MINISTRY OF BUSINESS, INNOVATION & EMPLOYMENT
HĪKINA WHAKATUTUKI

AIDE MEMOIRE

ERP2 – Revised energy chapter for consultation

Date:	28 May 2024	**Priority:**	Medium
Security classification:	In Confidence	**Tracking number:**	2324-3536

Information for Minister
Hon Simeon Brown **Minister for Energy**

Contact for telephone discussion (if required)

Name	Position	Telephone	1st contact
Scott Russell	Manager, Energy Use Policy	9(2)(a)	✓
Hannah Overton-Holmes	Senior Policy Advisor, Energy Use Policy		

The following departments/agencies have been consulted
Ministry of Transport

Minister's office to complete:

- ☐ Approved
- ☐ Noted
- ☐ Seen
- ☐ See Minister's Notes
- ☐ Declined
- ☐ Needs change
- ☐ Overtaken by Events
- ☐ Withdrawn

Comments

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Purpose

To provide a revised second Emissions Reduction Plan energy chapter for your information ahead of Ministerial consultation.

9(2)(a)

Scott Russell
Manager, Energy Use Policy
Building, Resources and Markets, MBIE

28 / 05 / 2024

We have redrafted the ERP2 energy chapter

1. At the 20 May Energy Officials meeting, we discussed the redrafted energy content for inclusion in the second Emissions Reduction Plan (ERP2) consultation document. We have revised the chapter based on this outline and on the written feedback we received from your office on 27 May 2024 (see **Annex One**).

2. The ERP2 consultation package will include: the main Discussion Document containing the main policy proposals; and a supporting document with further information, including on the legislative framework, sector emissions profiles and potential distributional impacts. Energy material to be included in the supporting document is attached as **Annex Two.**

3. As well as addressing your feedback, the attached chapter includes a section setting out work the Government has underway to enable end users to electrify in addition to enabling increased renewable generation. We will continue to consider what additional charts could be included to support the chapter content.

4. Since we sent you the previous draft chapter, agencies have been asked to complete logic maps for policies that cannot currently be quantified, to meet the statutory requirement to ensure that consultation is adequate. The purpose of this map is to clearly demonstrate how the policies in ERP2 will contribute to meeting the second emissions budget, even if they cannot be quantified yet. The logic map for Electrify NZ is attached as **Annex Three**. We expect the information in the logic map will be included in the supporting consultation material.

5. We have sent the attached material to the Ministry for the Environment to include in the pack for Ministerial consultation.

6. The table below sets out the key dates ahead of the expected release of the Discussion Document. We will keep your office updated as we prepare communications material ahead of the consultation launch.

Milestone	**Estimated Date (subject to change)**
Ministerial Consultation begins	6 June
Cabinet Committee consideration	17 June 2024
Cabinet Consideration	24 June 2024
Public consultation launched	26 June 2024

Annexes

Annex One: Revised ERP2 energy consultation chapter

Annex Two: Energy material for supporting consultation document

Annex Three: Intervention logic – Electrify NZ

Annex One: Revised ERP2 energy consultation chapter

Energy

Energy sector at a glance	
Current annual emissions (2022)	XXX MtC02-e
The vision	• Clean energy is abundant and affordable • Credible markets to support the climate transition
Why this sector is important	• New Zealand has abundant renewable energy potential. Harnessing this will help meet our emissions budgets, reduce our dependency on imported fuels and support the reliability and affordability of our energy system.
What we're doing now	• Introducing changes to accelerate the approval of new renewable energy projects
What's coming	• Doubling renewable energy by 2050. • Enabling other low-emission fuels and carbon-capture technology
What this means for New Zealanders	• Households heat their homes more affordably, with energy coming from the sun, wind, water and geothermal. • People charge their electric vehicles easily across the country. • Businesses have confidence in our energy security to grow their operations.

Introduction

Affordable, secure energy is a crucial part of the Government's plans to reduce emissions. Compared to many other countries, New Zealand's energy supply is reliable, affordable and highly renewable.

