



BRIEFING

ERP2 – Updated Energy Content for Consultation

Date:	9 May 2024	Priority:	Medium
Security classification:	In Confidence	Tracking number:	2324-3256

Action sought		
	Action sought	Deadline
Hon Simeon Brown Minister for Energy	Provide feedback on the proposed energy content for ERP2 consultation.	15 May 2024

Contact for telephone discussion (if required)			
Name	Position	Telephone	1st contact
Scott Russell	Manager, Energy Use Policy	9(2)(a)	✓
Lorenz Maggaard-Romano	Policy Advisor, Energy Use Policy		

The following departments/agencies have been consulted
Ministry of Transport

Minister's office to complete:

Approved

Declined

Noted

Needs change

Seen

Overtaken by Events

See Minister's Notes

Withdrawn

Comments



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Purpose

This briefing seeks your final feedback on the proposed energy content for inclusion in the second Emissions Reduction Plan (ERP2) public consultation document before it goes out for ministerial consultation.

Recommended action

The Ministry of Business, Innovation and Employment recommends that you:

- a **Note** ERP2 public consultation is planned for June 2024, and agencies must submit draft content for compilation into a cross-government discussion document for Cabinet approval to consult
- Noted*
- b **Note** key updates to the draft energy content include:
- a new section to set out the role of the emissions trading scheme (ETS) in the energy sector
 - language changes for consistency across the chapters
 - language changes to more accurately reflect the Electrify NZ work programme.
- Noted*
- c **Agree** subject to the incorporation of your feedback and further drafting refinements, that MBIE will submit the draft energy content (attached as **Annex One**) by May 15, 2024, for inclusion in the draft ERP2 discussion document for Ministerial consultation.
- Agree / Disagree*

9(2)(a)

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

9 / 05 / 2024

Hon Simeon Brown
Minister for Energy

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Context

1. On 22 March 2024 we provided you with draft energy content for ERP2 public consultation [2324-2313 refers]. This content, with your approval, was compiled into a cross-government discussion document on 5 April 2024. This briefing provides an overview of key changes to the proposed energy content that have taken place during the compilation and review process.
2. We are seeking your feedback on the updated energy content, attached with tracked changes as **Annex One**, by 15 May 2024, ahead of Ministerial consultation.

Overview of notable changes to ERP2 energy consultation content

3. We have made the following key changes, none of which we consider substantive:
 - all sector chapters now begin with an explanation of how the sector interacts with the ETS, and how the policies outlined in the chapter are intended to support it
 - removed the “priorities for reducing energy emissions” paragraph and added a sentence to the opening “proposed approach” to match the transport chapter
 - added a line noting that feedback from this consultation will support development of the Energy Strategy
 - shortened the Energy Trilemma section
 - deleted ‘Supercharging EV Infrastructure’ from the Electrify NZ work programme list to better reflect the work programme as agreed in the Electrify NZ Work Programme Cabinet paper [ECO-24-MIN-0065]. The Transport chapter includes a section on electric vehicle infrastructure
 - added a reference to the resource management act national direction work to support offshore renewable energy and hydrogen projects as part of Electrify NZ work programme
 - removed text from the Sustainable Aviation Fuels section where it overlapped with the transportation chapter. This content can still be found in the transportation chapter.
4. Along with content changes, language has been adjusted for consistency with other chapters.

Next Steps

5. The second CPMG meeting is scheduled for 20 May 2024. We understand the meeting will focus on the ERP2 discussion document and upcoming public consultation. We will work with the Ministry of Transport to provide you with advice ahead of this meeting.
6. The Cabinet Paper seeking approval to release the ERP2 Discussion Document will begin Ministerial consultation on 22 May 2024. The table below sets out key dates ahead of the expected release of the discussion document. Note these dates are subject to change.

Milestone	Estimated Date
Ministerial Consultation	Late May
Cabinet Business Committee consideration	4 June 2024
Cabinet Consideration	10 June 2024
Public consultation launched	12 June 2024

Annexes

Annex One: Updated Energy Content

Annex One: Updated Energy Content

ERP2 Energy – draft consultation content

Proposed approach to reducing energy emissions

Emissions from the New Zealand energy system are covered by the ETS. The ETS incentivises 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.

