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POWERING A BETTER NEW ZEALAND TOGETHER

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Submission on the *Aotearoa New Zealand Infrastructure Strategy Consultation Document*

Infrastructure Commission
Submitted online at https://www.infrastructure.govt.nz/strategy/have-your-say/

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Introduction

1. Energy Resources Aotearoa ("Energy Resources") represents energy-intensive firms in the energy resources sector, from explorers and producers to distributors and users of resources like oil, LPG, natural gas and hydrogen.[1]

2. This document constitutes Energy Resources' submission to Infrastructure Commission's *Aotearoa New Zealand Infrastructure Strategy Consultation Document* entitled "*He Tūāpapa ki te Ora Infrastructure for a Better Future*".[2]

Submission

3. At a high level, two important matters are unclear to us which affected our ability to engage with the document:

    a. The scope of the report is ambiguous. Specifically, it is unclear to us which infrastructure is meant to be captured and whether the focus is on both public and private infrastructure. The issue of scope is especially important to understand when considering direct regulatory proposals; and

    b. The next steps and outcomes desired appear vague. After the infrastructure strategy is finalised it is unclear precisely what it will seek to directly inform and influence.

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1 Earlier in March this year we changed our name from the Petroleum Exploration and Production Association of New Zealand (PEPANZ) to Energy Resources Aotearoa. This reflects our new strategic approach and move into being the voice of a successful and resilient energy resources sector.

2 https://infracom.govt.nz/assets/Uploads/Infrastructure-Strategy-Consultation-Document-May-2021.pdf

The characterisation of the transition to low emissions needs more nuance

4. The discussion document uses language in relation to the low emissions transition which we consider to be imprecise, and which imply a belief that a metamorphosis from one state to another is coming and that this is what should be planned for.

5. The document occasionally refers to "zero-carbon 2050" whereas the statutory objective is, net-zero emissions in 2050. This distinction is important as "net" allows for offsets where hard-to-abate emissions remain, whereas "zero" means no emissions at all.

6. Relatedly, the document refers to the future state as being "powered by renewable energy" and regularly refers to "renewable energy". The energy transition must be correctly defined and used in a disciplined manner. The transition does not necessitate a 100% metamorphosis from one state to another - it is not about shifting to renewable energy per se but is rather about low emissions energy (for example, with the potential for offsets and capture of emissions).

It is important to consider the role of gas infrastructure

7. With that in mind, our key concern about the energy section is that there is too much focus on electricity and electrification and not enough consideration given to the ongoing role of hydrocarbons, especially natural gas. Although electrification will be an important part of the transition there will remain a significant amount of petroleum in the energy mix for decades to come, and other low emission gases (such as biogas or hydrogen) may be used in existing gas infrastructure. The Firstgas Group's work on deploying biogas into the existing pipelines network is a good example of potential pipeline repurposing, although it assumes falling hydrogen production costs which in itself implies that keeping options open for existing natural gas fuels is prudent.[3]

8. We welcome the Climate Change Commission backing away from its recommendation of firm 2025 date for ending new gas connections in light of low emission pipeline repurposing options.[4]

9. In terms of recent domestic modelling, we note that the Climate Change Commission recognises an important ongoing role for natural gas in 2050, with 25 petajoules (PJ) of gas forecast to still be used for electricity firming and hard-to-abate process heat (For reference this compares to almost 200 PJ of current

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3 Firstgas Group's work is presented at: https://gasischanging.co.nz/.

4 The Climate Change Commission has said that if a hard date is to be set this should be considered and recommended by the Ministry of Business, Innovation and Employment.

annual production). The recently released TIMES 2060 model shows natural gas also being used in both of its scenarios – approximately 45PJ and 65PJ (excluding use for feedstock).[5] The two scenarios show fossil fuels still providing 22% and 33% of total energy demand by 2050, at the same time as energy emissions significantly reduce.

