Submission by

to the

Ministry of Business, Innovation and Employment (MBIE)

on the consultation document

Proposals for a regulatory regime for Carbon Capture, Utilisation and Storage (CCUS)

6 August 2024

– SUBMISSION BY THE BUSINESSNZ ENERGY COUNCIL –

PROPOSALS FOR A REGULATORY REGIME FOR CARBON CAPTURE, UTILISATION AND STORAGE

Introduction

1. BusinessNZ Energy Council (BEC) welcomes the opportunity to submit on the Ministry of Business, Innovation and Employment (MBIE) on the consultation document Proposals for a Regulatory Regime for Carbon Capture Utilisation Storage (CCUS).

2. We support the adoption of a regulatory framework that enables the development of carbon capture and its storage or utilisation in New Zealand. As part of the framework, the inclusion of Carbon Capture Storage (CCS) in the Emissions Trading Scheme will provide parity with other forms of sequestration, better recognising a technology that is both technically and economically viable today and could be operating by the late 2020s, if the right investment occurs and an enabling regulatory framework is implemented swiftly.

3. As rightly discussed in the detailed and supported Regulator Impact Statement (RIS) released alongside the consultation document, emissions capture technology is mature and safe. CCS has been done reliably for decades, dating back to the 1970s, and its use globally continues to grow to reduce emissions from hard-to-abate sources.

4. Reducing emissions at its source is vital but emissions capture is an additional technology for businesses to adopt to contribute towards reducing emissions. Reputable organisations specialised in energy and climate analysis agree.

5. The Intergovernmental Panel on Climate Change (IPCC) believes CCS and CCUS is unavoidable if the globally economy is to reduce hard-to-abate residual emissions.[1] The International Energy Agency were more succinct in their assessment in 2020, stating that "Reaching net-zero will be virtually impossible without CCUS."[2]

6. CO2 gas injection has taken place in New Zealand before, close to twenty years ago at the Kapuni gas field. Operators have long reinjected water. Switching the process to carbon dioxide is affordable and feasible. CCS occurs successfully in New Zealand's geothermal fields. Ngawha Generation permanently sequesters 128,000 tonnes at its plant every year, transforming it from one the most carbon-intensive geothermal plant to a carbon-neutral status.

7. With CCS, the gas sector could achieve meaningful emissions reductions. A report written by WoodBeca in 2023 confirmed that capture and storage is technically viable and could be economically viable at the offshore Maui East field and at the onshore south Taranaki Kapuni field.[3] CCUS or CCS for large-point sources used to capture emissions from industrial processes and dispersed smaller point sources remains economically challenging at a low carbon price due to capital intensity and scale requirements. The economics of CCS and CCUS for industrial participants would also be challenging due to uncertainty about whether industrials would no longer be eligible for receiving industrial allocations.

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[1] Headline Statements from the Summary for Policymakers, Sixth Assessment Report, Intergovernmental Panel on Climate Change, (IPCC), April 2022

[2] Special Report on Carbon Capture Utilisation and Storage, International Energy Agency, 2020, p13

[3] Review of CCUS/CCS Potential in New Zealand, WoodBeca, 2023

8. However, emissions capture technology, including direct air capture and storage is evolving and improving rapidly, and could become more economic over the next decade. When the technology becomes more economic, the relevant regulatory frameworks must be in place. In the absence of a regime for the injection, storage, testing, monitoring, reporting and liability of CCS, investors in CCS will invest elsewhere.

