Briefing for the incoming Minister for Energy

27 November 2023

MINISTRY OF BUSINESS, INNOVATION & EMPLOYMENT
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Te Kāwanatanga o Aotearoa
New Zealand Government

Contents

1. Welcome to the Energy portfolio

1. The Government has set out a number of priorities within your portfolio focused on New Zealand's energy system, including:
   - ceasing work on Lake Onslow pumped hydro
   - delivering Net Zero 2050 by doubling New Zealand's renewable electricity
   - improving resource management settings for renewable generation, including work to issue a National Policy Statement for Renewable Electricity Generation
   - accelerating the implementation of an offshore wind regulatory system
   - advancing regulatory changes and work, including to:
     - provide greater certainty around cost recovery for and the delivery of regulated infrastructure
     - investigate the threshold at which local lines companies can invest in local generation assets
     - examine transmission and connection pricing to facilitate cost effective connection of new renewable generation resources, both on-shore and off-shore.
   - ensuring that climate change policies are aligned and do not undermine national energy security
   - assessing and responding to the impact that energy prices have on inflation including consumer led institutional improvements.
   - commissioning a study into NZ's fuel security requirements
   - investigating the reopening of Marsden Point oil refinery and implementing a Fuel Security Plan
   - planning for transitional low carbon fuels, including the infrastructure needed to increase the use of methanol and hydrogen to achieve sovereign fuel resilience
   - supporting development of hydrogen technology to produce hydrogen from natural gas without co-production of CO_2.
2. The Government has split the previous Energy and Resources portfolio into two separate portfolios and created an Associate Energy portfolio. Both systems play a significant role in creating a productive and sustainable economy. There are significant overlaps between the portfolios, particularly with respect to gas. Officials welcome further guidance from you and the Minister for Resources and Associate Minister for Energy on the nature of this split and how ministerial priorities will be apportioned.
3. We also acknowledge the incoming Government's commitment to reduce public sector expenditure. Pri

Confidential advice to Government

4. In section 6 of this briefing, we set out the range of further briefings we intend to provide, which address how we will support you in delivering on the Government's priorities in this portfolio. We would value an early opportunity to discuss the relative priority of your commitments and to support you to develop a portfolio work programme.

5. The purpose of this briefing is to:

   - provide background information about the Energy portfolio (contained in sections 2, 4 and 5 of this briefing)
   - provide initial advice on the strategic issues facing the New Zealand energy system (section 3 of this briefing)
   - set out how we will help you to implement your priorities for the portfolio and identify further areas where MBIE considers policy settings within your portfolio could be improved, to optimise the performance of the Energy regulatory system (section 3 of this briefing).

2. Portfolio overview

Purpose of this section

6. This section sets the scene for the Energy portfolio by outlining the regulatory systems you are responsible for, and the associated appropriations and MBIE staffing arrangements.

7. This is supplemented by section 4 of this briefing, which provides a more detailed breakdown of the legislation, entities and appropriations that sit within these systems (with further information in the annexes).

Responsibilities

8. As Minister for Energy you are responsible for the energy markets regulatory system. The energy system plays a significant role in creating a productive and sustainable economy. This includes being central to New Zealand's transition to a low emissions economy, while maintaining secure and affordable energy and mineral resources for New Zealanders.

9. The energy markets regulatory system comprises the institutions and markets involved in the production, supply and consumption of energy and related services. It includes regulatory and non-regulatory measures to support the reliability and security, competition, efficiency, access and affordability of energy.

10. The energy markets regulatory system includes the policy, legislation, regulations and rules governing:

    - **Electricity**: generation, storage, transmission, distribution and retailing
    - **Gas**: storage, transmission, distribution and retailing of natural gas and LPG
    - **Energy use and efficiency**: policy settings for supporting the efficient industrial and domestic use of energy, the provision of energy efficiency product standards and information for energy consumers
    - **Liquid fuel markets**: importation, production and export, storage, distribution and retailing of refined oil products and other liquid fuels.

11. Annex 1 contains key introductory data about the New Zealand energy system.

12. The petroleum and minerals regulatory system is intrinsically linked with the energy system. New Zealand's reserves of minerals, oil and gas are valuable national assets and have a role to play in securing our supply of affordable energy. Minerals such as aggregate are also critical to infrastructure and industry, and some of our minerals will likely be essential in a low emissions economy.

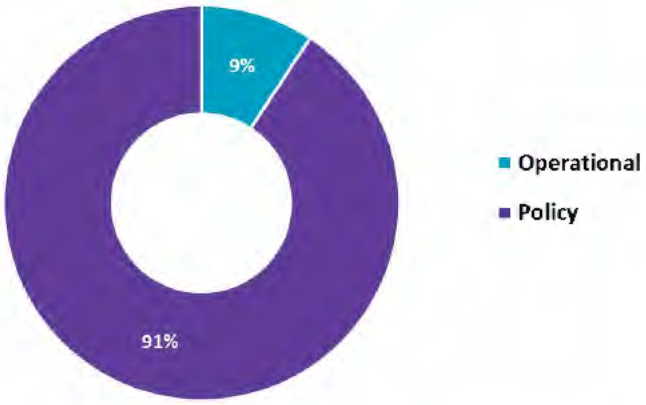
13. The regulatory system contains the framework for managing New Zealand's Crown-owned petroleum and mineral resources and leading the development and regulation of our resources.

Departmental arrangements

14. The Energy portfolio is supported by the Energy and Resource Markets (ERM) Branch of the Ministry of the Business, Innovation and Employment (MBIE). Within the branch, approximately 68 policy FTEs and 7 operational FTEs are dedicated to the Energy portfolio. Your main relationship with MBIE is conducted through the ERM policy teams.

ENERGY Portfolio by Policy/Operational Function ONLY

The 'Energy' portfolio (Operational/Policy only) consists of 75.4 FTE, which is 1.2% of the total MBIE workforce. In the Energy portfolio, 9% is operational and 91% is policy. Enablement functions (corporate, ICT) have not been included.



Portfolio FTE by Function

Function	Portfolio FTE	Portfolio %
Operational	7.0	9%
Policy	68.4	91%
Total staff	**75.4**	**100%**

*Note: All numbers are represented as FTE. Data is at 30 September 2023

Appropriations you are responsible for

15. The Energy and Resources appropriations sit within Vote Business, Science, and Innovation. For 2023/24, the appropriation for Vote Business, Science, and Innovation is $4,086m (excluding capital), of which $709.8m is for the Energy portfolio. The portfolio appropriation is split between departmental funding (funding received by MBIE to provide services directly) of $28.9m, and non-departmental funding (funding provided via MBIE to other agencies for them to provide services) of $680.9m.

16. We are cognisant of the current fiscal environment, including the $110 million Fiscal Sustainability Payment likely to be submitted to Treasury in late 2023. Confidential advice to Government

Legislation

17. The Energy portfolio is responsible for administering nearly 15 Acts and their supporting legislation, including statutes regulating the electricity, fuel and gas sectors. These are set out in section 4 below.

3. Strategic choices in the Energy portfolio

The economic context

18. As outlined in MBIE's separate briefing on the economic context, New Zealand's economy faces a number of long-term challenges. These include weak productivity, increasing stresses on our economic resilience, negative impacts on the natural environment, and significant disparities between different population groups. Compounding these, are global 'megatrends', such as changes in climate, technology and demography, and rising geopolitical tensions. In the short-term, our economy also faces immediate headwinds. These challenges and trends present both risks and opportunities to the economy. MBIE can help you to work collaboratively across portfolios and with stakeholders, such as business and local communities, to achieve your immediate portfolio priorities and address these challenges.

The energy sector underpins our economy and society, and is under transition

19. Energy is fundamental to economic activity and the conduct of much of our daily lives. New Zealanders and businesses depend on affordable and secure energy, and increasingly expect their energy to be renewable. New Zealand's energy system has served us very well to date and our long-term energy outlook is positive. Compared to many other countries, New Zealand's energy supply is highly reliable, renewable, and affordable.

20. However, the energy system is changing. Throughout the world economies are seeking to lower emissions and to shift to renewable energy. This process is also underway in New Zealand. Industry, transport and other energy users are beginning to switch from fossil fuel-based energy to renewably generated electricity and are wanting access to fuels such as hydrogen and bioenergy.

21. As a result, in the coming years there will be fundamental changes in both the supply of, and demand for, energy. These changes will be of a scale and nature that have not been seen in our energy system for 50 years. Today, our energy supply is dominated by private sector players who respond to commercial incentives and, where necessary, regulatory settings.

22. On the demand side, we need to significantly lower emissions from our energy use to meet our international and domestic obligations. Emissions from energy use make up 40% of our total emissions, so energy use is an area where New Zealand can take strong action to reduce emissions to meet its emissions reductions budgets. The global market is also increasingly expecting economies to reduce greenhouse gas emissions. International trade is critical for New Zealand's economy and makes up about 60% of New Zealand's total economic activity. Major international markets like the European Union and United States, as well as large multinationals, increasingly expect imported products to be low or zero emissions.

The transition means the energy portfolio needs ongoing, coordinated oversight

23. The market has operated effectively to deliver secure, reliable energy that is affordable to most. However, the changes underway are unprecedented and create risks and opportunities. The portfolio needs ongoing, coordinated oversight and a long-term (ie 30 year) view to ensure we manage the opportunities and challenges arising from the energy transition.

24. The key opportunities are to enhance energy security, affordability and sustainability through electrification and use of novel fuels, and to use New Zealand's abundant clean energy resources to launch new industries. In contrast, the most pressing risk is to maintain security of energy supplies – electricity,

gas, and engine fuels – through the transition. We face growing energy security and reliability challenges. The nature and scale of the challenges mean that the market may not solve them all alone.

25. Through the transition, there will be opportunities for New Zealand to grow its domestic economy and exports by industry consuming renewable energy, switching transport fuels that underpin freight and tourism, producing greener versions of carbon intensive products and making the most of our abundant natural resources.

26. Realising this opportunity will require a significant amount of new electricity generation and a range of supporting policy settings to enable industry to switch from emissions intensive processes.

27. It will also require close collaboration and engagement with the energy sector. MBIE has strong relationships with the sector and can use these to support you in your role. A group of participants from the electricity sector are keen to work with the government to develop a framework to drive the electricity transition. We will provide you with advice on the opportunities that such a framework might present.

28. MBIE has a strong work programme underway that will help to inform your understanding of, and respond to, these challenges and opportunities. On 2 November 2023, submissions closed on our consultation papers on the future of gas, hydrogen, offshore renewable energy and electricity market measures. Feedback on these papers will be informative about the nature and scale of the risks and opportunities and options for consideration. You have choices on how you wish to advance this work programme and we will provide you with briefings to set out the feedback and seek your direction on next steps.

Māori have a strong interest in the portfolio and the Crown has specific obligations to iwi

29. The Crown, and MBIE, have obligations through the Treaty of Waitangi, Treaty settlements and Accords to include iwi in operational and policy processes in the energy system. This includes providing the opportunity to participate in early policy development. The Crown and MBIE also have obligations within the Public Service Act 2020, which explicitly recognises the role of the Public Service to support the Crown in its relationships with Māori under the Treaty of Waitangi. Specifically, MBIE's ERM branch has commitments with 54 Māori groups (mostly, iwi and hapū) that relate to the management of minerals and natural resources, many of which also cover energy issues.

30. ERM works hard to build strong relationships with iwi to support the Crown to uphold its obligations. These strong relationships are important for the successful delivery of projects across the portfolio.

31. We recommend early engagement with iwi, to understand their interests, set out your priorities, and engage on areas to work together. In particular, iwi in Taranaki, Waikato and the South Island take an active interest in energy policy issues, particularly the development of offshore renewable energy legislation. In addition, you may wish to engage through the National Iwi Chairs Forum, which can provide a platform for engaging with a wide range of iwi at a senior level. There have been recent discussions within the Forum about establishing a formal working group on energy policy.

