MINISTRY OF BUSINESS, INNOVATION & EMPLOYMENT
HĪKINA WHAKATUTUKI

COVERSHEET

Minister	Hon Dr Megan Woods	**Portfolio**	Energy and Resources
Title of Cabinet paper	**Energy and Industry Content for Emissions Reduction Plan**	**Date to be published**	11 August 2022

List of documents that have been proactively released		
Date	**Title**	**Author**
March 2022	Energy and Industry Content for Emissions Reduction Plan	Office of the Minister of Energy and Resources
16 March 2022	Emissions Reduction Plan: Energy and Industry Content DEV-22-MIN-0044	Cabinet Office
March 2022	Annex One: Proposed energy and industry initiatives for the first emissions reduction plan	Office of the Minister of Energy and Resources

Information redacted **YES / NO**

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Some information has been withheld for the reason of Confidential advice to Government.

Sensitive

Office of the Minister of Energy and Resources

Chair, Cabinet Economic Development Committee

Energy and Industry Content for the Emissions Reduction Plan

Proposal

1 I am presenting the proposed energy and industry content for the final emissions reduction plan (ERP) and seeking approval for key initiatives to support delivery of the content.

2 I propose the ERP set out the following vision for 2050 for the energy and industry sectors:

"Our vision for 2050 is that Aotearoa has a highly renewable, sustainable, and efficient energy system that supports a low emissions economy. Energy is accessible and affordable and supports the wellbeing of all New Zealanders. Energy supply is secure, resilient, and reliable. Energy systems support economic development aspirations and an equitable transition to a low emissions economy."

3 The proposed energy and industry content is a comprehensive package of initiatives, each at different stages of development. This gives rise to a large set of recommendations that will form part of the ERP.

Relation to government priorities

4 The Government declared a climate change emergency on 2 December 2020. Cabinet agreed that climate change "demands a sufficiently ambitious, urgent, and coordinated response across government to meet the scale and complexity of the challenge" [CBC-20-MIN-0097 refers].

5 Legislation sets a domestic target for Aotearoa to reduce greenhouse gas (GHG) emissions (except for biogenic methane) to net zero by 2050, and requires emissions budgets to be set to act as stepping stones towards this long-term target.

6 Government must publish the first three emissions budgets, and its first ERP, by May 2022, taking into account the recommendations made by the independent Climate Change Commission (the Commission). The ERP will set out the policies and strategies needed to meet the first emissions budget and put Aotearoa on a pathway to meeting its 2050 target.

Executive Summary

7 The energy and industry sectors are critical to decarbonising Aotearoa and meeting our 2050 net zero target. Key shifts will be required including a significant expansion of our renewable electricity system, development and use of low emissions fuels and a managed transition away from fossil fuels. These shifts are needed to support a system-wide pathway for using low emissions energy to reduce emissions in other sectors, including transport and building and construction, and to encourage policies and actions in these sectors to reduce energy emissions.

8 To signal the pathway to achieve Government's 2050 net-zero target, I propose a vision that Aotearoa has a highly renewable, sustainable and efficient energy system that supports a low emissions economy and the wellbeing of New Zealanders. The energy and industry content outlines five focus areas under this vision, as follows:

8.1 Using energy efficiently and managing energy demand

8.2 Ensuring the electricity system is ready to meet future needs

8.3 Reducing our reliance on fossil fuels whilst supporting switching to low emissions alternatives

8.4 Reducing emissions and energy use in industry

8.5 Setting a strategy and targets to guide us to 2050.

9 These focus areas align with the Commission's recommendations for energy and industry (recommendations 20 and 21), focusing on key shifts to transition away from fossil fuels and towards greater levels of renewable electricity and other low emissions fuels. Specific detail on how the proposals in this paper respond to the Commission's recommendations will be included in Appendix B of the ERP, which is due to be considered by Cabinet in mid-April.

10 Progressing the set of actions outlined in the energy and industry content would put us on track to meet the emissions reductions required in the sectors across all three emissions budgets.

11 There are challenges and risks that must be addressed to achieve the scale of transformation required in the energy and industry sectors:

11.1 A joined-up approach within government and across stakeholders outside government including with iwi/Māori will be key to delivering energy and industry sector emissions reductions. Supporting actions of energy system stakeholders will be critical.

11.2 There are key uncertainties for achieving the emissions reductions required to meet emissions budgets. The closure of New Zealand's Aluminium Smelter (NZAS) is a key uncertainty for the first emissions budget. In the longer term, future emissions budgets will also depend on decisions made by larger point source emitters. Achieving the first emissions budget will also be dependent on hydro inflows and gas availability in the electricity market.

12 To signal the direction, timing and scale of transition and help set pathways to support private sector planning and action, I am proposing that the Government set a target of 50 per cent of total final energy consumption (TFEC) coming from renewable sources by 2035. I am also proposing that the Government develop an energy strategy and a plan for actions to decarbonise the industrial sector. An energy strategy would enable us to signal a pathway to ensure that our energy system:

12.1 is accessible and affordable, and secure and reliable to support the wellbeing of all New Zealanders

12.2 supports our economic development aspirations and an equitable transition to a low emissions economy.

13 Setting a strategic direction through these mechanisms, together with progressing the significant set of actions outlined in the energy and industry content, will help to put us on track to meet the first three emissions budgets and achieve our 2050 vision for the energy and industry sectors.

Background

14 The energy and industry sectors are essential for the economy and the lives of New Zealanders.

15 By 2050, our vision is that Aotearoa has a highly renewable, sustainable, and efficient energy system that supports a low emissions economy. Energy is accessible and affordable and supports the wellbeing of all New Zealanders. Energy supply is secure, resilient, and reliable. Energy systems support economic development aspirations and an equitable transition to a low emissions economy.

16 This means that we are using renewable electricity and low emissions fuels to light and heat our homes and workplaces, fuel our vehicles and move our freight, and power manufacturing and industrial processes. Fossil fuel use has reduced significantly across the economy, including in electricity generation, industry and manufacturing, and in our buildings. Demand for energy is optimised through technology use, behavioural shifts (where achievable for population groups), nature-based solutions and improved energy efficiency.

Deep emissions reductions are required in the energy and industry sectors to meet Aotearoa's 2050 net zero target

17 Reducing emissions from energy and industry will be crucial to meeting emissions budgets and achieving the net zero 2050 target. Developing a low emissions energy system will also enable other sectors such as transport and building and construction to decarbonise.

18 In 2019, emissions from the energy and industry sectors accounted for 21.4 megatonnes of carbon dioxide equivalent (Mt CO_2-e), or 26 per cent of Aotearoa's total GHG emissions. This included:

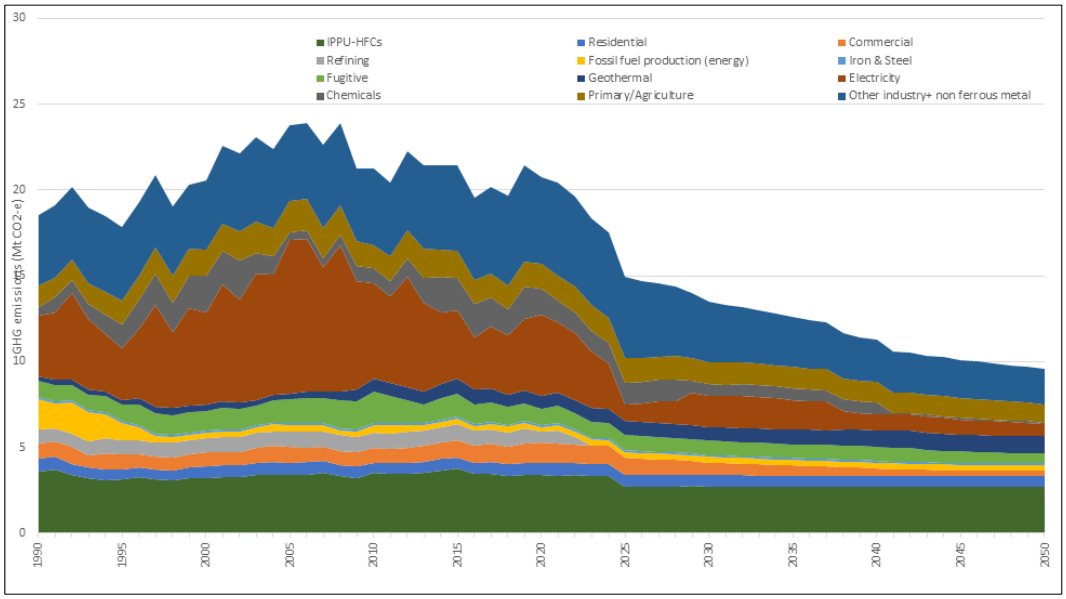
18.1 emissions from stationary energy combustion, including from electricity generation, process heat, and residential and commercial energy use (19.8 per cent)

18.2 fugitive emissions, including from oil and gas venting and flaring, and from geothermal operations (2.1 per cent)

18.3 emissions from industrial processes and product use, including from production of aluminium, iron and steel (4.1 per cent).

19 Figure 1 shows the Government's baseline emissions projections for the energy and industry sectors.

Figure 1: Government's baseline emissions for the energy and industry sectors



20 The New Zealand Emissions Trading Scheme (NZ ETS) is a key mechanism to drive emissions reductions in the energy and industry sectors. A rising carbon price discourages fossil fuel use and encourages energy efficiency improvements and fuel switching. To meet emissions budgets, the Commission's demonstration path showed the NZ ETS price at levels of $84 per tonne in 2025, $138 per tonne in 2030, and $160 per tonne in 2035 in real terms. The current NZ ETS spot price is $70.25 (as at 10 March 2022).

21 In addition to the NZ ETS, other measures in the energy and industry sectors can:

21.1 Drive emissions reductions in areas that are not responsive to emissions pricing due to market or other barriers. For example, some sectors and emitters are not covered by the NZ ETS, and emissions intensive trade exposed businesses receive industrial allocations that shield them from price signals provided by the NZ ETS.

21.2 Address distributional impacts, including managing affordability and security of energy for consumers, as Aotearoa transitions away from fossil fuels.

21.3 Unlock co-benefits, such as health benefits from improved insulation and energy efficiency, and air quality benefits from reducing fossil fuel use.

I am seeking support for the proposed energy and industry content of the ERP

22 The energy and industry content includes initiatives in the energy and industry sectors that the Government is already undertaking or developing, or which the Government has committed to. Existing initiatives include the New Zealand Battery Project, the Government Investment in Decarbonising Industry (GIDI) fund, and National Direction on Industrial GHG Emissions. Existing work is included under the focus areas as listed in Annex One.

23 Existing initiatives will make a significant contribution towards meeting Aotearoa's emissions budgets. Additionally, to deliver further reductions and set foundations for meeting future emissions budgets, the content includes proposed initiatives seeking funding through Budget 2022 and future budgets. The content also includes proposals which could be included in the ERP as areas for future focus, but which require further work before they are considered by Cabinet.

24 The proposed energy and industry content for the ERP is based on a range of consultation, including with iwi/Māori. This includes consultation on the Accelerating Renewable Energy and Energy Efficiency discussion document, the Climate Change Commission's draft advice, and the ERP consultation document. There has also been consultation on specific initiatives such as an update of the energy efficiency regulatory regime, and National Direction on Industrial GHG Emissions.

25 I propose five focus areas to enable us to reach our vision for the energy and industry sectors:

25.1 Focus Area 1: Using energy efficiently and managing energy demand

25.2 Focus Area 2: Ensuring the electricity system is ready to meet future needs

25.3 Focus Area 3: Reducing our reliance on fossil fuels whilst supporting switching to low emissions alternatives

25.4 Focus Area 4: Reducing emissions and energy use in industry

25.5 Focus Area 5: Setting a strategy and targets to guide us to 2050.

26 Focus area 5 will set a pathway and guidance for progressing actions in the first four focus areas in a coherent and managed way. The Commission highlighted the importance of setting strategic direction in the energy sector to transform to an energy system that is low emissions, affordable and secure.