10. Given these modelling exercises, it would be highly prudent for the Infrastructure Commission to factor this into its thinking about the future. Prolonged presence of the hydrocarbon sector implies infrastructure and skills need that cannot be ignored, especially given that natural gas still used in 2050 will have demonstrated itself to be particularly hard to abate and therefore not prone to substitution, i.e. the roles it will play will be important, especially in firming the electricity supply through peaking plants.

11. The discussion document seeks to ensure that infrastructure will support electrification, but should also ensure that infrastructure for natural gas (and reuse for lower emission gases) and associated industrial firms will be supported and not disregarded.

12. If domestic natural gas reserves tighten to the point that there are inadequate supplies, there is a real possibility that Liquified Natural Gas (LNG) will be imported to meet demand when domestic prices reach import parity pricing. This scenario would require relevant infrastructure and this should be kept in mind by the Infrastructure Commission, at least so that options are not necessarily closed. This scenario would also require the continuation of existing infrastructure so that options are not necessarily foreclosed.

Economy wide emissions and the 'waterbed effect'

13. Emission reductions must happen at the level of the national economy, and not just in particular sectors.

14. In considering this point, it is important to bear in mind that New Zealand has just recently (and rightly) instituted a genuine cap and trade scheme. The ETS means that all domestic emissions (except core agricultural emissions) face the cost of carbon and this is factored into all decision making through the price signal. The newly implemented emissions cap means a new and important dynamic in climate economics must be carefully considered – the 'waterbed effect', and this is relevant when considering a focus on emission reduction in particular sectors (including infrastructure).

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5 The TIMES-NZ 2.0 modelling was prepared by the BusinessNZ Energy Council, the Energy Efficiency and Conservation Authority (EECA) and the Switzerland-based Paul Scherrer Institute. The model is used by many countries around the world. https://www.bec2060.org.nz/.

15. The waterbed effect is an analogy showing that under a capped system, regulations further to the ETS cannot reduce overall emissions, because 'pushing down' on one part of the 'waterbed' (through a sector-specific ban for example) means that the displaced set of emissions simply 'pops up' somewhere else in the economy as the overall volume of emission units does not change.

16. Given the cap in New Zealand is so new, it is possible that the waterbed effect may not have been engaged with or understood domestically, but it is now a crucial factor that warrants serious engagement in all emissions policy both now and going forward.

The ETS can deliver the emissions reductions needed

17. We note that the Infrastructure Commission expresses a lack of confidence in the ETS to deliver climate objectives.

> "At present, market prices in New Zealand's Emissions Trading Scheme likely fall short of what is needed to reduce carbon emissions sufficiently and meet government targets. Under New Zealand's Emissions Trading Scheme, carbon emissions are currently priced at just under $40/tonne. Recent reforms have established a price floor of $20/tonne and a cost containment reserve that will be auctioned to cap prices at $50/tonne.16 According to recent Treasury estimates, a significantly higher price, as high as $232/tonne by 2050, would be needed to hold global warming at less than 2 degrees Celsius.17 Some international research indicates that the true cost of carbon emissions could be nearer $400/tonne."[6]

18. Despite apparent scepticism from the sources cited, we note the Final Advice of the Climate Change Commission models that New Zealand will net zero by 2050 at a carbon price of $50 per tonne. Today's unit price is $40, so the country is close to the right trajectory already.

19. The Infrastructure Commission asks quite specific questions such as:

> How could we encourage low-carbon transport journeys, such as public transport, walking, cycling, and the use of electric vehicles including electric bikes and micro-mobility devices?

20. To the extent that infrastructure is not market-led (i.e. without price signals), government will need to plan its infrastructure investments. It is true that anticipating future needs is an important part of this, but given the country has a capped ETS we do not consider the Infrastructure Commission needs to delve into to the level of detail around encouraging low emissions transport options.

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6 Page 49, Discussion Document.

21. The same can be said about the concept to "Drive a culture of waste minimisation". Waste policy is its own discipline and not one that we consider the Infrastructure Commission needs to become overly involved in. Landfills may indeed be relevant to infrastructure considerations but this would more seem to be a question of modelling demand rather than trying to change consumer behaviour, unless waste causes major issues for infrastructure cannot be addressed by other (perhaps more specialised) parts of the government.