Key themes

32. This briefing responds to the Government's energy commitments, describes opportunities for you to consider and describes the most pressing issues we expect you to encounter as Minister during this term. The issues fall under the following key themes:

    - ensuring security of energy supply to meet a range of challenges, including the declining availability of gas, increasingly intermittent generation, potential supply chain disruptions and natural disasters
    - encouraging the rapid deployment of renewable energy sources to meet increasing demand

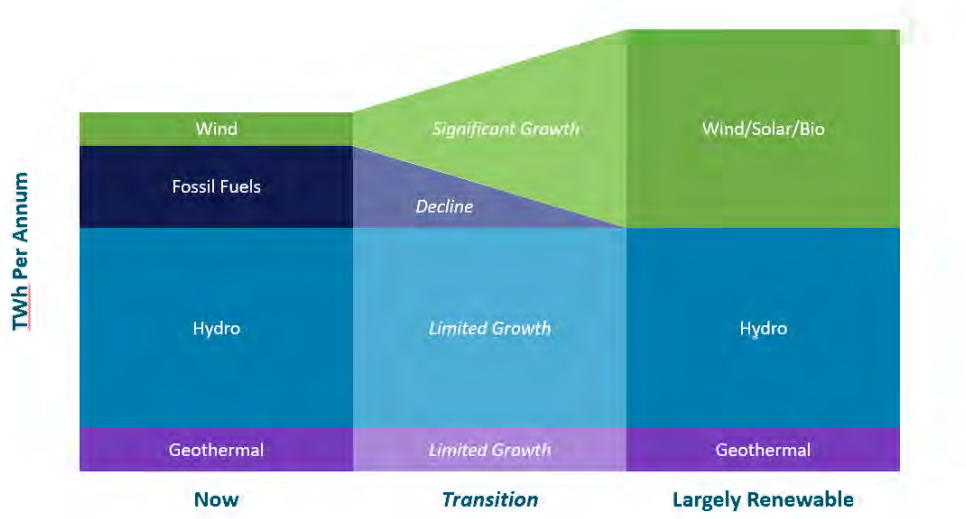
- assessing the impact of increasing energy costs on businesses and the cost of living
- using our abundant renewable energy resources to grow the economy.

33. These issues are fundamental to our energy transition and climate change objectives, our economic interests, and the security, reliability and affordability of our energy system.

The immediate challenge is maintaining security of supply

34. New Zealand's energy system faces real and growing security of supply challenges. There are challenges to electricity supply, gas supply and, potentially, supply of engine fuels. These challenges can be managed, to ensure our long-term energy future is more secure and reliable.

35. The figure below illustrates the transition underway in our electricity system. Fossil fuels currently provide around 20 per cent of New Zealand's electricity generation capacity. Through the transition we will see reducing reliance on coal, oil and gas-fired (thermal) generation and significant growth in the reliance on renewable generation to replace this capacity and meet demand growth, as the broader economy electrifies. The key driver for this is the lower long run marginal cost of renewables, meaning they are a cheaper form of generation.



36. As reliance on fossil fuels reduces and the share of intermittent renewable generation increases, there is a challenge to ensure adequate dispatchable capacity (resources reliably available when called on to generate) to meet demand.

Tight electricity supply situations could become more frequent, especially in cold winter mornings and evenings

37. Our most immediate challenge is to ensure sufficient electricity generation to meet peak demand during cold winter mornings and evenings ("firming"). These tight periods can last minutes or hours and are a particular challenge at times when our thermal generators are not already running to provide baseload electricity supply, when the wind drops, or when the weather is colder than forecast.

38. This challenge for the electricity system is increasing the risk of tight supply – in upcoming winters in particular – as:

- the country electrifies further, adding to peak demand

- we rely more on intermittent generation sources (wind and solar), leading to unplanned reductions in generation when the wind is not blowing and the sun is not shining, and
- quick-start thermal generation plants suffer outages or come to the end of their life.

39. We will provide you with an early joint briefing from ourselves, Transpower and the Electricity Authority to advise you about the elevated risk of electricity supply shortage at times of peak demand during the year ahead and how that risk will be managed.

40. As noted above, recent consultation on options to manage this challenge closed on 2 November 2023, including:

- incentivising generators to retain existing thermal peaking plants, recognising they are becoming less economic to maintain
- finding ways of storing surplus energy or reserving energy for dispatch during peak demand
- encouraging electricity consumers – especially major users – to shift their demand to off-peak periods further (demand response)
- encouraging the development and roll-out of new technologies that use renewable fuels to quickly ramp up at peak times – referred to as "green peakers" (such as generation fuelled by bioenergy, hydrogen or flexible geothermal energy).

41. These options involve significant trade-offs in terms of cost, technology maturity, sustainability and the availability of energy for baseload generation. We will report back to you on the feedback received through the consultation and your options for next steps.

Meanwhile we need to maintain our gas supply for all its current uses, until there are suitable alternatives

42. In advance of guidance from you and the Minister for Resources on how Ministerial priorities will be apportioned, we have provided you both with this initial advice on the security of supply challenges facing the gas sector. It will be important to ensure that the electricity system's needs are reflected in policy work related to gas.

43. Gas is an important contributor to New Zealand's economy, as both a provider of energy and a component of methanol and urea production. As part of the energy system, gas is vital to our energy security in the short to medium term and is likely to have a part to play in the longer term depending on future technology solutions. While the demand for gas will decline over time with increasing electrification and as users switch to other fuels, we expect it to remain critical for firming and meeting peak electricity demand for some time. It is also likely to remain central to industrial and commercial activities, such as generating high temperature process heat and as a chemical feedstock.

44. We need our gas supply to match demand, even while it is declining, but this will be difficult. We acknowledge the Government's commitment to remove the ban on petroleum exploration outside of the onshore Taranaki region. We will work with the Minister for Resources to deliver on this commitment. The ban has accelerated the move away from further domestic petroleum extraction.

45. It is possible that enabling further exploration will extend our oil and gas future. However, there are other impediments that we expect will still restrict investor interest. Notably, we expect that sovereign risk and long-term policy uncertainty will continue to deter investment given the long economic lifetime of petroleum investments, especially offshore. We are working to improve our understanding of the barriers

to investment in oil and gas exploration in New Zealand, and whether there may be measures to overcome those barriers. We will provide early advice on this to the Minister for Resources.

46. In the absence of significant further exploration activity, the amount of gas produced will decline. This decline is a function of reduced investment rather than a reduction in the amount of gas in the ground. We also expect the customer base to shrink and that demand for gas for electricity generation will become more variable. Gas exploration and supply in this context is likely to become increasingly uneconomic. In addition, if there is not a clear future pathway forward for the gas sector there will be a further eroding of investor confidence. This could give rise to a risk that producers do not have the commercial confidence to make necessary investments and the real risk of an unplanned and abrupt loss of reliable gas supply. Such a loss would have direct economic impact for those relying on gas as well as a wider economic and social impacts from a loss of reliable electricity supply.

47. This risk of interruption in the gas supply arises primarily from two areas. First, the need for ongoing and significant investment (estimated to be around $200m per year) by upstream gas producers to maintain the supply by bringing known reserves into production. Producers report hesitancy to make these investments due to uncertainty of the future for gas in New Zealand.

48. Confidential advice to Government

49. Second, the current physical gas system is not designed to respond to sudden peaks in demand. The system delivers gas at a relatively constant flow and if more gas is needed in one place it needs to be diverted from somewhere else. Electricity generators buy gas for peaking and firming only when they need it, in comparatively small amounts and on a short-term basis. At present this can be supplied by the market including through current gas storage.

50. However, from time to time greater amounts are needed. This can arise due to electricity generation shortages elsewhere on the grid. With more intermittent generation meaning greater variability in electricity supply, we will need greater flexibility in our gas supply. Free and frank opinions

While one option would be gas storage, existing gas storage would be inadequate for meeting longer term needs, such as in a dry year.

51. The economic viability of the gas distribution system for residential, commercial and smaller industrial users in the North Island will also reduce if gas availability is uncertain and as the customer base reduces. Capital investment in the distribution system is based on a long return period paid for by fixed costs split amongst the gas users. This model means network operators may become unwilling to commit capital to keep the whole distribution system running if there is long-term uncertainty about the availability of gas or if the customer base declines to a level where it is unable to fund maintenance, despite there still being customers.

52. As noted above, to address these risks and deliver a stable and certain pathway for gas in New Zealand, MBIE recently consulted on an issues paper, which considers:

[1] Free and frank opinions

- when and how we can maintain security of supply, achieve affordability and improve economic prosperity while meeting emissions reductions objectives
- the role for alternative renewable gases like biomethane and hydrogen
- options for increasing gas system flexibility (gas storage and liquified natural gas), and
- the role for technologies like carbon capture, use, and storage (CCUS), which offer promising ways to reduce emissions through the transition phase. CCUS may also allow for the development of reserves that would otherwise be uneconomic under the Emissions Trading Scheme due to a high concentration of CO_2.

53. Subject to clarification of Ministerial responsibilities, we will provide you with advice on options for advancing this work, which could provide greater certainty about policy settings and the future transition for gas to a low emissions future. Free and frank opinions

Storing energy could solve a range of security of electricity supply challenges

54. In addition to frequent, short-lived tight supply situations, we risk less frequent but long-lasting electricity shortages when hydro inflows are inadequate ('dry years'). Dry years occur around twice per decade. At their worst they can result in a shortage of around 10% of our electricity demand and can last for weeks or months. We currently burn coal and gas to meet this shortfall in hydro-electricity generation.

55. Coal could continue to provide a solution for some time, but Genesis' coal-fired power station Huntly is an aging asset that is not expected to be in operation beyond 2040 without significant investment. Coal is also the highest emitter of the potential fuels. Similarly, a declining gas market may eventually make gas as a dry year solution unreliable and expensive. Assuming reliance on gas as a long-term solution creates a growing risk of electricity shortages lasting months during dry years, with potentially severe impacts across households and businesses.

56. We will therefore need an alternative source of reliable, stored energy to generate electricity when the lakes are low. Storage solutions, that can be dialled up quickly, could also contribute positively to the firming and peaking issues identified above.

57. We note the Government's direction to stop work on Lake Onslow and we are implementing this direction. Work done to date on Lake Onslow and the NZ Battery project as a whole has been advanced within the context of the aspirational target of 100% renewable electricity by 2030. We note your commitment to remove this target. Being able to advance work outside of the constraints of the 100% target will allow us to refocus our work on the dry year problem, alongside work on other electricity security of supply issues including firming, as discussed above.

58. . This will provide more time for us to further develop our understanding of how the nature and scale of the dry year problem will develop as the grid becomes more intermittent. It will also allow more time to develop our understanding of what the market will provide, including the potential for more staggered and diversified dry year solutions.

59. Due to the potentially severe impacts of the shortage that can accompany dry years, we think it is important that we continue developing our understanding on this and plan for the long-term management of security of supply risks, including through partnerships with the energy industry.

60. We will provide you with a further briefing on options for advancing this work.

There are risks in trying to reach a 100% renewable electricity system too quickly, though it is both feasible and possibly necessary longer-term

61. There is a broad consensus that we will reach around 96-98% renewable electricity during an average hydrological year in the next decade or so. Going further to reach 100% renewable electricity would require us ensuring that enough firm renewable generation, demand response and dry year generation is available. This generating capacity would need to be able to ramp up quickly, and be adequate to address the scale of the dry year problem described above.

62. We consider that New Zealand should focus on meeting the growth in electricity demand in the least-cost and most secure way, rather than getting to 100% as fast as possible. As recognised by the Interim Climate Change Commission, greater emissions reductions will be achieved through electrifying transport and industry rather than pushing on the last few percent of electricity supply.

63. However, New Zealand may need to reach a fully renewable electricity system within the next 30 years, especially given the risks described above associated with a declining gas sector. Work we have underway will improve our understanding of when getting to a fully renewable system might be technically possible and economically necessary. But fossil fuels will be required for security of supply in the near to mid-term.

New Zealand's renewable resources provide a strong platform to meet increasing electricity demand

64. New Zealand already has a highly renewable electricity system and our abundant renewable resources provide a strong platform to meet increasing electricity demand over the coming decades. This means electrification of our transport, households, businesses and industry will be the main way New Zealand achieves energy sector emission reductions over the coming decades and we have a strong starting point to do this.

There is a strong pipeline of new renewable generation

65. Forecasts are for an unprecedented level of growth in demand for electricity. Large scale switching from fossil-fuel based energy to renewable electricity is key to a more sustainable energy system. Analysis predicts electricity demand increasing by 70-170% above current levels by 2050. Meeting this demand will require a very large and rapid increase in generation, transmission and distribution infrastructure.

66. The sector has served New Zealand extremely well. Our energy system was ranked 9th in the world by the World Energy Council in 2021, and one of only 9 countries to achieve an A-rating on each aspect of the energy trilemma of security, affordability ("energy equity") and sustainability. Looking to the future, significant investment in new renewable generation has been consented and is in the pipeline. This mostly comprises onshore wind, solar and geothermal generation.

67. Forecast new generation could be sufficient to meet demand, but there is considerable uncertainty. Consented developments do not always proceed, or proceed on schedule. Current estimates for electricity demand are also uncertain. They may significantly understate demand, and do not allow for demand for emerging uses, like as an input into the production of energy-intensive goods such as hydrogen or

Sustainable Aviation Fuel.[2] MBIE is working with the Electricity Authority to refine estimates of future electricity demand and the supply pipeline. As discussed earlier, we also need to ensure that future generation includes dispatchable resources.