9. Investment in CCS and CCUS is increasing rapidly worldwide, and establishing a regulatory framework will ensure New Zealand keeps pace if investors decide emissions capture is economic and worthwhile to pursue. Announced capacity, expected by 2030, has tripled in the United States since 2022, from 75Mt to 223Mt.[4] Over this same period, announced projects in Europe have increased from 63Mt to 169Mt.[5] In the United Kingdom, over twenty licenses have been awarded in its first CO2 storage licensing round, with the potential to store 30Mt each year by 2030.[6]

Summary of recommendations

- **We <u>support</u> the proposed creation of relevant regulations detailed in the document on the monitoring, verification and reporting regime for CCS activities. However, we <u>recommend</u> aligning regulations with Australia and the European Union as much as possible.**

- **We <u>support</u> the proposal for the Government to indemnify CCS operators' site liability after 15 years. We <u>recommend</u> operators should be given flexibility, with a pathway to apply for indemnity early if it can be evidenced CO2 will be permanently contained. However, we <u>agree</u> operators should still be liable for monitoring and reporting for an extended period. This period must be clear and upfront before projects are undertaken.**

- **We strongly <u>oppose</u> provisions for trailing liabilities on previous owners if the new owner is unable to meet liability obligations.**

- **We believe obligating additional insurance or financial instruments on CCS operators may not be required. We <u>recommend</u> the regulator assess the risk of abandonment and leakage and require a financial security if a criterion is reached.**

- **We <u>question</u> the need for a bespoke piece of legislation to recognise CCS and <u>recommend</u> amending existing legislation to enable CCS. The Resource Management Act (RMA) provides a reasonable and workable regulatory framework for permitting CCS activities.**

- **If the RMA is the preferred legislative framework for permitting CCS activities, we <u>recommend</u> a dedicated National Policy Statement for Carbon Capture and Storage (CCS) to help guide decision making. However, the need for an NPS-CCS should be assessed alongside wider RMA reforms.**

Treating CCS under the Emissions Trading Scheme

10. As noted, **we <u>support</u> the inclusion of CCS in the Emissions Trading Scheme** to provide parity with other forms of sequestration and storage presently applied in geothermal and forestry sectors. This provides an additional option to sequester carbon and will contribute to New Zealand's emissions targets.

[4] Its time for CCUS to deliver, IEA, March 2024
[5] Ibid,.
[6] Ibid,.

11. **We <u>support</u> the proposed option to allow participants to either subtract their emissions captured and stored from their ETS liability or alternatively receive an NZU for captured and sequestered carbon.** This approach improves the likely adoption of CCS operations, ensuring all CCS activities are eligible and receive recognition.

12. It is noted that under existing arrangements NZUs do not need to be surrendered if carbon capture occurs behind the gas meter, with carbon being stripped away from gas when it is produced and reinjected. Nevertheless, the proposed recognition improves the incentives for capturing CO2, utilising it or transporting it to a suitable storage site.

13. This could contribute to decarbonising large industrial processes and fossil fuelled generation, depending on the price of carbon and the associated cost of capture, storage and utilisation over time. It could potentially improve the economic case for emissions and energy intensive firms to relocate to an CCS industrial hub, while also improving the economics of producing gas from one well and removing CO2 and sequestering it from another operator's well.

14. **We <u>agree</u> with the (RIS) attached to this consultation's which highlights that the recognition of CCS under the ETS will also help improve the economics of producing natural gas.** This could potentially increase investment in the development of indigenous natural gas, and as a result, provide a boost to New Zealand's gas supply profile. This is beneficial as natural gas is needed as a vital input for industrial processes and to back up intermittent electricity generation throughout the transition, until other fuels become more commercially viable and available.

15. According to TIMES-NZ modelling, an energy systems model developed in partnership with 60 organisations across business, academia and government, close to 50PJs of natural gas is consumed in 2050 in both scenarios. Even in the more climate change policy prioritised Kea, gas remains for hard-to-abate industry, as illustrated in figure 1 & 2.

16. TIMES-NZ also shows that New Zealand's electricity system is also likely to require natural gas, with gas peakers playing a role beyond 2030, as illustrated in figure 3 & 4. MBIE's modelling reflects the same conclusion. Across all its Electricity Demand and Generation Scenarios, gas peaking generation is needed.