New Zealand's electricity system is world-class. Electricity is expected to become even more renewable over the coming decade with an investment pipeline mostly comprised of renewables. New Zealand's clean, green electricity means electrification is a major pathway for lower emissions across the economy. Electrification depends on affordable and secure electricity. Fossil fuels will continue to play an important role in keeping electricity affordable and secure, supporting lower emissions and a productive and growing economy.

This Chapter sets out the Government's approach to enabling market-led energy investment to support lower emissions. The Government's role is to deliver high quality regulation and a competitive level playing field for investment. The private sector, including majority state-owned enterprises operating on a commercial basis independently of Government, will deliver the energy investment needed to support lower emissions.

Through this consultation, we seek your feedback on the impacts of the proposed actions, and what further barriers exist to private investment in decarbonising energy use. For more information on the energy sector and its emissions profile, please see the supporting materials for consultation.

Proposed approach to reducing emissions

Role of government

The Government is committed to providing the regulatory certainty and credible level playing field necessary to enable private investment in energy. The scale of investment required to meet expected demand for energy and achieve our goals is significant. New Zealand needs investment in

generation, transmission and local lines. Advancing technologies will provide new ways for energy users to save money and reduce emissions.

New Zealand is unusual by not subsidising renewables. Renewable energy is competitive with fossil fuels in part due to abundant renewable energy and because emissions pricing improves the competitiveness of renewable energy. Most of the known investment pipeline is green (largely solar and onshore wind with some geothermal).[1]

ETS [note this section will be updated to align with the final overarching ETS section]

Emissions from the New Zealand energy system are covered by the ETS. The ETS incentivises net emissions reductions in the energy sector as the emissions price flows through into the price of energy sources that create emissions when they are produced or consumed such as electricity, gas, diesel, petrol and coal.

Energy emissions are in the ETS cap, which limits the degree to which complementary energy policies directly reduce the quantity of net emissions beyond the short run. For example, subsidising a low-emissions technology would eventually free up ETS units for surrender somewhere else in the economy, for no reduction in overall emissions. This risks substituting emissions reductions or removals, that the ETS itself could incentivise. Instead, we are focussed on complementary policies that can contribute by expanding the set of opportunities to reduce emissions affordably. For example, reducing the time and cost of consents for wind farms is intended to improve the competitiveness of wind generation and encourage investment.

The role of complementary policies under an emissions cap is to flatten the cost curve for emissions reduction by:

- removing unnecessary barriers to investment in low-emissions technologies;
- resolving market failures, for example by investing in innovation and R&D, while providing regulatory certainty to enable private sector investment in emissions reductions.

The role of the ETS in incentivising net emissions reductions is outlined in the ETS chapter.

Maintaining security and affordability of supply

Energy security and affordability are under pressure. New Zealand gas reserves are declining, which has contributed to tight conditions in the electricity market. Insecure or expensive energy will increase living costs for New Zealanders and harm our productivity. It will also undermine us meeting our emission reduction targets, as end users will not have the confidence to switch to electric technologies without reliable, affordable electricity supply.

Energy security depends on attracting continuous investment in all forms of energy. To enable investment, we need stable and credible system-wide settings. The Government's role is to provide the necessary certainty that will support continuing private sector investment required to maintain security of supply.

Reconciling investment in gas with lower emissions

While increased switching to renewable energy is expected to reduce overall demand for gas over time, it will be needed through the transition. The electricity system currently relies on gas and a limited amount of coal generation including to meet peak demand in winter and for energy to cover dry years. Gas and coal are substitutes, particularly in the electricity generation sector. Insufficient gas supply could result in New Zealand burning more coal to keep the lights on, with greater emissions impacts.

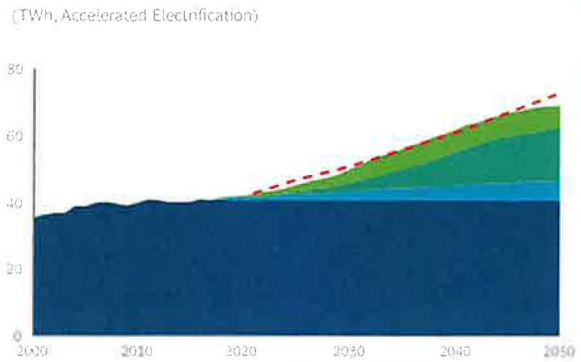
[1] Generation investment survey, 2023 update.