27 These focus areas align with the Commission's advice for the energy and industry sectors, focusing on key shifts to transition away from fossil fuels, and toward a system that uses greater levels of renewable electricity and other low emissions fuels more efficiently. Together they provide a framework for the energy and industry content of the ERP that underpins the Government's intentions to reduce emissions in these sectors, and to use low emissions energy to decarbonise other areas.

28 There are interlinkages across the five focus areas. For example, although an objective in and of itself, energy efficiency and demand management will be critical to develop a future proof electricity system, and to reduce emissions and energy use in industry.

29 A summary of energy and industry initiatives to be included in the ERP is provided as Annex One. I note that the initiatives signalled in Annex One that are in development or yet to be developed will be consulted on in due course. This consultation will include working with iwi/Māori in accordance with the Te Arawhiti engagement framework.

Focus Area 1: Using energy efficiently and managing energy demand

30 Improving energy efficiency is often the lowest cost and the first step for reducing energy emissions. Optimising energy efficiency can minimise the amount of energy needed to power the economy and the scale of energy infrastructure that needs to be built to support this. Energy efficiency will have a key role in ensuring an equitable transition by supporting our environment, health and wellbeing, and in supporting the affordability and the reliability of the energy system during the transition and beyond.

31 Using energy efficiently and managing energy demand will be an important enabler of achieving our vision for the other focus areas proposed in this paper. It will play a significant role in supporting an affordable, reliable, and renewable electricity system, reducing our reliance on fossil fuels, and reducing energy use and emissions in industry.

32 Improving energy efficiency has been a focus of this Government. The ERP will outline the range of actions already underway or in development to support focus area one. These include actions to inform consumers and businesses on improving their energy management practices and use, regulating the energy efficiency of products through Minimum Energy Performance Standards and Mandatory Energy Performance Labelling, and improving the energy efficiency of residential housing through the Warmer Kiwi Homes programme. They also include actions for businesses, which will be outlined under focus area 4, including the GIDI fund and Energy Transition Accelerator programmes.

33 I also seek your agreement to include the following initiatives as part of the ERP. Depending on whether these initiatives receive funding through Budget 2022, they will either be framed as initiatives that are underway or areas for future action:

33.1 Confidential advice to Government

33.2 Extension of the Warmer Kiwi Homes programme (being considered as a cost pressure bid).

33.3 Energy efficient equipment rebate scheme (being considered through CERF as part of the decarbonisation of industry and heat bid).

Focus Area 2: Ensuring the electricity system is ready to meet future needs

34 Displacing fossil fuel use in industry, transport and buildings with renewable electricity is an essential part of the transition. To achieve this, three fundamental shifts are needed:

34.1 We need to accelerate the development of new renewable electricity to help us to electrify and reduce emissions across the economy. Transpower[1] recently estimated that New Zealand could reduce annual emissions by 9.6 Mt CO_2-e and generate annual net benefits to the economy of $1.4 billion by 2035 through electrifying transport and process heat and increasing renewable electricity supply to decarbonise the economy. Transpower noted that to achieve this, New Zealand will need approximately 70 per cent additional renewable energy generated on top of today's output. As well as a significant increase in solar and wind generation, this will likely include new technologies such as offshore wind, pumped hydro, green hydrogen, electricity storage technologies such as large-scale batteries, and other technologies.

34.2 We need to make changes to the electricity system to reduce the use of fossil fuels in electricity generation. Non-renewable (fossil fuelled) generation currently plays an important role in the system, for example in supporting security of supply in a dry year and during peak demand in buildings, such as on cold winter evenings. We need to manage an orderly transition to a more sustainable and renewable electricity system.

34.3 Alongside the increase in renewable generation and electrification of the economy, we will need to support the development and efficient use of transmission and distribution networks and distributed energy resources (such as rooftop solar). This will include greater integration of electricity efficiency and demand side management to help meet our vision at low cost.

35 The ERP will outline the range of actions already underway in this focus area. This includes the New Zealand Battery Project, which is investigating the feasibility of options to mitigate 'dry year' risk in a highly (or fully) renewable electricity system, and the review of current national direction tools for enabling new renewable generation, transmission and distribution to determine whether and how resource consenting processes could be improved. It also includes a range of Electricity Authority and Commerce Commission work programmes to support development and efficient use of transmission and distribution infrastructure.

36 I also seek your agreement to include the following initiatives as part of the ERP. Depending on whether these initiatives receive funding through Budget 2022, they will either be framed as initiatives that are underway or areas for future action:

36.1 Developing and implementing electricity market measures to support affordable and reliable electricity supply while accelerating the transition to a highly renewable electricity system. This is likely to include:

36.1.1 progressing electricity market measures to support the transition to a highly renewable electricity system, and implementing investigations and policy relating to the transition towards 100 per cent renewable electricity

[1] Transpower Electrification Roadmap.pdf

36.1.2 investigating options for government and local government agencies to procure electricity from new renewable electricity investments and developers through Power Purchase Agreements (PPAs)

36.1.3 Confidential advice to Government

36.2 Supporting renewable and affordable energy in New Zealand communities through piloting community-based integrated renewable energy projects and demonstrating solutions at a community level Confidential advice to Government This would build on the existing $28 million Māori and Public Housing Renewable Energy fund and support multiple objectives, including an equitable transition, climate adaptation and resilience, and building skills and capability. Confidential advice to Government

36.3 Developing a regulatory framework for offshore renewable energy to enable investment and balance the impact of offshore renewable energy developments with other priorities. This includes working with iwi/Māori to understand and take account of Māori rights and interests, and considering impacts on biodiversity and fisheries.

Focus Area 3: Reducing our reliance on fossil fuels whilst supporting switching to low emissions alternatives

37 A key challenge for transition will be to ensure that we reduce our reliance on fossil fuels in an equitable way that delivers energy affordability, security and resilience.

38 At the same time as we transition away from fossil fuels, we will need to develop low emissions fuels to replace some key roles in our energy system, including supporting our electricity system, and reducing emissions in harder to abate areas, such as heavy transport. Hard-to-abate areas of the economy such as aviation and steel production are technically difficult to electrify and will likely require low emissions alternatives like green hydrogen or sustainable aviation fuels.

39 Building in flexibility for how the energy sector and the wider economy decarbonises, and keeping options open for emerging technologies and changing behaviours will be important for managing the costs, benefits and distributional impacts of the transition.

40 The Commission recommended that the Government support the development of low emissions fuel options such as bioenergy and hydrogen and determine how to eliminate fossil gas use in buildings. Achieving this will require a range of actions, and understanding and managing of risks, including to households and businesses. Some of these actions are already underway (see Annex One for a full list of actions), for example:

40.1 Cabinet has agreed to "develop a Gas Transition Plan that will set out the transition pathway for the fossil gas sector and include further measures the Government will put into place to ensure an equitable transition" [CAB-21-MIN-0547 refers]. This Plan will include a focus on where renewable gases can strategically support hard-to-abate consumers and assist in mitigating overall transition costs. It will recognise the inter-dependence of gas supply and demand as we transition, and the role of key consumers in supporting gas availability (such as Methanex). The Terms of Reference for this work will be proposed to Cabinet in the coming weeks.

40.2 Cabinet has agreed to introduce the Sustainable Biofuels Mandate, which will come into force on 1 April 2023 [ENV-21-MIN-0058 refers]. The mandate will support emissions reductions through increasing the supply and use of biofuels in Aotearoa. In the future, the scope of the mandate could be expanded to include and support the deployment of other low emissions fuels such as green hydrogen, synthetic fuels, and renewable electricity as a transport fuel.

41 In addition to this work, I propose the following initiatives are considered as part of the ERP. Depending on whether these initiatives receive funding through Budget 2022, they will either be framed as initiatives that are underway or areas for future action:

41.1 Developing a hydrogen road map. This would be progressed as part of the Energy Strategy (see focus area 5) and would establish the stepping stones for Aotearoa to scale up the production and use of green hydrogen.

41.2 Confidential advice to Government

42 The development of a hydrogen road map Confidential advice to Government could lay the foundations for potential future emissions reductions initiatives through the Climate Innovation Platform process Confidential advice to Government

Focus Area 4: Reducing emissions and energy use in industry

43 Changing how we use energy in industry, particularly for process heat, will be crucial to reducing our emissions. Energy efficiency improvements and fuel switching will also benefit businesses by reducing energy use, exposure to NZ ETS costs, improving productivity, and increasing the economic resilience of domestic producers.

44 There are significant low-cost opportunities for emissions reduction in low-medium temperature industrial heat use that can also stimulate economic growth, support job retention and creation, and ensure a smooth, managed transition.

45 Substantial action is already underway and further action is in development to accelerate emissions reduction from process heat. Energy Efficiency and Conservation Authority (EECA) business programmes, including the GIDI fund, have helped businesses to accelerate the adoption of low emissions technologies. National Direction on Industrial GHG Emissions will seek to avoid GHG emissions from fossil fuel assets used for process heat. The intent of the national direction is to ban new low and medium temperature coal boilers and phase out those that are already in use by 2037. It also requires sites with material emissions from process heat to prepare GHG emission plans and adopt the best practicable option to reduce emissions.

46 I seek your agreement to the following further policies and measures for the decarbonisation of industry and heat as part of the ERP. Where these actions require funding, they will either be framed as initiatives that are underway or areas for future action:

46.1 Firstly, I propose to develop a plan for actions to decarbonise the industrial sector. The purpose of the plan is to identify a package of actions to decarbonise industry in collaboration with the sector, with the aim of supporting existing industry to decarbonise, and enabling innovative low-carbon industries to grow. The plan will build on actions already underway (Annex One), and consider further actions to ensure an efficient, effective, and equitable approach to meeting emissions budgets. This plan will sit within the energy strategy and be linked to other strategies such as the circular and bioeconomy strategy, the New Zealand Energy Efficiency and Conservation Strategy (NZEECS), and Industry Transformation Plans.

46.2 Secondly, building on the outcomes from existing funding, I am seeking funding through Budget 2022 to scale up and pivot the GIDI fund to:

46.2.1 continue funding individual high impact process heat decarbonisation projects, with adapted criteria to fund larger and longer projects

46.2.2 develop Regional Energy Transition Accelerators to improve transparency, create investment strategies and optimise options for fuel switching at a regional level

46.2.3 ringfence funding for electricity transmission and distribution infrastructure upgrades that unlock and/or accelerate fuel-switching for multiple fossil fuel heat users

46.2.4 expand funding for technology diffusion, so that the costs of under-utilised technologies are reduced for later adopters.

46.3 Thirdly, I am seeking funding through Budget 2022 for grants and rebates to decarbonise commercial space and water heating and accelerate adoption of high efficiency electrical equipment. These incentives will be available to support a much broader segment of the business community, including smaller businesses, to transition. They will also help to reduce demand on the electricity system.

46.4 Fourthly, I propose to develop a mandatory energy and greenhouse gas emissions reporting scheme (EERS) for large energy users. The EERS will improve the quality and transparency of energy and emissions data available to government, the public and investors. The EERS will be a foundational policy measure across the industry, commercial and transport sectors that will underpin and improve the effectiveness of existing and future efforts to reduce energy emissions from these sectors. I intend to seek Cabinet's approval for this initiative in a separate Cabinet paper in the second quarter of 2022. I am also seeking Budget 22 funding (as part of the initiative to decarbonise industry and heat) to deliver this initiative according to a Category 4 legislative programme.

47 The first three of these initiatives were originally proposed as a package through the big plays process. They are expected to deliver 1.60 Mt CO_2-e in the first budget period and achieve significant reductions in subsequent budget periods (12.2 Mt CO_2-e in the second and 10.3 Mt CO_2-e in the third budget period).

Single firm industries that are hard to abate

48 Aotearoa has several single company industries with industrial processes that rely on fossil fuels for both high temperature requirements and chemical reactions that are intrinsic to the production process. In many cases the development of these industries was guided by historic government policy. The strategic objectives included energy security, the industrialisation of the economy by harnessing Aotearoa's natural resources and increasing the domestic manufacturing of products and/or exports.

49 To address the emissions from these firms the Commission noted that the Government should develop a long-term strategy for 'hard-to-abate' industries. This is because substantially reducing emissions from these processes is either economically very costly or only in early stages of technological development and not ready for deployment.