Our proposed actions to enable the ETS to play its role most effectively and to mobilise private capital are:

- Ensuring security of supply and affordability as the energy system decarbonises, recognising end users will not have the confidence to switch to electric technologies without reliable, affordable electricity supply.
- Enabling electrification and supporting New Zealand to double its supply of renewable energy, by cutting red tape including consenting barriers to increase investment.
- Enabling other low-emission fuels and carbon-capture technology, including through addressing regulatory barriers to carbon capture, utilisation, and storage.

Through this consultation, we seek your feedback on the impacts of the proposed actions, and what further barriers exist to investment in decarbonising energy use.

Submitters on this consultation may wish to cross-reference their previous energy submissions. Your feedback will also inform development of the Energy Strategy.

Introduction

Emissions profile

Emissions from energy use make up 40 per cent of New Zealand's total emissions. This includes 18 per cent from energy used for transport.

New Zealand's abundant renewable energy potential provides an opportunity to increase our reliance on renewable electricity and alternative fuels in a way that supports New Zealand to meet our emissions budgets, reduces our dependency on imported fuels, and ensures we do not compromise the reliability or affordability of our energy system.

Figure 1 below shows the makeup of emissions within the energy sector, 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.

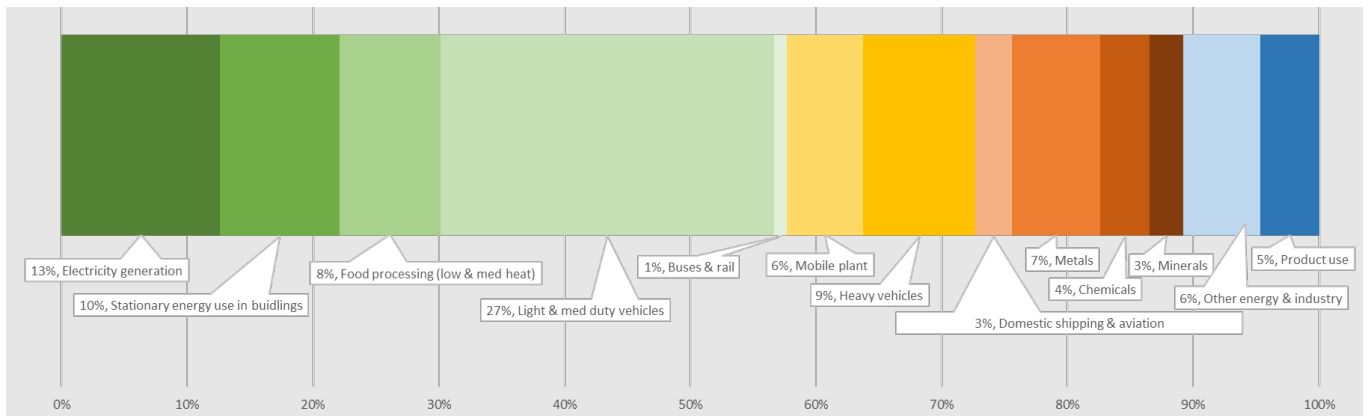


Figure 1: New Zealand’s energy, industrial process and product emissions 2021

Balancing the energy trilemma as we decarbonise

A secure and affordable energy supply is essential to achieving our emissions reduction goals. Energy emissions reductions that come at the expense of security and affordability will ultimately undermine our decarbonisation goals. Like many other nations, New Zealand will need to take a balanced approach to decarbonising energy, as shown in figure 2.

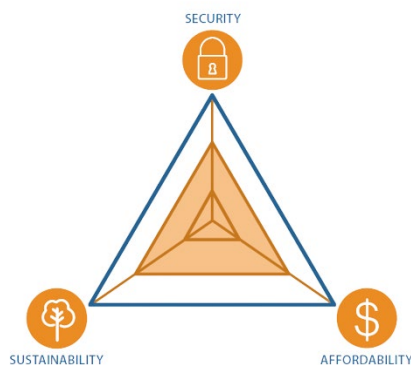


Figure 2: Balancing the energy trilemma

Security of supply

Maintaining reliable and affordable energy supply is a key challenge as our energy system transitions away from reliance on fossil fuels to greater reliance on low-emissions energy.