We need to get the settings right to ensure enough generation build takes place at pace…

68. Developers of new generation report that the main challenges they face are consenting delays and regulatory uncertainty. Addressing these challenges would provide more assurance that future electricity supply will meet demand. We acknowledge the ambition of the Government to accelerate electrification, and in particular the intent to remove consenting barriers to renewable electricity generation and supporting infrastructure. A resource management system that enables timely decisions and recognises the importance of scaling up renewables at pace is essential.

69. Your commitments to improve consenting settings to accelerate the electrification of the economy, including national direction under the Resource Management Act 1991, will be critical to this. The key challenge through this work is to determine how the need to electrify to meet our climate change goals should be balanced against the localised environmental effects of generation infrastructure. We will provide you with early advice on next steps to revise the National Policy Statements on Renewable Electricity Generation and Electricity Transmission and on your other energy-related consenting priorities to ensure necessary infrastructure can be built at a pace that will meet our emissions reduction targets. We will also support you in your engagements with the Minister Responsible for RMA Reform to ensure that changes to resource management legislation address the trade-offs in a way that will deliver on the Government's policy priorities in this area.

70. Our recently concluded consultation explored whether we need other measures to clear the way for, or facilitate, investment in new generation, for example:

    - De-risking measures such as contracts for differences, power purchase agreements, reverse auctions for new short-term storage (such as the grid-scale batteries) and addressing regulatory barriers to smaller scale distributed generation.
    - Market settings and incentives to bring on more large-scale demand reduction, when needed, by industrial-scale electricity consumers.
    - Ensuring our generation and retail markets remain competitive to support the transition to lower cost electricity. We are concerned that the wholesale market is not as competitive as it could be. The transition to more renewables and an associated increasing reliance on lake storage could lead to increases in market power that could raise prices for consumers.
    - Targeting support for new renewable generation to new or smaller market participants.
    - Considering whether some hydro systems could play a stronger role in peaking supply.

71. We will also bring you early advice on the outcome of this consultation and on options for next steps, taking into account the Government's commitments relating to regulatory change set out at the outset of this briefing.

[2] One key uncertainty is the future of the New Zealand Aluminium Smelter at Tiwai. MBIE's work on Tiwai has been led through the Economic Development portfolio because of the significance of the smelter to the Southland Economy. However, MBIE's ERM branch will be able to provide you with advice on the energy system impacts of Tiwai remaining or exiting New Zealand.

…along with the required electricity system infrastructure

72. We note the Government's intention to examine transmission pricing to facilitate the cost-effective connection of new renewable generation resources, both on and offshore. Transmission infrastructure needs to scale-up rapidly to carry the increasing volumes of renewable electricity. Under our current regulatory settings, Transpower can only build new transmission when demand for infrastructure is highly certain. This manages the risk of overbuilding infrastructure, which can increase consumer costs, or lead to stranded assets.

73. But this also causes long lead times for new transmission. It can take Transpower 7-10 years to build new transmission assets when taking account of the time required for planning, consenting, land access agreements, regulatory approvals and construction. Such long timeframes for new transmission investment could slow electrification. An alternative approach is to invest in the network ahead of time, where this is likely to speed up new generation and electrification. Our recent consultation also sought feedback on this option, and we will bring you further advice on these issues.

We also need to ensure electricity infrastructure is resilient

74. Meanwhile, the risk to energy supply from climate change and other unexpected events is growing. An electrified future will increase New Zealand's need for a resilient national grid for uninterrupted, reliable electricity supply. However, natural disasters, such as earthquakes, and climate-related extreme weather events are already challenging the resilience of electricity supply infrastructure. This could undermine energy security if resilience is not enhanced.

75. Many parties, including the International Energy Agency, have noted that improving grid resilience has become increasingly urgent. Our recent consultation also sought feedback on whether any further actions or steps are needed to support a resilient national grid.

Offshore renewable energy could play a role in our future energy mix

76. The Government's priorities include progressing an offshore wind regime at pace. Offshore renewable energy (especially offshore windfarms) could deliver substantial volumes of renewable electricity. We are currently developing a new regulatory regime to enable the development of offshore renewables. International developers are pursuing New Zealand projects but are seeking certainty to support their investment, both through the regulatory regime that MBIE is developing and financial and other government support to offset risk.

77. At this stage, it is uncertain if we can meet expected electricity demand without offshore renewable energy. As indicated above, this uncertainty is focused on how much the onshore renewable energy pipeline can deliver, how significant the additional demand for electricity will be, whether New Zealand pursues new energy-intensive industries at scale – such as hydrogen or sustainable aviation fuel production – and whether New Zealand pursues a renewable energy export market.

78. There is a strategic choice for the Government regarding the extent to which offshore renewable energy should be supported beyond introducing the regulatory regime. Given the uncertainty about the current pipeline and future demand, this choice will need to balance the value of retaining the option of having offshore renewables in the future energy mix against the potential costs involved, including impacts to the wider electricity market. Work is underway to assist you in making these strategic choices as we gain greater clarity about our future energy options and needs.

79. Iwi and hapū are seeking to partner with the Crown on the development and implementation of the offshore regulatory regime. We understand interests are focused on ensuring existing rights and interests

of Māori are not unduly affected, the environment is protected and economic benefits from developments are shared. We are working with relevant iwi and hapū and will provide further advice on this.[3]

80. We also note that the Government's priorities to update the Crown Minerals Act to promote the use of Crown minerals, and to repeal the ban on offshore oil and gas exploration, will be of particular concern to iwi in Taranaki. Free and frank opinions . Officials will be able to advise you on approaching this issue.

Increasing energy costs will impact businesses and the cost of living

Electricity and fuel prices are expected to rise in the next ten years but there will be opportunities for lower energy costs overall

81. We note the Government's priority to assess and respond to the impact that energy prices have on inflation, including consumer led institutional improvements. Energy costs are a significant input cost for businesses and have a significant impact on New Zealanders' cost of living. In the short term, we will see an increase in the cost of investment in generating, transmission and distribution infrastructure and growing costs in the ongoing use of fossil-fuel baseload and gas for peaking.[4] This will keep electricity prices rising. The forward price for electricity supply contracts also remains high. Increases in international fuel prices also add to cost impacts on businesses and families. Internationally traded commodities, engine fuel (oil, petrol, diesel) prices are more volatile and more difficult to predict or influence than electricity prices.

82. In the longer term – beyond 10 years – we can expect the rise of electricity prices to ease as the share of cheaper renewable generation grows. New Zealand consumers will also be less exposed to volatile and high engine fuel prices as we switch to renewable electricity, and reliance on imported oil diminishes. Moreover, moving to low-emissions technologies will present opportunities to decrease total energy costs for some users, even if electricity prices are rising (for example, running an EV is currently equivalent to running a petrol car at 40 cents/litre). But there will be equity impacts through the transition for those who cannot afford to switch to new technologies.

Some New Zealanders are already finding energy unaffordable

83. Even with efficient and competitive electricity markets and efficient use of New Zealand's natural energy resources, some New Zealanders are finding it difficult to afford adequate energy services.

84. Electricity and fuel prices are contributing to this problem, although they are not the leading cause. The drivers are complex, societal, and span the remits of multiple portfolios. For example, responsibility for housing quality sits outside the energy portfolio. Affordability will likely become a bigger issue as the economy electrifies and as energy costs rise in the short to medium term. People on lower incomes will also be least able to afford the technological innovations (electric vehicles, home solar generation) that could help offset these rising costs.

85. Increasing energy efficiency and addressing affordability are important for a range of economic and social factors. For example, people who can't afford to heat their homes are likely to have worse health outcomes

[3] Developers are exploring projects off the coasts of Taranaki, South Auckland, Waikato and potentially the South Island.

[4] The Boston Consulting Group report *The Future is Electric* (2022) puts this cost at $42 billion in the 2020s.

(e.g. respiratory diseases). This has flow-on effects such as reduced economic and educational opportunities and increased pressure on the health system. Some current programmes, like the insultation programme run by the Energy Efficiency and Conservation Authority (EECA), Warmer Kiwi Homes, have a strong positive cost benefit ratio due to the high value of avoided illness and hospital visits.

86. Your role as Minister for Energy includes monitoring prices, ensuring market settings maximise the positive price impacts of competition, and working across portfolios to address equity issues that arise through the transition. You have responsibility for a range of initiatives that support energy efficiency and affordability – including some EECA-led programmes like Warmer Kiwi Homes and MBIE's energy education and community energy programmes.

The energy transition presents new economic opportunities

New Zealand's industry is facing growing pressure to move to a lower emissions economy

87. New Zealand has a trade-oriented economy with a comparative advantage in agriculture and international tourism. Our export viability (including tourism) will increasingly depend on how 'green' our products and their supply chains are. 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.

88. Electrification is a technologically mature solution for lowering emissions from nearly all commercial sector energy use and low to medium temperature process heat in industry.

89. Reducing the emissions profile of our most energy-intensive sectors and industries is more challenging. Substantially reducing emissions from these sectors is either very costly or requires solutions that are in the early stages of technological development and not ready for deployment (including aviation, shipping, heavy road transport). Amongst our most energy-intensive sectors, New Zealand has several industries with industrial processes that rely on fossil fuels for both high temperature requirements and chemical reactions that are intrinsic to the production process: aluminium, concrete, methanol production and primary steel production.[5] These sectors and industries are significant employers and drivers of economic performance.

90. As climate policies (include carbon pricing) and consumer preferences take increasing effect, hard-to-abate firms are increasingly approaching government seeking support or bespoke treatment of some kind. The second emissions reduction plan provides a timely vehicle to consider and coordinate policy options.

New fuels and technologies will create opportunities for new economic activity

91. In addition to supporting the ongoing international competitiveness of our existing economy, the transition presents opportunities to enhance energy independence, through producing essential fuels from our renewable resources and attracting new economic activity. New Zealand could be well positioned to produce, for example, green methanol for shipping, sustainable aviation fuels, or host data centres. The Government has indicated it wishes to plan for transitional low carbon fuels, including the infrastructure needed to increase the use of methanol and hydrogen to achieve sovereign fuel resilience.

[5] Primary steel production in New Zealand – i.e. producing virgin steel from iron sands is also hard to decarbonise. However, there may be opportunities for domestic steel production to transition to entirely secondary production using scrap as a feedstock and electric arc furnace technology.

92. In exploring these opportunities, and whether there is a role for government to actively enable them, there are some complex trade-offs and system-wide implications to consider. For example, large-scale domestic green hydrogen production as an input to sustainable aviation fuels would increase electricity demand very substantially (at a time when we are already needing to significantly increase electricity generation). We have work underway to identify and assess these system wide challenges and opportunities.

The Government has a role in aligning incentives and removing barriers for firms to lower their emissions

93. There is also a key role for the Government to shape the incentives that firms face to reduce their emissions. Advanced economies are leveraging the climate challenge and using substantial subsidies in green technologies to transform and modernise their industrial base, create jobs and build economic resilience. New Zealand's highly renewable electricity system is a comparative advantage to be leveraged.

94. The Emissions Trading Scheme (ETS) plays a foundational role for some industries (such as low and medium temperature process heat users) in shaping investment decisions.

95. However, there is a range of other barriers and factors influencing firms' decisions. Throughout the next decade, it will be important to understand the barriers that may prevent industry from getting their low carbon transitions underway. For example, the need for the development of new clean energy infrastructure efficiently or in time to enable firms to switch. Some smaller businesses may not make the investments themselves due to capability, capacity and capital constraints.

96. We understand the Government's preference is to use the ETS as the main tool for reducing emissions and achieving net zero emissions by 2050. We would welcome a discussion with you on ways to increase the role of ETS pricing, the wider policy consequences, and possible complementary measures. As noted above, infrastructure investments may be necessary to unlock abatement in some contexts, and some types of businesses (including SMEs) may be less well prepared to respond to a higher ETS price. These constraints may slow or reduce the abatement that would otherwise be achieved.

97. As noted above, the second emissions reduction plan provides the opportunity to deliberately shape and coordinate different policy interventions to manage the risks and opportunities from reducing emissions in our energy and industry sectors. Tools include the right blend of pricing, information provision, regulation, infrastructure investment and innovation.

98. We understand the Government intends to reprioritise unallocated funding from the Government Investment in Decarbonising Industry (GIDI) fund. We note that GIDI was forecast to provide over half of the emissions reductions required from the energy sector in emissions budget two. Free and frank Free and frank opinions . We will provide you advice on the impacts of this and options within the energy portfolio.

