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POWERING A BETTER NEW ZEALAND TOGETHER

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Ministry of Business, Innovation and Employment (MBIE)
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Submission on *Gas Transition Plan Issues Paper*

Introduction

1. Energy Resources Aotearoa is New Zealand's peak energy sector advocacy organisation. Our purpose is to enable constructive collaboration across the energy sector through and beyond New Zealand's transition to net zero carbon emissions in 2050.

2. This document constitutes our submission on the MBIE consultation document *Gas Transition Plan Issues Paper* (the Issues Paper).

Key points

3. The incoming Government should not try to produce a Gas Transition Plan that specifies the emissions or technology pathway it wants the sector to take. It should focus on policy settings that enable market participants to iteratively explore all opportunities to deliver safe, affordable, and reliable energy while continuing to reduce the emissions intensity of the gas sector.

4. Our analysis indicates that a market-led approach will deliver a more orderly and cost-effective transition that could outperform the indicative emissions budgets set for the gas sector. Businesses and consumers are best placed to make plans and decisions based on their own preferences and knowledge – and efficient price signals are the best means to coordinate those decisions. Government should focus on playing an enabling (rather than directive) role by setting the overall framework within which these plans and decisions can be made.

5. We recommend the incoming Government's efforts should be two-fold:

    - identifying and resolving areas where policy settings are undermining investment confidence in gas supply and demand (see paragraph 16); and

    - identifying areas where policy settings could better facilitate and enable material emissions reduction opportunities, including carbon capture, utilisation and storage as a priority, and adoption of renewable gas(es).

6. To capture this submission's recommendations briefly:

   - we question the need for a prescriptive gas transition plan – if one is produced, this should focus on articulating the 'guard rails' within which the sector can iteratively explore the trade-offs between energy security, affordability, and emissions;

   - the Government should focus on removing regulatory barriers and restoring investment confidence (see paragraph 16 below), which will support a more orderly journey toward a low-emissions economy;

   - particular attention should be given to the role of gas in the electricity system, with serious and urgent consideration given to the full range of options to restore confidence and encourage necessary investment in new peaking generation;

   - both biogas/biomethane and hydrogen will play a role in the low-emissions economy – to the extent the Government wishes to support their development and uptake, we suggest it should focus on removing regulatory barriers and using voluntary market measures like renewable energy certificates; and

   - carbon capture, utilisation, and storage (CCUS) is a critical opportunity that faces significant regulatory barriers – the best solution is a dedicated regulatory regime to enable CCUS and we encourage the Government to work closely with the sector to progress this as a priority.

7. We encourage Government and officials to consider opportunities for closer public-private collaboration to explore the trade-offs inherent in our energy future. We suggest that the *Energy Resources Sector Net Zero Accord* - which represents most of upstream oil and gas production in New Zealand – could function as a platform for such collaboration.[1]

Part 1: Introduction

The forthcoming 'plan' should be enabling, not prescriptive

8. Rather than setting out a prescriptive trajectory for the gas sector's transition, the incoming Government should focus on ensuring that its regulatory and policy settings enable iterative exploration of all the opportunities to reduce the sector's emissions intensity over time.

9. We suggest this might include modelling a range of credible scenarios, to help identify the range of possible pathways that are within acceptable parameters of the energy trilemma (affordability, security, and sustainability). For example, Castalia modelling commissioned by the gas sector controlled for energy security

1 See the Accord here and the latest Progress Report here.

(i.e., set this parameter as fixed so that energy security had to be maintained at current levels) on the basis New Zealanders have a very low tolerance for energy outages. This enabled Castalia to surface trade-offs between energy costs and emissions reductions.[2]

10. We are sceptical of the need for a prescriptive 'plan' and suggest what the sector instead needs is strategic clarity from government:

    - what is our objective(s) for the gas sector?
    - what are the parameters for the transition – i.e., the 'no-go' zones for each leg of the trilemma?
    - what are the stable, durable policy settings against which the sector can invest and explore opportunities with confidence?

The goal is to reduce net emissions, not necessarily to eliminate particular fuels

11. The Issues Paper features commentary on the need to 'transition away from', and 'avoid lock-in of', natural gas use. This suggests an underlying focus on pushing natural gas use to zero, rather than pushing net emissions to zero. We do not believe lock-in of future natural gas use is a significant concern because:

    - the energy sector is subject to a quantity-capped ETS, aligned with a trajectory toward net zero emissions by 2050;
    - all future natural gas use will be subject to a carbon price under the ETS;
    - if natural gas use increases – or does not decrease as quickly as is forecast or preferred by policymakers – the carbon price will drive emissions reductions or offsets elsewhere in the economy; and
    - our net emissions target allows for continued gross emissions (e.g., from natural gas) provided these are offset.