50 A broad range of issues need to be considered in developing an approach to address challenges for decarbonising hard-to-abate industries. Confidential advice to Government

Confidential advice to Government

51 The energy and industry content includes an action to develop a strategic approach or framework for addressing issues relating to single firm industries. Confidential advice to Government

52 This action will be led by the Minister of Economic and Regional Development in consultation with the Ministers of Energy and Resources, Research, Science and Innovation, Climate Change and the Minister responsible for the Just Transition, as the issues outlined above relating to hard-to-abate industries are broader than the energy and resources portfolio.

53 Work on the strategic approach will not commence until September 2023, nearly halfway through the first emissions budget. The timing reflects the inter-relationships with the detail of policy being developed in other areas (e.g. wider policy on emissions-intensive and trade exposed firms, broader plans to de-carbonise industries, the proposed Climate Innovation Platforms etc.) as well as the availability of policy capacity.

54 The development of a plan for hard-to-abate industries could lay the foundations for potential future emissions reductions initiatives through the Climate Innovation Platform process Confidential advice to Government

Focus Area 5: Setting a strategy and targets to guide us to 2050

55 Transitioning to a low emissions energy system will require actions by individuals, communities, businesses, and the Government. Achieving our climate objectives may require different timing and sequencing of changes across the different sectors contained in energy and industry. Though a transition to a low emissions economy is inherently uncertain, it will be important to set signals for transition pathways and ensure a coherent and coordinated approach to decarbonisation.

56 To guide achievement of the vision for 2050, the Government is committed to developing an energy strategy and targets for the energy system.

Targets for the energy system

57 I seek your agreement to set a renewable energy target of 50 per cent of total final energy consumption (TFEC) coming from renewable sources by 2035, as recommended by the Commission. This target will allow us to track progress in the broader energy sector as we look to put in place policies for our first three emissions budgets. A renewable energy target also recognises the importance of using electricity and other low emissions fuels (such as bioenergy and hydrogen) to decarbonise energy use in other sectors, including transport.

58 Aotearoa's renewable energy share of TFEC in 2020 was 28 per cent. Achieving a 50 per cent target will strongly depend on making best use of our energy system to decarbonise other areas, including through electrification and decarbonisation of industry and the transport system. It will rely on the NZ ETS price following the Commission's expected price path ($84 per tonne in 2025, $138 per tonne in 2030, and $160 per tonne in 2035 in real terms) and industries and consumers responding to those prices.

59 Achieving this target will also rely on funding and implementation of the actions outlined in this paper, and actions outlined for the transport and building and construction sectors. In addition, achieving the required reductions in the transport sector to contribute to this renewable energy target will require new actions and policies to be put in place that are sufficient to achieve the four targets outlined in the accompanying Cabinet paper *Transport content for the ERP.*

60 The Commission also recommended that the Government report on a suite of indicators alongside a renewable energy target. As part of the development of an energy strategy (see below) officials will develop indicators to:

60.1 monitor progress in relation to the first four focus areas for the energy and industry sectors

60.2 ensure that as we transition, our energy system is accessible and affordable, secure and reliable, and sustainable, to support the wellbeing of all New Zealanders.

61 Examples of indicators could include measures of investment in electricity infrastructure, average energy prices faced by households, and the mix of energy sources being used in different parts of the economy.

62 Complementing this target, I propose to retain the aspirational target of 100 per cent renewable electricity by 2030. Focus area 2 above outlines a number of current and future initiatives to facilitate our electricity system towards a 100 per cent renewable system.

63 The Government will review the aspirational target of 100 per cent renewable electricity in 2025. This will allow time for additional information from current initiatives, including information on potential solutions to the dry year challenge identified through the New Zealand Battery Project, to be considered as we develop the second ERP.

Energy strategies for Aotearoa

64 I seek your agreement to include a commitment in the ERP to progress development of an energy strategy Confidential advice to Government I propose that an energy strategy is developed to signal potential pathways to achieving our 2050 emissions reduction target, and our vision for the energy and industry sectors outlined above.

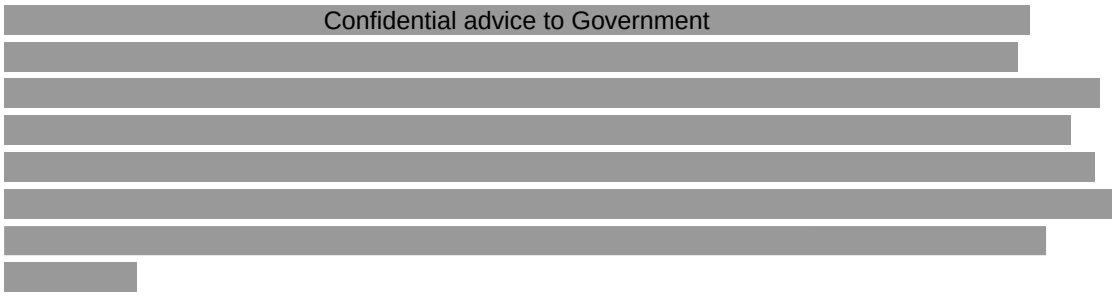
65 An energy strategy would look to set direction for a transition away from fossil fuels and towards greater levels of renewable electricity and low emissions fuels. Taking

steps to directly confront the challenges and issues underpinning the Commission's recommendations will provide greater certainty for transition to a low emissions energy sector.

66 Feedback from submissions on the ERP consultation document indicated broad support for the development of a strategy to guide the transition to a low emissions energy system. Submitters would like the strategy to provide long term market signals about the broader sector's direction of travel, taking into account the interconnected nature of the energy system, and the role of that system in driving decarbonisation more widely across the economy.

67 Feedback from iwi/Māori on the consultation document emphasised the need for the Crown to partner with iwi/Māori entities with existing interests in the energy sector, and with rights and interests relating to the energy sector (including natural resources such as land and water). The energy strategy is one of a range of strategies and plans that the Commission recommended be developed in partnership with iwi/Māori.

68 Confidential advice to Government



69 Scoping and development of an energy strategy will ramp up in the second half of 2022. The feedback on the ERP consultation document will be considered as part of the scoping process. We will aim to deliver the strategy by December 2024, Confidential advice to Government

70 I anticipate that, though a transition to a low emissions economy is inherently uncertain, the energy strategy could signal a direction and pathway for transition in each of the four focus areas outlined above. An energy strategy would build from and set the direction for:

70.1 (focus area 1) energy efficiency policy, set out in the NZEECS

70.2 (focus area 2) ensuring our electricity sector is ready to meet future needs, including policies to enable use of renewable electricity to reduce emissions across the economy and move towards a 100 per cent renewable electricity system

70.3 (focus area 3) setting a pathway for an equitable transition away from fossil fuels, including fossil gas, and developing a hydrogen roadmap

70.4 (focus area 4) developing a plan for actions for decarbonising the industrial sector, building on actions already underway and considering the Commission's recommendations.

71 An energy strategy will also consider broader objectives to meet our vision and support the wellbeing of New Zealanders, including considering how we best manage pathways to ensure that:

71.1 in addition to our energy system becoming more sustainable, we meet the other energy trilemma goals of having an energy system that is accessible and affordable, and secure and reliable

71.2 energy systems support economic development aspirations and an equitable transition to a low emissions future.

72 An energy strategy will use the renewable energy target and indicators proposed above and our aspirational target for 100 per cent renewable electricity to track progress in the electricity system and broader energy sector and set direction for stakeholders.

Replacing the New Zealand Energy Efficiency and Conservation Strategy

73 The NZEECS is required under the Energy Efficiency and Conservation Act and sets the overarching policy direction for Government support and intervention for the promotion of energy efficiency, energy conservation and the use of renewable sources of energy. The NZEECS guides EECA's work programme.

74 Since the current NZEECS was set in 2017, the Government's climate change and energy system priorities have changed significantly. Replacing the NZEECS would enable it to better give effect to the ERP and Government policy on energy efficiency, energy conservation and the use of renewable energy sources.

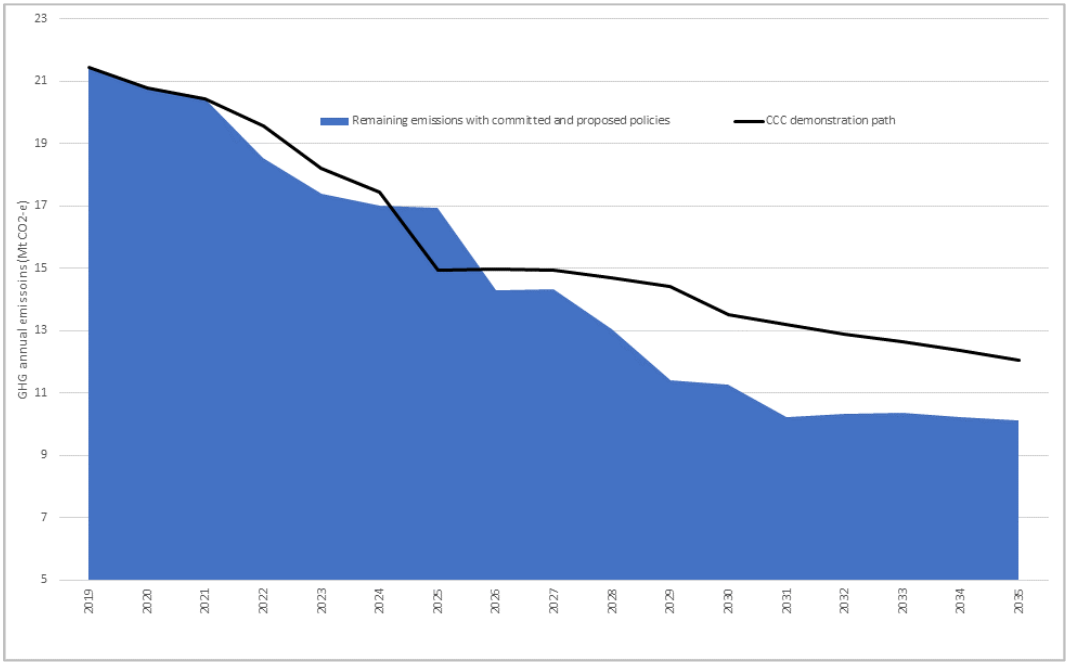
75 I have agreed that the current NZEECS should be replaced with a new strategy. A new NZEECS will be developed alongside an energy strategy to ensure the NZEECS is aligned with the ERP and an energy strategy. Development of the NZEECS will also take into account the content of the ERP, and the development of other relevant strategies, such as the equitable transitions and bioeconomy strategies. The current NZEECS will remain in force while a new strategy is being prepared.

Current and proposed policies put the energy and industry sectors on track for meeting emissions budgets

76 Figure 2 shows that expected reductions in the energy and industry sectors are on track to meet the Commission's demonstration path for the first emissions budget period. This assumes that the NZ ETS price follows the Commission's expected price path, and that industries and consumers respond to those prices as modelled by the Commission. It includes emissions reductions expected from current and proposed policies.

77 Unlike the Commission's demonstration path, these projections incorporate emissions reductions as a result of Refining NZ's transition to an import-only terminal in April 2022. To manage uncertainty around the closure of New Zealand's Aluminium Smelter (NZAS), the projections do not incorporate emissions reductions from a potential closure in 2024. If NZAS were to close in 2024, the expected emissions reductions in the first budget emissions budget would significantly exceed reductions expected in the demonstration path.