Ultimately, participants in the energy sector want clear direction

99. In your role as Minister for Energy we recommend you take a long-term view. This will involve making decisions in the face of a range of uncertainties, including the pace of demand increases, new technologies and future commercial decision-making.

100. Given the challenges and opportunities set out above, there is a strong interest from the energy sector, consumer groups and other stakeholders in the Government providing direction on some of these choices and the role the Government will play. We have a range of work underway to assist in providing the

evidence and understanding needed to take this long-term view, and so to help guide this direction. This includes our engagement on recent consultation documents and energy system modelling to improve our understanding of the impacts of the energy transition. All of this work is intended to help inform some of the strategic choices described in this briefing. Some sector participants have voiced support for an energy strategy which would set out a Government plan for the energy sector and the direction of strategic decision-making. We would welcome the opportunity to discuss the potential merits of developing an energy strategy with you.

101. In addition, the second statutory emissions reductions plan is due for release at the end of 2024, with consultation due early in the year.[6] The energy system will provide the biggest opportunity for meeting our emissions reduction targets. We will support you to work closely with the Minister of Climate Change as the second emissions reductions plan is developed.

[6] Emissions reduction plans are legislative requirements under the Climate Change Response Act 2002.

4. Portfolio responsibilities

Legislation within your portfolio responsibilities

102. The key legislation you are responsible for is listed below with a description of your functions, duties and powers under each.

Electricity Industry Act 2010

103. The Electricity Industry Act 2010 provides a framework for the regulation and governance of the electricity industry. It sets out the Electricity Authority's functions, objectives and monitoring and enforcement powers, and provides for the Electricity Industry Participation Code, which are the industry "rules", created as secondary legislation.

104. The Act also sets out requirements relating to the separation of distribution and certain generation and retail activities, places an obligation on distributors to maintain supply in certain circumstances, and contains a range of regulation-making powers. The Act provides for the industry consumer dispute resolution scheme, but the Minister of Commerce and Consumer Affairs is responsible for these provisions.

105. Your key responsibilities under the Act are:

- recommending regulations on enforcement of the Code, the industry levy, and the fair treatment of domestic and small business consumers, and
- recommending appointments to the Electricity Authority and the Electricity Rulings Panel.

106. You may also directly amend the Code in specific predefined areas concerning market operations where you believe the current Code provisions are not satisfactory and the amendment will further the Authority's objectives.

Electricity Act 1992

107. The Electricity Act 1992 deals with operational matters, setting out the regulatory framework for the supply and use of electricity. Wide-ranging regulation-making powers for electrical safety (including for the purposes of public health and safety and prevention of property damage) are contained in the Act. The Act:

- confers powers and duties on electricity operators and other owners of electricity works
- provides for the registration and licensing of electrical workers and the administration of the Electrical Workers Registration Board, and
- sets out the functions of WorkSafe New Zealand as regulator of the safe supply and use of electricity.

108. Your key responsibilities under this Act are:

- recommending regulations on electrical safety
- granting electricity operator status to electricity distributors or generators, which confers land access powers in relation to roads and rail crossings, as well as placing responsibilities on them, and
- approving Electrical Codes of Practice which are developed by WorkSafe New Zealand.

109. A large number of standards are cited within the Electricity (Safety) Regulations and provide technical detail on compliance with various aspects of the regulations. Amendments to regulations may be required when these standards are updated or replaced.

110. You will be advised on proposed amendments by MBIE, with technical input from WorkSafe New Zealand.

111. This Act intersects with the following portfolios:

- Workplace Relations and Safety, which covers the administration of the work health, and safety and WorkSafe New Zealand.
- Building and Construction, in relation to the occupational regulation of electrical workers. Under the previous government the Minister of Building and Construction was formally assigned responsibility for parts relating to registration of electrical workers.

Energy Efficiency and Conservation Act 2000

112. The Energy Efficiency and Conservation Act 2000 established EECA, and forms the legislative basis for promoting energy efficiency, energy conservation and renewable energy.

113. It includes regulation-making powers for product energy efficiency standards and labelling, as well as the disclosure of information allowing for the compilation of statistics on energy efficiency, energy conservation and renewable energy.

114. Your key responsibilities under this Act are:

- ensuring that there is a National Energy Efficiency Strategy that is developed according to the requirements in the Act, currently the New Zealand Energy Efficiency and Conservation Strategy 2017-2022
- recommending regulations on minimum energy performance standards and labelling for energy-using products and services (including vehicles) and on data collection, and
- appointing the EECA Board.

Fuel Industry Act 2020

115. The Fuel Industry Act 2020 establishes:

- a terminal gate pricing regime to improve competition in the wholesale market by making it easier for a fuel reseller to access fuel that is priced more competitively
- rules to ensure contracts between wholesale fuel suppliers and their wholesale customers are fair and support competition
- a dispute resolution scheme for the new regime
- improvements to the monitoring of the fuel market by requiring fuel companies to collect and disclose certain information, and
- requirements for retail fuel sites to display prices on forecourt price boards.

116. The Act was amended in 2023 to introduce a regulatory backstop to the terminal gate pricing regime. The regulatory backstop provides a threat of regulating prices. This guards against the possibility that the regime is used as a vehicle for price coordination or that fuel companies build market power into their pricing mechanisms. The Act gives the Commerce Commission and the relevant Minister the power to initiate an inquiry into terminal gate prices. If prices are found to be inconsistent with what would be expected in a competitive market, the relevant Minister can recommend regulations to set prices at the terminal gate with the recommendation of the Commerce Commission.

117. The relevant Minister's key responsibilities under this Act are monitoring fuel markets, determining whether to trigger an inquiry by the Commerce Commission into terminal gate pricing at one or more terminal gates, and recommending regulations on:

- access to fuel at storage terminals
- features that must be included or prohibited in wholesale contracts
- dispute resolution
- information that must be displayed in signage at service stations, and
- information fuel suppliers must provide as part of the monitoring regime, which the Commerce Commission monitors and reports quarterly on.

Gas Act 1992

118. The Gas Act 1992 sets out the regulatory framework for the supply and use of gas. It:

- confers powers and duties on gas operators and other owners of gas fittings
- provides for the governance of the gas industry, including providing for co-regulation with a gas industry body, currently the Gas Industry Company and
- sets out the functions of WorkSafe New Zealand as regulator of the safe supply and use of gas.

119. The Gas Act contains wide-ranging regulation-making powers for gas safety (including for the purposes of public health and safety and prevention of property damage), quality and measurement, as well as industry governance.

120. The relevant Minister's key responsibilities under Gas Act are:

- recommending gas safety regulations, market governance and operation, enforcement, the industry levy, and certain consumer issues
- recommending approval of the industry co-regulator, currently the Gas Industry Company, and appointing the Gas Rulings Panel
- accepting or rejecting Gas Industry Company recommendations to change industry rules
- granting gas operator status to gas distributors by Gazette notice, which confers land access powers in relation to roads and rail crossings, as well as imposing responsibilities on them and
- approving Gas Codes of Practice which are developed by WorkSafe New Zealand.

121. The Gas (Safety and Measurement) Regulations 2010 are made under the Gas Act and incorporate numerous standards. The relevant Minister will be advised on any proposed amendments when standards are updated or replaced in the same manner as with the Electricity (Safety) Regulations.

122. The Gas Act also intersects with the Workplace Relations and Safety portfolio, which covers the administration of work health and safety and WorkSafe New Zealand.

Other legislation

123. Legislation administered by other portfolios is also relevant, including the Commerce Act 1986 which prohibits certain conduct and business arrangements that restrict competition. Part 4 of that Act regulates electricity lines businesses. Other relevant statutes are the Fair Trading Act 1986, Consumer Guarantees Act 1993 and Resource Management Act 1991. See also Annex 2.

Crown Entities and Statutory Boards

124. You have a role to oversee and manage the Crown's interests in and relationship with the two Crown entities and three statutory bodies described in this section. This includes ensuring an effective board is in place, participating in setting the entities' strategic direction and funding, and reviewing the entities' performance and management of risk.

125. The expectation is that all parties will adhere to the "no surprises" convention. While these entities are managed at arms-length from government, as Minister you have a number of levers to ensure you can get the performance you want.

126. You are responsible for one Independent Crown entity, the Electricity Authority (EA), and one Crown agent, the Energy Efficiency and Conservation Authority (EECA). The key difference between the two is your ability to provide direction to EECA, and its obligation to give effect to Government policy relating to its functions and objectives if directed by you. Annex 3 contains a list of the current board members and details of their terms for each of these entities.

Electricity Authority

127. The EA is an independent Crown entity established under the Electricity Industry Act 2010, and is responsible for regulating the electricity market. As an independent Crown entity it is generally independent of government policy, however you have the ability to engage in the process of setting strategic direction and performance expectations. The EA is funded by the Crown through appropriations and this funding is recovered through a levy on electricity participants. The EA publicly consults on its levies each year in accordance with the Electricity Industry Act 2010.

128. The EA plans to commence its 2024/25 levy consultation in December (exact timing to be confirmed) for an increase to its main operating appropriation of 14% ($14 million) reflecting the increasing complexity of its operating environment.

129. The members are appointed by the Governor-General on your recommendation. The members of the EA Board are Anna Kominik (Chair), Allan Dawson, Lana Stockman, Dr Cristiano Marantes, Erik Westergaard and Paula Rose. There is currently one vacancy on the Board. The Chief Executive is Sarah Gillies.

130. The statutory objective of the EA is to promote competition in, reliable supply by, and the efficient operation of, the electricity industry for the long-term benefit of consumers. The additional objective of the EA is to protect the interests of domestic consumers and small business consumers in relation to the supply of electricity to those consumers.

131. The EA's main functions include:

- making and administering the rules governing the electricity industry through an Electricity Industry Participation Code
- monitoring compliance with the Code and other provisions in the Electricity Industry Act 2010 and regulations, and investigating and taking enforcement action
- undertaking market facilitation measures such as education and providing guidelines, information and model arrangements
- industry and market monitoring, and carrying out and make publicly available reviews, studies and inquiries into matters relating to the industry
- contracting for market operation services and system operator services and

- undertaking measures aimed at protecting the interests of domestic consumers and small business consumers in relation to the supply of electricity to those consumers.

Electricity Rulings Panel

132. The Electricity Rulings Panel is a specialist dispute resolution and disciplinary body that determines complaints of breaches of the Electricity Industry Participation Code 2010 by industry participants, as referred to it by the EA. It also determines certain disputes between participants and hears appeals on specific decisions by the System Operator (Transpower).

133. The panel is appointed by the Governor-General on your recommendation. Before making a recommendation, you must first consult with the Minister of Justice and the EA.

134. Current members are: Mel Orange (Chair), Matthew Dunning and Paul Webber and Lee Wilson. The panel currently has a vacancy.

Gas Rulings Panel

135. The Gas Rulings Panel is the final arbiter of disputes arising from activities under gas governance rules and regulations. The Panel will approve or reject settlements recommended following investigation, determine unresolved matters and make orders, including remedies and penalties. The Panel is appointed by the relevant Minister following nomination by the Gas Industry Company. The current panel is Miriam Dean CNZM KC.

Energy Efficiency and Conservation Authority

136. EECA is a Crown Entity established under the Energy Efficiency and Conservation Act 2000. It is required to encourage, promote and support energy efficiency, energy conservation and the use of renewable sources of energy.

137. EECA's work programme is guided by the New Zealand Energy Efficiency and Conservation Strategy 2017-2022, and assigned to it under that strategy. EECA also works closely with other government agencies to help them design, implement and monitor policies to promote energy efficiency and make better use of New Zealand's abundant renewable energy resources. As a Crown agent, EECA must give effect to government policy when directed by you as responsible Minister.

138. Current Board members (appointed by you are) are: Elena Trout (Chair), Catherine Taylor (Deputy Chair), Daniel Tulloch, Karen Sherry, Judith (Judi) Jones, Andrew Knight, Christopher Boyle and Albert Brantley. Dr Marcos Pelenur is the Chief Executive.

Gas Industry Company

139. The GIC is the private industry body that co-regulates the gas industry with the Government under the Gas Act 1992. Under the Gas Act, the GIC has the power to recommend certain gas governance regulations to the relevant Minister who has the power to accept or reject those recommendations.

140. For certain issues, the relevant Minister may only recommend that regulations be made following a recommendation from the GIC. For others, the relevant Minister must provide the GIC a reasonable opportunity to make a recommendation to the Minister before recommending that regulations be made. These constraints on Ministerial powers are designed to capture the benefits of industry self-governance, while ensuring that there is high-level ministerial oversight. The GIC may recommend an annual levy rate through levy regulations to enable the GIC to recover its costs from the industry. In practice, the GIC recommends levy regulations every year to ensure it has sufficient funding to continue its operations.