12. On this basis we have previously opposed punitive and fuel-selective proposals such as a ban on new gas connections and continue to do so.

13. We also note our concern that the Climate Change Commission's demonstration pathway and emissions budgets have become determinative and directive. Sub-sector emissions budgets have now been established, which appear to pre-judge where the most economically efficient emissions reductions will be available across the economy. In this regard we note the initial work on the Gas Transition Plan (which became this Issues Paper) focused on demonstrating that the gas sector would meet its allocated 'target'. This approach encourages siloed thinking and ignores opportunities for emissions 'overs and unders' between

2 See here.

sectors and fuels. In so doing, it may lead to a sub-optimal (more expensive and disruptive) emissions reduction pathway across the economy.

We have built a robust evidence base specifically to help develop the Gas Transition Plan

14. Over the past 18 months Energy Resources Aotearoa has delivered a suite of evidence-based reports to inform the key elements of the Gas Transition Plan (and other government work). Officials will already be aware of these (we have welcomed their positive engagement on each report), but we have listed them in Appendix 1 for convenience.

15. We have also dealt with many of the matters raised in the Issues Paper in previous submissions on a range of consultation papers from government agencies. We have selectively reiterated the most critical points in this paper, but Appendix 1 also includes a list of our previous submissions that may provide further detail on our views.

Part 2: Transition issues

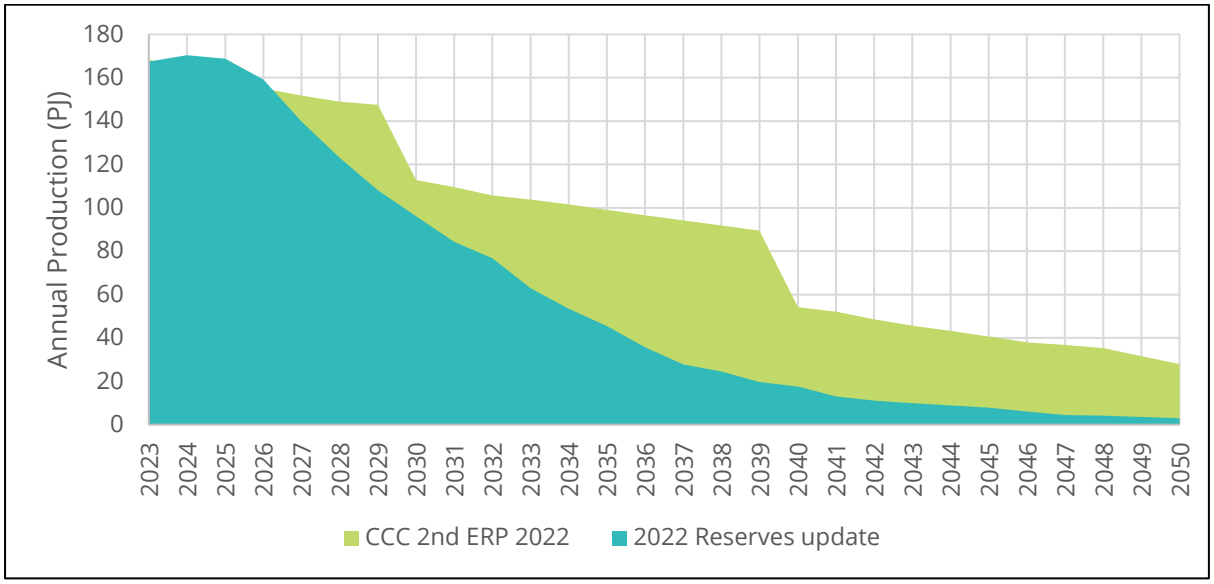
Sustaining investment in gas availability through the transition

16. We have consistently pointed to a cacophony of negative policy signals that have undermined investment confidence in upstream gas supply and undermined confidence in key demand sectors. Previous submissions detail these at length, but the key policies undermining investment confidence in gas supply, storage, and demand include:

    - a prevailing tone from Government about the 'phase out' of natural gas as a fuel, rather than phase down of net emissions;
    - the previous Government's aspirational target of 100% renewable electricity by 2030;
    - the 2018 ban on new oil and gas exploration outside onshore Taranaki;
    - onerous new decommissioning requirements on oil and gas installations;
    - the ongoing investigation of the Lake Onslow pumped hydro scheme;
    - a proposed ban on new fossil fuel baseload electricity generation; and
    - ongoing uncertainty about the Government's preferred balance between gross emissions reductions and offsets, and any measures it might take to achieve this (particularly through the emissions trading scheme); and
    - ongoing uncertainty about the long-term commitment to industrial allocation under the emissions trading scheme.

17. These have led to a predictable softening in the critical investment needed to sustain gas availability over the coming decades. The consequences of this are already clear. The figure below shows the latest gas reserves data, compared with the gas demand profile assumed under the Climate Change Commission's demonstration pathway to 2050. This shows a roughly 900 PJ cumulative shortfall between what the Climate Change Commission has suggested would be produced under its pathway to 2050, and what is currently expected to be produced. New and ongoing investment (estimated at around $200 million per year) will be required to address this shortfall.

Figure 1: Gas production forecast from 2022 reserves update compared to gas production under Climate Change Commission's demonstration pathway



18. Demand-side investment confidence is a critical piece of the picture. There is a mutually reinforcing relationship between upstream investment in supply and downstream investment in continued demand. Keystone users of natural gas – including petrochemicals (e.g., Methanex and Ballance Agri-Nutrients) and thermal electricity generation (e.g., Genesis Energy and Nova) need to be confident that reliable supply will continue; likewise, their ongoing investment in their sites and willingness to continue contracting for gas provides long-term confidence to upstream suppliers.

19. Given downstream gas users are so critical to the sector's overall ongoing success, a broader range of policy settings should be considered when it comes to an orderly long-term pathway for gas. This includes long-term commitment and stability in ongoing industrial allocation to EITE industries, and the overall shape and direction of ETS and emissions reduction policies.

20. We believe the primary role of the Government in supporting continued investment in the gas sector is to resolve the policy issues listed in paragraph 16 above. Fundamentally, this means a shift back to policy settings that are fuel

agnostic and focused on the outcomes sought – i.e., net emissions reductions at least cost to community welfare – rather than on eliminating natural gas as a fuel.

21. Our 2023 Briefing to the Incoming Government – to be published soon after submissions close on this consultation – details a suite of priority policy initiatives that would create a much more enabling environment for the necessary investment in the energy resource sector (including upstream, midstream, and downstream).

The role of gas in the electricity system

22. Thermal generation capacity plays – and will continue to play – a critical role as a back-up to our increasingly electricity system. Analysis we commissioned from Castalia confirms that achieving 95-98% renewable electricity generation is more cost-effective and less disruptive than pushing toward an arbitrary target of 100% renewable. This more cost-effective approach provides as smooth as possible a pathway for electrification of transport and industry.[3]

23. This aligns with what is by far the majority view among commentators and analysts in the sector, including:

    - the International Energy Agency (IEA)'s *New Zealand 2023 Energy Policy Review*, which said that "New Zealand should weigh its aspiration to achieve 100% renewable electricity by 2030 against the potentially considerable costs associated with achieving the last 2-5% of the target";[4] and

    - the Interim Climate Change Commission's *Accelerated Electrification* report, which said that "going from 99% to 100% renewable electricity by overbuilding would avoid only 0.3 Mt CO_2-e of emissions at a cost of over $1,200 per tonne of CO2e avoided. It is also likely to result in much higher electricity prices".[5]

Enabling investment in new fast-start gas-fired peaking generation

24. In its *Ensuring an Orderly Thermal Transition* consultation paper, the Electricity Authority acknowledges that while overall thermal (including gas) demand from electricity generation will fall over time, the relative importance of the role of fast-start gas-fired peaking generation as a back-up to our increasingly renewable electricity system will increase.[6] It notes the risk of disorderly thermal exit is currently low and expects demand for fast-start back-up will remain strong – but critically, it does not see an economic case for new capacity at least to 2032.

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3 See here.