For electricity, we have a healthy pipeline of renewable generation investment in technologies, such as wind and solar to meet growing demand. However more investment will be needed in areas such as flexible firming generation resources, transmission and distribution, demand-side response, energy efficiency, and new energy storage solutions to maintain system security, especially as fossil fuelled thermal stations retire.

While increased switching to renewable energy is expected to reduce the overall demand for gas, it will be needed through the transition. For example, gas can provide power when intermittent renewable generation is not able to provide electricity, until a renewable or energy storage technology can fulfil this role. Without a clear pathway forward for the gas sector, it will be hard to maintain the investment confidence needed for ongoing gas production. Our security of supply

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work programme seeks to ensure we have enough electricity and gas for our energy needs. System reliability and affordability will be key to encourage electrification in EB2 and beyond.

Affordability

Having affordable electricity can help to support fuel switching decisions that result in emissions reductions. While electricity and fuel prices are expected to rise in the next ten years, ultimately electrification (particularly of transport) is expected to reduce overall household energy bills as energy-efficient electrical devices replace petrol, gas, and other energy sources.¹

In the short term, we expect to see electricity prices increase due to the significant investments required in electricity generation, transmission and distribution infrastructure and growing costs in the ongoing use of fossil-fuel baseload and gas for peaking. Gas prices could also increase over time if the number of users declines, and the relatively fixed costs of production and distribution are shared over fewer users.

Prices for internationally traded liquid fossil fuels such as jet fuel, petrol, and diesel are more volatile and difficult to predict, as they are influenced by overseas events. Prices of biofuels and synthetic fuels are relatively high compared to liquid fossil fuels due to supply constraints.

Work is underway across MBIE, the Electricity Authority, the Energy Efficiency and Conservation Authority, and the Commerce Commission to make sure electricity costs are as efficient as possible, to give households greater control over when and how they use energy, and to support those struggling with their energy bills. This work will look at areas across the electricity supply chain (wholesale generation, transmission and distribution, and retail markets) where further focus could be needed to achieve long-term benefits for consumers. The gas security of supply work programme will also consider future affordability of gas.

Energy efficiency and a smarter electricity system can support security, affordability and emissions reductions in the electricity system

More efficient use of electricity and greater deployment of smart devices can ensure we are maximising the use of existing renewable energy and reduce the overall need for generation and network upgrades across the electricity system.

When aggregated and coordinated, controllable smart devices can help keep our electricity system stable and secure when the wind drops or sun stops shining – either by reducing electricity consumption or discharging electricity back into the local network, to balance against these shifts. This technology can also be utilised at an industrial scale. Some industrial users may be able to reduce costs by shifting their energy use off peak or earn money from reducing their load in response to high demand or a significant grid event.

The Government is exploring ways to strengthen New Zealand's energy efficiency and demand flexibility regulatory regime. This could enhance the effectiveness of the way New Zealand regulates energy using products, including EV smart chargers.

¹ A report commissioned by the Energy Efficiency and Conservation Authority (EECA) recently estimated that homes currently using gas or LPG appliances and petrol vehicles could save over \$1,000 per year if they electrify their appliances and vehicles and get their power from a combination of rooftop solar, home battery, and the existing electricity grid. See Rewiring Aotearoa *Electric Homes Technical Report* (March 2024).

Enabling electrification across EB2 and beyond

For much of New Zealand's energy use, particularly for residential consumers and some commercial use, electrification is the best and cheapest option to lower emissions. Meanwhile, many technologies such as electric boilers, heat pumps and electric vehicles are already or are soon expected to be cost competitive with fossil fuel alternatives. Electrification will be key to meeting New Zealand's early emissions budgets, alongside energy efficiency.