17. TIME-NZ sensitivity analysis commissioned by BEC showed that in a scenario with high gas prices, reaching $39NZD/GJ[7] (which remains close to secondary market gas prices as of July 2024) the utilisation of gas for thermal generation is still economic both in Tūī and Kea. Even in the more climate ambitious Kea, gas remained in operation until 2055. This shows the high value of gas across the entire energy system and the promise of CCS to help improve the economics of increasing high valued gas to market.

[7] Energy Strategy Deep Dive using TIMES-NZ, BusinessNZ Energy Council and Sapere (May, 2023)

Figure 1: Kea electricity generation

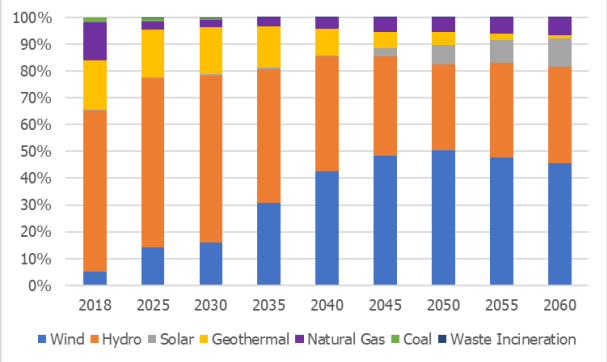


Figure 2: Tūī electricity generation

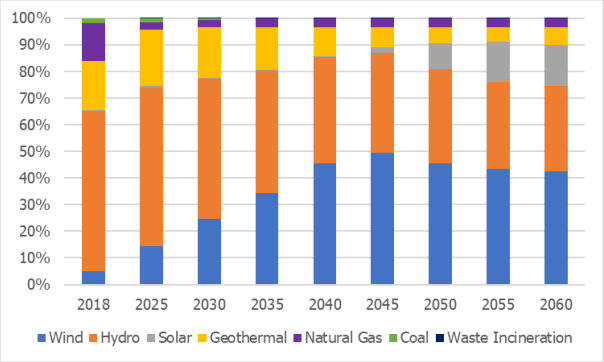


Figure 3: Kea fuel consumption all sectors

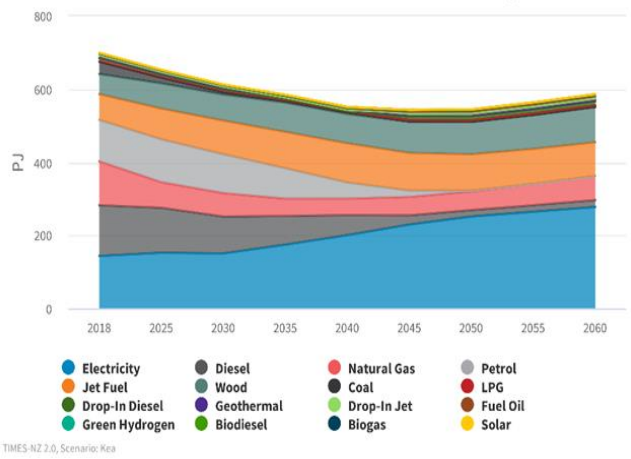
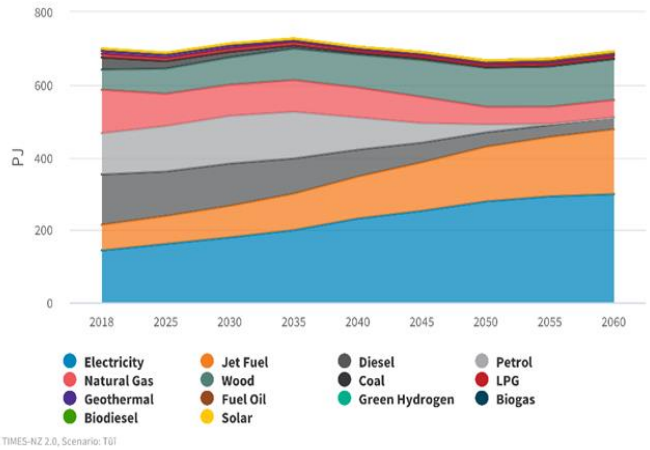


Figure 4: Tūī fuel consumption all sectors



18. When incorporating CCUS into the ETS, it is important the Act adequately recognises CO2 captured from all sources. **We <u>recommend</u> amending Schedule 4, Part 2, subpart 2, paragraph a) of the Climate Change Response Act 2002 to recognise and enable coverage of other CO2 sources for CCUS, such as biogas, biofuels and direct air capture**.

