zealand to meet its climate change targets. \$90 million equates to approximately 14 per cent of the expanded GIDI Fund to 30 June 2026.
- 44 Accelerating emissions reductions so they occur in EB2 (2026-2030) will mean this co-investment contributes to New Zealand's NDC under the Paris Agreement which covers the period 2021-2030¹⁰ and is consistent with Cabinet decisions to prioritise domestic climate action (and complement it with offshore mitigation strategies) [CAB-21-MIN-0435].

The structure of this agreement supports the aim of the GIDI Partnership Programme and is necessary given the Fonterra's multiple operating sites and the emerging technologies

- 45 This paper proposes investment to enable Fonterra to carry out multiple decarbonisation projects across its New Zealand manufacturing sites (particularly those still using coal).

¹⁰ New Zealand's NDC sets a headline target of a 50 per cent reduction of net emissions below our gross 2005 level by 2030.

The scale and spread of Fonterra's production across more than 30 manufacturing sites requires a bespoke approach.

- 46 Providing one comprehensive package of support to Fonterra also enables efficiencies and flexibility, preserves Fonterra's ability to manage the sequencing and types of projects, and gives Fonterra confidence to plan and invest further into the future.¹¹
- 47 To ensure ongoing Crown visibility Fonterra will be required to provide an annual report back on its progress under this decarbonisation programme to the Minister of Energy and Resources, commencing September 2024 and ending in 2031. Fonterra will also be required to provide information regarding its decarbonisation projects, projected costs and likely abatement to EECA on a quarterly basis.
- 48 It is my expectation that the Government will only enter into or consider more flexible partnerships of this nature where the scale of reductions or complexity requires it.

The deal enables the Crown to leverage significant private investment by Fonterra and is good value for money

- 49 By providing a co-investment of up to \$90 million, the Crown will be able to leverage significant investment by Fonterra. The total capital cost of all projects in the decarbonisation programme is estimated to be in the range of \$500 - \$790 million. There is still some uncertainty regarding this total figure, so the funding agreement preserves flexibility around the specific projects to achieve these targets, their costs, the order in which they occur and the type of renewable fuels that will be adopted.
- 50 As a proportion of \$500 million (the lower estimate of the capital cost), the \$90 million Crown contribution equates to approximately 18 per cent of total project costs.¹² In comparison, GIDI contributions in the fourth contestable round averages 37 per cent, and the recently announced NZ Steel deal had a co-funding ratio of Commercial Information¹³

This project represents good value for money to the Crown

- 51 Officials have estimated that the MAC of co-funding Fonterra's decarbonisation programme will be approximately \$43 per tonne. The average MAC from the yet-to-be announced fifth contestable GIDI round is also approximately \$43 per tonne. The MAC represents good value for money and is in line with the Crown's previous co-funding of industrial decarbonisation.
- 52 The MAC calculation of this project is more complex than the partnership with NZ Steel because the agreement covers multiple projects over multiple timeframes. The MAC calculation for some projects is based on their benefits ending in the mid-2030s, as the Government's decision to ban coal in low and medium temperature process heat

¹¹ The funding agreement includes a schedule noting various sites where abatement will occur, the current planned type of projects, indicative costs and timing. The agreement also outlines a process whereby the Crown and Fonterra can agree to substitute or add new or revised projects which will be eligible for funding.

¹² If the upper level of estimated capital expenditure occurs (\$790 million), Government support (\$90 million) would represent 11% of this total.

¹³ While NZ Steel involved a higher co-funding ratio than other GIDI projects, it had a comparatively low marginal abatement cost of \$16.20 per tonne.

from 2037 means there is no scenario where in-scope industries could continue to use coal beyond this date [CAB-23-MIN-0263.01].¹⁴

- 53 The value of this MAC is especially clear in the context of recent estimates of the possible cost of purchasing offshore mitigation which ranges from \$41 to \$227 per tonne.¹⁵ The value of securing domestic abatement may also be elevated considering the ongoing uncertainty regarding the availability of offshore mitigation.
- 54 If Fonterra delivers on the commitment to achieve a cumulative emissions abatement because of this investment, this project will enable approximately 60,000 tonnes of abatement in EB1, 1,170,000 tonnes in EB2, 830,000 tonnes in EB3 and 20,000 tonnes in EB4. Detail on the counterfactual scenario of Fonterra's existing plan to deliver a 30 per cent abatement from the 2018 base year by 2030 is included at Annex One.
- 55 While there are uncertainties regarding the cost of offshore abatement, initial indications estimate that the cost of this under NDC1 (to meet the equivalent amount of abatement that will be delivered by this project) would range from \$50,430,000 at \$41 per tonne to \$279,210,000 at \$227 per tonne.