To enable this electrification, New Zealand needs:

- secure and affordable electricity supply,
- the ETS to incentivise low-emissions energy decisions, and
- to build significantly more electricity generation and network infrastructure.

New Zealand needs to build significantly more electricity generation and network infrastructure to electrify

As electricity-based technologies become more widely adopted, electricity demand will rise significantly and renewable generation capacity will have to grow to meet this demand.

Demand for electricity is expected to increase significantly by 2050. This significantly outpaces demand growth in previous decades and could rise even more if new industries such as hydrogen or sustainable aviation fuels emerge in the future.

Currently untapped renewable energy sources, such as offshore wind, could be necessary to sustainably increase generation capacity depending on overall demand and availability of onshore resources. New Zealand has world leading offshore wind generation potential; taking advantage of this could make a big contribution to reaching our emissions targets. However, it is currently uncertain on what timeframe offshore wind will be economic in New Zealand.

Alongside these investments in generation, we also need to enable significant and timely new investments in the 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 is a pillar of ERP2 and will enable New Zealand to double its supply of renewable energy

To deliver on New Zealand's climate goals, whole sectors of the economy must switch to clean electricity. Electrify NZ outlines the Government's plan to drive investment in renewable electricity generation by cutting red tape to increase investment and help double the amount of affordable, clean energy available to put New Zealand on track to reach its climate change goals.

The Electrify NZ work programme involves the following initiatives:

- **Fast track consenting** – this legislation will deliver on Electrify NZ commitments (eg for fast decision making and investment certainty) for projects referred out of the standard RMA process and into the fast track.
- **RMA reform** – we intend 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** – we intend to advance amendments to the National Policy Statements for Renewable Electricity Generation and Electricity Transmission this year. A broader Phase 2 review of national direction will pick up remaining aspects of national direction **9(2)(f)(iv)**

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- **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 remaining aspects of national direction – 9(2)(f)(iv)

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.

Significantly increasing the supply of renewable energy is crucial to enabling other sectors of New Zealand’s economy 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).

Enabling other low-emission fuels and carbon-capture technology

For some sectors and activities, electrification is not currently possible or practical, or is very expensive to implement. Electricity generation itself includes emissions that are hard to abate, given the need for “firm” electricity generation that can be dispatched when the wind isn’t blowing and the sun isn’t shining. 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 are better suited (than electrification) are concentrated in industry and heavy transport.

This section outlines the Government’s work to progress options to enable other low-emission fuels and seeks feedback on additional barriers firms face to investing in these options. It also highlights the importance of having fuels like natural gas and biomass available as decarbonisation options, particularly in the second Emissions Budget period. We note that natural gas is likely to continue to play an important role in supporting wider emissions reductions out to 2050.

This section also sets out actions we can take now that may not significantly reduce emissions in the short term but will reduce the long-term cost of addressing hard to abate emissions to support future emissions budgets, such as enabling hydrogen.

Reducing emissions in hard-to-abate activities domestically would require establishing supplies of green fuels (for example, biomass, hydrogen, synthetic fuels), carbon capture technologies, and innovation to bring down the cost and improve availability of solutions for each sector. New Zealand has some significant natural advantages, including the potential for abundant renewable electricity generation, that could underpin our ability to address emissions in hard-to-abate activities.

There are, however, significant commercial and technological challenges to reducing emissions from some of these activities. Producing clean fuels like hydrogen and hydrogen-derived sustainable aviation fuels would significantly increase renewable electricity requirements. This could increase electricity prices if the market is unable to keep pace with the infrastructure to meet this scale of demand, or if more expensive generation options like offshore wind are required.

Bioenergy

Bioenergy is a versatile fuel and is already being deployed. Woody biomass is currently lower cost than other alternative fuels (such as hydrogen and biomethane). Biomass boilers for process heat are gaining popularity in New Zealand, with multiple businesses now using them (including co-firing with coal) as a low emissions alternative to fossil fuelled boilers. Biomass co-firing (using wood pellets) has also been trialled in electricity generation. Bioenergy could also be a key input for green fuels and chemicals such as biofuels and sustainable aviation fuels (SAF).