Figure 2: Energy and industry emissions reductions with current and proposed policies



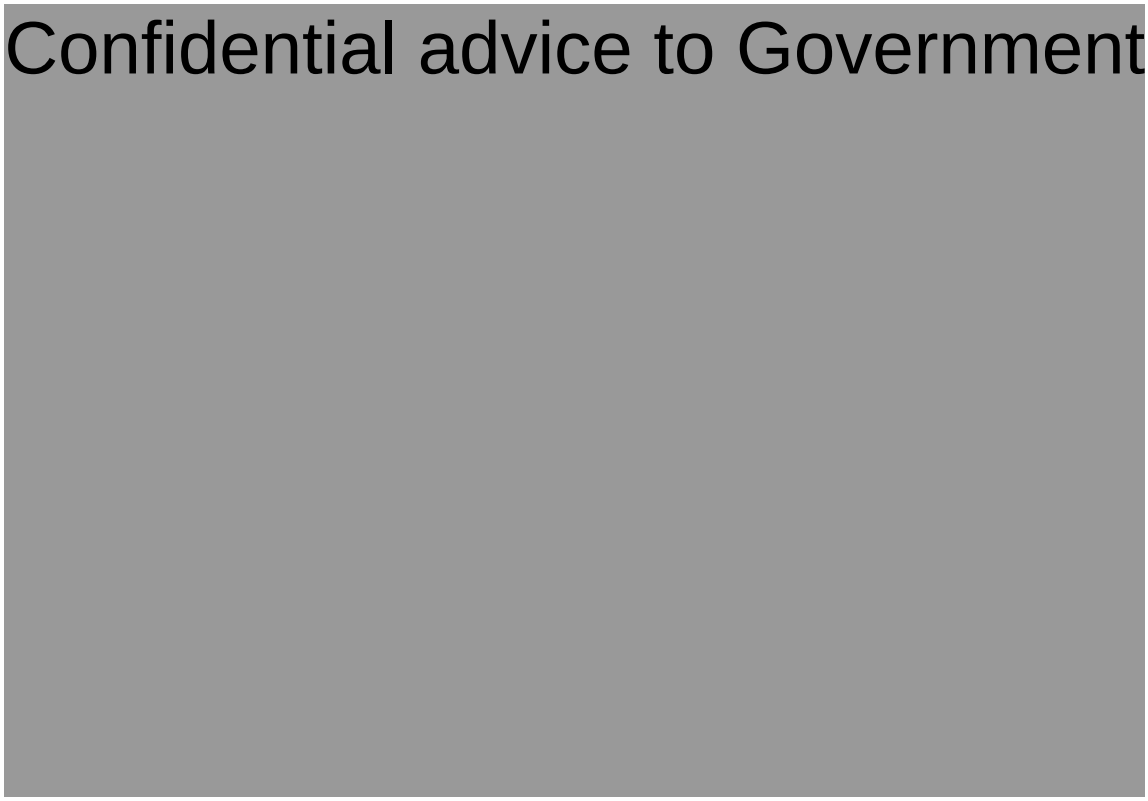
78 An option to reduce uncertainty relating to meeting the first emissions budget would be to announce funding for further decarbonisation of industry and heat ahead of Budget 2022 announcements. This would enable the first funding round to open earlier and increase planned expenditure in the first year from $75m to $100m. It would increase confidence that emissions reductions indicated from this funding would be achieved in the first emissions budget, and could unlock additional abatement of 216 kt CO_2-e.

Future large-scale initiatives: Climate Innovation Platforms process

79 There are also a range of significant initiatives or 'big plays' in the energy and industry sectors that were part of a range of early proposals for domestic emission reduction initiatives to meet New Zealand's Nationally Determined Contribution [CAB-21-MIN-0434 refers]. Such initiatives could be investigated to determine whether they could be progressed in the medium term to drive deep emissions reductions in the second and third emissions budgets, and to move towards the 2050 net zero target.

80 The initiative relating to funding of decarbonisation of industry and heat set out in Focus Area 4 above was originally put forward within the 'big plays' process and has been invited to submit a bid through the CERF process in Budget 2022.

81 Confidential advice to Government



82 Confidential advice to Government

83 I note that these initiatives will be considered through the 'Climate Innovation Platforms' process, as outlined in the accompanying Cabinet paper *Emissions Reduction Plan: Research, Science, Innovation and Technology*. If they proceed through this process, they would then require future Cabinet decisions and significant funding in future budgets before progressing.

Achieving reductions in the energy and industry sectors and across the economy will depend on whole system transformation

84 Many of the policies in the energy and industry sectors will only succeed if delivered alongside corresponding efforts in other sectors. A joined-up approach across the ERP will be required.

85 Actions undertaken in the energy sector will not only reduce emissions in energy and industry but will support a system-wide pathway to reduce emissions in other sectors, including transport and building and construction:

85.1 speeding up the rollout of renewable electricity generation and infrastructure for electrification will be a key factor in replacing fossil fuels in other sectors, including enabling the uptake of electric vehicles, and decarbonisation of industry, and commercial and residential buildings

85.2 development of low emissions fuels, such as biofuels and green hydrogen will assist in decarbonising our transport system and may create opportunities to reduce emissions from hard-to-abate sectors such as steel production.

86 Conversely, actions in other parts of the ERP will shape the opportunities the energy and industry sectors have to decarbonise, and the pace at which this can be achieved:

86.1 Bioenergy supply will be important for achieving emissions reductions in industry. Emissions reductions in the Commission's demonstration path for the sector depended on the availability and costs of low emissions fuels (particularly woody biomass). Initiatives relating to bioenergy supply, including the Forestry and Wood Processing Industry Transformation Plan, will be included in the Circular and Bioeconomy chapter of the ERP.

86.2 There are close links between the Building for Climate Change (BfCC) programme and emissions reductions in the energy and industry sectors. Work through BfCC to improve operational efficiency, reduce fossil fuel use in buildings and reduce whole-of-life carbon emissions from buildings will reduce energy emissions. This work will be outlined in the Building and Construction chapter.[2]

86.3 Additionally, work aimed to reduce building-related embodied emissions will help to address hard-to-abate emissions from the demand side, for example by reducing the domestic demand for higher carbon materials.

86.4 Development of a pipeline of knowledge and innovation to solve sector problems and unlock new opportunities will be included in the Research, Science, Innovation and Technology chapter. This includes accelerating the diffusion and adoption of existing and emerging clean technology and clean energy innovation through demonstration and translation activities such as green hydrogen, advanced biofuels, and advanced fabrication.

86.5 Work through the planning system will be needed to enable energy efficient and low-carbon buildings, and to facilitate the development of renewable energy and low emissions fuels.

[2] Work on reducing emissions from building and construction waste will be included in the Building and Construction and the Waste and F-gases chapters.

The scale of the transformation required in the energy and industry sector carries inherent risk

Achieving reductions in the energy and industry sectors requires decisive action by the private sector and the public

87 Decarbonisation in the energy and industry sectors is dependent on the actions of a range of private sector actors, including large industrial and manufacturing businesses, electricity generators, and commercial sector businesses. The rate at which emissions reductions are undertaken by the private sector is limited by several factors. This includes the life cycle of existing assets, capital costs, industry skills and capability, and affordable access to low emissions supply chains and infrastructure.

88 The proposed energy strategy and renewable energy target, and their sub-components including the plan to decarbonise industry, can support private sector action and allow the private sector to plan by signalling the direction, timing and scale of the transition.

89 The energy transition will also rely on the actions of individuals and households, who may require support to transition. Energy efficiency programmes such as Warmer Kiwi Homes and information programmes such as GenLess will be important for supporting individuals and households to change and reduce their energy use.

90 Due to the current global supply chain challenges and market expectations, there could be a heightened risk of private sector and government actors being unable to access affordable low emissions technologies and materials for the development of infrastructure at the scale required during the first emissions budget.

Government agencies will need additional resources to develop, implement, and monitor policies outlined in the ERP

91 Government agencies will require significant support to undertake new activities and accelerate existing initiatives, while continuing to deliver on existing climate-related commitments, other policy commitments, and business as usual ministerial servicing. Unless capacity is increased, emissions reduction policies and actions will always face being balanced against competing priorities.

92 MBIE officials have ensured that Budget 2022 initiatives include the required resourcing. If approved, funding will facilitate the successful delivery of initiatives, but the need to maintain an appropriate level of resourcing to deliver the ERP and meet future budgets is ongoing.

The impact and role of the carbon price and the New Zealand Emissions Trading Scheme

93 Achieving the level of emissions reductions set out in the Commission's demonstration path in the energy and industry sectors relies on the carbon price following the Commission's expected price path ($84 per tonne in 2025, $138 per tonne in 2030, and $160 per tonne in 2035 in real terms).

94 If the carbon price is unable to or does not reach these levels, additional actions or the scaling up of existing programmes may be required to meet the emissions budgets. Conversely, a higher than expected carbon price may deliver larger emissions reductions than expected.

95 However, a higher than expected carbon price could increase the distributional impacts of transitioning to a low emissions economy. A higher carbon price will impact on the costs of fossil-based liquid fuels (such as petrol), and the costs of fuels for thermal electricity generation, which could feed through to wholesale electricity price impacts. This in turn will impact businesses and consumers.

96 For example, if large energy using businesses closed, this could have consequent impacts on consumers (e.g. gas users as fixed costs are recovered), workers, export receipts and regions. A high carbon price would impact on energy prices faced by lower-income consumers, highlighting the importance of ensuring equitable access and facilitating switching to energy efficient technologies and of implementing initiatives to address energy hardship as we transition. Additional actions may be required to mitigate the impact a significant carbon price rise could have on the wellbeing of New Zealanders.

Uncertainties regarding the electricity market and the signalled closure of NZAS

97 Achieving the first emissions budget will be dependent on hydro inflows and gas availability in the electricity market. The Commission assumes that coal generation at Huntly phases down during the first emissions budget and that coal use stops in the mid-2020s.

98 The closure of NZAS is also key uncertainty for achieving the first emissions budget. The Commission's demonstration path assumes the full closure of NZAS in 2024. However, aluminium prices have increased by almost 60 per cent over the last year, and in February 2022 Rio Tinto signalled its intention to continue operating after 2024.

99 The 'adding up' of policies to meet emissions budgets now includes a buffer for NZAS remaining open after 2024 to manage uncertainty around meeting the first emissions budget. However, market expectations on whether or not NZAS will continue to operate beyond 2024 are likely to have significant implications for the development of electricity generation and decarbonisation of the electricity system.

100 If NZAS continues operations beyond 2024, the Commission indicated this would likely result in prolonged baseload thermal generation from existing fossil fuel plants and may require development of additional new natural gas peaker plants to meet growth in electricity demand across the economy.

101 The actions set out under focus area 2 to accelerate the development of new renewable electricity across the economy, enable an increase in renewable generation, and support the development and efficient use of transmission and distribution networks will be crucial to minimise any increase in fossil fuel electricity generation.

Other uncertainties

102 A significant proportion of emissions in the energy and industry sectors are from large point-source emitters who are export orientated (e.g. methanol, milk powder or aluminium production). As a result, changes in broader economic factors, such as international commodity prices and exposure to international climate policies such as potential European Union border carbon tax adjustment, could result in ramping up or scaling back of production. This would have a direct impact on the emissions profile of the energy and industry sectors and creates a degree of uncertainty in the achievability of a specific energy and industry emissions sub-target.

Financial Implications

103 Achieving sustained emissions reductions in the energy and industry sectors will require ongoing investment over multiple Budgets.

104 Through the CERF, I am seeking funding for six initiatives in Budget 2022 to progress the following commitments in the ERP:

Focus area	**Budget 2022 bid**
Confidential advice to Government	Confidential advice to Government
2: Ensuring the electricity system is ready to meet future needs	*Electricity market measures to support the transition to a highly renewable electricity system*. This bid includes components for: • Developing and implementing measures to support reliable and affordable electricity supply while accelerating transition to a highly renewable electricity system. • Funding to facilitate public procurement of renewable electricity via long term power purchase agreements. • Confidential advice to Government The *Readying the energy system to transition to a low emissions economy* bid outlined below includes a component for: • Developing a regime for consenting offshore wind developments. *Supporting renewable and affordable energy in New Zealand communities.*

3: Reducing our reliance on fossil fuels whilst supporting switching to low emissions alternatives	Confidential advice to Government The *Readying the energy system to transition to a low emissions economy* bid outlined below includes a component for: • A roadmap for hydrogen development.
4: Reducing emissions and energy use in Industry	*Funding further decarbonisation of industry and heat and implementation of supporting policies*.
5: Setting a strategy and targets to guide us to 2050	*Readying the energy system to transition to a low emissions economy through an energy strategy and regulatory frameworks*.