There are likely to be few remaining opportunities for the abatement of this scale

- 56 There are few remaining opportunities for government to secure reductions of this scale at comparable cost. While officials are continuing to explore the possibility of further partnerships with very large industrial emitters, they are not in active conversations with any of this scale, or at such a favourable MAC.

Fonterra currently faces emissions liabilities under the New Zealand Emissions Trading Scheme while receiving relatively little industrial allocation.

- 57 Fonterra is ineligible for industrial allocation for almost all its ETS costs, in part because some of its operations do not meet the emissions intensity thresholds to become eligible.¹⁶ Fonterra faces direct obligations for its consumption of coal costing approximately \$45 million (at a carbon price of \$60 per NZU).
- 58 The funding agreement does not contain any terms relating to Fonterra's liability to surrender units under the ETS or its industrial allocation. Emissions produced by Fonterra farms (i.e., scope 3 agricultural emissions) are not priced as part of the ETS.

¹⁴ Abatement of coal emissions after 2037 is not considered additional for the purposes of calculating a marginal abatement cost as regulation prohibiting the use of coal in low and medium temperature process heat means it is not a possible alternative scenario for comparison.

¹⁵ *Ngā Kōrero Āhuarangi Me Te Ōhanga Climate Economic and Fiscal Assessment 2023*, The Treasury & The Ministry for the Environment (April 2023).

¹⁶ In the 2021/2022 financial year Fonterra received 51,403 NZUs for lactose operations and 6,312 NZUs for whey powder operations. At a carbon price of \$60 this is worth a little under \$3.5 million.

This deal can also encourage wider decarbonisation by introducing new technologies and supporting investment in infrastructure

Increasing the uptake of new decarbonisation technologies.

- 59 An agreement of this scale can encourage adoption of innovative technologies. Government co-funding in Fonterra’s decarbonisation may also accelerate the introduction of innovative technologies into the New Zealand market. For example, Fonterra recently partnered with German firm MAN-Energy Solutions to assess application of steam heat pump technology to dairy plants.
- 60 By ensuring that Fonterra’s projects begin earlier than would otherwise have been the case, GIDI support will also help smooth the impact on supply chains which are already stretched. The specific focus on Fonterra’s coal-using sites will also indirectly encourage other coal users to transition away from its use and accelerate the domestic phase-out of the use of coal for process heat.

Supporting the establishment of key decarbonisation infrastructure

- 61 Moving Fonterra’s manufacturing sites off coal may create significant demand for biomass supply and electrification infrastructure. This may be beneficial in supporting the establishment of biomass supply chains and further electricity infrastructure. Increased demand will be supported by EECA work programmes currently underway to support the establishment of biomass supply chain lines in the South Island.

Risks

Risk	Description	Proposed mitigations
Additionality and risk of overpaying	The Government is at risk of providing greater support to Fonterra than is required to ensure the project proceeds.	The Government is attempting to actively mitigate this risk by carrying out robust due diligence regarding the appropriate value of support to provide to Fonterra.
Potential project failure / cost overruns	There is a risk that significant project delays or cost increases could either reduce or delay the abatement targeted by the decarbonisation programme.	Government funding is subject to clawbacks to ensure the amount of funding provided to Fonterra is proportional to the abatement achieved within specified periods.
Impact on existing coal resources and networks	Given the significant quantity of coal consumed by Fonterra sites, particularly in the South Island, reduction in coal usage may have consequential effects on the viability of the coal mines that supply those sites and the key supply	The Government will continue to work on assessing the likely impacts of a withdrawal from coal across Fonterra’s manufacturing sites. While this deal may significantly accelerate these impacts, it does not create them as a shift away from the use