Electrify NZ is a pillar of ERP2

Investment needed in electricity generation and network infrastructure

New Zealand's high share of renewables means that electricity is a low emissions alternative to fossil fuels. Demand for electricity is expected to increase significantly by 2050 as electric technologies become more widely adopted. This will significantly outpace the demand growth seen in previous decades. Renewable generation capacity must be ready to meet this demand.

Figure 1: Forecast electricity demand to 2050



It is estimated that $100 billion of investment is needed by 2050 just to build and maintain electricity transmission and distribution infrastructure.[2]

Currently untapped renewable energy sources, such as offshore wind, could be necessary to increase generation capacity. However, this will depend on overall demand and availability of onshore resources. New Zealand has world leading offshore wind generation potential; taking advantage of this could contribute to reaching our emissions targets. However, it is currently uncertain over what timeframe offshore wind will be economic in New Zealand. Offshore wind will compete on a level playing field with onshore generation.

Alongside these investments in generation, we also need to enable significant and timely new investments in electricity network infrastructure. Investments in transmission and distribution infrastructure will be critical in ensuring the reliability of our grid, particularly in the face of a changing climate.

Electrify NZ work programme

The government has committed to doubling renewable energy by 2050, and can enable investment by removing barriers and resolving market failures that prevent or slow investment in infrastructure needed for electrification. Electrify NZ's focus on removing red tape will support private investment to enable the generation and networks required to achieve this.

The Electrify NZ work programme involves the following initiatives:

- **Fast track consenting** – this legislation will deliver on Electrify NZ commitments (e.g. for fast

[2] BCG, the Future is Electric

decision making and investment certainty) for projects referred out of the standard RMA process and into the fast track.

- **RMA reform** – the Government intends to prioritise consideration of relevant Electrify NZ commitments as part of amendments to the RMA this year. This will include provisions relating to consent duration, consent lapse time, and one year decision making timeframes for certain consents.
- **RMA national direction for renewable energy and transmission** – the Government intends to advance amendments to the National Policy Statements for Renewable Electricity Generation and Electricity Transmission this year.
- **Offshore wind** - developing legislation this year to unleash investment in offshore wind generation.
- **Further programme of RMA national direction** – a broader Phase 2 review of national direction will pick up the remaining aspects 9(2)(f)(iv)

9(2)(f)(iv)

- **Regulation of investment in transmission and distribution infrastructure** – Electrify NZ includes several policy commitments relating to electricity network infrastructure investment regulation and new connections to networks. These commitments support the Government's Supercharging EV Infrastructure aims and will be delivered through work already underway (or recently completed) at the Electricity Authority (EA) and the Commerce Commission.

By progressing work on these initiatives, the Electrify NZ work programme aims to:

- significantly accelerate decision-making processes for consenting of renewable electricity generation, transmission and distribution projects, so that consent decisions are made within one year
- significantly increase the likelihood of consents being granted for renewable electricity generation and electricity transmission compared to the status quo
- streamline the outdated rules and regulations that govern electricity transmission and distribution infrastructure to ensure we are not only producing more clean, green energy – but that more parts of the economy can access it
- unleash investment in offshore wind generation.

Collectively, the actions under Electrify NZ are expected to increase the amount of renewable energy available to power electrification and displace thermal generation in the electricity market, by reducing the time and cost of developing renewables projects. We are seeking feedback on how these actions will impact the speed of building new renewable generation and transmission. More information on the intervention logic is provided in the supporting materials.

Enabling end-users to electrify

Significantly increasing the supply of renewable electricity is crucial to enabling end-users to electrify to reduce emissions. For instance, new renewable generation and transmission will support the electrification of transport, including through the Government's work on supercharging EV infrastructure (see also the Transport Chapter).

Industry, businesses, and households need secure and affordable electricity supply to choose to

switch to electric technologies, including electric boilers, electric vehicles, electric heat-pumps. At the same time, more efficient use of electricity and greater deployment of smart devices over time can ensure we are maximising existing renewable generation and reducing the overall need for generation and network upgrades across the electricity system in the future.

