23 August 2024

To: Ministry for the Environment

From: Ben Gerritsen, General Manager Customer & Regulatory, Firstgas;

Don Elers, General Manager Gas, Powerco;

Mark Toner, Chief Public Policy & Regulatory Officer, Vector

Kia Ora

Attention: Discussion document on the second emissions reduction plan

This is a joint submission made by the major gas pipeline businesses (GPBs), Firstgas, Powerco and Vector, on the *New Zealand's second emissions reduction plan (2026–30): Discussion document* (the Discussion Document) published by the Ministry for the Environment on 17 July 2024.[1]

We appreciate the important role that the second emissions reduction plan (ERP2) is expected to play in helping Aotearoa New Zealand meet its emission reduction targets. Our gas infrastructure plays a critical role in helping households, businesses, and others meet their energy needs by consuming natural and other gases. Helping consumers decarbonise that energy use in an equitable and realistic way, while maintaining security of supply, is a top priority for us.

We also appreciate the opportunity to comment on your Discussion Document. Our submission focuses on two key concerns:

- firstly, uncertainty over the future viability of gas pipeline infrastructure is undermining New Zealand's gas and broader energy security of supply
- secondly, there are barriers holding back the uptake of renewable gases, undermining their potential to play a meaningful role in supporting the country's energy security of supply and decarbonisation efforts.

Government action is needed to help address both concerns.

Gas security of supply

Like many, we are concerned about gas security of supply. Understandably, the Government's immediate focus is on shoring up gas production in the short term to address challenges posed by declining gas reserves and production in New Zealand. Left unaddressed, this decline poses a significant threat to the long-term availability and affordability of gas for consumers, industry, and electricity generators. The current gas shortage is already severely impacting supply security and pushing up costs for some consumers; and will undoubtedly lead to higher emissions through the increased use of coal at Huntly.

However, it is critically important to not lose sight of the very real security of supply risks posed by challenges facing GPBs. Government action is needed now to ensure that conditions support future investment in pipelines so that we can continue to deliver gas to our consumers in the medium term to 2050.

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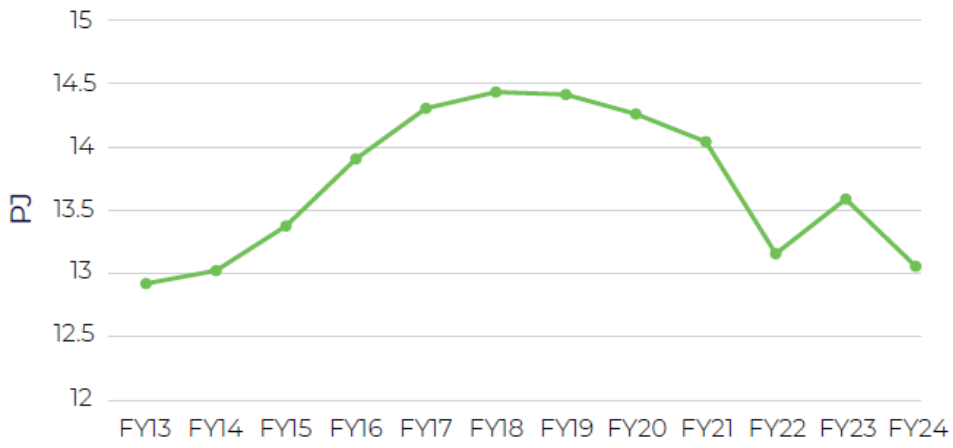
[1] Ministry for the Environment. 2024. New Zealand's second emissions reduction plan (2026–30): Discussion document. Wellington: Ministry for the Environment.

There is evidence of declining use of our pipelines already, with connection numbers and consumption reducing, especially in some areas. For instance, Auckland's natural gas use by residential, commercial, and industrial consumers has steadily declined since 2019. Many businesses are pursuing their own emission reduction plans, suggesting further reduction in gas use through to 2030 and beyond. At the same time, many are now highlighting that residential consumers can make meaningful energy cost savings simply by converting from gas to electricity,[2] which may see an increased rate of residential disconnections going forward.