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	(rail) lines that enable the delivery of coal.	of coal is an inevitable step in decarbonising the economy.
Perception risks	There may be negative perceptions surrounding the funding agreement, including perceptions of unfairness in significant support being provided to a to a large corporate entity; low additionality in the project; and the project representing poor value for money (in light of the higher MAC compared to the partnership with NZ Steel)	The risks of negative perceptions can be partially mitigated by having a fair and robust process, transparent reporting requirements in place, and clearly communicating the rationale and social benefits of pursuing the partnership.
Impact on domestic dairy manufacturing sector competitiveness	There is a risk that the significant level of Crown funding for Fonterra could have implications for the domestic dairy manufacturing sector’s competitiveness.	These risks can be mitigated by the ongoing availability of GIDI Industrial funding for the broader sector. It is also important to note the GIDI funding has already been taken up by four of Fonterra’s competitors. ¹⁷ There is sufficient GIDI funding to meet residual demand from the dairy manufacturing sector.
Free and frank opinions	Free and frank opinions	Free and frank opinions
Legal professional privilege	Legal professional privilege	Legal professional privilege

¹⁷ Westland Dairy Company Ltd, Synlait, Mataura Valley Milk Ltd and Open Country Dairy.

	Legal professional privilege	Legal professional privilege
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Other possible trade offs

There are uncertainties regarding the relative cost of purchasing abatement now versus in the future

62 I acknowledge that entering this partnership with higher levels of uncertainty about the exact types of projects presents a risk that there may not be funding in the future for GIDI projects with better value-for-money that may emerge. However, I consider the benefits of securing and bringing forward abatement with a higher degree of certainty outweighs this risk.

Report back on NZ Steel decarbonisation partnership

63 On 13 March 2023 Cabinet approved a Crown Grant of up to \$140 million via the GIDI Fund to NZ Steel for the purchase and installation of an EAF at its Glenbrook Steel Mill [CAB-23-MIN-0067]. Cabinet also invited the Minister of Energy and Resources and the Minister of Climate Change to report back after agreement has been reached

with NZ Steel. The project was publicly announced at Glenbrook Steel Mill on 21 May 2023.

- 64 NZ Steel had assumed industrial allocation settings under the ETS in its business case. Ministry for the Environment (MFE) officials have been discussing those settings with NZ Steel, including the updating of existing regulations for making steel products from scrap steel. Those regulations allowed allocations for products from the Pacific Steel EAF, which was shut down in 2015 after purchase by NZ Steel.
- 65 Regulatory changes for NZ Steel's future allocations for EAF products are dependent on the content of the Climate Change Response (Late Payment Penalties and Industrial Allocation) Amendment Bill. Their timing depends on the progress of the Bill through the House. The Environment Select Committee will report to the House on 20 July 2023. Confidential advice to Government
- 66 As a condition of entering the final funding agreement, NZ Steel required the establishment of a suitable transition framework or group (i.e., an 'officials group') to enable ongoing consideration and engagement with Government on issues relating to the installation of the EAF and its transition from the current operating model. The group will be used to continue work on ongoing key regulatory settings and other issues which may impact the ongoing viability of the EAF. This includes the availability of scrap, ongoing access to domestic or imported coal for NZ Steel's remaining non-EAF production, industrial allocation rates and resource consents. The first meeting of the group is scheduled for 26 July 2023.
- 67 Following receipt of the Crown's indicative offer of support, NZ Steel's parent company BlueScope formally agreed to move to the feasibility stage of the EAF project. Officials expect to have visibility of the feasibility study by early September 2023 before it is finalised in mid-September.

Officials are also continuing to explore the possibility of further large emitter partnerships

- 68 Confidential advice to Government
- In comparison to the partnership with NZ Steel and the potential agreement with Fonterra, upcoming proposals are likely to be far more complex and much more costly ways of achieving abatement. The Government's discussions around potential decarbonisation support for Confidential advice to Government remain in the very early stages and would not be expected to result in any concrete decisions this year.

Implementation

Intended Investment Approach

- 69 I seek agreement to authorise EECA to enter into a funding agreement in accordance with the information set out in this paper.

Timeline/Next steps

- 70 Following Cabinet approval of this funding agreement, EECA and Fonterra will enter into a binding funding agreement in line with the terms set out in this paper.