Monitoring regime for emissions removals and sequestration relating to CCS activities

19. **We <u>support</u> the proposed creation of relevant regulations on the monitoring, verification and reporting regime for CCS activities.** The collection and reporting of relevant information, as it relates to the quantity of CO2 captured, stored and leaked, similar to regulations in Australia and the European Union is supported. This includes setting out relevant accounting rules, as well as inspection of CO2 storage sites for verification purposes. It is important New Zealand's monitoring and reporting regime is not bespoke.

20. Across many jurisdictions, CCS has been done, and monitored, for decades. New Zealand should adopt updated best practises established in existing regimes to ensure monitoring compliance is nether burdensome nor costly both for the operator and regulator. A custom and bespoke monitoring and reporting regime risks complexity and potentially conflicting with other jurisdictions, potentially diminishing the investment attractiveness of operations in New Zealand. Monitoring compliance should strive to be streamlined and frictionless as possible. We anticipate and look forward to reviewing the specifics of any proposed regulations in due course.

21. **We <u>support</u> an audit and compliance regime for CCS activities.** A regular audit process on CCS monitoring activities undertaken by operators will help uphold the credibility of CCS activities,

ensuring activities are done responsibly, the relevant accounting is completed correctly, and sequestered carbon remain contained permanently**. We <u>support</u> the use of penalties in cases of non-compliance.**

22. **We <u>support</u> CCS operators being liable for the cost associated with post-operation monitoring until such time as the regulator was satisfied.** Monitoring technology remains affordable and effective at detecting reservoir behaviour and assessing leakage risk. Activities relating to the monitoring, measurement, verification and oversight of CCS sites, including the administration of the regime, should be borne by those who benefit, which are CCS operators. Monitoring will occur after an injection site ceases. This responsibility should sit with the operator for an extended period after any indemnity by the Crown occurs and it should also be subject to regular audits. The time needs to be specified and clear before any project is undertaken.

Liability for CO2 storage site.

23. It is important sequestered emissions remain securely stored in underground formations, ensuring no leakage into the atmosphere occurs. As noted, a robust monitoring and reporting regime is required. Nevertheless, we consider the risk of fiscal liability to the Crown is relatively low and largely remains isolated to two primary scenarios:

24. Firstly, any released emissions would contribute to climate change, thereby impacting New Zealand's ability to meet its emission targets. The liability would then fall on the Crown if overseas credits would need to be purchased to meet the 2030 NDC. Secondly, from an equity standpoint, the release of emissions would result in entities engaged in CCS activities either receiving NZUs or reducing their ETS obligations without the corresponding stored emissions. There are no other liabilities from the unintended release of sequestered emissions to the Crown beyond these two scenarios. The release of CO2 is a component of air, remaining harmless and contained in everyday products.

25. International practice illustrates a transfer of liability from the operator to the state once reinjection has ceased and closure approved, as noted in the document. Understanding about leakage risks have advanced as CCS has scaled up internationally. The risk of liability is less than initially expected.[8] Leakage risk is very low and generally becomes even lower with time and after injection ceases.[9] According to one study, even in the worst-case scenario, 78% of injected CO2 will remain trapped in the subsurface for 10,000 years.[10]

26. **We <u>support</u> the proposed procedure for granting the closure of a CO2 storage site**, obligating record and reporting information on closure plans, closure cost estimates, a closure completion report, and evidence that the sites can technically be used for CO2 storage and will have no or little risk of leakage. We also support a financial capability assessment if requested to determine an operator's ability to meet maintenance costs and remediation in the event of a leak.