100% renewable electricity and energy targets

22. The Infrastructure Commission refers to the:

> "100 percent renewable electricity target" being brought forward by the Government by five years to 2030. The discussion document, rightly, goes onto say that "it is not currently considered achievable due to a range of constraints (consenting barriers and delays being among the most significant)."

23. We draw the Infrastructure Commission's attention to the fact that the Climate Change Commission has just recommended walking away from the 100% renewable electricity target, saying:

> "The Government should consider replacing the 100% target with a goal of aiming to achieve 95-98% renewable electricity by 2030."[7]

24. The Climate Change Commission's concern is on the basis that pursuing 100% renewable electricity will result in high electricity prices making decarbonisation through electrification relatively less attractive.

25. We agree that the 100% renewables target should be abandoned, but do not support any arbitrary target being set in its place. The Infrastructure Commission's discussion document notes that "No targets have been expressed for other parts of the energy sector that are vastly more carbon intensive and may offer relatively low marginal abatement costs."[8] We are unclear whether we should infer from this comment that the Infrastructure Commission wants other energy sector targets or whether it is simply making an observation.

26. In case the Infrastructure Commission means to support sectoral targets, we fundamentally reject the idea of sectoral targets as they will promote the misallocation of resources. We need to think about energy as a system (and indeed the wider economy as a system) otherwise we risk falling into the trap of reductionist thinking - the idea that a certain field of study or even something more specific can be broken down into smaller parts that can thus be used to

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7 Page 279, *Ināia tonu nei: a low emissions future for Aotearoa*. Climate Change Commission.

8 Page 55, Discussion Document.

describe the idea as a whole again (e.g. the pursuit for electricity system emission reductions, or transport reductions, or process heat reductions when we have the entire economy from which to source them).

27. Our firm view is that the level of ambition in particular sectors is essentially irrelevant as it is only economy wide emissions that ultimately matter under the capped ETS regime (as outlined above).

Embedded emissions

28. Embedded emissions can be of academic interest, but given we have an ETS there is limited need to focus on them practically. We acknowledge that emissions from the overseas manufacture of building products are not part of our ETS, however, it is the obligation of other countries to manage their own emissions. Trying to manage emissions created overseas through domestic policy can also lead to what amounts to double-counting, and will increase costs in New Zealand.

29. A range of direct regulatory proposals are made in the discussion document in F1.1, F1.2 and F1.3.[9]

30. We do not consider that such proposals are warranted or necessary. Companies already have fiduciary duties and it is the role of Boards to consider business risk and major costs, and this aspect of the status quo should be considered before presuming a move towards state action is required or appropriate. In addition, legislation has recently been instated requiring reporting in line with the Task Force on Climate-related Financial Disclosures (TCFD) around governance, strategy, risk management, metrics and targets.

[9] The excerpts are found below:

F1.1	Adapt business case guidelines to ensure full consideration of mitigation and adaptation
2022-2026 CCC, SRC	Require all infrastructure projects to directly assess climate change impacts (mitigation and adaptation). Ensure all infrastructure projects evidence they are compatible with a net-zero carbon emission future to prevent infrastructure with a long asset life locking-in a high-emissions future. Require all infrastructure projects to apply a consistent cost of carbon that is commensurate with New Zealand's international commitments in cost-benefit analysis and sensitivity analysis.

F1.2	Recognise climate uncertainty in decision-making processes
2022-2026 CHZ, PSR	Ensure that, whenever possible, decisions open up a wide range of future options and, when it is optimal to do so, keep options open for as long as possible.

F1.3	Require a bright-line (pass/fail) infrastructure resilience test
2022-2026 IVA	Require that, where appropriate, proposals for new major capital works are subject to modelling that indicates, through siting, design, specifications and construction, that the infrastructure will be able to withstand a range of major stresses and shocks, including the future impacts of climate change.

31. We note the Legislation Design and Advisory Committee's Legislation Guidelines which emphasise that legislation should only be used when it is essential and after non-regulatory solutions have failed - "Legislation should only be made when it is necessary and is the most appropriate means of achieving the policy objective."