Financial Implications

- 71 Funding of approximately \$650 million over four years was allocated to GIDI in Budget 2022. Any final funding contribution agreed with Fonterra for investment in their decarbonisation programme will draw down this existing appropriation by up to \$90 million.
- 72 If this grant is approved, **Constitutional conventions**, as at June 2023, will remain available in the GIDI Fund (taking into account the agreement with NZ Steel and GIDI rounds 1-5).

Legislative Implications

- 73 There are no direct legislative implications associated with the proposals in this paper.

Impact Analysis

Regulatory Impact Statement

- 74 A regulatory impact statement is not required for a proposal of this nature.

Climate Implications of Policy Assessment

- 75 The Ministry for the Environment's Climate Implications of Policy Assessment (CIPA) team has been consulted and confirms that the CIPA requirements apply to this proposal.
- 76 The proposed EECA and Fonterra GIDI funding partnership will support a substantial decarbonisation programme focused on reducing Fonterra's greenhouse gas emissions. This investment will fund the transition of coal boilers to other low emissions technology such as biomass fuel or electrification as well as the installation of heat pumps and investment in energy efficiency improvements of industrial processes.
- 77 Should this partnership go ahead it has the potential to result in a cumulative reduction in emissions of approximately 1.2 Mt CO₂-e by the end of 2030 which will materially contribute to the achievement of New Zealand's second emissions budget (2026 – 2030). Depending on what final decision is made, this partnership could also bring forward important abatement to assist the government in meeting international climate change commitments by supporting Fonterra to achieve consistent cumulative abatement before 2030 and reach its increased target of a 50 per cent reduction in emissions by 31 July 2031, rather than its previous commitment of 30 per cent reduction.
- 78 The CIPA team has reviewed the modelling approach and results and considers them to be sufficient for providing an expected emissions impact of this proposal at this stage. Given this proposal is in its early stages, any emissions impacts will be reassessed and disclosed to Cabinet as the work is progressed.

Population Implications

79 Given the wide ranging and flexible nature of the proposed decarbonisation programme, officials are not aware of any specific population impacts at this time. However, the results of any future decision on support for Fonterra could have flow on impacts for workers, communities, regions, iwi/Māori and other population groups.

Human Rights

80 The proposals in this paper are not in any way inconsistent with the New Zealand Bill of Rights Act 1990 and the Human Rights Act 1993.

Consultation

81 The following agencies were consulted in the development of this paper: Ministry for the Environment; the Treasury; Energy, Efficiency and Conservation Authority; Ministry of Foreign Affairs and Trade, Ministry of Primary Industries. The Department of Prime Minister and Cabinet has been informed.

Communications

82 The Prime Minister and I intend to publicly announce this funding partnership on 20 July. The announcement will take place at Fonterra's Hautapu site in Waikato.

Proactive Release

83 I intend to proactively release this Cabinet paper and minute.

Recommendations

84 The Minister of Energy and Resources recommends that Cabinet:

Funding agreement to support Fonterra's decarbonisation programme

- 1 **Note** Fonterra and EECA have been working closely to agree a support package for the Government to support Fonterra's decarbonisation programme with funding through the Government Investment in Decarbonising Industry (GIDI) Fund.
- 2 **Note** this project with Fonterra would result deliver an estimated 1,230,000 tonnes of cumulative abatement before the end of 2030.
- 3 **Note** this emissions reduction is expected to contribute approximately 2.69 per cent of the required emissions reductions within emission budget two (2026-2030) and approximately 1.13 per cent of the total required within emission budget three (2031-2035).
- 4 **Note** this proposal is expected to deliver 7.27 per cent of the emissions reductions required from the Energy & Industry sector sub-target in emission budget two and approximately 4.31 per cent in emissions budget three.
- 5 **Note** Fonterra has currently committed to reducing its scope 1 and 2 emissions by 30 per cent of its 2018 baseline year levels by 2030.