105 Confidential advice to Government

106 Due to the nature of and timeframes for the ERP, costs are likely to be realised progressively over time as foundational work is undertaken and initiatives become ready for funding and implementation. We expect the nature of the costs associated with the remaining policies in the ERP to be for:

106.1 Policy, business case development, contract management, communication and engagement activities, research, modelling, monitoring and evaluation capability requirements. Confidential advice to Government

106.2 Specific capital expenditure for pilot projects, support for the adoption of low emissions technologies, and long-term energy infrastructure projects. Confidential advice to Government

Legislative Implications

107 There are no direct legislative implications of the proposals in this paper. However, some of the energy and industry policies that will be included in the ERP will have legislative implications. These will be considered as part of future Cabinet decisions on these specific policies. For example, I intend to seek Cabinet policy approval shortly for the EERS, which will require legislative change.

Impact Analysis

Regulatory Impact Statement

108 An overarching Regulatory Impact Statement has been prepared by the Ministry for the Environment (with input from other agencies) to support the overall ERP.

109 Regulatory Impact Statements have already been provided to Cabinet for the following initiatives:

109.1 the Sustainable Biofuels Mandate

109.2 National Direction on Industrial GHG Emissions.

110 The proposals in this paper do not have immediate legislative or regulatory implications. The Ministry of Business, Innovation and Employment will engage with the Treasury's Regulatory Impact Analysis Team to confirm the scope of Regulatory Impact Statements to support future decisions by Cabinet on policies that will have regulatory impacts, including the following initiatives underway noted in Annex One:

110.1 Developing a mandatory EERS for large energy users

110.2 Reviewing the E3 energy efficiency regulatory system

110.3 National Policy Statement on Renewable Energy Generation – Resource consenting processes

110.4 Hydrogen regulatory systems review.

Climate Implications of Policy Assessment

111 A Climate Implications of Policy Assessment (CIPA) has been undertaken for the policies in the energy and industry package that have already been agreed by Cabinet. The wider package of policies in this paper have not had a CIPA prepared because it proposes a collection of initiatives, each at different stages. When additional individual initiatives are ready to proceed to implementation and have direct GHG emissions impacts, CIPAs will be completed where relevant. The release of the final ERP will require the development of energy and industry policies that will require CIPAs in the future. MBIE will work with the CIPA team to disclose the emissions impacts of proposals to Cabinet as further decisions are sought, as appropriate.

112 Where GHG emissions impacts are known for parts of the ERP, this has been reflected in the overarching CIPA submitted by Ministry for the Environment.

Population Implications

113 Reducing emissions in the energy and industry sectors can be expected to have different consequences for different population groups, such as households (particularly low-income households or those on fixed incomes), workers, businesses of varying size, iwi/Māori, Pacific peoples, youth, seniors and disabled people. The positive or negative effects of policies might be felt unevenly across the population.

114 The energy and industry content of the ERP will acknowledge potential impacts and include initiatives to address these. These include programmes such as the range of business support services provided by the EECA, the Warmer Kiwi Homes programme, the Just Transitions Partnerships programme and implementation of recommendations to reduce energy hardship from the Government's Electricity Price Review[3]. Several initiatives are seeking funding through Budget 2022 to expand existing programmes or to implement new programmes. Energy and industry sector programmes for an equitable transition in the first ERP are outlined in Annex One.

115 There are no specific implications for population groups arising as a direct result of the proposals in this paper. However, it is likely that further development of the proposals in this paper will have a range of distributional impacts. The implications on the different population groups outlined above will be considered during policy development of the initiatives.

116 Impacts likely to arise that will need to be considered include:

116.1 access to affordable and secure energy supplies, and the potential impacts of emissions reduction policy in the energy sector on low-income households and communities, and population groups such as youth, seniors, people with disabilities, iwi/Māori, Pacific peoples and others.

116.2 the need to support industries and workforces to enable an equitable transition and transition-aligned growth, including supporting communities, enabling regions and sectors to transition equitably, and meeting the needs for growth in transition-aligned industries by facilitating skills development for existing and displaced workers

116.3 implications for iwi/Māori, including access to energy and equitable transition impacts as above, and implications for Māori-owned assets and businesses.

117 For example:

117.1 Transitioning to a low emissions economy may impact manufacturers and process heat users, emissions intensive and hard-to-abate industries, and the coal, oil and gas sectors. Impacts in these sectors will have flow on effects for workers, communities, regions, iwi/Māori and other population groups. It will be important to ensure an equitable transition occurs to support communities, particularly those where these industries could be the main sector in the area and to ensure that we retain critical skills that can be repurposed for green growth.

[3] An Energy Hardship Expert Panel has been established in response to one of the recommendations in the Electricity Price Review and is due to make recommendations to Government by 30 June 2023 on policy priorities and actions to alleviate energy hardship. A full list of current actions will be incorporated with the chapter content and Appendix A to the ERP.

117.2 One-in-four New Zealanders self-identify as disabled (based on 2013 Disability Survey data). As a population group who already experience inequitable outcomes, disabled people are often disproportionately negatively impacted by emissions reductions schemes. Disabled people seek to stay warm, healthy and dry, and to participate as active members of their communities. However, they tend to have lower incomes and poorer housing. This combination means they are more likely to not be able to access new technologies (such as energy-efficient home appliances) and opportunities to participate in, benefit from, or invest in the proposed emissions reductions and use of renewable energy sources. For example, it is critical to ensure that disabled people, some of whom depend on electricity for critical medical support or to power equipment needed to support their day-to-day living, have ongoing access to secure energy supplies to support their wellbeing.

Human Rights

118 The proposals in this paper are not inconsistent with the New Zealand Bill of Rights Act 1990 or the Human Rights Act 1993.

Consultation

119 The proposed energy and industry content for the ERP is based on a range of consultation. This includes consultation on the Accelerating Renewable Energy and Energy Efficiency discussion document, the Climate Change Commission's draft advice, and the ERP consultation document, in addition to consultation on specific initiatives such as an update of the energy efficiency regulatory regime, and National Direction on Industrial GHG Emissions.

120 As part of the consultation on the ERP, specific sessions were held for consultation with iwi/Māori for the energy, industry and building and construction sectors. Feedback from iwi/Māori emphasised the need for the Crown to partner with iwi/Māori entities with existing interests in the energy sector, and called for specific measures to ensure iwi/Māori are empowered to participate in the low emissions economy. Additionally, some iwi/Māori groups raised that clarity is needed on who the Crown intends to partner with for development of an energy strategy, whether this will be mandated iwi authorities, or other groups. Confidential advice to Government

121 The following agencies were consulted in the development of this paper: Ministry for the Environment; the Treasury; Ministry for Primary Industries; Energy, Efficiency and Conservation Authority; Ministry of Social Development, Office for Disability Issues, Office for Seniors; Ministry of Transport; Waka Kotahi – New Zealand Transport Agency; Te Tūāpapa Kura Kāinga – Ministry of Housing and Urban Development; Kāinga Ora – Homes and Communities; Department of Conservation, Department of Internal Affairs Te Tari Taiwhenua; Te Puni Kōkiri; and Te Arawhiti. The Department of Prime Minister and Cabinet has been informed.

Communications

122 There will be no proactive communications of the proposals in this paper. Communications will be developed in line with any decisions made as part of the ERP and Budget 2022.

Proactive Release

123 This paper will be proactively released once the ERP has been published in May 2022, with redactions as appropriate under the Official Information Act 1982.

Recommendations

The Minister of Energy and Resources recommends that the Committee:

1 **Note** that the Government must prepare an emissions reduction plan (ERP) by May 2022 to put Aotearoa on a pathway to reduce net emissions of all greenhouse gases (except biogenic methane) to zero by 2050, taking into account the Climate Change Commission's (the Commission) recommendations

2 **Note** that the energy and industry sectors accounted for just over a quarter of Aotearoa's total gross greenhouse gas emissions in 2019, and reducing emissions from these sectors will be crucial to meeting emissions budgets and our net zero 2050 target

3 **Note** it will be critical to support actions undertaken in the energy system to not only reduce energy and industry emissions but also to support development of significant additional renewable electricity generation (Transpower estimates approximately 70 per cent additional to today's output) and low emissions fuels to enable system-wide decarbonisation in other sectors, including transport and building and construction

The proposed energy and industry content of the emissions reduction plan

4 **Note** that the New Zealand Emissions Trading Scheme (NZ ETS) is a key mechanism to drive emission reductions in the energy and industry sectors, but complementary measures are needed to address market or other barriers, support nascent markets and infrastructure to enable future decarbonisation, address distributional impacts, and unlock co-benefits

5 **Note** the Government is already undertaking or has committed to a significant number of initiatives in the energy and industry sectors that will contribute to meeting the emissions budgets, and that a complete list of existing initiatives is outlined in Annex One

6 **Note** I propose a 2050 vision for the energy and industry sectors that *"Aotearoa has a highly renewable, sustainable, and efficient energy system that supports a low emissions economy. Energy is accessible and affordable and supports the wellbeing of all New Zealanders. Energy supply is secure, resilient, and reliable. Energy systems support economic development aspirations and an equitable transition to a low emissions economy."*

7 **Note** that the energy and industry content is framed around five focus areas to support this vision:

7.1 Using energy efficiently and managing demand for energy

7.2 Ensuring the electricity system is ready to meet future needs

7.3 Reducing our reliance on fossil fuels whilst supporting switching to low emission alternatives

7.4 Reducing emissions and energy use in industry

7.5 Setting a strategy and targets to guide us to 2050

Focus area 1: Using energy efficiently and managing demand for energy

8 **Agree**, subject to funding through Budget 2022 or future budgets, to indicate the following programmes to improve energy efficiency in the ERP:

8.1 Confidential advice to Government

8.2 Expansion of the Warmer Kiwi Homes programme

Focus area 2: Ensuring the electricity system is ready to meet future needs

9 **Note** renewable, affordable, and reliable electricity underpins the decarbonisation of the economy, including for industry, transport, and buildings and construction, and to enable this, the electricity regulatory system will need to continue to adapt and respond to innovations and market developments

10 **Direct** officials to investigate options for electricity market measures to support affordable and reliable electricity supply while accelerating the transition to a highly renewable electricity system

11 **Agree**, subject to funding through Budget 2022 or future budgets, to indicate current or potential initiatives to ensure the electricity system is ready to meet future needs in the ERP as follows:

11.1 progressing electricity market measures to support the transition to a highly renewable electricity system, and implementing investigations and policy relating to 100 per cent renewable electricity

11.2 supporting government and local government agencies to explore Power Purchase Agreements (PPAs) with new renewable generation developers

11.3 Confidential advice to Government

12 **Agree**, subject to funding through Budget 2022 or future budgets, to pilot community-based integrated renewable energy projects, and demonstrate solutions at a community level Confidential advice to Government which would build on the existing $28 million Māori and Public Housing Renewable Energy fund and support multiple objectives including an equitable transition, climate adaptation and resilience, and building skills and capability

13 **Note** the renewable and affordable energy in New Zealand communities initiative will help inform our understanding of and mitigation options for potential distributional impacts of the transition

14 **Direct** officials to investigate options to deliver an optimal regulatory environment for the consenting of offshore renewable energy

15 **Note** that funding for resourcing the offshore renewable energy work is being sought through Budget 2022, and the timing of funding will determine the timeframe for progressing this work

Focus area 3: Reducing our reliance on fossil fuels whilst supporting switching to low emission alternatives

16 **Note** Cabinet has agreed to develop a Gas Transition Plan that will set out the transition pathway for the fossil gas sector, and include further measures required to ensure an equitable transition and a focus on where renewable gases can strategically support hard-to-abate consumers and assist in mitigating overall transition costs [CAB-21-MIN-0547 refers]

17 **Note** Cabinet has agreed to implement a Sustainable Biofuels Mandate that will support the deployment of biofuels in Aotearoa [ENV-21-MIN-0058 refers]

18 **Agree**, subject to funding through Budget 2022 or future budgets, to indicate the following programmes to reduce our reliance on fossil fuels whilst supporting switching to low emissions fuels in the ERP:

18.1 Confidential advice to Government

18.2 Development of a hydrogen road map, which would establish the stepping stones for Aotearoa to scale up the production and use of green hydrogen