Supply of bioenergy is a key constraint, however, and could be outstripped by potential demand in the future, with significant regional variations.² Regional supply is likely to be influenced by the cost of transporting and processing biomass, the presence of competing economic uses both for energy and non-energy uses, emerging innovative biochemicals, and carbon sequestration.

To have confidence to move forward, bioenergy users and those involved in the supply of energy need a line of sight on renewable fuel choices, infrastructure upgrades and costs, and opportunities to work with other local businesses. There are a number of projects underway across government to better understand New Zealand's biomass resources. The Energy Efficiency and Conservation Authority are publishing insights to support collaboration between demand and supply side stakeholders to inform fuel-switching investments at a regional level.

Natural gas

Gas and coal are currently used in heavy industries and as flexible fuels to meet electricity demand peaks or to fill the gaps when weather conditions are not suitable for intermittent sources such as wind and solar. Gas is expected to continue to play a role in some industries while there are limited technologically or economically viable alternatives. Having gas available for electricity generation avoids reliance on coal and helps ensure our electricity system is reliable enough to encourage electrification.

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

- **enabling carbon capture utilisation and storage (CCUS):** we will look at options to enable CCUS activities, such as reducing regulatory barriers and better assessing risks around long-term storage. CCUS has the potential to reduce emissions from gas production as well as providing sequestration opportunities for other high CO₂ emitters.
- **enabling renewable gases:** enabling use of biomethane and hydrogen provides an opportunity to replace a portion of the gas we currently use in our energy system with lower emissions alternatives in locations where supply and demand are well-matched.

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 there are significant opportunities, there are also challenges to hydrogen deployment. These include the need for additional renewable electricity generation to support production, high upfront costs for production, distribution and use, as well as technical and safety considerations. 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 is committed to planning for low-carbon transitional fuels like hydrogen and methanol. The Government aims to unlock private investment into hydrogen. Since ERP1, MBIE has published and consulted on an Interim Hydrogen Roadmap and plans to follow up with a final

² For more information, see: <https://www.eeca.govt.nz/co-funding-and-support/products/about-reta/>

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Roadmap 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.

Sustainable aviation and shipping fuels

As discussed in the Transport chapter, sustainable fuels are needed to decarbonise the planes and ships that transport passengers and goods to, from and around New Zealand.

The Government is considering a range of issues related to SAF, including how to ensure supply and sustainability of the feedstocks needed and remaining globally competitive. The Government is funding a number of 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. The Energy Efficiency and Conservation Authority 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.

Green shipping fuels will also be needed in future. The sector is expecting a mix of options across different journey types, including battery electric, methanol, ammonia, hydrogen, and biomethane. New Zealand's first electric passenger ferry commenced operations in 2022, while internationally the use of methanol as a marine fuel has been demonstrated in commercial operation since 2015.

While limited marine bunkering (refuelling) currently takes place in New Zealand, alternative fuels may require different fuelling arrangements that could see a greater role in the future for locally produced marine fuels. New Zealand is party to a number of international agreements that aim to address emissions from international marine freight, including Annex VI of the International Convention for the Prevention of Pollution from Ships and the Clydebank declaration to establish green shipping corridors.

Commercial challenges

Reducing hard-to-abate emissions usually requires developing new processes and technologies that can utilise cleaner fuels and raw materials. These technologies may require investment in expensive research, development, and deployment activity with high upfront costs to ultimately bring down long-run costs. They may also require long-term replacement of large parts of a firm's asset base, such as its equipment or vehicle fleet, as well as new infrastructure to supply the required power and fuels.

New Zealand will rely on import of new technologies in many areas, but we will also need to build capacity to receive and deploy new technologies, including by building our workforce, infrastructure, and allowing our regulatory systems to learn and develop. The Government has a range of science and innovation programmes that support emissions reduction activity by supporting basic science, testing and trialling, and commercialisation.

Adaptation

As noted in the National Adaptation Plan (NAP), climate change increases risks across the energy sector. Energy industries and businesses – across generation, transmission and distribution, and households also have a role in reducing energy emissions without creating unacceptable resilience risks. The government has a role to:

- ensure critical infrastructure is resilient
- help energy asset owners and providers prepare for and respond to a changing climate.