32. Fundamentally, the proposals would all further imbed government regulation into an already complex and costly infrastructure setting.

Acting early on climate change likely means foregoing lower cost abatement later

33. Page 35 states that:

> "New and improving energy technologies are expected to greatly reduce the cost of the transition over time."

34. We agree with this statement, and it has important implications for the determining the appropriate pace of the transition. Acting too quickly will mean pursuing relatively expensive abatement, as in the future there will be lower cost abatement opportunities that we can adopt from overseas as technologies improve. It is the planting of trees and use of international units that will help the country 'cross the bridge' from the status quo to cheaper abatement in the future.[10]

Carbon capture and storage should be considered

35. We note that the discussion document actively covers offshore wind generation and suggests looking at whether the regulatory regime is fit for purpose. We support the goal of ensuring that innovation is not unreasonably impeded by regulatory roadblocks, but consider that carbon capture and storage technology faces regulatory barriers which warrants attention.

36. Carbon capture and storage ("CCS") has the potential to reduce emissions at a large scale. CCS is the process of capturing carbon emissions from large sources such as power plants and large industrial users and storing them where they cannot escape into the atmosphere. Often this is deep underground in geological formations where natural gas originally came from.

[10] In considering access to international units, it is also important to recognise the mutually beneficial nature of trade. If the New Zealand Government or firms purchase units from offshore, there is a finance transfer meaning that the counterparty can use that money for domestic decarbonisation.

37. Large scale CCS is a reality today and can remove as much as 90% of carbon dioxide from major projects. There are currently 37 projects around the world actively capturing and/or injecting carbon dioxide.[11]

38. Here in New Zealand, the 8 Rivers company proposes a zero emissions power generation plant in Taranaki. As part of its "Project Pouakai", 8 Rivers is proposing to produce electricity, urea and hydrogen fuel with zero-emissions using proprietary Allam-Fetvedt cycle technology that captures all CO_2 inherently in the production process, enabling sequestration of pure CO_2.

39. However, the lack of an enabling regulatory framework for the use of this technology in New Zealand will dissuade investors. New Zealand academics and the Productivity Commission have already shown that the regulatory regime is a major barrier, and identified where the gaps lie.[12] Energy Resources Aotearoa recommends the Infrastructure Commission look at supporting changes to relevant legislation to allow this technology to be deployed.

40. We note that CCS is a workstream for the Ara Ake energy institute, and that the Australian Government has chosen to invest in CCS to reduce emissions.[13]

Funding of infrastructure

41. Infrastructure investment in New Zealand is largely an issue of ability to secure finance. The world is currently awash with cheap capital, so the issue appears to a disconnect between willingness to invest in New Zealand and appropriately configured projects that match their risk appetites and portfolios. New Zealand has also demonstrated a negative perception of foreign investment which may factor into investment attractiveness.[14]

42. Debt and equity capital are not scarce, nor have they ever been as cheap. Neither is there a shortage of pricing tools to allow infrastructure providers to recover project costs efficiently. Yet investor uncertainty remains and there is public scepticism about the benefits the private sector can bring to bear, or the need for

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11 National Energy Technology Laboratory, US Department of Energy, available at: https://www.netl.doe.gov/coal/carbon-storage/worldwide-ccs-database.

12 Barton (et al) (2013), Carbon Capture and Storage: Designing the Legal and Regulatory Framework for New Zealand: Report for the Ministry of Business, Innovation and Employment and the New Zealand Carbon Capture and Storage; Productivity Commission (2018), Low Emissions Economy: Final Report, page 449.

13 "The government picked CCS as one of five technologies that it intends to invest in over the next two decades to drive emissions cuts, and instructed the Clean Energy Regulator to develop a method for CCS schemes to earn Australian Carbon Credit Units (ACCUs)s". *Australia releases draft carbon offset method for CCS,* Carbon Pulse. 29 June 2021.