Focus area 4: Reducing emissions and energy use in industry

19 **Note** that the Commission recommended that the Government 'outline a plan for actions required to decarbonise the industrial sector', and that the plan should be created in partnership with iwi/Māori and in collaboration with industrial and manufacturing stakeholders

20 **Agree**, subject to funding through Budget 2022 or future budgets, to develop a plan for actions to decarbonise the industrial sector to identify a package of actions to decarbonise industry in collaboration with the sector, with the aim of supporting existing industry to decarbonise, and enabling innovative low-carbon industries to grow

21 **Agree**, subject to funding through Budget 2022 or future budgets, to expand actions that support the decarbonisation of industry and heat, including:

21.1 scaling up and pivoting the Government Investment in Decarbonising Industry fund, as outlined in paragraph 46

21.2 providing grants and rebates to decarbonise commercial space and water heating, and accelerate adoption of high efficiency electrical equipment

22 **Agree**, subject to funding through Budget 2022 or future budgets, to include in the ERP a work programme to develop a mandatory energy and greenhouse gas emissions reporting scheme (EERS) for large energy users

23 **Invite** the Minister of Energy and Resources to report back and seek policy decisions from Cabinet in the second quarter of 2022 on options to address data gaps in New Zealand's energy use and emissions

24 **Agree** that Government indicates in the ERP development of a strategic framework for addressing emissions reductions in single firm industries that are hard-to-abate

25 Confidential advice to Government

26 **Agree** that the Minister of Economic and Regional Development will lead the strategic framework in consultation with the Ministers of Energy and Resources, Research, Science and Innovation Climate Change and the Minister responsible for the Just Transition, with work commencing in September 2023

Focus area 5: Setting a strategy and targets to guide us to 2050

27 **Note** that the Commission recommended that the Government 'commit to delivering a strategy to decarbonise the energy system and ensure the electricity sector is ready to meet future needs', and that the strategy be developed in partnership with iwi/Māori and in collaboration with energy system stakeholders

28 Confidential advice to Government

29 Confidential advice to Government

30 **Note** that an energy strategy will look to signal pathways to achieving our 2050 emissions reduction target and our vision for the energy and industry sectors, and lay out a coherent and coordinated approach to the policy proposals being considered in the energy and industry sectors

31 **Note** the Commission recommended that, as part of the scope of an energy strategy, the Government set a target so that 50 per cent of total final energy consumed (TFEC) comes from renewable sources by 31 December 2035

32 **Agree** to set a renewable energy target so that 50 per cent of TFEC comes from renewable sources by 2035

33 **Note** Aotearoa's TFEC is currently 28 per cent renewable and achieving the 50 per cent TFEC target will require substantial changes to how we use energy, and a significant uptake in low emissions fuels and technologies, such as electric vehicles and biofuels in the transport sector

34 **Note** achieving the 50 per cent TFEC target will also be driven by the NZ ETS price following the Commission's expected price path (and industries and consumers responding to these prices), and rely on funding and implementation of actions in the energy, industry, transport and building and construction sectors

35 **Note** that the Government's target for 100 per cent renewable electricity by 2030 is aspirational and will be reviewed in 2025 before the second ERP is put in place

36 **Note** as part of developing an energy strategy and alongside a renewable energy target, the Ministry of Business, Innovation and Employment (MBIE) will develop secondary indicators to:

36.1 monitor progress in relation to the four focus areas of using energy efficiently and managing demand for energy, ensuring the electricity system is ready to meet future needs, reducing our reliance on fossil fuels whilst supporting switching to low emission alternatives, and reducing emissions and energy use in industry

36.2 ensure that as we transition, our energy system remains meets the energy trilemma goals of having an energy system that is accessible and affordable, secure and reliable, and sustainable, to support the wellbeing of all New Zealanders

37 **Note** that the Minister of Energy and Resources has agreed that the current New Zealand Energy Efficiency and Conservation Strategy, which guides the Energy Efficiency and Conservation Authority's work programme, be replaced with a new strategy in order to better give effect to the ERP and Government policy on energy efficiency, energy conservation and the use of renewable energy sources

Meeting emissions budgets

38 **Note** that with current and proposed policies and the NZ ETS price following the Commission's expected price path, emissions reductions in the energy and industry sector are on track to meet the energy and industry sub-target for the first emissions budget, and exceed the reductions required by the energy and industry sub-target for the second and third emissions budgets

39 **Note** that the closure of New Zealand's Aluminium Smelter (NZAS) is a key uncertainty for achieving the first emissions budget, and the 'adding up' of policies to meet emissions budgets includes a buffer for NZAS remaining open after 2024 to manage this uncertainty

40 **Note** that market expectations on whether NZAS will continue to operate beyond 2024 are likely to have significant implications for the development of electricity generation and decarbonisation of the electricity system, and that actions set out under focus area 2 will be crucial to minimise a potential increase in fossil fuel electricity generation

41 **Note** that achieving reductions in the energy and industry sectors will also depend on the actions of a range of private sector actors, including large industrial and manufacturing businesses, electricity generators, and commercial sector businesses, and that developing supporting policies as indicated in Annex One (including developing an energy strategy) will be important to support private sector action

42 **Note** that an option for reducing uncertainty for meeting the first emissions budget would be to announce funding for further decarbonisation of industry and heat ahead of Budget 2022 announcements, which would enable the first round for additional Government Investment in Decarbonising Industry funding to open two to three months earlier and could unlock an additional 0.2 Mt CO_2-e of emissions reductions in the first emissions budget period.

Authorised for lodgement

Hon Dr Megan Woods

Minister of Energy and Resources

Annex One: Proposed energy and industry initiatives for the first emissions reduction plan

Initiative	Description	Summary of expected outcomes	Status
Focus area 1: Using energy efficiently and managing energy demand			
1.1 Improving business and consumer energy efficiency			
Gen Less	Gen Less is EECA's mass market communications and marketing platform – it exists to champion change and create momentum by helping people and businesses get more out of how they live and operate, while using less harmful energy. It encourages New Zealanders to understand energy and climate change, take climate-positive action, and live more with less energy. It is aimed at the mass market, particularly consumers and SMEs.	The aim of Gen Less is to educate consumers about good climate choices specifically around energy use, inspire action, share the work being done by business and government to reduce emissions, and create an environment where systemic change is welcomed and demanded by the public.	Underway
Energy Equipment Efficiency Programme (E3)	Under the Equipment Energy Efficiency (E3) programme, New Zealand and Australia regulate the energy efficiency of products in both countries. E3 is a collaboration to deliver a single, integrated programme on energy efficiency standards. The Regulations cover products for home, commercial and industrial use.	Minimum Energy Performance Standards (MEPS) and Mandatory Energy Performance Labelling (MEPL) encourage New Zealanders to develop, import and sell more energy efficient products.	Underway
Review of the energy efficiency regulatory system	In June 2021, the Ministry of Business, Innovation and Employment (MBIE) released the Energy efficient products and services: A regulatory reform discussion document for public consultation. The proposals in the discussion paper aim to enhance the energy efficiency regulatory system for products and services and support the achievement of New Zealand's future energy efficiency and emissions reduction goals.	Legislative and regulatory changes from a review of the regulatory system will ensure that the system continues to be effective and fit for purpose.	In development – consultation completed.
Warmer Kiwi Homes	A government funded programme offering insulation and heating grants to low-income homeowners. Focused on managing distributional impacts and ensuring an equitable transition.	Improved health and wellbeing outcomes through warm, dry homes for low-income households.	Underway
Support for Energy Education in Communities (SEEC) Programme	The Support for Energy Education in Communities (SEEC) Programme is building and expanding the network of support services that can provide targeted, specialist energy advice to achieve warmer homes, and education and information on smart energy use that leads to lower energy bills.	This initiative is focused on lifting people out of energy hardship. Energy efficiency measures can reduce emissions, and warmer homes improve health outcomes, while lowering power bills.	Underway

Budget: Rebates for energy efficient equipment	This initiative would provide rebates for all businesses, including smaller businesses, farms and factories, to procure and install approved high efficiency electrical equipment used for industrial processes specified by EECA, such as electric motors and heat pumps.	This initiative aims to accelerate energy efficiency to reduce emissions in the short and medium terms, whilst providing electricity grid benefits. It will also improve energy productivity, reduce demand for thermal electricity generation and help businesses optimise energy use.	Pending Budget 2022 decisions
Confidential advice to Government			
1.2 State Sector energy efficiency and fuel switching			
State Sector Decarbonisation Fund	A $219.5 million fund managed by MBIE and EECA to reduce carbon emissions in the State sector.	This initiative will achieve emissions reductions through low emissions fuels, vehicles and equipment in State Sector. It provides co-funding to State Sector agencies to replace coal boilers with low-emissions alternatives and for other energy efficiency or renewable energy projects, including efficient lighting and electric vehicles. Three-quarters of the funding is targeted for hospitals, schools, and universities, which are the biggest emitters.	Underway
Focus area 2: Ensuring the electricity system is ready to meet future needs			
2.1 Accelerating the uptake of new renewable electricity across the economy			
Reducing RMA barriers to investment in renewable electricity generation	Review of current national direction tools for enabling new renewable generation, transmission, and distribution to determine whether and how resource consenting processes could be improved.	A faster and more certain approvals pathway for energy and transmission projects will support development and deployment of new renewable generation.	Underway

Budget: Offshore energy regulatory framework	Development of regulatory framework (or regulatory management tools) to permit offshore renewable energy while balancing competing priorities for offshore uses. A framework is likely to incorporate existing regulation and may include development of new legislation. There is an opportunity for regulatory co-design with iwi and provision of meaningful benefits to iwi and hapū.	Development of an optimal regulatory environment to enable and maximise benefits from investment in offshore renewable energy for New Zealand. This will support regional development, including potential for a transitional pathway for jobs directly and indirectly related to the Taranaki oil and gas sector. There are long term opportunities for skills development and associated energy intensive industry such as energy to hydrogen and parts manufacturing.	Subject to Budget 2022 funding
Budget: Power Purchase Agreements (PPA) for new renewable investment	Assist government and local government agencies to explore power purchase agreements with new renewable generation developers.	This initiative would support new investment in renewable electricity generation.	Subject to Budget 2022 funding
Māori and Public Housing Renewable Energy Fund Budget: Supporting renewable and affordable energy in New Zealand communities	The Fund was established to trial small-scale renewable technologies such as modern geothermal, solar panels and batteries. A Budget 2022 bid is seeking to expand funding to pilot community-based integrated renewable energy projects. Confidential advice to Government	The initiative will improve energy affordability and resilience through funding projects that enable access to secure, affordable and renewable energy with a focus on low income/hard to reach communities and enable local engagement of consumers in energy decarbonisation projects. Solutions will be tailored to local energy needs, capacity, and resources.	Existing Māori and public housing fund underway Additional funding subject to Budget 2022 decisions.
2.2 Supporting an increasingly renewable electricity system			
New Zealand Battery Project	An investigation into the technical, environmental, social and commercial feasibility of pumped hydro and other potential energy storage projects.	Renewable solutions for ensuring electricity supply security through dry years in an electricity system without fossil fuels. This initiative will support the goal to transition to 100 per cent renewable electricity, enable the early retirement of fossil fuel plant, and facilitate investment in intermittent renewables and electrification of industry and transport, which will support emission reductions beyond 2030.	First phase underway – subsequent work will depend on results of first phase
Budget: Supporting the electricity market to transition to 100 per cent renewable generation	Establish the need for and implement additional market mechanisms and regulations to ensure the secure decarbonisation of the electricity generation fleet.	Complementary measures to ensure supply security and progressive emissions reductions in the years before a New Zealand Battery solution is operational. Key outcomes would include progressive emissions reductions to 2030 and sustained supply security.	Initial work is being scoped. May lead to a range of initiatives. Subject to Budget 2022 funding.
Banning new baseload thermal generation	Policies to ban the building of new thermal baseload generation.	No new thermal baseload generation is built, avoiding an increase in emissions that would otherwise occur.	In development – consultation to come