27. The transfer of liability from an CCS operator to the state is necessary at some point in time after reinjection has ceased, however, determining this exact date is debatable. It is clear developers will not hold and accept indefinite liability or for an unreasonable period. This will reduce the investment attractiveness of developing CCS and increase project risk and cost.

28. We understand the merits of project operators remaining liable for stored carbon for a minimum period, ensuring operators would be responsible for any issues for its storage sites for a set period.

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[8] Havercroft, Lessons and Perceptions (2019), pp 6, 21 and 32.
[9] International Energy Agency, Legal and Regulatory Frameworks for CCUS (2022) p 67
[10] Juan Alcalde, Stephanie Flude et al, "Estimating geological CO2 storage security to deliver on climate mitigation" (2018) Nature Comms 9:2201, doi: 10.1038/s41467-018-04423-1

Similar to Australia, the Government could opt to transfer the operator's liability to the Crown after 15 years, as raised in the document.

29. **This proposed option for the Government to indemnify CCS operators' liability after 15 years is <u>supported</u>**, if the regulator is satisfied that there is no significant risk of leakage. A rigorous and broad assessment of leakage risk should be required before any decision to transfer liability. This assessment is best to occur before any injection and project begins. This option would provide certainty about who bears liability and the possible cost of maintaining and remediating CO2 storage sites in the event of leakage. However, the type and extent of evidence that would be required to demonstrate permanent storage needs to be clear and understandable for operators to follow.

30. **Despite support for a minimum transfer period, we <u>recommend</u> operators should be given flexibility through a pathway to apply for indemnity early if it can be evidenced CO2 will be permanently contained and leakage risk is very minimal.** Assessing the reservoirs stability and overall behaviour can be done effectively, reliably and accurately with available technology to provide assurance to the regulator about the risk of leakage into future.

31. This assessment could occur independently and be defined by a certain threshold before indemnity is provided. If the regulator is satisfied that there is no significant leakage risk before and after the 15-year period, indemnity could be provided early. This pathway could help reduce risk and improve the economics of undertaking CCS. Flexibility in the allocation of liability is important as not all risks associated with CCS projects are equal, with risk being project specific. Geological features and storage formations will differ. A blanket minimum period for liability indemnity, with no exemptions, would not accurately reflect varying risks and differences in project characteristics.

32. **We <u>believe</u> requiring additional insurance mechanisms or financial instruments on CCS operators may not be required. We <u>recommend</u> the regulator assess the risk of abandonment and require a financial security if a criterion is reached.** Obligating liability on operators for leakage over an extended period could be sufficient. CCS operators would likely then take the appropriate measures to account for the risk of liability in the event of a leakage. This could include insurance for the remediation of a possible leakage. A liability bond market is mature overseas, providing for the cost of remediation in the event of an operator becoming default. However, to whether operators in New Zealand will be able to obtain these securities is uncertain and could be unlikely.

33. We are aware that the costs and risks associated with a leakage at a storage site is different to an oil leakage for example. The cost of remediation is significantly less, with no significant harm to human health and the environment, notwithstanding its effect on climate change. However, the regulator could assess abandonment and leakage risk, requiring a security if a certain criterion is reached. This criterion could be determined on the project's geological risks and the operator's financial capability. A security would cover a scenario where an operator is no longer operating, and the monitoring costs, or possible cost of leakage remain.

34. If a financial security is obligated on operators, it should increase gradually over time, reflecting an estimated NPV liability cost of a leakage in the future up to the period of indemnity from the Crown. If the security is not reflected in NPV, the upfront cost could be prohibitive. Developers would have to set aside capital before the development is built and operational, undermining the project's economics unnecessarily. It could also be argued that the risk of leakage and its liability is lower at the start of a project.