141. Current directors on the GIC board (appointed by industry) are: Rt Hon James (Jim) Bolger (Chair), Robin Hill (Deputy Chair), Andrew Brown, Sam Elder, Babu Bahirathan, Mike Fuge and Paul Goodeve. The Chief Executive is Andrew Knight. The relevant Minister does not have a role in appointing members of the GIC board.

Related Crown entities and state-owned enterprises

WorkSafe New Zealand – Energy safety

142. Energy safety falls within the energy and resource portfolio. WorkSafe New Zealand is the regulator of energy safety and has the function of monitoring and enforcing compliance with safety and other elements of electricity and gas legislation. This means electricity and gas safety issues are regulated slightly differently from other electricity and gas issues.

143. As the Minister for Workplace Relations and Safety has oversight of WorkSafe, this is an area of intersection between the Energy and Workplace Relations and Safety portfolios.

Transpower

144. Transpower provides the infrastructure and operational systems that connect electricity generators to major electricity users and to distribution networks that deliver electricity to homes and businesses around the country.

145. Transpower serves as the National Grid owner (looking after the assets that keep the electricity flowing) and System Operator (managing how electricity gets from the point of generation to homes and businesses in real-time and in the future). Transpower is designated as the System Operator under the Electricity Industry Act 2010.

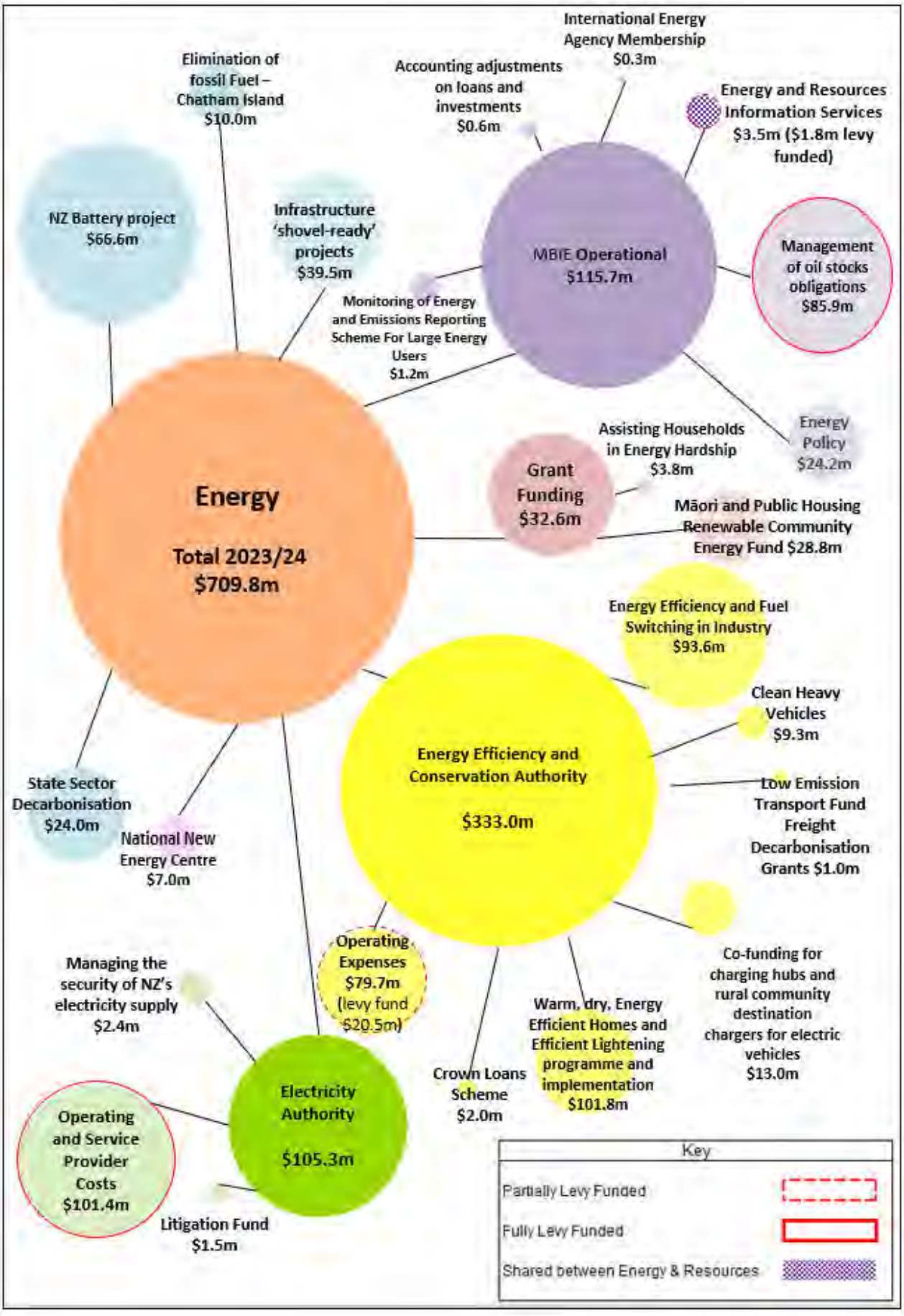
146. Transpower is a state-owned enterprise and is monitored by The Treasury.

Funds and appropriations

The Energy portfolio is funded under Vote Business, Science and Innovation

147. The diagram below illustrates the functions and Crown entities for which you are responsible and the appropriated funding attached to each function and entity. The Crown entities and some other activities in this portfolio are funded by levies (indicated by a red outline in the diagram) or fees. As the portfolio Minister, you are responsible for the legislation mandating these levies and fees.

148. The diagram overleaf sets out the Budget 2023 appropriation for the Energy portfolio. This captures both departmental funding (funding received by MBIE to provide services directly) and non-departmental funding (funding provided through MBIE to other agencies for them to provide services). Items circled in red are fully funded by levies, and those circled with a red dotted line are partially funded by levies.


International Energy Agency Membership $0.3m
Elimination of fossil Fuel – Chatham Island $10.0m
Accounting adjustments on loans and investments $0.6m
Energy and Resources Information Services $3.5m ($1.8m levy funded)
NZ Battery project $66.6m
Infrastructure 'shovel-ready' projects $39.5m
MBIE Operational $115.7m
Management of oil stocks obligations $85.9m
Monitoring of Energy and Emissions Reporting Scheme For Large Energy Users $1.2m
Energy Total 2023/24 $709.8m
Assisting Households in Energy Hardship $3.8m
Energy Policy $24.2m
Grant Funding $32.6m
Māori and Public Housing Renewable Community Energy Fund $28.8m
Energy Efficiency and Fuel Switching in Industry $93.6m
Clean Heavy Vehicles $9.3m
Energy Efficiency and Conservation Authority $333.0m
State Sector Decarbonisation $24.0m
National New Energy Centre $7.0m
Low Emission Transport Fund Freight Decarbonisation Grants $1.0m
Operating Expenses $79.7m (levy fund $20.5m)
Managing the security of NZ's electricity supply $2.4m
Co-funding for charging hubs and rural community destination chargers for electric vehicles $13.0m
Warm, dry, Energy Efficient Homes and Efficient Lightening programme and implementation $101.8m
Crown Loans Scheme $2.0m
Electricity Authority $105.3m
Operating and Service Provider Costs $101.4m
Litigation Fund $1.5m
Key
Partially Levy Funded
Fully Levy Funded
Shared between Energy & Resources

Funding returned after 2023/24 Estimates production

149. Through a recent savings exercise, we have:

- Returned funding for co-funding for Public Charging Hubs and Rural Community Destination Chargers for Electric Vehicles. This was funded through Budget 2023 ($15.000m in 2023/24).
- Agreed to reduce an in-principle expense transfer from 2022/23 to 2023/24 by $1.000m for the Crown Mineral Estate appropriation, $0.500m from the Policy Advice – Energy and Resources appropriation for an energy strategy and process heat and $2.000m from the Supporting Decommissioning of Oil Fields appropriation.

Energy and Resource Markets policy function

150. In recent years MBIE has received time limited funding to undertake the significant volume of policy work relating to the transition of the energy system. This includes policy work on changes needed as we move to an expanded and highly renewable electricity system, to develop a regulatory regime to enable an offshore renewable energy industry and to develop an energy strategy to ensure that steps to lower emissions are coordinated and considered across the whole energy system. Most of the time-limited funding expires in 2025 (with some expiring as soon as 2024).

151. As set out in the introduction above, the changes underway in the Energy portfolio is unprecedented and create risks and opportunities. The overall complexity and risks of the transition mean there will be more active policy work needed on an ongoing basis – relative to the past two decades when the sector has been in a steady-state – and there will be new areas emerging that require policy direction (for example, the regulation of CCUS and consideration of the treatment of new technologies). Confidential advice to Government .

5. How MBIE assists you

152. MBIE provides a range of support and advice to you in your role as the Minister for Energy. This includes but is not limited to:

- energy policy advice
- advice to assist you in fulfilling your legislative responsibilities under the Acts in your portfolio
- management of appropriations within Vote Business, Science and Innovation, including the planning and prioritisation of funding, and supporting you in the annual Estimates Hearings
- Crown entity ownership and monitoring including commenting on draft statutory planning documents, developing and communicating the Government's ownership priorities and objectives for the Electricity Authority, EECA and other entities in your purview, and
- supporting you in your wider Ministerial functions including advice, event briefings and speeches, Ministerial correspondence and international treaty relationships and meetings (information about key international energy relationships and agreements is in Annex 4).

153. The following groups of MBIE play specific roles in the portfolio.

Energy and Resources Markets Branch

154. The Energy and Resource Markets Branch (ERM) sits within the Building and Resource Markets Group in MBIE. We monitor and advise on the performance of New Zealand's energy and resource markets, and we work to ensure that New Zealanders have access to secure, affordable and sustainable energy and resources to support people and the economy. We also regulate and administer the allocation of New Zealand's Crown-owned resources including petroleum, gold, coal and other minerals.

155. A focus of the ERM branch in recent years has been continual progress towards best practice regulatory stewardship. The Council of Energy Regulators (the Council) comprises MBIE (Chair), the Electricity Authority, the Energy Efficiency and Conservation Authority, the Gas Industry Company, and the Commerce Commission. The Council facilitates a uniquely whole-of-system approach to risks, issues and opportunities within the energy markets regulatory system. This collectively enables its members to meet the Government's Expectations for Good Regulatory Practice as they relate to the regulatory system. The Council convenes on a quarterly basis to coordinate and collaborate on their activities and those of other actors in the system; proactively monitor emerging risks (both within and outside of government); and exchange information on each other's work programmes.

156. Over the next 12 months, the Council will be focusing on further strengthening its regulatory governance, with particular emphasis on specifying system outcomes, managing system risk and assurance, and ensuring capability.

157. ERM is also actively working to strengthen our role in engaging with iwi, meeting our obligations under the Treaty of Waitangi, and delivering against the large number of Treaty commitments for which we are accountable.

Data, Insights and Intelligence Branch

158. The Data, Insights and Intelligence Branch and produces annual and quarterly statistics on energy consumption, supply, emissions and price and the energy section of New Zealand's Greenhouse Gas Inventory. The Greenhouse Gas Inventory and our annual energy releases are Tier 1 official statistics. The

team also provides projections of future energy supply, demand and greenhouse gas emissions and analysis to inform decision making in the energy sector.

Entity Performance and Investment Branch

159. The Entity Performance and Investment branch in the MBIE Labour, Science and Enterprise Group monitors the financial and non-financial performance of the two Crown entities within your portfolio – the Electricity Authority and the Energy Efficiency and Conservation Authority. The Crown Entities Act 2004 provides a framework for Crown entity governance and accountability, including responsibilities of board members, and the roles of Ministers in relation to appointing and removing board members, participating in setting strategic direction, performance expectations and monitoring entity performance.

160. Monitoring of these entities includes advising Ministers on board appointments and key accountability processes of:

- ensuring that an effective board is in place to govern the entities
- participating in setting the direction of the entity, and
- monitoring and reviewing performance.