- 6 **Note** that in line with this commitment, Fonterra currently has projects in place or completed sufficiently to reduce its emissions by 14 per cent, but specific plans are yet to be finalised to reduce its scope 1 and 2 emissions by the full 30 per cent by 2030.
- 7 **Note** EECA and Fonterra have negotiated a proposed decarbonisation funding agreement that would provide:
- 7.1 Up to \$90 million or 18 per cent of qualifying capital costs, whichever is the lesser, to support a decarbonisation programme delivering an estimated cumulative reduction of 1,230,000 tonnes of CO₂e by 31 December 2030, with the funding split in two tranches:
- 7.1.1 Tranche A: Up to \$45 million for further decarbonisation projects that support Fonterra to achieve a 50 per cent overall total reduction in carbon emissions in its New Zealand-wide operations by 31 July 2031 (from its baseline measurement year of 2018).
- 7.1.2 Tranche B: Up to \$45 million for decarbonisation projects focused on coal use at Fonterra's manufacturing sites, predominantly in the South Island.
- 8 **Note** this proposed funding will be subject to clawback provisions if Fonterra fails to deliver the targets agreed in tranches A and B, and that clawed back funds would likely be returned to the Climate Emergency Response Fund.
- 9 **Note** the proposed co-funding would leverage a significant investment by Fonterra to decarbonise its processes, estimated to be in the in the range of \$500-790 million.
- 10 **Note** purchasing abatement through supporting Fonterra's decarbonisation programme would support achievement of New Zealand's Nationally Determined Contribution 1 (NDC1) by bringing forward an estimated 1,230,000 tonnes of CO₂e abatement into the 2021-2030 NDC1 period.
- 11 **Agree** to authorise the Energy Efficiency and Conservation Authority, through its Chief Executive, to enter into a binding funding agreement containing the terms outlined in this paper.
- 12 **Note** the risks associated with offering financial support to Fonterra, which include but are not limited to:
- 12.1 Potential project failure / cost overruns
- 12.2 Impact on existing coal resources networks
- 12.3 Perception risks
- 12.4 Impact on dairy manufacturing sector competitiveness
- 12.5 Impacts on supply of new fuels
- 12.6 Legal professional privilege

- 13 **Note** there are other trade-offs including uncertainties regarding the relative cost of purchasing abatement now versus in the future.

Report back on New Zealand Steel decarbonisation partnership

- 14 **Note** that on 21 May the Government announced its conditional deal with New Zealand Steel
- 15 **Note** officials are continuing to work with New Zealand Steel regarding their industrial allocation under the New Zealand Emissions Trading Scheme.
- 16 **Note** the Government has now agreed to a memorandum of understanding with New Zealand Steel establishing an officials' group to discuss key regulatory settings and other issues that may affect the ongoing viability of the Electric Arc Furnace.
- 17 **Note** that New Zealand Steel's parent company BlueScope Group has agreed to move forward with a feasibility assessment of the project, which officials will have visibility of by early September 2023.

Next steps

- 18 **Note** the Government is continuing to explore other partnerships with large emitters, but these are significantly more uncertain or nascent than the partnership with New Zealand Steel or the proposed partnership with Fonterra.
- 19 **Note** Fonterra will provide an annual report back on its progress under this decarbonisation programme to the Minister of Energy and Resources, commencing September 2024 and ending 2031.
- 20 **Note** the Government is intending to make an announcement regarding this GIDI partnership on 20 July 2023.

Authorised for lodgement

Hon Dr Megan Woods

Minister for Energy and Resources


Annex One: Additional Information on Abatement Volumes

- 1 Figure 1 in the paper above shows:
 - 1.1 **A baseline emissions pathway.** This is EECA’s best estimate of what Fonterra’s coal-based emissions would be if not for the proposed funding agreement. In this scenario, Fonterra reduces coal-based emissions in line with its pledge to reduce emissions by 30 per cent, relative to 2018. Then, from 2030, Fonterra reduces its coal emissions in a linear trend to achieve the 2037 deadline. EECA believes 2030 is the last year Fonterra can plausibly begin work on these projects and meet the 2037 deadline. In this scenario, Fonterra emits a total of 8,342,761 tonnes of CO₂e from burning coal.
 - 1.2 **The proposal emissions pathway.** This is EECA’s best estimate of Fonterra’s emissions if this proposal goes forward. In this scenario, Fonterra completes all projects outlined in the funding agreement. Then, as in the baseline, Fonterra reduces its coal emissions linearly to achieve the 2037 deadline. In this scenario, Fonterra emits a total of 6,195,050 tonnes of CO₂e from burning coal.
 - 1.3 **Abatement.** This is the amount of carbon prevented from entering the atmosphere by the proposal, compared to the baseline. The total abatement is 2,080,000 tonnes, for a MAC of \$43. The bulk of this abatement is expected to occur in EB2 and EB3.