EA investigation into ensuring future electricity system security and resilience	This workstream is examining how to ensure the electricity system remains stable, secure and resilient as it evolves in the coming decades. The EA has commissioned the system operator (Transpower) to deliver a report on future security and resilience challenges and opportunities based on current understanding (phase one), and a prioritised plan for monitoring and addressing these challenges and opportunities (phase two). The final phase of this work will include delivery by the Authority and the system operator of a multi-year programme of studies and solutions to address the challenges and opportunities identified.	The key benefit is a secure, stable and resilient electricity system in the face of technological and other evolution.	In development - first consultation complete, next consultation expected in March 2022
Market Development Advisory Group (MDAG) price discovery project: wholesale market operation and investment under 100 per cent renewable electricity generation	The Electricity Authority's Market Development Advisory Group (MDAG) is undertaking a project investigating price discovery (including market operation and new investment in generation) in the wholesale electricity market under a 100% renewable electricity supply. MDAG's project will look at several important questions, including the following: • How will the spot market promote efficient operation when a high proportion of generation capacity has low or zero short-run marginal costs of operation? • How will stored water be priced and allocated across time periods, without thermal plant in the market? • How will the wholesale market enable efficient investment when supply is dominated by generation with low short-run marginal costs? • - How will efficient pricing be ensured in extended periods of supply scarcity, such as dry years?	The key benefits are efficient operation of the electricity wholesale market and efficient investment in new generation and flexibility, promoting reliable and affordable supply of electricity as part of a low-emissions energy system.	In development – Advisory group process underway
Implementation of real time wholesale electricity pricing	Implementation of real-time pricing in the electricity wholesale market, including a low-cost way for demand-response to engage with the market. The real-time pricing (RTP) project will promote the efficient integration of increased levels of variable generation into the power system in two ways: • Settlement pricing based on real-time dispatch pricing - this will mean that electricity resources can act on published pricing in real time, knowing that the price will be directly related to the final settlement price. • Introduction of Dispatch Notification participation – a new, low cost, method for distributed electricity resources (DER) to signal their price responsiveness in the market. This will allow distributed response to pricing to be co-ordinated with other market resources.	This will lead to more efficient and stable pricing outcomes and greater realisation of the benefits of demand response. Other key benefits are improved affordability and reliability of energy supply in the face of technological changes to the power system and greater engagement of demand response supporting the transition to a low carbon electricity system	In development

2.3 Supporting development and efficient use of infrastructure including transmission and distribution networks			
Transmission networks and connecting to the grid			
Confidential advice to Government			
Transmission Pricing Methodology	The Authority published new Transmission Pricing Methodology (TPM) Guidelines in 2020, which requires a new approach to paying for investments in the national electricity transmission grid: a benefit-based approach - those who benefit from transmission investments will pay for them. In 2021, Transpower proposed a new TPM to reflect the guidelines. The Authority has consulted and expects to soon decide on a new TPM.	The key benefits are more efficient use of the electricity system and more efficient investment in the combination of generation and transmission infrastructure. Consumer benefits: If implemented, the proposed new approach to paying for transmission assets will deliver significant benefits to consumers and give electricity consumers and generators much-improved signals of the costs and benefits of using the transmission grid. They will stop overly high transmission charges for using electricity at times when consumers most want it and will stop rewarding parties that shift costs on to other consumers for no overall benefit. Supporting emissions reductions: Efficient investment and use decisions by generators, Transpower, distributors and consumers will result in electricity prices over the long term being lower than they would otherwise be.	In development – consultation underway
Electricity Demand and Generation Scenarios (EDGS) update	MBIE updates the EDGS on a regular basis. Transpower is required to use the EDGS scenarios to support their proposals for major capital investment in transmission assets. The next update will align these scenarios to our emissions budgets and net-zero emissions target and include a review process of the EDGS assumptions and outputs to ensure they are fit for purpose to support investment decision-making and approval of Transpower's major capital investment by the Commerce Commission.	This initiative supports efficient investment decision making for major transmission assets and ensures supporting analysis is based on assumptions aligned to meeting emission reductions targets.	In development

Distribution networks			
Updating the regulatory settings for distribution networks	This work programme aims to ensure the regulatory settings in the electricity distribution sector support the transition to a low-emissions energy system while promoting competition, reliability and efficiency for consumers' long-term benefit. It has a particular focus on increasing competition and consumer participation in flexibility markets, i.e. the markets for buying and selling services from controllable distributed energy resources (DER).	The desired outcome is for sector participants to have the ability, information, and incentives to make efficient investments in both network and non-network solutions, for instance investing in DER, rather than upgrading distribution networks. Where non-network solutions are more efficient, the desired outcome is for these services to be procured through a competitive framework and for standards to be in place to address a range of power quality issues associated with increased DER. More efficient investments lead to lower prices for consumers. More investment in DER, including in renewable generation, batteries and demand response, will support the shift to lower emissions by decreasing peak load (or at least constraining growth in peak demand).	In development
Faster reform to efficient electricity distribution pricing	This programme of work supports and drives faster reform of efficient electricity distribution pricing, supporting more efficient use of distribution networks (or alternatives) and more efficient investments in the distribution electricity sector (or alternatives). As the proposed new transmission pricing methodology (TPM) is likely to remove the peak pricing signal in transmission pricing, efficient distribution pricing becomes more urgent. Also, as electricity load increases, from process heat and uptake of EVs, some networks will face congestion, again meaning efficient pricing becomes more urgent.	More efficient distribution pricing will result in consumer benefits and support the transition to a low-emissions energy system. The benefits of pricing reform are substantial across all consumers - residential, commercial, and industrial - as efficient distribution pricing plays a critical role in maximising the use of existing networks, reducing network upgrade and expansion costs, and ensuring distributors also consider network alternatives. It also results in more choice and flexibility for consumers and enables consumers to make better technology investment decisions.	In development
Phase out of low fixed charge regulations	A five-year phase-out of the Electricity (Low Fixed Charge Tariff Option for Domestic Consumers) Regulations 2004 (the LFC regulations), as recommended by the Electricity Price Review 2019.	This will help facilitate distribution pricing reform, which will enable the electricity industry to efficiently manage the expected increased load on the network through more efficient, cost-reflective pricing structures, rather than costly network upgrades, keeping overall prices lower for consumers. This policy is also expected to result in lower electricity bills for approximately 970,000 households (60 per cent of households in New Zealand). This includes approximately 270,000 households in areas of high deprivation. As the phase-out is expected to result in lower variable charges (i.e., charge for actual power used) for households, it may incentivise a greater uptake of electric forms of technology, such as electric vehicles and heat pumps.	In development

Amendment to Electricity Code to facilitate distribution networks' ability to have small scale generation connect to, operate on, and export from networks without causing power quality issues	Amendment of the Part 1A application process in Part 6 of the Electricity Industry Participation Code, to include hosting capacity requirements that will apply for a 5-year period, by which time the Electricity Authority expects distributors to have developed processes and alternatives to manage congestion on their networks without unnecessarily constraining distributed energy resource (DER) connection. Updated the standard referenced in the streamlined process under Part 1A of Schedule 6.1, which a distributed generator may use if its small-scale distributed generation has an inverter that complies with the AS/NZS 4777.2 inverter standard.	The policy work around hosting capacity and small-scale distributed generation will support the transition to a low-emissions economy by helping to facilitate the adoption of distributed generation on distribution networks. The desired outcome is for the regulatory settings governing distribution networks to be set so as to allow consumers to maximise the benefits from distributed energy resources and fully enable the sector's transition to a low-emissions future. The key benefits are in encouraging more efficient investment decisions into distribution network assets and infrastructure. This will also ensure aspects of power quality and security of supply are considered in decision making for the long-term benefit of consumers.	Implementation/Monitoring
Commerce Commission work programmes exploring electricity distribution and transmission issues as they relate to the Commerce Act 1986	Part 4 of the Commerce Act regulates price and quality of goods and services in markets where there is little or no competition, such as electricity lines services. This workstream will review input methodologies (IMs) and information disclosure (ID) requirements applying to regulated electricity distribution networks and Transpower under Part 4 of the Commerce Act, as well as reopening price-quality paths for new investments.	The reviews are intended to result in Part 4 rule changes that support increased electrification of the economy, including lines companies' integration of new technologies, platforms, and business models. Price-quality path reopeners are intended to support greater electrification. Part 4 rule changes and reopeners are expected to support increased electrification, including through participation of distributed energy resources, demand response, and connection of EVs.	Initial stakeholder discussions held at Dec 2021 decarbonisation workshop. A notice of intention for IM Review was issued in February 2022.

Standards New Zealand and EECA development of publicly available specifications for in-home and commercial/industrial electric vehicle charging installation	Publicly Available Specifications developed to ensure EV chargers are efficient and safe	Ensure both consumers and businesses are using safe and efficient EV chargers.	Implementation

Focus area 3: Reducing our reliance on fossil fuels whilst supporting switching to low emissions fuels			
3.1 Reducing our reliance on fossil fuels			
Development of a Gas Transition Plan	Development of a Gas Transition Plan to provide further certainty to fossil gas users and industry and to explore renewable gas opportunities in the context of the transition.	Ensuring that a well-articulated transition pathway is in place will help to ensure investments continue to support security of supply as we transition, mitigate transition costs through more informed decision making, and help to offset consumer transition costs if the deployment of renewable gases can be accelerated.	In development - Cabinet agreement to developing a Gas Transition Plan was sought in December 2021.
Work with Gas Industry Company around gas availability for industrial users	Review whether additional mechanisms or changes are required to ensure gas availability for industrial users in tight gas supply situations. Ensure that industrial users continue to be able to manage tight gas supply situations and to ensure that resources are allocated in an efficient and socially responsible way.	Supports ongoing viability of industrial users as we transition and supports overall gas availability for consumers.	In development
Commerce Commission work programme exploring fossil gas issues as they relate to the Commerce Act 1986	Part 4 of the Commerce Act regulates price and quality of goods and services in markets where there is little or no competition, such as gas pipeline services. Reset of price-quality paths and review of input methodologies applying to regulated gas pipeline businesses under Part 4 of the Commerce Act.	The projects will take into account the expected decline in natural gas use in support of decarbonisation, ultimately supporting managed decarbonisation of the energy sector.	Draft decision on reset and Notice of Intention for IM Review issued in February 2022.
3.2 Developing low emissions fuels			
Confidential advice to Government			
Hydrogen roadmap	Development and implementation of a hydrogen roadmap to guide future investment in hydrogen in New Zealand and develop a pathway that provides maximum benefit to the economy and decarbonisation.	The primary objective of a roadmap is to provide a blueprint for the direction of development of a hydrogen industry in New Zealand. It is intended to help inform investment decisions amongst various stakeholder groups (e.g. industry, government and research) so that development can be achieved in a coordinated manner. Development of a roadmap could guide further developments relating to hydrogen. For example, local hydrogen production would increase security of supply for domestic fuels. Introduction of new technology and industry provides new skills and employment opportunities.	In development – separate consultation will take place

Hydrogen regulatory review work stream	MBIE is working alongside government agencies and regulators to evaluate how fit-for-purpose the current regulatory settings are for new hydrogen technologies and novel applications of hydrogen, and ensure that they are consistent with international best practice standards. MBIE will report back to the Minister of Energy and Resources, and the Minister for Workplace Relations and Safety in April 2022. The report back will provide an overview of how fit-for-purpose the current hydrogen regulatory settings are in order to advance the hydrogen industry and support our climate change response.	Green hydrogen is one of the platforms that can help to reduce our emissions. Ensuring that the current regulatory settings are fit-for-purpose is critical in facilitating the safe introduction of new hydrogen technologies and novel applications of hydrogen, and in promoting domestic and international investment in hydrogen in Aotearoa New Zealand.	Underway
Standards New Zealand work on adopting standards for hydrogen	MBIE, through Standards NZ, is undertaking work to identify and address changes needed to relevant standards that would affect the use of hydrogen. This project is intended to identify areas where current standards cited in relevant regulations do not cater for the supply or use of hydrogen as a fuel gas, and to develop detailed proposals to address those deficiencies.	This work will contribute to identifying gaps in the current standards and addressing deficiencies in the system. This will contribute to the wider assessment of how-fit-for purpose the current regulatory settings for hydrogen are. It will also support work being undertaken by WorkSafe to ensure that the risks to health and safety in adopting new hydrogen technology are adequately managed and identify whether there are any regulatory gaps in the oversight of the safe use of hydrogen as a fuel.	Underway