4 See here.

5 See here.

6 See its *Ensuring an orderly thermal transition* consultation paper here.

25. In our submission on that consultation paper, we pointed out that this view is an outlier compared to a range of other forecasts that identify a need for at least 200MW of additional fast-start capacity by the mid-2030s, and in some cases much more.[7] The BCG's *Future is Electric* report suggested as much as 700 MW of new fast-start peakers, in combination with 400 MW of grid-scale batteries, might be required to meet the highest demand peak in 2030.[8]

26. Further, we note helpful contributions from others to this same consultation process, which we highlight here as relevant:

    - Mercury is concerned that the Electricity Authority's analysis may underestimate the risk to consumers of a 'black swan' event (e.g., an unplanned thermal outage coinciding with high peak demand and low solar/wind/hydro generation). It is also concerned the analysis does not fully account for the fact that only thermal generation can provide firm flexibility across all relevant timeframes (real-time, day/week, and month/year). It suggests more consideration should be given to the safeguard provided by investment in additional thermal peaking generation.[9]

    - Contact highlights the risks associated with gas supply flexibility over the coming years.[10]

    - Nova, which holds consent for 360 MW of fast-start peaking capacity at Otorohanga, emphasises that in lieu of significant improvements to investment certainty, this plant will not be built. This includes the issues we raised in the previous section, as well as the need for thermal generators to be confident they will benefit from high prices in periods of tight supply.[11]

Alternative technology options

27. We agree that the challenge of electricity generation variability across a range of timeframes (including seasonal) will require a combination of demand and supply side solutions. Low-emission technologies like energy efficiency, demand-side response, grid-scale batteries, and hydrogen or biomethane storage could all play varying roles in response to changes in relative price signals.

28. However, thermal generation is the only technology that provides flexibility across all timeframes – so unless the full suite of technologies above become much more cost competitive in aggregate, thermal will need to be part of the solution mix. We also note that (particularly new) thermal peakers may offer the opportunity to reduce overall thermal generation emissions by replacing older, less efficient

7 See page 4 of this submission for a collated table of forecasts of additional fast-start thermal peaking capacity required by the mid-2030s and by 2050.

8 See Exhibit 79 on page 124 of BCG's report.

9 See here.

10 See here.

11 See here.

assets; and by providing pathways to low-emissions fuels like biomethane and/or hydrogen, and could be paired with carbon capture, utilisation, and storage.

Part 3: Key opportunities

Renewable gas

Biogas/methane

29. We agree with the consultation document's conclusion that biogas/biomethane has a promising role to play in reducing the emissions intensity of the gas sector over time. While full replacement of natural gas with biogas/biomethane is unrealistic over the short to medium term, there are immediate economic opportunities to progressively blend biogas or biomethane into the network for consumers willing to pay a premium.

30. As the document itself notes, around 20% of current residential and commercial gas demand could be met by 2 PJ of biogas sourced from waste feedstocks at around $15/GJ compared to around $8/GJ for natural gas. This premium would be a relatively minor overall component of overall energy bills (given gas represents only about 20% of these customers' bills).

31. Supporting and accelerating uptake of biogas/biomethane blending, where this is commercially viable, clearly aligns well with New Zealand's overall emissions reduction ambitions as well as its proposed national waste strategy. The key question is how to achieve this (see *Renewable gas certificates* below).

Hydrogen

32. We agree that hydrogen will likely have a role to play in hard-to-abate applications such as heavy road transport, petrochemicals, and marine and air transport. Over the medium to long term, as with all other fuels and technologies, hydrogen will need to establish a durable role on a commercial basis – and we expect it will.

33. We note the Government is current supporting hydrogen uptake through several subsidy and other measures aimed at overcoming early investment and commercialisation barriers. At a high level, our view is that such measures need to clearly articulate what success looks like and identify the 'off-ramp' for Government support.

34. We note the Issues Paper discusses blue hydrogen (produced from natural gas paired with CCUS) and concludes that New Zealand is more likely to use natural gas directly for key domestic use cases. While we generally agree, if New Zealand sought to establish a hydrogen export market, blue hydrogen could offer a pathway. Blue hydrogen production is much lower cost than green hydrogen, which could be particularly important if hydrogen exports need to compete in a global market where the cost premium for green hydrogen (zero emissions) over blue hydrogen (low emissions) is small. Enabling blue hydrogen production would

radically strengthen investment confidence in ongoing gas supply and storage, and it would establish infrastructure that later supports uptake of green hydrogen.