The Government has work underway to:

- **ensure security of electricity supply:**
    - an enabling environment for investment in gas production, including through enabling carbon capture, utilisation and storage to improve the investment climate for gas supply while lowering emissions
    - mitigating the impact of severe weather events on energy infrastructure, including through amending the rules about how close trees can grow to power lines
    - enabling the development of new fuels and technologies, including work to improve market access for grid-scale batteries and demand-response
- **promote affordability of electricity supply:**
    - work led by the EA to ensure electricity markets are as efficient as possible, to get the best price for consumers
    - an enabling environment for innovation to create a least-cost transition and give consumers new ways to save
    - minimising the impacts on those least able to pay, including through continuing support for the successful Warmer Kiwi Homes programme
- **enable energy efficiency and a smarter electricity system:**
    - explore ways to strengthen New Zealand's energy efficiency and demand flexibility regulatory regime. This could enhance the effectiveness in how New Zealand regulates energy using products, services and systems including EV chargers, and enable the private sector to seek efficiencies in their energy use.

We are seeking feedback on how these actions will support users to switch their energy use, to inform our understanding of their likely emissions reduction impact.

Other policies to support EB2

Natural gas

Gas contributes to around 9% of New Zealand electricity generation and 17% of our total energy supply. It provides energy for industry, commerce and the public and is also a raw material in the production of methanol and urea. Gas-fired generation keeps electricity affordable and secure which in turn supports electrification. Gas can also reduce our reliance on coal generation, which has twice the emissions impact.

The Government has work underway to improve the security of supply for gas and to enable opportunities to reduce emissions from producing and using gas:

- **enabling carbon capture utilisation and storage (CCUS)**: the Government will consult on options to remove barriers to employing CCUS. This will focus on reducing regulatory barriers and managing risks for long-term storage. CCUS has the potential to reduce

emissions from gas production as well as providing sequestration opportunities for other high CO2 emitters. CCUS is already being used in the geothermal industry. An enabling regulatory regime will provide other hard to abate sectors with an opportunity to reduce their emissions.

- **enabling renewable gases**: enabling the use of biomethane and hydrogen to replace natural gas provides an opportunity to improve the security of our energy supply through diversification of fuels. Such replacement with lower emissions alternatives will also reduce emissions. The Government is exploring what measures are needed to increase the uptake of renewable gasses.

Bioenergy

Bioenergy can reduce emissions in process heat, power generation, and in producing chemicals and fuels like sustainable aviation fuels (SAF) (as below). Supply of bioenergy is a key constraint, and in some regions could be outstripped by potential demand in the future.

The Government is supporting markets through information provision. The Energy Efficiency and Conservation Authority (EECA) are publishing insights to support collaboration between demand and supply side stakeholders to inform private sector fuel-switching investments at a regional level, through the Regional Energy Transition Accelerator programme.

Enabling future emissions budgets

For some sectors and activities, electrification is not currently possible or practical, or is very expensive to implement. Hard to abate activities account for 17 per cent of energy and industry emissions, or seven per cent of total gross emissions. Activities where other low-emission fuels or carbon capture technologies are currently better suited than electrification are concentrated in heavy transport and industry, as well as "firming" electricity generation that can be dispatched when the wind isn't blowing and sun isn't shining.

The Government is enabling private investment in low-emissions fuels and the additional electricity we will need to produce them. The Government is also supporting R&D that can bring down the cost of future abatement.

Hydrogen

Hydrogen is being trialled and demonstrated as a low-emissions alternative in heavy industry, heavy and specialty transport, production of green fuels (as below) and power generation. While hydrogen is not expected to play a significant role in meeting the second emissions budget, near-term action to enable hydrogen could help to reduce emissions in later emissions budgets.

The Government aims to enable private investment in hydrogen. Since the first Emissions Reduction Plan (ERP1), MBIE has published and consulted on an Interim Hydrogen Roadmap and plans to follow up with an update by the end of 2024. MBIE has also progressed work to understand regulatory and standards barriers and areas that are not fit for purpose for hydrogen.