Figure 1: Gas distribution volume in Auckland



Source: Vector

Lower demand and connected consumers reduce the economies of scale and increases the average costs of delivering gas to remaining consumers. It also undermines the conditions that investors need before making longer term investments in gas pipelines – raising real concerns about their viability.

Core to those concerns are the existing regulatory and policy settings for GPBs that were designed for a time when networks were growing; with investments made now assumed to be recovered in the future from a similarly sized or larger consumer base. However, when growth reverses – as appears evident now – that assumption no longer holds. Without change, these circumstances risk a death spiral, whereby the average costs of transporting gas increase as fixed costs are shared over a reducing consumer base – resulting in even faster rates of disconnection, or even worse GPBs shutting down due to high costs.

Like any rational commercial entity, gas networks would likely be shut down whenever it becomes cash-flow negative, leaving consumers stranded on the network or a cost to the Government. A recent example comes from Western Australia where the government there stepped in to spend AU$10.5 million to help around 400 gas connections convert to alternative energy sources after the local gas distribution network decided it was no longer viable to keep operating.[3] On a larger scale this would be even more problematic.

The High Court recently expressed these GPB viability concerns as follows:[4]

> *While climate change has been a general concern for many years, it is only now that the policy responses are crystallising. Gas pipelines face a very uncertain future following the Government's commitment to net zero by 2050 and a phasing out of fossil fuels. While demand is not expected to fall during DPP3 [i.e., the current regulatory period], the future*

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2 See, for instance: Rewiring Aotearoa, March 2024, *Electric Homes Technical Report: The energy, economic, and emissions opportunity of electrifying New Zealand's homes and cars*.

3 See: Government of Western Australia, 31 March 2023, *Esperance electrification project an energy transition first*.

4 Major Gas Users' Group Inz v Commerce Commission [2024] NZHC 959 [29 April 2024], Para [194].

> *risk of network stranding is now a substantial one. While there may be some ongoing future use of natural gas in a net zero world, it will necessarily be much reduced from the current level of demand. There is also a potential for gas pipelines to be used to carry "clean gas", such as hydrogen, in the future. However, it is far from certain whether this demand will be sufficient to prevent economic network stranding.*

The Court went on to uphold the Commerce Commission's earlier decision to allow for a faster recovery of investments as a regulatory response to these concerns. This was a sensible decision given the information available at the time.

However, we are concerned that even with such responses there is a limit to how far economic regulation can go to address the demand uncertainty facing the sector. The current regulatory framework was established with the implicit assumption that demand would remain steady or grow over time – an assumption that no longer appears to hold. If the framework is no longer fit for purpose, then there is a real risk that the conditions will no longer support continued investment in the gas pipelines, severely undermining New Zealand's gas (and energy) security of supply.

A lack of investment will likely:

- **Undermine emissions objectives.** A lack of investment in gas pipelines could have serious implications for New Zealand's ability to meet its emissions budgets and achieve its net zero target. Gas is a flexible and reliable source of energy that can complement intermittent renewable sources such as wind and solar. Without sufficient gas supply – or the pipelines to transport it to gas-fired generators – New Zealand may have to rely more on coal-fired generation at Huntly, which has much higher emissions and costs than gas. This would undermine the country's transition to a low-carbon economy and increase the risk of breaching emissions budgets.

- **Undermine broader economic and societal outcomes.** A lack of investment could also have broader negative consequences for the economy and society. Gas is an essential input for many industrial processes, such as methanol production, dairy processing, and steel manufacturing. These industries provide thousands of jobs, export earnings, and domestic value-added for New Zealand. If gas supply becomes unreliable or unaffordable, these industries may have to exit or relocate, resulting in significant losses of income, employment, and productivity. We are already starting to see signs of this.[5] This future would also reduce consumer choice and competition in the energy market, as well as the diversity and resilience of the energy system.

Given these potential consequences, we strongly encourage the Government to include as an action to support ERP2 that the forthcoming review of the Commerce Act assess the economic regulation of gas pipelines. Such a review should consider both:

- what, if any, changes are needed to the regulatory framework to ensure that those pipelines remain viable over the medium to long term for the benefit of gas consumers and energy security of supply, and

- whether, even with such changes, there remains material risk to the viability of those pipelines that cannot be mitigated via economic regulation alone.