161. As the responsible Minister you will be asked to:

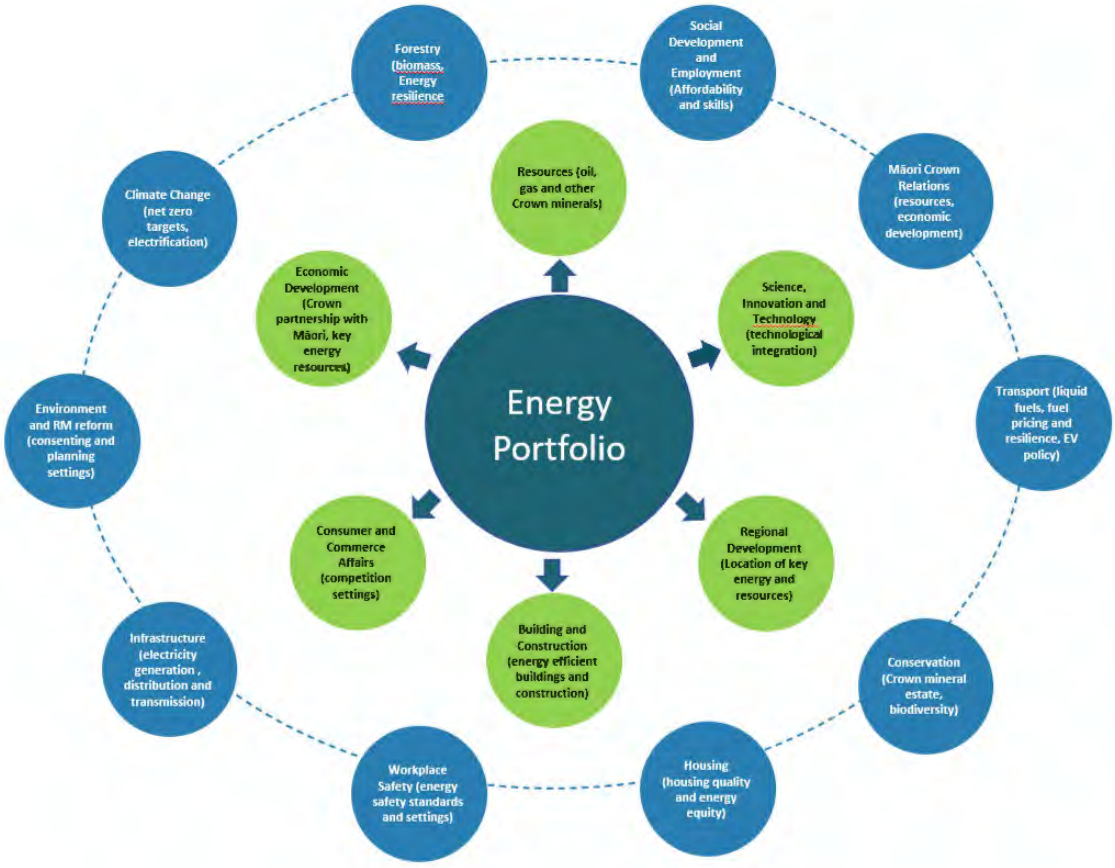
- present to the House of Representative the Annual Reports 2022/23, outlining how the entities have performed against the performance measures set out in their respective Statement of Performance Expectations 2022/23 and Statement of Intent
- consider sending a Letter of Expectations to the Chair of the entity to inform its planning process for 2024/25
- provide feedback on, and present to the House of Representatives, a Statement of Performance Expectations 2024/25 outlining what the entity intends to achieve and how they will measure performance, and
- make decisions on potential reappointments and new appointments to the entities Boards.

162. We will provide you with advice on these processes in the coming months.

163. Overarching governance and monitoring arrangements are outlined in MBIE's Monitoring Arrangements for MBIE-monitored Crown entities: Monitoring arrangements for MBIE-monitored Crown entities.

Links with other portfolios

164. The Energy portfolio has important links with other portfolios. We will support you in engaging with your colleagues to understand the impact of work in their portfolios on yours, and to make the most of the opportunities in your own. The diagram below illustrates those links.


Energy Portfolio
Forestry (biomass, Energy resilience
Social Development and Employment (Affordability and skills)
Māori Crown Relations (resources, economic development)
Transport (liquid fuels, fuel pricing and resilience, EV policy)
Conservation (Crown mineral estate, biodiversity)
Housing (housing quality and energy equity)
Workplace Safety (energy safety standards and settings)
Infrastructure (electricity generation , distribution and transmission)
Environment and RM reform (consenting and planning settings)
Climate Change (net zero targets, electrification)
Resources (oil, gas and other Crown minerals)
Science, Innovation and Technology (technological integration)
Regional Development (Location of key energy and resources)
Building and Construction (energy efficient buildings and construction)
Consumer and Commerce Affairs (competition settings)
Economic Development (Crown partnership with Māori, key energy resources)

Organisational leadership and structure

Key MBIE officials

165. The table below sets out the key MBIE officials who will support you in this portfolio.

Contact	Role	Contact details
Carolyn Tremain 	Secretary for Business, Innovation and Employment	Privacy of natural persons
Paul Stocks 	Deputy Secretary, Building, Resources and Markets BRM leads policy development to ensure a fair, competitive business environment and well-functioning telecommunications, building and construction, small business, manufacturing, and resources sectors and operations. We also serve as the Government's Procurement System Leader and the Government's Property System Leader. BRM oversees many of the regulatory systems that govern Aotearoa New Zealand's markets: commerce and consumer affairs; energy markets; minerals and petroleum; energy efficiency; communications; and building performance.	
Justine Cannon 	General Manager, Energy & Resource Markets The Energy and Resource Markets Branch (ERM) sits within the Building and Resource Markets Group in MBIE. We monitor and advise on the performance of New Zealand's energy and resource markets, and we work to ensure that New Zealanders have access to secure, affordable and sustainable energy and resources to support people and the economy. We also regulate and administer the allocation of New Zealand's Crown-owned resources including petroleum, gold, coal and other minerals.	
Michael Bird	General Manager, Entity Performance and Investment Board appointments and governance (covering all statutory boards in Annex Two).	

6. Upcoming priorities and advice

Delivering your commitments and developing a work programme for the portfolio

166. We stand ready to support you to deliver on the Government's priorities as noted at the outset of this briefing.

167. We propose an early conversation about your priorities, opportunities to refocus our existing work programme, and how we can align our resources to support you in delivery. Given the split in portfolios we also welcome further guidance from you on how Ministerial responsibilities will be apportioned.

168. On 3 November 2023 consultation closed on a comprehensive package of consultation documents each addressing a different aspect of the energy transition. These relate to the future role for gas, emerging roles for hydrogen, measures to enhance the electricity system and proposals for regulating a potential offshore renewable energy industry. We will provide you with an overview of the feedback received on these documents and advice on how we consider these workstreams can support your objectives.

Further briefings to you as incoming minister

169. This briefing has provided an overview of your portfolio, drawing your attention to the most pressing challenges and opportunities. We have also prepared a suite of more detailed briefings that we propose to provide to you over the coming weeks, as follows.

170. We welcome the opportunity to discuss these briefings with you and to help shape your work programme for the coming parliamentary term.

Subject	Description
Electrifying New Zealand	This group of briefings will set out how we propose to help you deliver on the electrification of New Zealand, including next steps for work on offshore wind.
Security of supply	This group of briefings provides further information and proposed work to address the security of supply challenges identified in this briefing.
Energy costs	This briefing will set out our expectations of future energy costs, describe the levers you have to help address equity and affordability through the energy transition and seek your direction on work underway.
Fuel resilience[7]	This briefing will provide advice on fuel resilience challenges, work underway and seek your feedback on a study into fuel security risk.
The role of energy in lowering New Zealand's emissions	This group of briefings will provide an overview of your portfolio's role in climate change policy.

[7] Depending on confirmation of Portfolio responsibilities.

Your role as Responsible Minister for the Electricity Authority and EECA and MBIE's monitoring role	This briefing, from MBIE's Monitoring team, will include information on the strategic baseline review of the Electricity Authority that was commissioned by MBIE's Monitoring team. It will also provide you with options for communicating your expectations to the entities – it is usual practice for Responsible Ministers of Crown entities to send an annual letter of expectations to the Board of the entity.

Items requiring early decision

171. A number of other items of business will require your attention in the first 3 months of this parliamentary term. These items relate to legislative and operational commitments that are already underway.

Topic	Decision	Timing
Climate Change Commission final advice on the second Emissions Reduction Plan	No immediate decision is required. MBIE will provide you with advice on work underway to address these recommendations as part of the development of the second Emissions Reduction Plan (ERP2).	December 2023.
Initial Climate Change Chief Executives Board advice on progressing the second Emissions Reduction Plan in 2024.	No immediate decision is required – this paper is designed to prepare you for early decisions on ERP2. MBIE will also provide you with a briefing on the role of energy in ERP2.	November/December 2023.
Annual Reports for EECA and the Electricity Authority for the year ended 30 June 2023.	No decision is required. MBIE will provide you with advice so the Annual Report can be presented to the House of Representatives. This is a requirement under the Crown Entities Act 2004.	November/December 2023, but note it will be later than this if the Annual Reports are delayed for any reason.
Electricity Authority and EECA 2024/25 levy consultation.	No decision is required. The Electricity Authority and EECA are required to publicly consult on their levy-funded appropriations each year. The Electricity Authority and EECA will brief you on their 2024/25 levy consultation on a no surprises basis (exact timing to be confirmed).	The 2024/25 levy consultation process is due to commence in December.
EECA quarterly report to 30 September 2023 and Electricity Authority four-monthly report to 31 October 2023.	No decision is required. This is part of Responsible Ministers' and MBIE's usual monitoring arrangements for Crown entities.	November/December 2023.
Proposed amendment to the Gas (Critical Contingency Management) Regulations 2008.[8]	Accept or reject the Gas Industry Company's recommendation to make an urgent change to the Gas (Critical Contingency Management) Regulations 2008. This amendment is needed to remove pressure thresholds on the gas transmission system between the Broadland (near Reporoa) and Taupo gas gates.	November/December 2023.

[8] Depending on confirmation of Portfolio responsibilities.

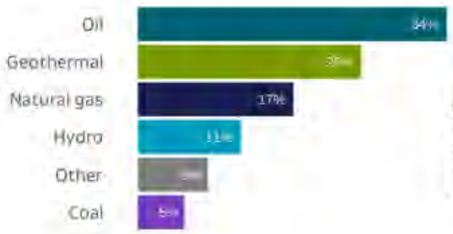
	MBIE will provide you with advice to support your decision.	
Exposure draft of Fuel Industry (Fuel Resilience) Amendment Regulations December 2023.[9]	Seeking your agreement to undertake targeted consultation on an exposure draft of regulations, which set out the record-keeping and information disclosure requirements associated with the minimum fuel stockholding obligation under the Fuel Industry (Improving Fuel Resilience) Amendment Act 2023.	The information disclosure requirements come into effect on 1 July 2024. Industry needs enough lead-in time to ensure they have systems in place before the requirements take effect.

[9] Depending on confirmation of Portfolio responsibilities.

Annex 1: Key energy sector data

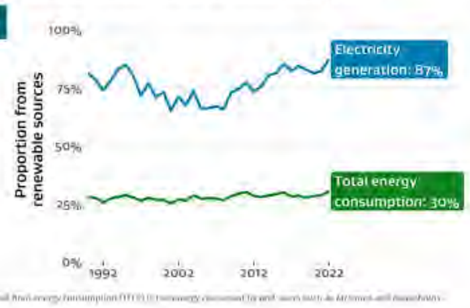
Energy supply

We obtain energy from a range of sources (some is used directly, and some to generate electricity)



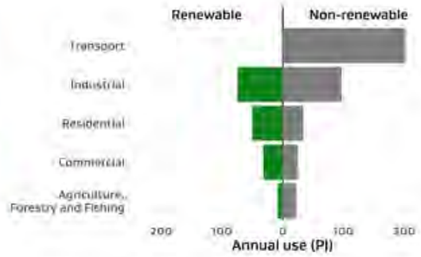
Source: MBIE

While electricity generation is highly renewable, the overall energy mix remains carbon-intensive... (40% NZ emissions arise from energy use)



Source: MBIE

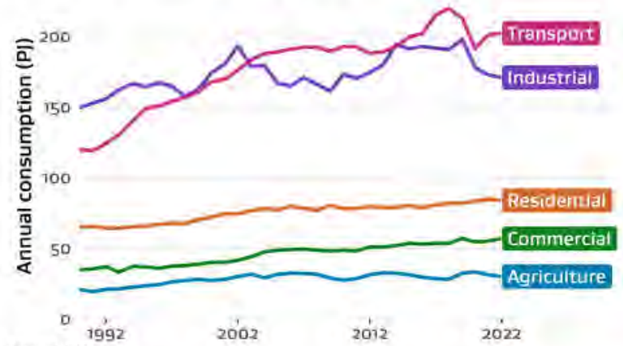
...with transport (oil) accounting for most energy sector emissions