The Government is also considering a National Policy Statement for Hydrogen. The goal of this NPS is to create a clear compliance pathway for hydrogen production and distribution.

Sustainable aviation and shipping fuels

Sustainable fuels are needed to decarbonise the planes and ships that transport passengers and goods to, from and around New Zealand.

The Government has funded feasibility studies with the private sector to explore domestic supply chains of alternative jet fuel options. Air New Zealand and MBIE are funding two studies investigating the feasibility of establishing SAF plants domestically using woody biomass (forestry slash) and municipal solid waste. EECA has also contributed funding towards a feasibility study in producing SAF from green hydrogen at Marsden Point undertaken by Fortescue Future Industries and Channel Infrastructure.

New Zealand is party to a number of international agreements that aim to address emissions from international marine freight.

Offshore wind

New Zealand has world class offshore renewable energy potential. Offshore renewable energy could play a role in meeting future energy demand beyond 2030, particularly if New Zealand produces substantial amounts of hydrogen or electro-synthetic fuels (e-fuels). As noted above, the Government is enabling private investment in offshore renewable energy by establishing a regulatory framework by the end of 2024. This means offshore wind will compete on a level playing field with onshore generation.

R&D support

New Zealand will need innovative new technologies and processes such as smart metres, fuel cells, and new processes to develop industrial goods. The Government has a range of science and innovation programmes that support emissions reduction activity, including MBIE's basic science funds (Endeavour/Catalyst), EECA's Low Emissions Transport Fund, and Callaghan Innovation.

Overall impacts

Emissions impacts

Actions to enable electrification are the main way the Government proposes to support the ETS to incentivise emissions reductions from energy use in EB2. Through this consultation, we are seeking information to better understand and model the emissions impact of policies outlined in Electrify NZ. We are particularly keen to hear from electricity generators how the measures in Electrify NZ may affect projects already in the development pipeline being built, and if there are additional projects not already in the pipeline that may end up being investigated as a result of Electrify NZ policies. More information on the intervention logic for Electrify NZ is provided in the supporting materials.

Actions to enable uptake of low emissions fuels and carbon capture technology may not significantly reduce emissions in EB2, but will reduce the long-term cost of addressing hard to abate emissions to support future emissions budgets. We are seeking information to better understand the impact of these enabling policies.

Treaty implications

Iwi and hapū have rights and interests in their rohe and in marine areas that could be impacted by renewable generation developments – both onshore and offshore. It is important that policies are designed in a way that understands and responds to the circumstances of Māori and continues to enable Māori to participate in, and benefit from the opportunities provided by electricity and other low emissions fuels.

Questions

- How might the proposals in Electrify NZ (a) affect projects already planned or underway, and (b) increase the likelihood that developers will investigate new generation projects? Please provide evidence where possible
- What are the three main barriers/challenges for business in investing in renewable electricity supply (generation and network infrastructure) not addressed in Electrify NZ?
- Will the Government's approach to driving investment in renewable energy support businesses to switch their energy use in the second Emissions Budget period?
- What are the three main barriers/challenges not addressed in this chapter that businesses face when electrifying or improving energy efficiency?
- Will existing policies adequately enable private investment in low emissions fuels and carbon capture technologies?
- What three main additional things could Government do to support business to take up low emission fuels and carbon capture technology?