Consistent with the Government's commitment to providing regulatory certainty,[6] the review should seek to ensure that the regulatory framework is fit for purpose and provides appropriate incentives and protections for the gas sector and its stakeholders. If limits remain with the regulatory framework, then Government should consider whether further action is needed to

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[5] Radio New Zealand, 9 August 2024, *Human cost of energy crisis mounts as jobs slashed*. See: https://www.rnz.co.nz/news/national/524692/human-cost-of-energy-crisis-mounts-as-jobs-slashed.

[6] Discussion Document, page 51.

ensure that gas remains a viable *delivered* energy source for New Zealand during the energy transition.

At the same time, the Government should explicitly include gas distribution and transmission network risks as part of its overall energy security framework. Securing gas supply now will be of limited use if there is no infrastructure to transport that gas to consumers.

Renewable gas uptake

We are encouraged that the Government is exploring the measures needed to increase the uptake of renewable gases.[7] We too are committed to supporting renewable gas uptake, including by exploring with the Gas Industry Company (GIC) the potential for a renewable gas target for the sector.[8] Renewable gas has an important role to play, not only to help New Zealand achieve its decarbonisation goals, but also to address growing energy security of supply concerns.

However, we are concerned that not enough is being done now to enable the significant role that renewable gas can have over the 2026–30 period covered by ERP2. The reality is that renewable gas faces meaningful barriers to its development and uptake in New Zealand, such as high costs, lack of policy support, limited awareness and demand, misaligned emissions trading scheme (ETS), and regulatory uncertainty. In our view, these barriers prevent renewable gas from reaching its full potential and contributing to New Zealand's emissions reduction and energy security goals.

The Discussion Document asked for information to better understand the impact of policies to enable the uptake of low-emissions fuels. Government policy that could help enable renewable gas uptake include:

- developing clear and consistent definitions and standards for renewable gas, such as certification schemes (e.g., building on BraveTrace), quality specifications (e.g., by continuing with revisions to gas standards)[9], or carbon accounting methodologies

- embedding renewable gas within other relevant policies and frameworks, such as the Zero Carbon Act, the Emissions Trading Scheme, the Energy Strategy, the National Policy Statement for Renewable Electricity Generation, the National Policy Statement for Greenhouse Gas Emissions from Industrial Process Heat, or the Hydrogen Roadmap

- investigating and supporting a voluntary renewable gas target backed by industry (as referenced above)

- supporting research and development, education and training, and industrial consumer awareness engagement on renewable gas (e.g., via EECA)

- requiring Government agencies to procure renewable gas to meet their gas energy needs as a way to help underpin demand

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7 Discussion Document, page 55.

8 See: Letter from Firstgas, Powerco, Vector and GasNZ to Andy Knight, GIC, *The importance of renewable gases*, August 2024.

9 In April 2024, Standards New Zealand made interim changes to NZS5442 to incorporate biomethane into the gas specification. These changes need to be confirmed within a year. See: https://www.standards.govt.nz/news-and-updates/nzs-5442int2024-revision-leads-the-way-for-biomethane-use.

- ensuring that co-benefits in agriculture and waste are well-understood and accounted for in regulatory and policy settings, with Government policies and actions across these sectors focused on unlocking renewable gas potential

- improving certainty for renewable developers to receive consent for projects (e.g., using fast-track processes and through Resource Management Act national direction)

- exploring funding and incentives for renewable gas projects, such as grants, loans, tax credits, feed-in tariffs, or adjustments to the ETS (e.g., for landfills) to provide a more level playing field (or incentive) for emissions reduction or removals that produce renewable energy.

We look forward to exploring these and other measures further with Government, including the Ministry for the Environment to ensure that ERP2 includes specific actions to enable renewable gases.

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Once again, we welcome the opportunity to engage with MfE on its Discussion Document. We agree that affordable and secure energy should be a crucial part of the Government's plans to reduce emissions;[10] and have been exploring this challenge through the Gas Infrastructure Future Working Group, which we set up in May 2021 (with input from various government agencies).