Source: MBIE

Energy demand

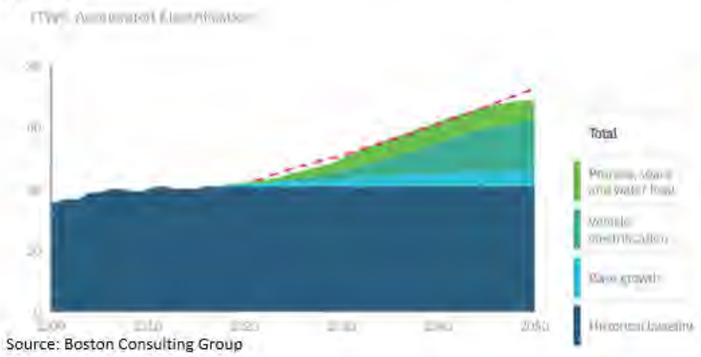
Transport and industry are the largest energy users



Source: MBIE

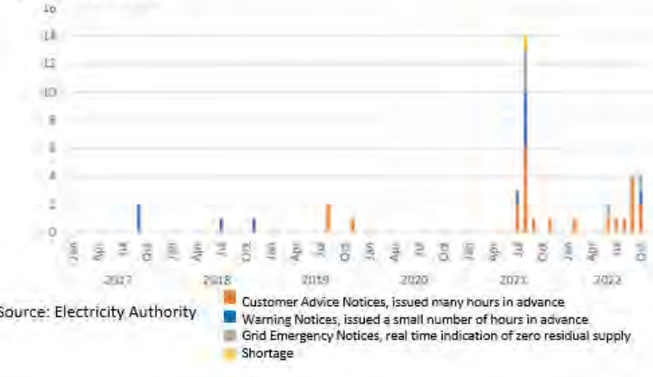
Electricity supply

Future is electric **study forecasts 71% increase in electricity demand**



Source: Boston Consulting Group

Grid notices issued



Source: Electricity Authority

The electricity development pipeline is encouraging, but may not be sufficient for electrification

Development pipeline (GWh/yr)

	2023	2024	2025	2026+	Total
Committed	1,822	762	6	19	**2,609**
Actively pursued	3,072	2,638	2,402	14,520	**22,633**
Other	526	451	165	30,351	**31,492**
Total	**5,420**	**3,851**	**2,573**	**44,890**	**56,734**

Source: Concept consulting paper 2022. Definitions:
Committed = Projects being delivered/consented
Actively pursued = Projects being investigated/concept stage/assessed
Other projects = Initial enquiries, concept being explored

Instances of tight electricity supply are becoming more frequent (peaking demand and intermittent supply), and dry years remain a risk (left hand chart)

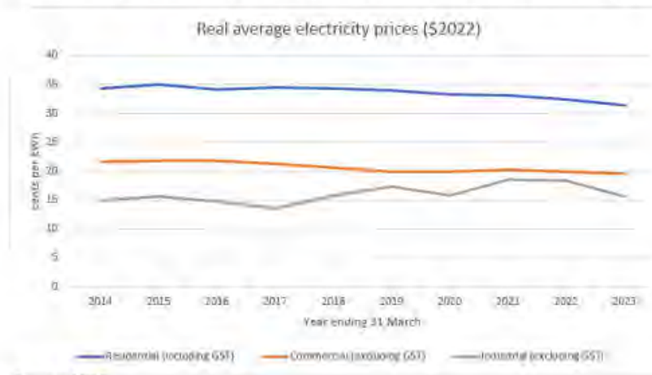
The average number and duration of local lines outages that each customer experiences has remained similar over time (right hand chart)

Local lines outages

Source: Commerce Commission

Electricity prices

Residential, commercial, and industrial prices have been reasonably flat



Source: MBIE

Annex 2: Other relevant legislation

Key legislation is set out in Section 3. Other relevant legislation to your portfolio is set out below.

Atomic Energy Act 1945: sets out the regulatory framework for the means of producing atomic energy in New Zealand, including the mining of uranium and other substances that may be used for the production of atomic energy.

Energy Companies Act 1992: provided for the formation of energy companies, the vesting in such companies of the undertakings of electric power boards and the electricity and gas undertakings of local authorities, and the dissolution of electric power boards. Most provisions are spent but some relating to corporate governance remain active.

Energy (Fuels, Levies and References) Act 1989: provides for the regulation of engine fuel quality and the recovery of costs through levies for activities undertaken by the Crown in relation to electricity, gas and engine fuels. This includes safety activities, EECA's activities, and the cost of meeting international oil stocks obligations.

Lake Taupo Compensation Claims Act 1947: relates to agreements about the control of the Waikato River for the purposes of flood control and electricity generation. The Act sets a maximum working level for Lake Taupō, alterable by Gazette notice, and provides the basis on which compensation will be assessed for any claims in relation to the control of the lake level.

Manapouri – Te Anau Development Act 1963: enables you to notify by Gazette notice the operating guidelines for the levels of the two lakes, which are recommended by the Guardians of Lakes Manapouri and Te Anau (appointed by the Minister of Conservation).

Annex 3: Boards within the Energy portfolio

Electricity Authority

The Electricity Authority is responsible for governance and regulation of the electricity sector. Its objective is to promote competition in, reliable supply by, and efficient operation of, the electricity industry for the long-term benefit of consumers.

Name	Date of original appointment	Expiry date of present term
Anna Kominik (Chair)	13/07/2023	12/07/2028
Dr Cristiano Marantes	1/07/2023	30/06/2028
Allan Dawson	18/04/2017	8/10/2024
Erik Westergaard	16/01/2023	15/01/2028
Paula Rose	16/01/2023	15/01/2028
Lana Stockman	06/06/2017	8/10/2024
Vacant		

Energy Efficiency and Conservation Authority

The function of EECA is to encourage, promote and support energy efficiency, energy conservation and the use of renewable energy resources in New Zealand.

Name	Date of original appointment	Expiry date of present term
Elena Josephine Trout (Chair)	1/02/2013	19/05/2026
Catherine Taylor (Deputy Chair)	1/02/2017	30/06/2024
Karen Sherry	1/02/2017	30/06/2024
Daniel Tulloch	12/07/2023	11/07/2026
Judith (Judi) Jones	12/07/2023	11/07/2026
Andrew Knight	12/07/2023	11/07/2026
Christopher Boyle	12/07/2023	11/07/2026
Albert Brantley	1/07/2021	30/06/2024

Electricity Rulings Panel

The Electricity Rulings Panel is a specialist dispute resolution and disciplinary body that determines complaints of breaches of the Electricity Industry Participation Code 2010 by industry participants, as referred to it by the Electricity Authority.

It also determines certain disputes between participants and can hear appeals on specific decisions by the System Operator.

It is administered and funded by the Electricity Authority.

Name	Date of original appointment	Expiry date of present term
Melbourne (Mel) Orange (Chair)	2/03/2020	28/06/2028
Matthew Dunning	29/06/2023	28/06/2028
Paul Webber	29/06/2023	28/06/2028
Lee Wilson	2/03/2020	28/06/2028

Gas Rulings Panel

Depending on the division of Ministerial responsibilities between you and the Minister for Resources, the Gas Rulings Panel may also fall within your portfolio.

The functions of the Gas Rulings Panel are to:

- determine, in accordance with the Gas Governance (Compliance) Regulations 2008, whether a participant has committed a breach of specified regulations or rules
- propose to the Gas Industry Company that it recommend to the Minister a change to any regulation or rule that the Panel considers, in the course of considering any matter, to be necessary or desirable, and
- do anything else referred to in the Act or the regulations.

The Panel will approve or reject settlements recommended following investigation, determine unresolved matters and make orders including remedies and penalties.

Name	Date of original appointment	Expiry date of present term
Miriam Dean	29/08/2022	28/08/2027

Annex 4: Key international energy relationships and agreements

MBIE supports international energy engagements on the Government's behalf. Many of these have semi-annual Ministerial level meetings which provide opportunities for bilateral Ministerial discussions. We will provide you with specific advice on opportunities for international Ministerial engagement and travel.

MBIE generally prioritises engagements that are important for domestic energy security and in supporting the energy transition and those for which there is a treaty level obligation relating to our involvement. The key international engagements within this portfolio are listed below.

International Energy Agency (IEA)

The IEA is an autonomous agency within the Organisation for Economic Co-operation and Development (OECD) and is New Zealand's principal international energy relationship.

It was established following the 1973/1974 oil crisis to implement measures to mitigate the risks of future oil supply disruptions. Ministerial meetings are biennial and the next meeting is in mid-February 2024.

As a member of the IEA and signatory to its founding treaty – the International Energy Programme (IEP), we are expected to attend quarterly meetings of the IEA Governing Board (and other committees) and are required to hold petroleum reserves equivalent to 90 days of net imports. We currently comply with the oil stocks obligation by augmenting commercial domestic stocks with bilateral treaties/agreements to hold stock in other IEA countries, such as the Netherlands, Spain and Denmark.

In times of "oil crisis" or "shortfall" the IEA may declare an emergency requiring the release of oil stocks. The release decision is made by a meeting of IEA member Ministers following advice from the IEA Governing Board. The most recent use of this mechanism was the release of oil stocks on two occasions following the initial invasion of the Ukraine. New Zealand released oil stocks held in Europe on both occasions.

While the organisation was initially formed to manage world oil security, in recent years the IEA has repositioned itself as a key independent energy advocate and advisor in the transition to a low-carbon future, and is the current secretariat for the Clean Energy Ministerial (see below).

Clean Energy Ministerial (CEM)

CEM is a high-level platform where countries, companies and experts work together to share best practices and promote policies and programmes that encourage and facilitate the transition to a global clean energy economy. CEM is voluntary and by invitation. New Zealand is a member of two CEM initiatives or working groups on electric vehicles (EVs) and hydrogen. EECA is the New Zealand representative on the EV initiative and the New Zealand Hydrogen Council is the representative on the hydrogen initiative. CEM holds an annual Ministerial meeting.

Asia-Pacific Economic Cooperation Energy Working Group (APEC EWG)

The APEC EWG is one of the 15 officials-level APEC sectoral working groups and meets formally twice a year. It has a programme of work focusing on energy-related priorities identified by APEC Economic Leaders and Ministers, ranging from energy security to renewable energy and low-carbon development for sustainable growth. Free and frank opinions

Free and frank opinions

Hydrogen Ministerial – Japan

The Hydrogen Ministerial is an initiative by the Japanese government to promote the development of hydrogen as a low carbon clean fuel source.

The Ministerial is usually held in Tokyo in October of each year. New Zealand has attended the Hydrogen Ministerial since its formation in October 2018. Free and frank opinions

Free and frank opinions

ASEAN Hydrogen Supply and Demand Working Group

New Zealand has a strong relationship with the Association of South East Asian Nations (ASEAN). New Zealand appointed a dedicated ambassador to the ASEAN secretariat in Jakarta in 2014.