Focus area 4: Reducing emissions and energy use in industry			
4.1 A plan for decarbonising Aotearoa's industries			
Developing a plan for industrial decarbonisation (includes considering setting a timetable for phase out of fossil fuel use in boilers)	Development of a plan of actions to decarbonise industry. Plan will identify a package of actions to decarbonise industry in collaboration with the sector, with the aim of supporting existing industry to decarbonise, and enabling innovative low-carbon industries to grow. This plan will build on actions already underway and consider further actions by addressing each component of the Commission's recommendation 21, including consideration of a timetable to phase out fossil fuel boilers, and opportunities and challenges identified through ERP consultation feedback. The plan will build in a participatory approach, ensure actions and policies are mutually reinforcing alongside the NZ ETS, seek to address risks such as supply constraints, and provide a framework and targets to assess the level of effort required.	The intended outcomes of the plan are: • The industrial sector reduces its emissions to help meet emission budgets and enhance brand advantage • The industrial sector improves energy productivity, reducing exposure to NZ ETS costs and increasing economic resilience • The industrial sector accelerates adoption of low-emission innovations.	Agreement is sought through March 2022 Cabinet paper. Development of a plan would begin after the emissions reduction plan is in place.
4.2 Working with industry to reduce emissions			
Budget: Funding further decarbonisation of industry and heat (GIDI expansion)	The GIDI fund provides grants for businesses to implement projects to decarbonise the use of industrial process heat through fuel switching and/or energy efficiency. This initiative will scale up and expand the existing GIDI to: • continue funding individual high impact process heat decarbonisation projects, with adapted criteria to fund larger and longer projects • rolling out Regional Energy Transition Accelerators to regions (building on a Southland pilot outlined below) to improve transparency, create investment strategies and optimise options for fuel switching at a regional level • ringfence funding for electricity transmission and distribution infrastructure upgrades that unlock and/or accelerate fuel-switching for multiple fossil fuel heat users • expand funding for technology diffusion of underutilised commercially available low emissions technology	Assistance through the GIDI fund helps to accelerate the decarbonisation of industrial processes, to apply innovative technologies and provide economic stimulus. This initiative will accelerate fuel switching and energy efficiency to materially reduce emissions in the short and medium terms. It will also improve energy productivity and reduce business exposure to carbon price risk.	Existing GIDI fund underway Initiative to scale up and expand GIDI is pending Budget 2022 decisions
Budget: Grant funding for commercial space and water heating	This initiative will provide grants/rebates for commercial buildings to replace fossil fuel boilers for space/water heating with low-emission alternatives (primarily electricity/heat pumps).	This initiative would bring forward early action in commercial buildings ahead of regulation to replace fossil fuel boilers under RMA national direction on GHGs and/or the Building for Climate Change programme. Funding early adopters will generate replicable examples and learning, building industry capability and capacity prior to regulation, as well as bringing forward emissions savings gains.	Pending Budget 2022 decisions

EECA Business programmes	EECA’s business information programmes help businesses overcome information and technical barriers to identifying and implementing energy efficiency projects and switching from fossil fuels to renewables for non-transport energy use.	The majority of the EECA's business information programmes are focused on giving businesses a pathway to decarbonisation and removing non-price barriers (such as lack of information or expertise) to decarbonising their businesses. They act as a stepping-stone to potentially receive further support such as co-funding once businesses have project planning in place.	Underway
EECA Technology Demonstration Fund	The fund supports the early adoption of proven technology or innovative process improvement opportunities that have yet to be widely deployed in New Zealand.	The project may improve energy efficiency and/or reduce carbon emissions. Adoption of new technologies by businesses in New Zealand has potential for replication, leading to further decarbonisation. The Technology Demonstration Fund can help to bring new technologies to the New Zealand market. Many of these may face first-mover disadvantages through cost, supply or infrastructure, so need additional support to prove their viability in New Zealand.	Underway
Regional Heat Demand Database	The Regional heat demand database is an interactive data visualisation tool that enables users to view fuel demand for process heat by region, site count, heat demand, and energy demand.	Over half of New Zealand’s process heat demand is met by burning fossil fuels such as coal or natural gas. Some of these emissions can be reduced by redesigning the underlying processes, but decarbonising the remaining heat needs will require switching from fossil fuels to low-emission fuels, such as wood fuels in boilers or electricity in electric boilers or heat pumps. These changes will have implications. Switching to electricity will increase loads on electricity networks, at both the distribution and transmission levels, and may require investments to increase capacity. The cost of switching to wood fuels will depend on fuel availability, which varies regionally, and on the amount of competition for the resource. To help inform these decisions and better plan for the future, the Regional Heat Demand Database records both where existing process heat demands are, and information about the nature of this demand such as temperature and seasonality. This database is the most recent comprehensive and holistic assessment of heat demand across New Zealand and making this available in a timely manner will enable decisions to be made to change course to enable fuel switching and decarbonisation.	Underway

4.3 Broader actions to reduce emissions in industry			
Advanced manufacturing industry transformation plan	Industry Transformation Plans (ITPs) are focused on enabling the scaling up of highly productive and internationally competitive clusters in areas where we have a comparative advantage. The Advanced Manufacturing Industry Transformation Plan (ITP) is a co-created product between industry and government to accelerate growth and transformation within the sector by making it more productive, sustainable and inclusive. It focuses on growing innovation and investment, attracting a skilled workforce, creating a leading sustainable and low-emissions economy and enhancing global connections.	While this ITP focuses squarely on the advanced manufacturing sector, we anticipate substantial economic and social spillover benefits, given the potential for advanced manufacturing to improve productivity, stimulate innovation, environmental sustainability and enable access to global markets.	In development
National direction for industrial GHGs	The purpose of national direction is to support councils to make nationally-consistent decisions on GHG discharges when considering applications for air discharge permits. The national direction is intended to ban new low and medium temperature coal boilers and phase out existing coal boilers by 2037. It will also require sites with material emissions from other fossil fuel boilers to apply for resource consent, prepare GHG Emission plans and adopt the best practicable option to reduce emissions.	Switching away from coal and other fossil fuels for process heat will support and incentivise the development of low emissions energy, markets and infrastructure such as biomass and electrification. Monetisation of forestry residues for projects that utilise otherwise unused residues. The adoption of energy efficiency practices may yield energy productivity benefits for firms. Decarbonisation of exporters (i.e., food) could help improve business competitiveness and international brand, maintaining or improving market access, and reduce exposure to emission price risk. Reductions in coal use and emissions have hazardous waste and air quality benefits.	In development – consulted April 2021. Policy approval made by Cabinet in September. Separate process underway to discuss with stakeholders an approach to commercial and space water heating.
Energy and Emissions reporting scheme (EERS)	The Scheme (pending Cabinet approval) will require large energy users to provide information about their annual energy use and emissions. This would address a data gap on New Zealand's energy use and emissions profile.	The primary objectives of this proposal are to enable a stronger evidence base for policy development, monitoring and evaluation, and provide large energy users with insight into their emissions profile. It will also enable publicly available data to inform consumers and the public. This could lead to indirect emission reductions through better visibility and management of energy use and reputational drivers to reduce emissions.	Agreement on details of legislation to support the scheme will be sought in the second quarter of 2022.
Regional Energy Transition Accelerator Pilot	Piloting a regional decarbonisation plan in Southland, to optimise fuel switching and low-emission energy supply. This involves creation of a decarbonisation plan for Southland with a pipeline of decarbonisation projects, taking into account optimum fuel choices for different businesses in the region, reducing overall electricity upgrade costs and making best use of biomass resources.	This initiative will enable decarbonisation of the region systematically to avoid unintended consequences of fuel switching and overcoming low-emission fuel supply issues with a long-term plan.	Pilot underway, further rollout is subject to Budget 2022 decisions regarding funding for further decarbonisation of industry and heat.

4.4 Setting foundations to address hard to abate industries			
Framework for hard-to-abate industries	Development of a strategic framework for considering and addressing emissions reductions in single firm industries that are hard to abate industries.	Confidential advice to Government	Agreement is sought through March 2022 Cabinet paper

Confidential advice to Government

Focus area 5: Strategic approaches and targets to guide us to 2050			
5.1 Setting targets for the energy system			
Setting a renewable energy target	Development of a renewable energy target of 50 percent of total final energy consumed (TFEC) coming from renewable sources by 2035, as recommended by the Climate Change Commission.	Setting a target will enable us to track progress in the broader energy sector as we move towards our 2050 target. Secondary indicators will be developed alongside a target, to ensure that as we transition our energy system meets goal of being affordable and accessible, secure, and reliable for the wellbeing of New Zealanders.	Agreement is sought through March 2022 Cabinet paper
5.2 Energy strategies for Aotearoa			
Developing an energy strategy	Development of an energy strategy to address strategic challenges in the energy sector, including signalling a pathway away from fossil fuels and toward greater levels of renewable electricity and other low emissions fuels.	An energy strategy will provide more certainty, ensure that investments in renewable electricity and other low emissions fuels are incentivised and provide stakeholders across the economy with a clearer pathway to increased electrification and decarbonisation. It will help to ensure that as we decarbonise, we take into account objectives including affordability, accessibility and security of energy supply for the wellbeing of New Zealanders. An energy strategy can support transition-aligned economic development and an equitable transition.	Agreement (subject to funding through Budget 2022) is sought in March 2022 Cabinet paper. Development of strategy will ramp up following the ERP being put in place in May 2022
NZ Energy Efficiency and Conservation Strategy Review	Review and replacement of the current New Zealand Energy Efficiency and Conservation Strategy (NZEECS). A new NZEECS will be developed taking into account the ERP and alongside development of an energy strategy.	The NZEECS will set the overarching policy direction and strategy for Government support and intervention for the promotion of energy efficiency, energy conservation and the use of renewables, and guides EECA's work programme.	Minister of Energy and Resources agreed in December 2021 to development of a revised NZEECS. Current NZEECS remains in force until a new strategy is developed.

6. Actions to secure an equitable transition			
Electricity price review – Energy Hardship expert panel	The Energy Hardship Expert Panel will recommend policy priorities and actions to government on how best to alleviate household energy hardship in New Zealand.	The Panel will advise the Government on: • Recommendations for how the energy industry, regulators and government agencies could work better together to reduce energy hardship • Policies, arrangements, interventions and actions aimed at reducing energy hardship, recognising that the causes of energy hardship extend beyond the electricity sector. Recommendations from the Energy Hardship Expert Panel adopted by government may assist households who are likely to be most impacted by the transition to renewables as there may be overlap with those in energy hardship. Adopted recommendations may also result in associated benefits such as improved housing quality, more efficient energy behaviour and appliances and greater energy literacy, as well as a reduction in numbers of those suffering from energy hardship.	Underway
Establishing an agreed definition and measures for energy hardship	Developing an agreed definition of energy hardship, and associated indicators to measure and track levels of energy hardship over time in Aotearoa.	This will assist with identifying the nature and extent of energy hardship nationally, and with assessing the effectiveness of initiatives to address energy hardship. This project will help to inform and quantify the distributional impacts of other policies and programmes.	Underway
Support for Energy Education in Communities (SEEC) Programme	See **1.1 Improving business and consumer energy efficiency**		Underway
Māori and Public Housing Renewable Energy Fund	See **2.1 Accelerating the uptake of new renewable electricity across the economy**		Underway
GIDI fund	See **4.2 Working with industry to reduce emissions**		Underway
EECA's business programmes	See **4.2 Working with industry to reduce emissions**		Underway
Just Transitions Partnerships	Just Transition Partnerships enables communities in regions affected by a sharp shock or by a gradual transition to understand and plan for a locally-led response. The Government currently has Just Transitions partnerships in Taranaki and Southland.	Government partnerships with communities and regions will empower regions to lead their own transitions, engaging affected people and businesses to support them to opportunities and minimise the negative impacts of transition.	Underway