35. **We <u>strongly oppose</u> provisions for trailing liabilities on previous owners if the new owner is unable to meet liability obligations**. Trailing liabilities would significantly

disincentivise and even halt investment in CCS. Transferors and transferees would need to factor any ongoing liabilities into any divestment or investment decision, likely slowing any future transfer of interests. Perpetual liabilities disincentivise transfers to occur because after the original owner sells the asset it no longer holds its value but instead holds some of its risks, despite the original owner's inability to minimise or avoid its risks once the asset has been transferred.

36. The new owner could inevitably mismanage the site or later become insolvent, with the previous owner becoming liable for such mismanagement or financial incapability. Simply said, this means a property right, in this case the ownership of a CO2 storage facility, is not completely divestible. This is deeply problematic as clearly defined and divestible property rights are a fundamental part of any market economy. Bonding liability to an investment decision no matter if they decide to later divest and transfer the liability conflicts with normal practises in a market economy like New Zealand. When property rights are restricted, the incentive to invest is severely weakened. This undermines the entire aim of creating a regulatory framework that enables investment in CCS.

37. Imposing trailing liabilities is also not required considering any liability is reflected in the price when a site is sold. The new owner will factor in the assets' liability when purchasing the site, reflecting a lower price, all things remaining equal. If the Government still considers transfers to be high and an unacceptable fiscal risk to the Crown, a sale could be contingent on a financial capability test applied to the potential purchaser by the regulator. The approval could be set on a criterion testing the purchaser's financial capability of maintaining and remediating a site in the event of leakage. However, if this option is pursued, the criteria must be clearly defined from the outset and not unreasonably restrictive.

38. Amendments that strengthen and add complexity to any financial capability test after investment has occurred, with carbon already sequestered and stored, risks undermining and devaluing existing property rights. This would reduce the value of the property right as it may become difficult for investors to divest from storage sites after any ex-post and strengthened adjustment to the financial capability test occurs. If this does occur, there is a reasonable expectation that diminished and devalued property rights would be subject to compensation.

Consenting and permitting

39. **We consider the Crown Minerals Act 1991, the Climate Change Response Act 2002, the Economic Exclusion Zone Act 2012 or Resource Management Act to be the most relevant pieces of legislation to amend to allow for a permitting regime for CCS**. This could include a permit for injection, transportation and site closure. However, we are aware that establishing a permit regime of this scope would require a significant amendment to existing legislation or a separate and custom piece of legislation.

40. **We question the need for bespoke legislation to set out a permit regime for CCS operations**. Creating a bespoke piece of legislation could take longer compared to amending existing legislation to incorporate the use and regulation of CCS. The time taken to implement a regime will likely impact the inevitable investment in CCS.

41. This is particularly accurate for the oil and gas sector. For this sector, the economics of CCS, among many other factors, depends on volumes. As the volume of extracted gas continues to decline, and if the enabling changes are not made in time, the economics for investing in CCS could be low. This highlights the need for a regulatory framework for CCS activities to be implemented swiftly in a timely manner.

42. In many respects, CCS is a bridging technology, an effective and reliable technology able to reduce hard-to-abate emissions and help ensure emissions intensive fuels that are instrumental for energy security remain available. As low-carbon technologies improve, become cheaper, and are deployed

more readily, the possible need for and investment in CCS could reduce. This highlights that legal arrangements which allow and enable for CCS need to be in place swiftly, to ensure New Zealand receives the most benefit from the technology, reducing emissions and possibly improving security of supply.

43. **We believe the RMA provides a reasonable and workable regulatory framework for CCS.** We note that the RMA and EEZ already largely deal with public interest and environmental or property rights issues associated with CCS and it can be said remain neutral towards CCS. Obtaining consents would require developers to meet certain conditions, as it relates to environmental impacts associated with CCS. Even with a dedicated CCS specific Act, the activity of injecting carbon into the subsurface is a discharge of a contaminant to land or water that requires a resource consent and a discharge permit.