- 2 Officials constructed the baseline and proposal emissions paths based on the following:
 - 2.1 The baseline has been constructed by including projects Fonterra has already identified for implementation based on existing commercial drivers (such as replacing end of life equipment). In addition, in both scenarios we assume Fonterra will reduce their emissions in line with their 30 per cent reduction commitment, through projects other than those to be funded by EECA.
 - 2.2 We have assumed that the 2037 coal ban will remain in place and will lead to Fonterra replacing their coal boilers. We assess that 2030 is the final year Fonterra can begin replacing these boilers and meet the 2037 deadline.
 - 2.3 We have assumed that Fonterra will respond only to strict regulatory and commercial incentives.
 - 2.4 We have assumed that all non-coal emissions are equal between project and baseline scenarios. The project scenario includes Fonterra reducing their emissions in line with their 30 per cent commitment, in addition to the coal projects identified in this cabinet paper.
 - 2.5 As much as possible, EECA has made conservative assumptions and assumed no flow-on effects or wider decarbonisation benefits from this proposal.
 - 2.6 The graph is linear and represents a smoother decarbonisation rate than the likely reality. In reality, abatement would likely occur irregularly (in relation to the commissioning of specific decarbonisation projects).

Annex Two: Indicative Project Schedule [Commercially Sensitive]

Commercial Information



Climate Implications of Policy Assessment: Disclosure Sheet

This disclosure sheet provides the responsible department's best estimate of the greenhouse gas emissions impacts for New Zealand that would arise from the implementation of the policy proposal or option described below. It has been prepared to help inform Cabinet decisions about this proposal. It is broken down by periods that align with New Zealand's future emissions budgets.

Section 1: General information

General information	
Name/title of policy proposal or policy option:	Engagement with very large emitters: second investment package for significant decarbonisation proposal
Agency responsible for the Cabinet paper:	MBIE
Date CIPA finalised:	<i>Assessments may need to be updated as the policy process progresses and/or there is better or new information. If there are multiple assessments under the same initiative title, they will be differentiated by date.</i>
Short description of the policy proposal:	Co-funding from Government Investment in Decarbonising Industry (GIDI) Fund to Fonterra to support a decarbonisation programme at Fonterra sites across New Zealand.

Section 2: Greenhouse gas emission impacts

Sector & source	Changes in greenhouse gas emissions in tonnes of carbon dioxide equivalent (CO ₂ -e)						Cumulative impact
	2022–25	2026–30	2031–35	2036–40	2041–45	2046–50	
Industry	59,633 tonnes	1,171,152 tonnes	830,982 tonnes	18,685 tonnes			2,080,452 tonnes

Section 3: Additional information

Additional information

Critical/key assumptions of this project:

The project is estimated to result in a cumulative reduction of 1.17 Mt of CO₂e in Fonterra's scope 1 and 2 emissions by 31 December 2030 and has an estimated lifetime total abatement of 2.08 Mt of CO₂e. In entering in this agreement Fonterra will commit to achieving a 50% reduction (from 2018 baseline year) in carbon emissions from its New Zealand-wide manufacturing operations in the year 1 August 2030 to 31 July 2031 (tranche A of the agreement). With this commitment, Fonterra's emissions for the 2031 financial year would be 856 Kt of CO₂e. In addition, Fonterra will implement a programme of decarbonisation initiatives targeted at its coal using manufacturing sites which will be commissioned between 2024 and 2030 (tranche B of the agreement). If all eligible projects are completed by 2030, they will result in annual emissions reductions of approximately 328 Kt of CO₂e.

For clarity, the emission reductions achieved through the coal projects are not additional to the abatement required under tranche A. Two distinct targets were needed in the funding agreement because the counterfactual case of only having a single target could have resulted in poorer emissions reduction outcomes. For example, a single target tied to Fonterra's annual emissions in 2030 could result in a lower level of overall abatement for EB2 if projects were delayed. Conversely, a single target associated with Fonterra's cumulative abatement from identified coal usage reduction projects in EB2 could have led to its annual emissions still being higher than the 50 per cent target by 31 July 2031.