Since then, the Working Group has explored issues and produced outputs focused on the future of gas pipelines in New Zealand. To this end, **Attachment** A steps through 4 key issues explored by the Working Group that appear directly relevant to the Discussion Document. **Attachment B** sets out our view on how the option value in gas pipeline infrastructure should be factored into relevant policy decisions, including those related to meeting emissions budgets. **Attachment C** lists Working Group outputs that we have included with this submission.

Please let us know if you have any questions about the points raised above or in the attached supporting documents. This submission does not include any confidential information.

Ngā mihi nui,

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General Manager Customer & Regulatory, **Firstgas**	General Manager Gas, **Powerco**	Chief Public Policy & Regulatory Officer, **Vector**

[10] Discussion Document, page 49.

Attachment A | Key issues explored by the Gas Infrastructure Future Working Group

The attachment focuses on the following 4 key issues relevant to the Discussion Document.

- Issue 1: Financial sustainability of gas networks
- Issue 2: Security of supply risks
- Issue 3: Affordability risks for consumers
- Issue 4: Gas network optionality.

Issue 1: Financial sustainability of gas networks

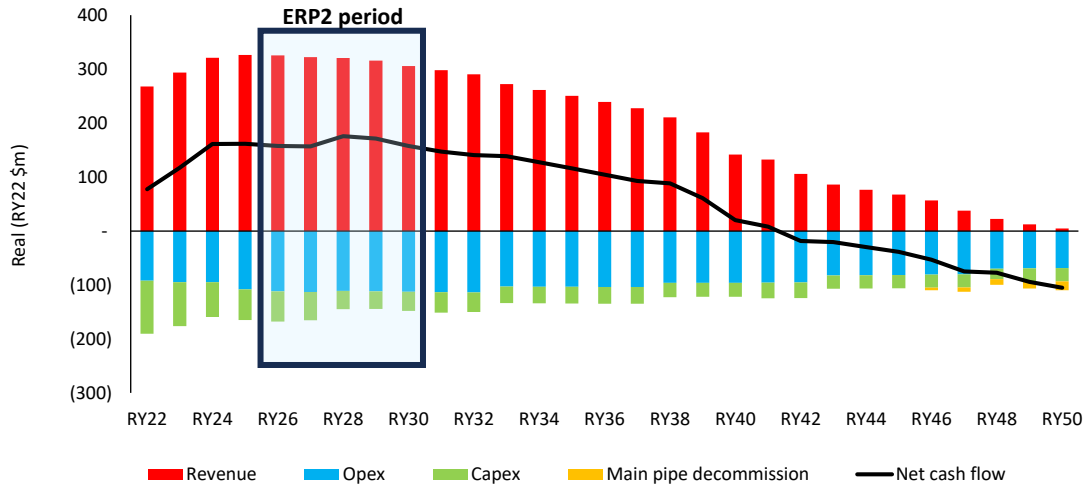
Central to EPR2 is the assumption that the gas networks will remain financially viable as gas consumers transition to other energy sources, such as electricity. This is a bold assumption given the significant uncertainty facing the sector.

We are concerned that there is no strong policy commitment to ensuring that the gas networks remain viable. The risk that those networks will no longer be viable undoubtably affects incentives faced by GPBs and consumers well ahead of that period. For instance, if major investment is needed to keep gas transportation services going, then it would be unrealistic to assume that it is made if there is insufficient future revenue to recover that investment. This poses significant risks to ensuring that there is an equitable transition for gas consumers and – crucially – whether the Government's objective of ensuring that energy is affordable is security is realistic.

The Working Group has explored this challenge in some detail. Modelling work undertaken by the Working Group over the last few years highlights how the financial sustainability of gas networks is called into question if the gas networks are wound down without some form of Government mitigating actions.[11] This arises because as consumers defect from the gas network the largely fixed costs of continuing to maintain and operate the network are spread over fewer and fewer remaining gas consumers.