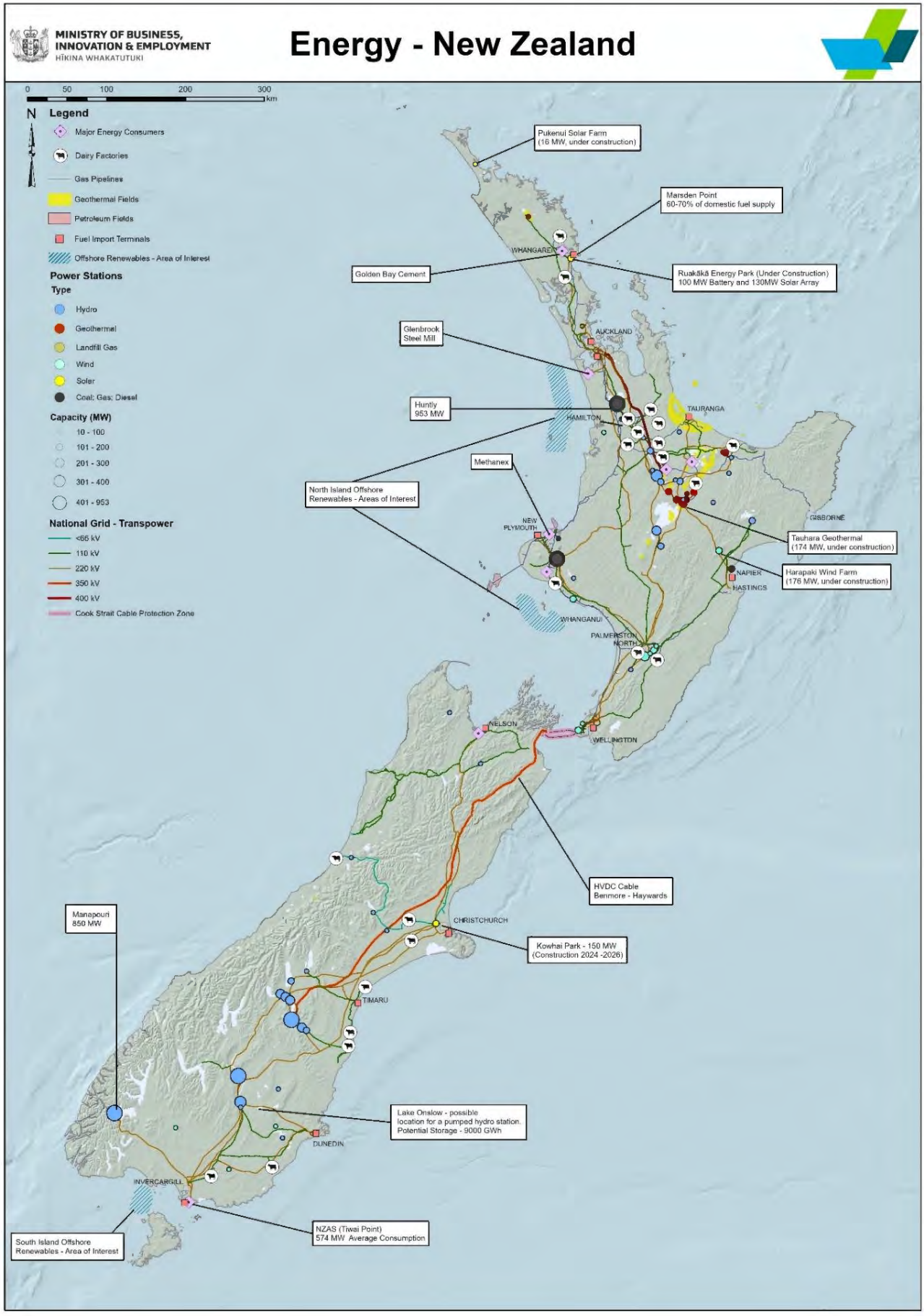
New Zealand, as a potential future hydrogen exporter, was invited by ASEAN in 2019 to join a working group on hydrogen supply and demand in the ASEAN nations. MBIE attends this working group at an officials' level and attendance is fully funded by the Japanese government.

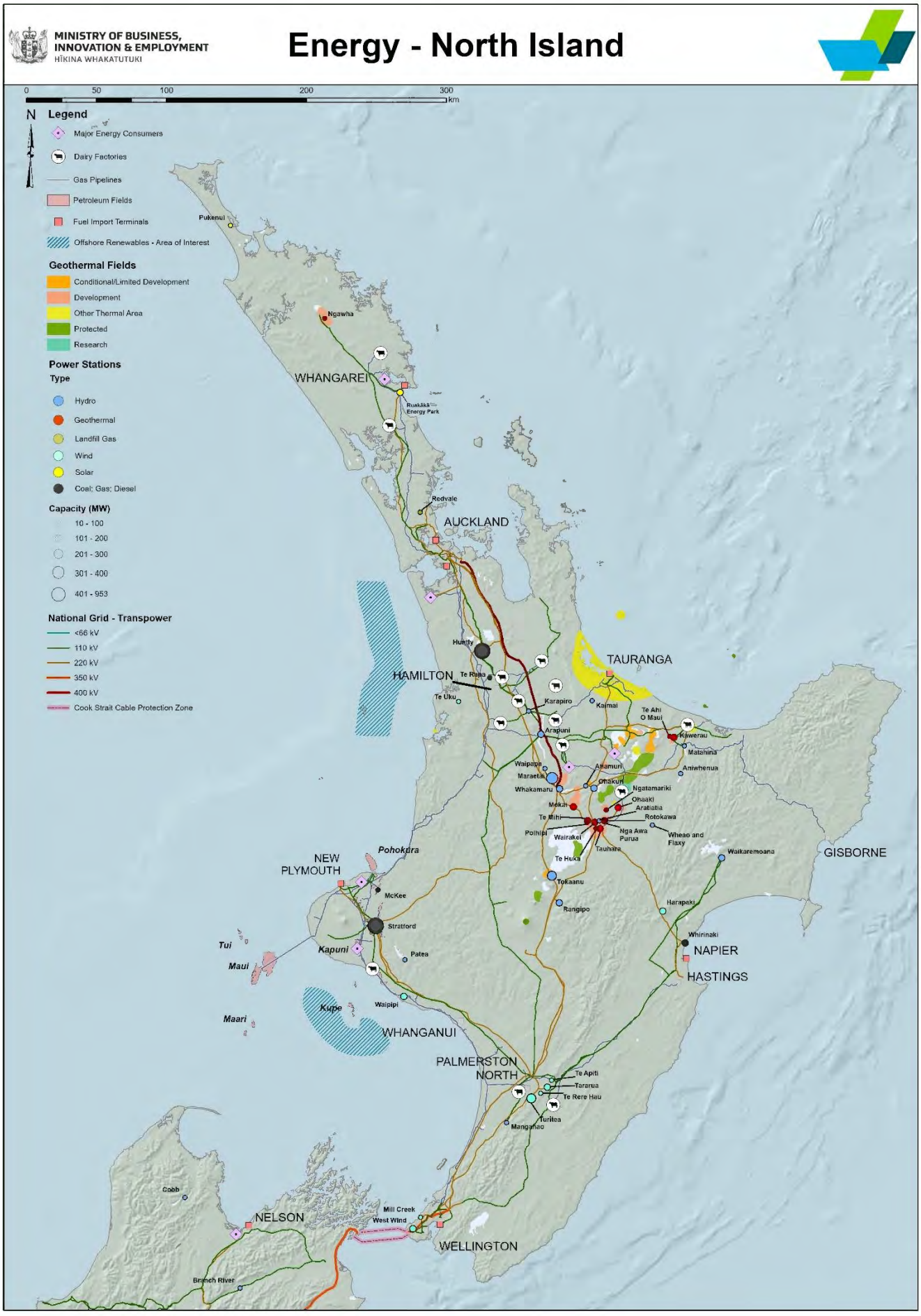
Australian Energy and Climate Ministerial Council (ECMC)

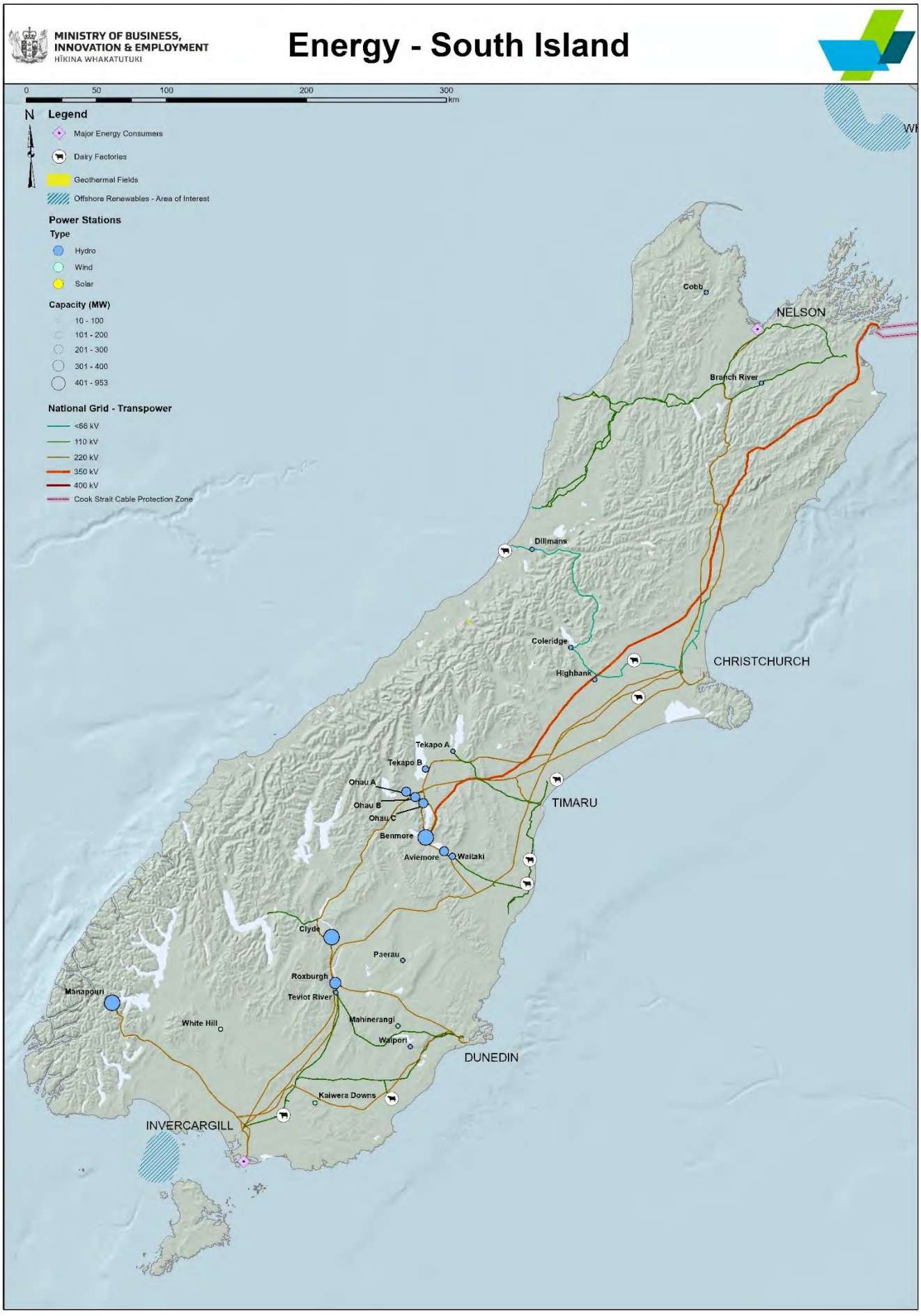
The ECMC is a forum for ministers from the Australian commonwealth, states and territories and New Zealand to work together on issues in the energy and climate change sectors. ECMC is chaired by the Australian Commonwealth Minister for Climate Change and Energy.

While most of the ECMC's activities relate to Australian energy priorities, you are a full member of the council and are invited to attend all meetings. New Zealand participates in the ECMC's Energy Efficiency Working Group, which oversees the Equipment Energy Efficiency (E3) Programme under which energy appliances are regulated in both countries.

Annex 5: A geospatial view of New Zealand's Energy and Resources




MINISTRY OF BUSINESS, INNOVATION & EMPLOYMENT
HĪKINA WHAKATUTUKI
Energy - North Island
0 50 100 200 300 km
N
Legend
Major Energy Consumers
Dairy Factories
Gas Pipelines
Petroleum Fields
Fuel Import Terminals
Offshore Renewables - Area of Interest
Geothermal Fields
Conditional/Limited Development
Development
Other Thermal Area
Protected
Research
Power Stations
Type
Hydro
Geothermal
Landfill Gas
Wind
Solar
Coal; Gas; Diesel
Capacity (MW)
10 - 100
101 - 200
201 - 300
301 - 400
401 - 953
National Grid - Transpower
<66 kV
110 kV
220 kV
350 kV
400 kV
Cook Strait Cable Protection Zone
Pukenui
Ngawha
WHANGAREI
Ruakākā Energy Park
Redvale
AUCKLAND
Huntly
HAMILTON
Te Rapa
Te Uku
TAURANGA
Karapiro
Kaimai
Te Ahi O Maui
Arapuni
Kawerau
Matahina
Waipapa
Aniwhenua
Maraetai
Ohakuri
Whakamaru
Ngatamariki
Mokai
Ohaaki
Aratiatia
Te Mihi
Rotokawa
Poihipi
Wairakei
Nga Awa Purua
Wheao and Flaxy
Tauhara
Te Huka
Waikaremoana
GISBORNE
Tokaanu
Rangipo
Harapaki
Whirinaki
NAPIER
HASTINGS
NEW PLYMOUTH
Pohokura
McKee
Stratford
Tui
Kapuni
Maui
Patea
Waipipi
Kupe
Maari
WHANGANUI
PALMERSTON NORTH
Te Apiti
Tararua
Te Rere Hau
Turitea
Mangahao
Cobb
NELSON
Mill Creek
West Wind
WELLINGTON
Branch River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400 kV
Cook Strait Cable Protection Zone
Cobb
NELSON
Branch River
Dillmans
Coleridge
Highbank
CHRISTCHURCH
Tekapo A
Tekapo B
Ohau A
Ohau B
Ohau C
TIMARU
Benmore
Aviemore
Waitaki
Clyde
Paerau
Roxburgh
Teviot River
Manapouri
White Hill
Mahinerangi
Waipori
DUNEDIN
Kaiwera Downs
INVERCARGILL