Officials assess that there is no potential for carbon leakage should this investment not go ahead, given Fonterra's manufacturing operations must remain proximate to its milk producers.

Information on the counterfactual:

The most likely counterfactual to this initiative is that Fonterra would retain its current commitment of achieving a 30% reduction in its absolute emissions from manufacturing sites by 2030 (based on its 2018 emissions levels). Under the 30% commitment, Fonterra's emissions for the 2031 financial year would be 1.120 Kt of CO₂e (a difference of 342 Kt between its new 50% target). Fonterra has also committed to being net zero by 2050 and to stop using coal for industrial heat processes by 2037. It is possible that Fonterra could exceed its current 30% emissions reductions target but not fully meet the revised 50% target. In this case, funding would be clawed back proportionately and with interest.

Qualitatively assessed impacts (emission impacts that could occur but have not been modelled):

Regarding the qualitatively assessed impacts of this proposal, the scale of Fonterra's operations in New Zealand means that decarbonising its sites and country-wide operations may support the establishment of biomass supply chains and further electricity infrastructure in support of New Zealand's broader climate change policies and net zero aspirations. Fonterra is a significant coal user, and as a result its decarbonisation could potentially render certain coal mines uneconomic and prompt wider decarbonisation beyond the company itself, particularly in the South Island. These qualitatively assessed impacts are complementary to existing Energy Efficiency and Conservation Authority (EECA) work programmes to support the establishment of biomass supply chains in the South Island.

Key information about the data and modelling process:

EECA has led the modelling process for this proposal. The proposal's abatement was calculated by multiplying the per-year reduction of emissions for all projects enabled by the agreement with the number of years until the projects would be expected to occur in the counterfactual. This methodology is comparable to that used in the first GIDI Partnership arrangement with NZ Steel and is an accurate measure of the impact provided by this funding. The abatement volume outlined here is therefore the additional change in atmospheric carbon resulting from this funding.

The estimated reductions are based on indicative projects (still to be approved through the Fonterra Capex assessment and approval processes) and their implementation over time. This is subject to change because of the nature of the agreement. However, it is the best current view for modelling the abatement. As with all GIDI projects there is some risk around delays or

Additional information

withdrawal. This has been accounted for this through a 10% reduction in estimated project emissions which is reflected in the numbers and the final abatement target in the agreement. The agreement also has appropriate clawback emissions should either the 2030 target not be reached or the FY 2031 emissions relative to 2018 baseline not be met either.

Sensitivity analysis/important limitations or uncertainties underlying the analysis:

The specific initiatives to reach a 50% reduction in Fonterra's total scope 1 and 2 emissions (beyond decarbonising its coal using sites) have not been identified at this stage. This is due to the size and complexity of Fonterra's operations, which means it must preserve some flexibility around implementing specific projects. These uncertainties are mitigated by the funding agreement's stipulation for standard GIDI funding agreement reporting requirements, as well as the Crown's ability to proportionately clawback funding if Fonterra does not reach its 50% emissions reductions target. Any clawed back funding would likely be returned to the Climate Emergency Response Fund (CERF).

Section 4: Summary and Quality assurance

Summary of climate implications and quality assurance

The Climate Implications of Policy Assessment (CIPA) team has been consulted and confirms that the CIPA requirements apply to this proposal.

The proposed EECA and Fonterra GIDI funding partnership will support a substantial decarbonisation programme focused on reducing Fonterra's greenhouse gas emissions. This investment will fund the transition of coal boilers to other low emissions technology such as biomass fuel or electrification as well as the installation of heat pumps and investment in energy efficiency improvements of industrial processes. Should this partnership go ahead it has the potential to result in a cumulative reduction in emissions of approximately 1.2 Mt CO₂-e by the end of 2030 which will materially contribute to the achievement of Aotearoa's Second Emissions Budget (2026 – 2030).

Depending on what final decision is made, this partnership could also bring forward important abatement to assist the government in meeting international climate change commitments by supporting Fonterra to decarbonise its operations by 50% of its 2018 emissions levels by 2030, rather than its previous commitment of 30%. The CIPA team has reviewed the modelling approach and results and considers them to be sufficient for providing an expected emissions impact of this proposal at this stage. Given this proposal is in its early stages, any emissions impacts will be reassessed and disclosed to Cabinet as the work is progressed.