The Working Group analysis indicates that parts of the networks could start to become financially unsustainable within the next decade in certain circumstances. This is perhaps best illustrated by Figure 2, which shows how net cash flows to GPBs could become negative by about 2040 if the pipelines are on a pathway to shut down by 2050 *without any Government mitigation*. Although this falls outside of the ERP2 period (2026 to 2030), it is these sorts of projections that risk undermining investor confidence in the sector.

Figure 2: Cash flows to all gas pipeline businesses [Repeat of Figure 4.9 of the Gas Transition Analysis Paper]



[11] See: GIFWG, *Initial Analysis Paper*, March 2022; GIFWG, *Further Analysis Paper*, March 2022; and GIFWG, *Gas Transition Analysis Paper*, June 2023.

The *Gas Transition Analysis Paper* (page 4) observed:

> *Faced with that outlook it may be rational for gas pipeline businesses to shutdown uneconomic sections of their infrastructure sooner than is socially desirable. If shutdown did occur, then energy consumers would lose the option to choose reticulated gas as an energy source.*

More recently, the High Court recently considered a challenge to the Commerce Commission's decision to allow gas pipelines to accelerate recovery of their investment via tariffs to help mitigate some investment recovery risk.[12] Referring to alternative proposals put forward by the Major Gas Users Group, the Court held (at paragraphs [214] and [215]):

> *…both of these options for referral back fail to make good on suppliers' prior expectations relating to the treatment of asset stranding risk – on investments that are now sunk – when suppliers were not compensated ex ante to cover the cost of carrying that stranding risk. That failure could be regarded as a form of ex post capital expropriation that has the potential to undermine investor confidence in the regulatory system. Investors could lack confidence as a result of concerns as to whether depreciation schedules for new investments would be adjusted sufficiently if needed once these investments also become sunk. While the extent of this impact on investor confidence is uncertain, it could be significant and we cannot be confident that either of these amendments would be materially better in meeting the pt 4 purpose than the Commission's amendments.*
>
> *More broadly, the failure to make good on regulatory expectations could undermine confidence in the regulatory system and investment incentives for suppliers of other services regulated and potentially regulated under pt 4. As discussed earlier, the relevant group of consumers is consumers of all services regulated under pt 4. Furthermore, as the Court found in Wellington International Airport, it is open to us, but we are not required, to consider the interests of consumers of services potentially regulated under pt 4. Electricity lines services have not received any ex ante compensation to carry network stranding risk and have made investments to date based on an expectation that network stranding risk would be addressed if and when required.*

This passage highlights that it is not just the risk to gas pipelines that is at issue. There is a contagion risk, which could mean that investors in electricity networks – seeing the challenges facing gas networks – reduce their investment to avoid potential investment recovery risk of their own.

Recognising this risk, and the potential consequences for gas consumers, the Working Group also explored potential solutions. For instance, the *Solutions Scoping Paper* explores steps that Government, regulators, or GPBs could take, ranging from actions that promote demand for green gases and inform consumers about decisions (e.g., when replacing appliances) to actions that maintain the viability of GPBs through the energy transition (e.g., compensation for asset stranding caused by Government action).

[12] Major Gas Users' Group Inc v Commerce Commission [2024] NZHC 959 [29 April 2024].

The *Solutions Scoping Paper* suggests that prioritising potential solutions is a key next step, identifying several initial insights, including:

- a threshold question is whether and when New Zealand should pursue repurposing of gas infrastructure or not
- some potential solutions are already being considered and others may be under consideration
- maintaining incentives for necessary investment in the short term in an uncertain future is a priority
- some solution options are 'no regrets/ low regrets' decisions; solutions packages should be coherent, and
- there may be package of solutions that could form the elements of a 'bargain' between the Government and the GPBs

Building on that earlier work, the Working Group remains focused on exploring certain potential solutions in more detail. For instance, the *Network Rightsizing Progress Report* summarises outcomes from a desktop study that explores how the gas networks could shutdown uneconomic parts of their networks as one strategy to improve financial sustainability in the short to medium term and support productive efficiency (e.g., efficiently avoid upcoming investment costs).