As part of the NAP, Transpower is developing an adaptation plan, which will outline how Transpower will adapt to climate change through the design, delivery and operation of the national grid. The plan will address exposed assets as well as new investment in infrastructure and consider adaptation in maintenance and development programmes. This is due by 2027.

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While some measures to improve energy resilience involve trade-offs with emissions reduction goals, others can be complementary, and may also involve other co-benefits, such as building to improve energy efficiency. For example, distributed energy projects can help communities with resilience, energy system innovation and more affordable energy.

Overall impacts

Emissions impacts

As outlined earlier, **actions to enable electrification** are most likely to lead to 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.

Actions to enable uptake of low emissions fuels and carbon capture technology may significantly reduce emissions in EB2, but will reduce the long-term cost of addressing hard to abate emissions to support future emissions budgets, such as enabling hydrogen. Through this consultation, we are seeking information to better understand and model the impact of these enabling policies.

Distributional and economic impacts

As outlined earlier in this chapter, electricity and fuel prices are expected to rise over the second Emissions Budget period. Energy costs are a major input cost for businesses and have a significant impact on New Zealanders' cost of living.

In 2023, MBIE analysis found 110,000 households in New Zealand could not afford the energy to heat their homes.³ While electrification will generally lower overall household energy bills, people on lower incomes will be least able to afford the technological innovations and household upgrades (such as electric vehicles and home solar generation) that could help offset rising costs.

Increasing energy efficiency and addressing affordability are important for a range of economic and social factors. For example, people who cannot afford to heat their homes are likely to have worse health outcomes. This has flow-on effects such as reduced economic and educational opportunities and increased pressure on the health system.

The energy transition presents new economic opportunities as well as challenges over the second Emissions Budget period. Reducing emissions provides an opportunity to meet trading partners' growing expectations for renewably produced and transported goods, thereby maintaining and growing international markets and creating skilled jobs.

Treaty implications

The Government has obligations through the Treaty of Waitangi, Treaty settlements and Accords to include iwi/Māori in operational and policy processes in the energy system.

Iwi and hapū have rights and interests in their rohe and in marine areas around Aotearoa New Zealand that could be impacted by renewable energy developments – both onshore and offshore. The Government is committed to upholding Treaty settlements and associated rights and interests and are engaging closely with iwi throughout the establishment of the offshore permitting regime.

Summary of energy questions

- Do you support the approach to balancing the energy trilemma? Do you agree with the key challenges we have identified?

³ [See Report on Energy Hardship Measures – year ended June 2022 \(mbie.govt.nz\)](https://www.mbie.govt.nz/energy/energy-hardship-measures)

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- Modelling the impact of Electrify NZ will require understanding the new generation capacity that would be built because of these measures. To do this, we are seeking your feedback and supporting evidence on:
 - how the measures in Electrify NZ may affect projects already in the development pipeline being built and when this may occur?
 - if there are additional projects not already in the pipeline that may end up being investigated and pursued by developers?
- What additional significant barriers do businesses face to investing in renewable electricity supply (generation and network infrastructure)?
- To what extent will the policies to enable affordable, secure, and renewable electricity support businesses to switch their energy use? Can you provide any evidence?
- What are the key opportunities or risks for reducing emissions in hard-to-abate sectors over the second Emissions Budget period? Can you provide any evidence?
- To what extent will the Government's existing policies in relation to low emission fuels and carbon capture technologies (outlined above) enable private sector investment decisions and emissions reductions in energy supply and demand? Can you provide any evidence?
- What additional regulatory, policy, economic, technological, or other barriers do businesses face to progressing decarbonisation options with low emission fuels and carbon capture technologies, and what is the role of government in this area?
- What further barriers and opportunities should the Government consider to ensure the energy sector is resilient to the effects of climate change?
- What distributional, economic, environmental and Te Tiriti implications could occur under current and planned policy settings? Can you provide any evidence?
- What further should the Government do in response to these impacts?

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