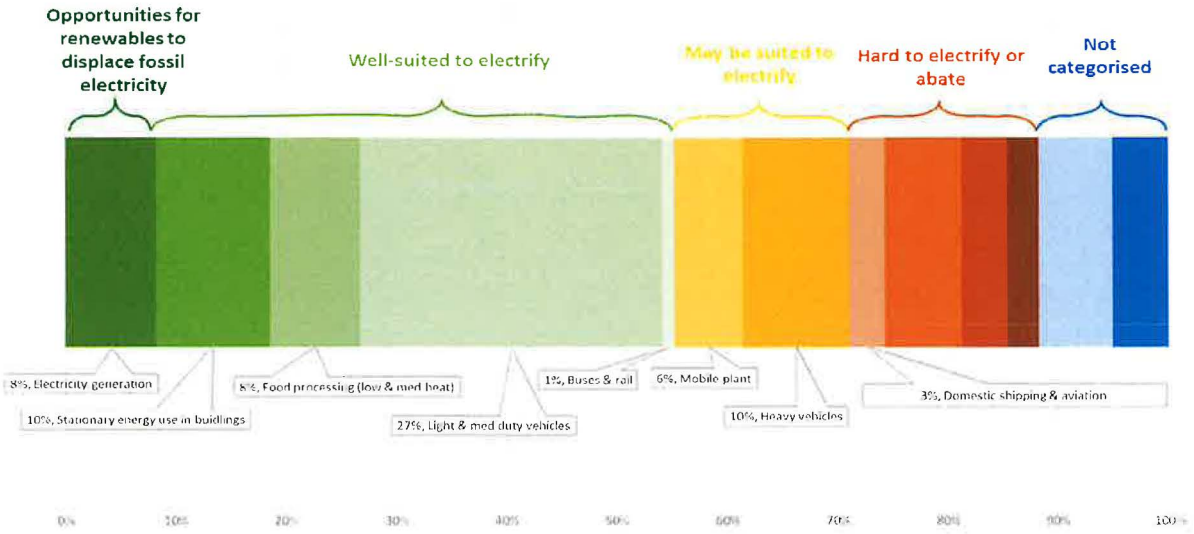
Annex Two: Energy material for supporting consultation document

Energy material for supporting document

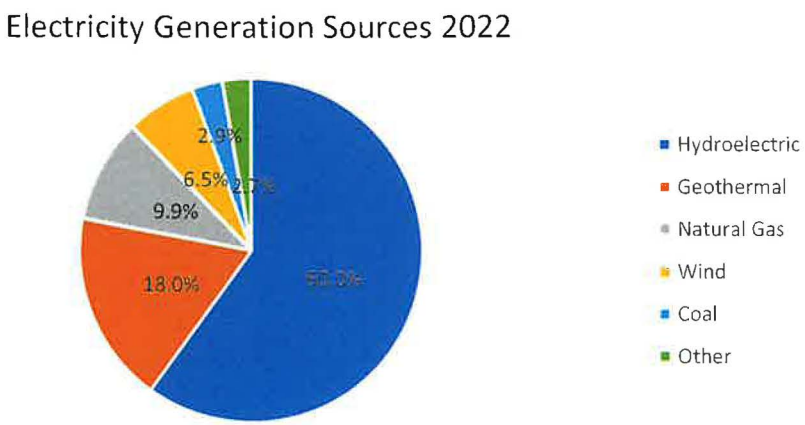
Energy's share of New Zealand emissions

Emissions from energy use make up 37 per cent of New Zealand's total emissions. This includes 17.5 per cent from energy used for transport. Figure 1 below shows the makeup of energy, industrial process, and product use emissions, with vehicles and energy use in buildings making up the largest individual proportions. Energy emissions reductions in the second emissions budget period are expected to come predominantly from increased electrification and energy efficiency in light transport and process heat.

Figure 1: Aotearoa New Zealand's energy, industrial process and product emissions 2022



In 2022 electricity generation accounted for around 10% of New Zealand's total greenhouse gas emissions and 8% of energy emissions. As shown in the chart below, New Zealand's electricity system has a high share of renewable generation, with only 15.5% coming from non-renewable sources in 2022.[1]



[1] See https://www.mbie.govt.nz/dmsdocument/27344-energy-in-new-zealand-2023-pdf

The energy sector is governed by several agencies and organisations with distinct roles:

- Ministry of Business Innovation and Employment
- The Commerce Commission
- Transpower
- The Energy Efficiency and Conservation Authority
- The Gas Industry Company

For more information about the energy sector governance and how our electricity system works, please refer to the MBIE website.[2]

Distributional and economic impacts

Electricity and fuel prices are expected to rise over the second Emissions Budget period. The policies proposed for the second Emissions Reduction Plan may help to reduce pressure on the cost of energy, by reducing the cost to consent electricity infrastructure projects. Energy costs are a major input cost for businesses and have a significant impact on New Zealanders' cost of living. In the long term, affordable, secure energy supports lower emissions and minimises negative distributional impacts.