The Working Group considered that such a strategy should largely be considered a 'no regrets' activity – given that it is sensible for GPBs to pursue the strategy even if networks are expected to remain operational in the longer term, *assuming* that any barriers can be overcome. To that end, the study highlights potential barriers to such a strategy and the potential consequences for consumers (e.g., conversion costs), identifying potential roles for Government.

Overall, the Working Group analysis to-date suggests that some sort of Government action is needed to ensure that gas pipeline infrastructure remains viable if the assumptions underpinning the ERP2 are to be realised. The Government should consider whether the final ERP2 should include any explicit actions to support the ongoing viability of fuels, such as gas, that are needed for the transition.

Issue 2: Security of supply risks

Gas pipelines are critical to energy security supply. Not only do the transport gas to gas-fired power stations, but they also transport energy directly to consumers, including hospitals, schools, and other facilities that serve the community.

The Discussion Document (page 52) notes some continuing role for natural gas to support electricity security of supply through the energy transition:

> *We expect that as consumers switch to renewable energy, the demand for gas will reduce over time. Nonetheless, gas will be needed through the transition. The electricity system currently relies on gas and a limited amount of coal to meet peak demand in winter and to cover dry years. Gas and coal are substitutes, particularly for electricity generation. Insufficient gas supply could result in New Zealand burning more coal to keep the lights on, with greater emissions from electricity generation.*

The Discussion Document (pages 54–55) also identifies several steps that the Government is taking to improve gas production, including by creating an enabling environment for natural gas and exploring measures to increase the uptake of renewable gases. However, the Discussion Document is light on detail and does not engage with other parts of supply chain, namely consumer demand and gas pipelines. In doing so, it does not address the very real risk that a future like that

contemplated by the ERP2 will lead to gas pipelines ceasing operations earlier than planned due to financial viability concerns, significantly undermining energy security of supply in the process.

The Working Group advised in its Findings Report (page 70):

> *As well as cost, phasing out gas may also undermine energy security of supply and gas safety. If such a transition is not managed effectively, then gas-powered electricity generation may not be available at peak times – potentially leading to higher wholesale electricity costs at the same time as gas consumers switch to using electricity to service their energy needs. Similarly, turning off gas supply can create safety issues where, unlike electricity, it is not as simple as turning off a switch.*

The Working Group also considered scenarios that would directly compromise security of supply. For instance, if the pipeline serving Gisborne were to be damaged by a weather event like Cyclone Gabrielle and require major investment to repair, it may be rationale not to reinstate that vital connection for the city due to concerns that the investment would not be recovered. Gisborne's security of supply would be jeopardised.

The final ERP2 should engage with this risk by considering Government actions that can sure up security of supply by promoting pipeline financial viability.

Issue 3: Affordability risks for consumers

Ultimately the community – either as consumers or taxpayers – will need to meet the costs of the energy transition. Assessing when affordability becomes a concern and how costs are spread raises social equity questions for the community and the Government. GPBs also have an indirect interest in consumer affordability given that increased retail gas prices could increase credit risk for gas retailers especially for vulnerable consumers and may reduce future gas demand.

The Discussion Document (page 49) makes clear that Government is committed to affordable energy, which underpins Piller 3 of the Government's climate change strategy. The Discussion Document explores several complementary policies that could be pursued to help bring this about.

However, what is not explored in the Discussion Document is what the current policy settings or sector outlook suggest will happen to costs faced by gas consumers via the transition – which appear to be significant. Recent analysis by the Working Group reinforces shed some light on this risk. For instance, the *Gas Transition Analysis* paper (page 3) observes that:

> *A winddown of gas pipelines exposes the remaining gas consumers to substantial price increases as other consumers defect up until the infrastructure is shutdown. After that point, consumers lose the choice to consume reticulated gas to meet their energy needs and are required to invest in alternative appliances.*
>
> *The Working Group's earlier analysis showed that the pace of the winddown will clearly affect that risk – with a faster winddown leading to faster price increases that will encourage more rapid defection of consumers through the winddown.*

That analysis – as well as earlier analysis by the Working Group[13] – suggests that prices could more than double by 2040 even if inflation is ignored. That is significant, especially for those unable to switch to alternative energy sources fast enough. These projections are consistent with those included in the Draft Advice (see Figure 5.4 on page 124).[14]

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[13] See: GIFWG, *Initial Analysis Paper*, March 2022; and GIFWG, *Further Analysis Paper*, March 2022.