14 For example, the Government's 2009 rejection of the Canada Pension Plan Investment Board's bid for 40% of Auckland International Airport.

user-based prices or demand-side tools. Put simply, no-one wants to pay for new infrastructure.

43. If people have money to invest and infrastructure is being built then there must be a disconnect – likely caused by either regulatory barriers to investment or the proposed projects not being funded/paid for by consumers.

44. In New Zealand there is also a lack of willingness to pay, i.e. revealed preference, is often overridden with centralised funding mechanisms such as targeted rates. Funding through targeted rates promotes lobbying and rent seeking rather than most efficient use of scarce resources. A shift towards user pays would ensure that investments are made where the revealed preference of consumers shows it is most valued. We would encourage the Infrastructure Commission to consider how to ensure revealed preference can better inform infrastructure decisions.

45. We have observed a marked increase in perceptions of New Zealand's sovereign risk status. There have been a range of significant political changes made to public policy through poor processes. Three recent capricious decisions typify this:

    a. the ban on new petroleum exploration permits outside onshore Taranaki in 2018;

    b. the decision to remove tax deductibility for interest expenses on rental property, and

    c. the recently introduced legislation to retrospectively institute a perpetual liability and financial assurance regime on existing petroleum production permits.[15]

46. These changes undermine property rights and mean that energy policy and tax policy are no longer stable and predictable, which this has significant implications for how overseas investors perceive New Zealand as an investment destination. It would also be worth looking at political and institutional barriers to investment including the Overseas Investment Act 2005. At the heart of the efficient allocation of resources is decision-making rights, predictable processes and clear property rights.

47. The consultation document floats the idea of:

> "Reduc[ing] barriers to building spare transmission capacity where that would reduce inefficient barriers to large-scale renewable generation and the electrification of large process heating units."

[15] The legislation is the Crown Minerals (Decommissioning and Other Matters) Amendment Bill.

48. This would be done by:

> "By making it easier for Transpower to build spare capacity ahead of provable need, generators would find it easier and faster to commit to renewable investments if electricity demand increased at a higher rate than they anticipated."

Comments on Transpower

49. Shifting the focus to leading the build regardless of 'provable need' (and therefore future revenue) would fundamentally change the nature of Transpower from being a profit-driven State-Owned Enterprise into another form of Crown Entity concerned with non-commercial matters. If 'provable need' is not important then the commercial discipline associated with needing to make a return above the Weighted Average Cost of Capital ("WACC") is effectively discarded. A fundamental question here is how it would make efficient decisions without a WACC to consider. This work also seems to cut across the work undertaken by the Electricity Authority over the past decade on the Transmission Pricing Methodology which his nearing its conclusion.

50. The trend in the electricity market is towards distributed generation and localised demand responses. If anything, this has implication for the need for a centralised system operator such as Transpower. These changing trends will have implications for whether a central system operator is most appropriate, as it may be better to have distributed system operators.

51. It would also be improper for the grid operator to be *also* making decisions on what infrastructure to build (especially without a clear commercial discipline), as it is poor public administration to have the gamekeeper and poacher in one body.

Summary

52. The energy sector and its infrastructure will play a critical role in New Zealand's future including as part of the transition to a low emissions economy. The Commission should give greater consideration to gas infrastructure (as opposed to just electricity infrastructure).

53. In terms of settings, the right signals and mechanisms will be needed to ensure that demand for infrastructure can be met by supply. At the moment there are numerous barriers to this goal being achieved, including:

    a. Determining demand through revealed preference;

    b. Financing and payment; and

    c. The quality of decision-making processes.

54. In terms of climate change, a sectoral focus on embedded infrastructure emissions is not especially warranted given New Zealand now has a *capped* Emissions Trading Scheme which negates any benefit from sectoral emission reduction goals. A market-based mechanism like the ETS will guide fuel choices - and also infrastructure decisions towards lower emission choices.

55. In an uncertain world, it is important that the Commission is open to the possibility of scenarios (other than those planned for) eventuating, so preserving options is important to promote resilience.

56. We look forward to working with the Commission as it continues to design its infrastructure strategy and appreciate the opportunity to comment.