35. For further information, see our parallel submission on the Interim Hydrogen Roadmap consultation paper.

Renewable gas certificates

36. Consistent with our previous submissions and advocacy, we support market-led solutions to support uptake of renewable gases (biogas, biomethane, and hydrogen) such as virtual trading of voluntary renewable energy certificates. We support GIC's ongoing work to explore a regulatory framework and monitoring regime to provide assurances to the market about the claims renewable gas certification providers make and the products that they sell to consumers. The government may in future have a role in ensuring any renewable gas trading schemes are compatible with international jurisdictions.

37. Government subsidies or investments need to be justified on the basis that they address a market failure, are additional (i.e., realise benefits that would not accrue under status quo settings), and represent good value-for-money compared to alternative investments.

38. We do not support renewable gas obligations or mandates. A key risk of mandating renewable gas blends, or mandating participation in a renewable energy certification regime, is that it imposes the associated premiums on consumers who are unwilling and/or unable to pay. This could create a more disruptive transition and accelerate disconnections from the gas network. In this way, well-intentioned policies to support the transition of the gas sector could heighten risks of asset stranding and increase the overall costs of the transition.

Carbon capture, utilisation, and storage (CCUS)

New Zealand should pursue CCUS as a priority

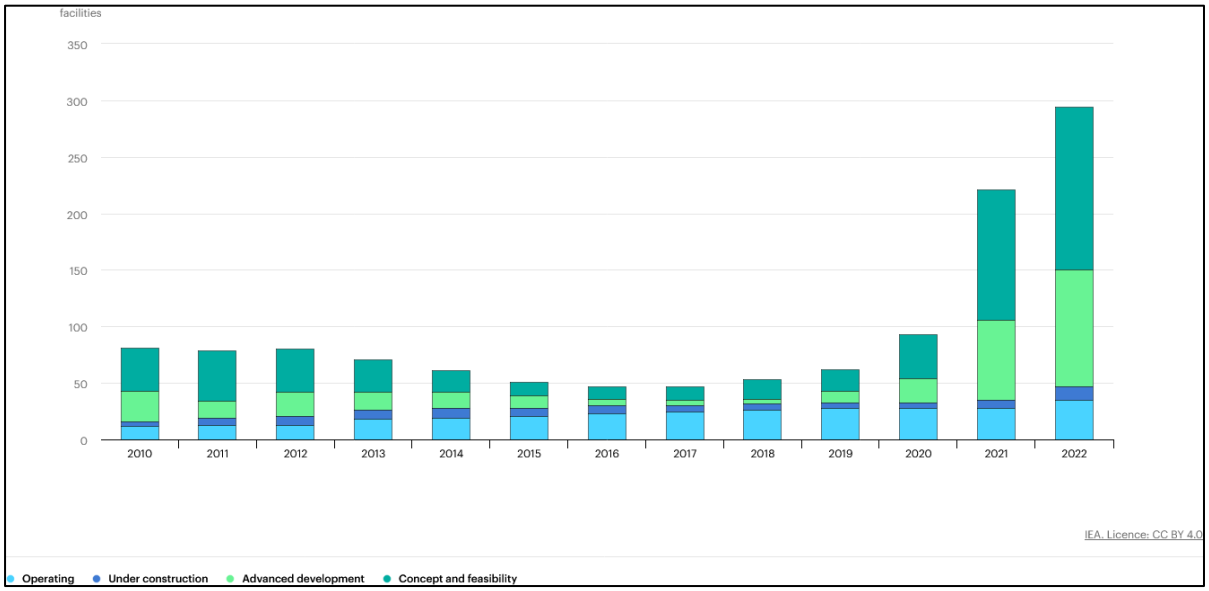
39. We have consistently advocated strongly for CCUS to be prioritised as a key emissions reduction opportunity. Some point capture projects may be commercial at current carbon prices (or nearly so) and enabling the establishment of a CCUS ecosystem now could lower barriers to commercialisation of direct air capture in the future.

40. Credible international voices, including the IEA and IPCC, point to CCUS as a critical element of a successful net zero transition. The high proportion of fossil fuels in New Zealand's primary energy supply means we will, like the rest of the world, need to achieve net zero emissions faster than it can eliminate fossil fuels. With commentary from some parties increasingly pointing to the risks and shortfalls of above-ground biological sequestration (e.g. forestry), it is critically important that

the role of permanent geological sequestration and carbon utilisation are given serious consideration.