44. A new custom piece of legislation may therefore not be needed, as illustrated in the current reinjection of carbon emissions undertaken by geothermal power plant operator. However, the post-reinjection and storage phase of CCS, encompassing liability after a site closes and the ongoing monitoring of CCS projects provide additional complications which will likely have to be accounted for beyond changes to the RMA. In the case of reporting and ETS compliance, the Climate Change Response Act 2002 could provide a better framework for CCS as it relates to the management of greenhouse gas emissions accounting, information requirements, calculation of removals, and ETS liability from any possible leakage of CO2 from sequestration.

45. **If the RMA is the preferred legislative framework for enabling CCS, we <u>recommend</u> a dedicated National Policy Statement for Carbon Capture and Storage (CCS).** This could provide better guidance to local councils and decision makers. However, the need for a dedicated NPS-CCS should be assessed as part of the Government's RMA reform agenda. CCS projects navigating the consenting process could occur faster if the benefits of CCS are expressed and guidance about how benefits are to be understood in relation to adverse effects are clear.

Utilisation

46. There are many commercial and industrial opportunities, as outlined in the paper, to capture and utilise CO2. One barrier to domestic investment in utilisation technology is the exposure to imported CO2 from jurisdictions without carbon pricing. CO2 is therefore increasingly becoming a trade-exposed emissions intensive product. Consideration for incentivising CO2 capture for end use, through recognising it as an EITE activity under the ETS, could be necessary and valuable to improve the economics of utilising CO2 and provide import parity. This could also improve domestic CO2 security which has worsened over the past two years. The input remains vital for food, beverages, packaging and healthcare products.

Social license for CCUS

47. We note that there is opposition to CCUS and its subsequent integration into the ETS. To improve support and public trust in CCUS, we believe the Government has a role to play in education and public awareness initiatives. Outlining the benefits of CCUS, explaining how the regulatory framework would function and why it is an important tool for emission reductions, would be an important step to improving public acceptance for the technology's adoption.

Appendix One - Background information on BusinessNZ Energy Council

About the BusinessNZ Energy Council

The BusinessNZ Energy Council (BEC) is a group of New Zealand energy organisations taking on a leading role in creating an affordable, reliable, and sustainable energy system for New Zealand. The BEC is a division of BusinessNZ, New Zealand's largest business advocacy group and the New Zealand Member Committee of the World Energy Council (WEC). The BEC offers a unique opportunity to shape the New Zealand's energy-system with business leaders, government, and research as well as access to global thinking on energy issues via our involvement with WEC.

About the World Energy Council

The World Energy Council is an independent global organisation that promotes an affordable, reliable and sustainable energy system for all. It is comprised of over 100 member countries. The Council provides impartial information on critical issues that affect society's well-being such as climate change mitigation strategies; energy efficiency; renewable energies; nuclear power; clean coal technologies; rural electrification; energy access; regional integration; urbanisation; geopolitics; innovation; finance; human capital; governance; resilience; hydrogen; storage; digitalisation; mobility; cooling; heating; behaviour change; scenarios; and transition leadership.

About the BusinessNZ

BusinessNZ is New Zealand's largest business advocacy body, representing:

- BusinessNZ Energy Council of enterprises leading sustainable energy production and use
- Buy NZ Made representing producers, retailers and consumers of New Zealand-made goods
- Regional business groups EMA, Business Central, Canterbury Employers' Chamber of Commerce, and Employers Otago Southland
- Major Companies Group of New Zealand's largest businesses
- Gold Group of medium sized businesses
- Affiliated Industries Group of national industry associations
- ExportNZ representing New Zealand exporting enterprises
- ManufacturingNZ representing New Zealand manufacturing enterprises
- Sustainable Business Council of enterprises leading sustainable business practice

BusinessNZ is able to tap into the views of over 76,000 employers and businesses, ranging from the smallest to the largest and reflecting the make-up of the New Zealand economy. In addition to advocacy and services for enterprise, BusinessNZ contributes to Government, tripartite working parties and international bodies including the International Labour Organisation (ILO), the International Organisation of Employers (IOE) and the Business and Industry Advisory Council (BIAC) to the Organisation for Economic Cooperation and Development (OECD).

www.businessnz.org.nz