New economic opportunities over the second Emissions Budget period include maintaining and growing international markets and creating skilled jobs.

[2] For more information on energy sector governance see
Briefing for the incoming Minister for Energy (mbie.govt.nz)
For more information on how the electricity system works see Electricity industry | Ministry of Business, Innovation & Employment (mbie.govt.nz)

Annex Three: Intervention logic – Electrify NZ

ERP2 energy intervention logic map – Electrify NZ

Sector	ERP2 proposed policy	If we do the following now	Then by 2030 (EB2), and by 2050, we can expect these changes to occur	Which will lead to the following impacts on emissions in EB2 and future budgets
Energy	Electrify New Zealand	Improve consent duration, consent lapse times and decision-making timeframes through RMA amendments Amend national direction for renewable electricity generation and transmission to ease consenting barriers Amend cost recovery rules for lines companies	*By 2030 we can expect:* • Reduced time and cost and increased likelihood of consents and reconsents being granted for renewable electricity generation and transmission projects[1] • Increased revenue available to support additional transmission and local lines • Collectively, these improve the business case for investing in a higher amount of renewable electricity capacity and grid infrastructure. *By 2050 we can expect:* • Lower cost and availability of renewable electricity displacing coal and gas-fired generation,	*In EB2 this will lead to:* • More renewables projects become viable faster, which may accelerate displacement of coal and gas-fired generation, particularly for baseload and intermediate generation.[2] • It may also mean more renewable electricity is available to support electrification of transport and process heat compared to the counterfactual, helping to mitigate price spikes or security disruptions that could affect the pace of electrification. • If upcoming significant hydroelectric projects are reconsented, this could reduce the risk of greater use of gas and coal generation to meet the gap.[3] • If additional geothermal is consented, any emissions reduced from displacing fossil fuels may be partly offset by geothermal production emissions if not captured and stored. *In future emissions budgets this will lead to:* • Improved likelihood of reaching a highly renewable electricity system where the role for fossil fuels is minimised.

[1] The Infrastructure Commission estimated that New Zealand is on track to miss between 11-15 per cent of the emissions reductions required from the energy and transport sectors by 2050 due to consenting delays, and a 50 per cent reduction in projected consent processing times is required from 2028 to meet New Zealand's net zero targets by 2050. Infrastructure consenting for climate targets | Te Waihanga

[2] Thermal generation accounted for 2.5Mt CO2 in the year to December 2023. Some firming/peaking generation could be displaced if renewables are able to free up flexible baseload hydroelectricity capacity. Emissions info from Quarterly electricity and liquid fuel emissions data tables: New Zealand energy sector greenhouse gas emissions | Ministry of Business, Innovation & Employment (mbie.govt.nz)

[3] For example, Waitaki and Manapouri Dams would need reconsenting during the EB2 period.

			particularly for baseload and intermediate generation. • More renewable electricity is available to support electrification of transport and process heat, helping to mitigate price spikes or security disruptions that could affect the pace of electrification	• Improved likelihood of greater uptake of renewable electricity to displace fossil fuel use across many parts of the economy.
	Assumptions and Dependencies	• Emissions impacts depend materially on private investment decisions. • Private investment decisions in turn depend on the extent to which wider market settings and commercial conditions are sufficient to drive renewables investment and incentivise fuel switching (eg, ETS settings, wider market failures, demand for renewables, access to firming, cost of capital). We are consulting on whether further measures are needed. • Does not include fast track, offshore wind parts of Electrify NZ.		
	Other benefits	• Lower consent costs and greater renewable electricity supply can help to manage electricity prices and security of supply risks compared to the counterfactual.		
	Why is this complementary to the ETS?	• The ETS is the main tool the Government will use to drive emissions reductions in the energy sector. • The purpose of Electrify NZ is to complement the ETS. • Lowering consenting costs will lower total project costs and encourage faster deployment of renewables in response to ETS price signals. • Electrify NZ is not anticipated to have significant direct emissions impacts beyond enabling the ETS to drive emissions reductions more efficiently.		