41. CCUS is not new. Currently about 40 million tonnes of emissions per year are captured globally. The Global Carbon Capture and Storage Institute (GCCSI) lists 197 projects in their 2022 CCS status report.[12] Of these there are 30 operating projects worldwide, two thirds of which are enhanced oil recovery projects. A further 90 projects are under construction or in advanced development, the majority (64) focused on dedicated geological storage. This includes projects in the United States, United Kingdom, Iceland, China, Canada, Belgium, Sweden, and Australia.

Figure 2: Global carbon capture project pipeline[13]



42. Comparator jurisdictions are showing signs of urgency. For example:

- The United Kingdom has published a CCUS investment roadmap and pledged £20 billion in funding over 20 years into CCUS;
- The United States' Inflation Reduction Act increases subsidies for CCUS to US$85 per tonne (roughly NZ$145 per tonne), on top of $3 billion already committed to building four CCUS hubs; and
- Australia has launched a $250 million investment to deploy CCUS at scale.

43. We welcome the analysis that MBIE and GIC have commissioned to support the development of the Issues Paper. This analysis:

12 https://ccushub.ogci.com/ccus-basics/understanding-ccus/#howMatureIsCCUSTechnology

13 www.iea.org/commentaries/carbon-capturein-2021-off-and-running-or-another-false-start

- validates our own finding that it is technically and commercially feasible in a New Zealand context, and

- provides some indication of the regulatory measures that could be taken within the existing legislative framework to provide a pathway for CCUS to occur.

44. Both the Castalia report commissioned by the gas sector and the WoodBeca report commissioned by MBIE and GIC independently identified 2027 as a credible target date for implementation of CCUS. This is ambitious but reflects the high priority opportunity that CCUS represents. With sufficient motivation, infrastructure can be built much faster than usual – for example, when the Ukraine crisis meant Russian gas imports would cease, Germany consented and built LNG terminals faster than any infrastructure had been completed since the post-war period.[14]

45. Castalia estimated the total potential emissions reduction from CCUS in New Zealand industry and electricity generation at up to 15 million tonnes of avoided emissions to 2035, at a total energy cost to New Zealand 2.5% lower than its (no CCUS) reference pathway.[15] WoodBeca further estimated CCUS could avoid up to 4.4 million tonnes of emissions from upstream natural gas processing by 2035 at a cost of between $30-110 per tonne.

46. Taken together, these imply a potential upper limit of more than 19 million tonnes of economic emissions reductions by 2035. Achieving even a conservative portion of this opportunity would have a material impact on our ability to meet our emissions budgets.

Regulatory barriers to CCUS

47. We have not advocated for subsidies or specific incentives to support CCUS uptake in New Zealand. What sets us apart from many other jurisdictions is that we have an ETS that covers the entire energy sector, meaning that as the carbon price rises, the value of avoided emissions can be realised by CCUS projects. Our key focus has therefore been on ensuring regulatory settings enable CCUS to occur where it makes commercial sense.

48. The Barton report commissioned by MBIE and the GIC finds that:

> "…relatively specific changes to policy settings and amendments to statutes and regulations […] would result in a legal regime that would be viable for the early stages of CCS in New Zealand. It would not be ideal in its regulatory comprehensiveness for the protection of public interest, or in terms of

14 The Castalia report is here and the WoodBeca report is here. The Castalia report assumes CCUS captures 85% of gross emissions where it is deployed; and that it is deployed once economic in the following sectors: electricity generation; methanol; urea; steel; cement; and lime.

15 The Castalia report uses IEA cost estimates for CCUS available here.

investment certainty to encourage corporate investment decisions, but it would provide a path forward for CCS projects."[16]

49. We would support these changes as an immediate interim measure if they enable CCUS to begin more quickly.

50. However, our strong preference is for a dedicated CCUS Act. We recommend work on this begins immediately. This would:

- deal with the permitting and authorisation of projects;
- describe the reporting and inspection of operations during the feasibility and operational phases of the permit;
- facilitate the development of CCUS hubs for the geological storage of third-party CO2;
- clearly articulate and define ownership, and therefore responsibility, for CO2 storage and handling along the project value chain;
- set out the consultation requirements for iwi and affected stakeholders;
- outline the site closure and monitoring requirements for the regulator to verify carbon has been stored in a stable, long-term manner; and
- enable the transfer of liability for stored CO2 from the permit holder at the end of the verification and monitoring period.

51. We believe close collaboration between the public and private sector will be necessary to accelerate this work by identifying issues to be resolved in a regulatory regime. Again, we suggest the Energy Resources Sector Net Zero Accord could be a platform to enable this collaboration.[17]

Increasing capacity and flexibility of gas supply

Enhanced gas storage

52. We have consistently pointed to enhanced gas storage (whether expansion or conversion) as a low-cost option to add much more depth and flexibility to New Zealand's energy system. An additional 18 PJ of gas storage would enable gas to be the predominant fuel in dry years – this is equivalent to 5,000 GW, or roughly the storage capacity of the proposed Lake Onslow.

53. In *Fuelling the Energy Transition*, we noted that the Ahuroa Gas Storage Facility has 18 PJ of storage and was built for $177 million in 2011 (roughly $216 million in present-day dollars). The latest estimates are that Lake Onslow could cost over

16 See here.

17 For more on the Accord, see here.

$16 billion to construct and would provide roughly the same energy storage capacity to the system. Even if new gas storage was double the cost, this is a vanishingly small fraction of Lake Onslow.

54. As the Issues Paper itself notes, the key issue is investment confidence. Any new investment in enhanced gas storage would require stable policies that create an investment horizon of at least 15 years. Again, the first focus of the incoming Government should be addressing the cacophony of negative policy signals that currently make such an investment highly unlikely. Beyond this, there may be a role for government in supporting investigation of the case for enhanced gas storage and/or alternatives such as methanol storage for electricity generation.

Liquefied Natural Gas (LNG) import

55. We welcome the supporting analysis by Enerlytica into the feasibility of LNG import to address gas market imbalances. While we acknowledge it could provide an alternative back-up to cover planned and unplanned outages, our preference is for solutions that leverage greater use of our domestic natural gas resources.

56. Regarding domestic solutions – which we prefer – we agree with Enerlytica's conclusion that a new gas storage facility would provide the greatest scope to provide additional system flexibility at the lowest relative cost.

Conclusion

57. We appreciate the opportunity to provide input on this important work. Overall, we read the Issues Paper as a sober recognition of the challenges facing the sector as we transition toward net zero emissions – including those challenges created by prevailing policy settings implemented over the last several years.

58. We see remarkable opportunities ahead, but the sector needs to be able to take risks and invest in them with confidence. The Gas Transition Plan is an opportunity to provide clarity and stability for a sector that stands ready to do some heavy lifting on New Zealand's low-emissions journey.

Appendix 1: Reference Material

Energy Resources Aotearoa reports

Report	Description	Links
Fuelling the Energy Transition Energy Resources Aotearoa	Lays out credible pathways for the transition and shows that a disorderly transition out of natural gas could cost $6.3 billion by 2036, compared to a technology-led transition that enables renewable gases and CCUS.	Summary report Full report
Building Energy's Talent Pipeline Energy Resources Aotearoa	An Industry Skills Action Plan for the energy sector, including oil and gas. Jointly prepared by Energy Resources Aotearoa and the Taranaki Regional Skills Leadership Group.	Summary report Full report
2035/2050 Vision for Gas Castalia	Explores potential pathways for the gas transition, holding energy security constant to identify trade-offs between energy costs and emissions reduction. Strengthens the evidence base in favour of an orderly transition that enables CCUS. Commissioned by Energy Resources Aotearoa, Gas NZ, and the Major Gas Users' Group Inc.	Summary report Full report
The Role of Gas in Electricity and Industry EnergyLink	EnergyLink's independent analysis of the range of potential scenarios for natural gas use in electricity generation over the long-term. It finds the best strategy is to retain gas-fired generation beyond the 2030s (including new peakers in all scenarios); switch Huntly to gas-only as soon as practicable; and concert all geothermal to include reinjection of CO_2.	Summary report Full report

Previous Energy Resources Aotearoa submissions

59. We suggest that, in addition to this submission and the reports above, officials refer to at least the following previous submissions from Energy Resources Aotearoa. All our previous submissions are available here.

- Electricity Authority's Ensuring an Orderly Thermal Transition (July 2023)
- Climate Change Commission's Draft Advice on Second Emissions Reduction Plan (June 2023)
- Transpower's Draft Security of Supply Annual Assessment 2023 (May 2023)
- Commerce Commission's Options to Maintain Investment Incentives in the Context of Declining Demand (February 2023)
- Gas Industry Company's Gas Market Settings Investigation (July 2021).