[14] The values in Figure 5.4 of the Draft Advice suggest that annual gas bills could increase by more than a third by 2035.

The *Gas Transition Analysis Paper* (page 3) also noted that:

> *As well as price increases, winddown of gas pipelines will lead to significant conversion costs being incurred by gas consumers. Initial estimates suggest that across all consumers this could be $7.9 billion if full winddown occurs by 2050 or $7.3 billion if conversion to LPG occurs by 2040.*

These estimates are relatively high level and are projected well into the future; they could change as estimates improve and cost elements change over time.

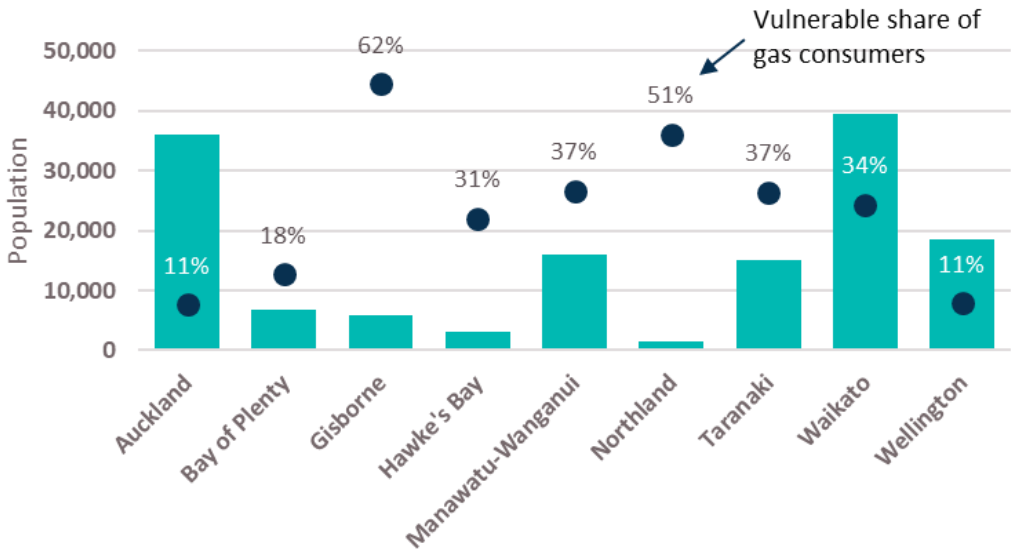
Crucially, however, concerns about high gas prices and risk that consumers are unable to switch away from gas to electricity (or other alternatives) in a way that avoids significant cost could easily future efforts to meet the Government's emissions reduction targets. Consumer resistance could undermine political support for those efforts. Based on the work undertake by the Working Group, it is not at all obvious that an affordable transition can be achieved without Government action.

Conscious that consumers are not all the same – and so will be affected in different ways by price increases and conversion costs – the Working Group explored vulnerability among gas consumers (deprivation index 8–10).[15] For instance, analysis presented in the *Findings Report* (page 8) indicated that:

> *there are over 140,000 residential gas consumers (roughly 19%) relying on the gas pipelines that may be considered vulnerable, with these consumers distributed across North Island regions.*

Figure 2.1 of that report (repeated below) identifies the share of consumers, by region, that could be considered vulnerable.

Figure 3: Distribution of vulnerable gas consumers by region [Repeat of Figure 2.1 of the Findings Report]



The Working Group has considered how vulnerable gas consumers may be disproportionately affected by affordability risks that result from the gas transition. As a starting point, the Working

[15] In the *Findings Report* analysis, vulnerability was assessed as being gas consumers that fall within deciles 8–10 of the Environmental Health Intelligence Agency's deprivation index. 'Gas consumers' are estimated by converting gas connections into population numbers using Census data. The deprivation index measures financial and non-financial indicators of deprivation, including employment status, living situation, and access to internet.

Group's *Solutions Scoping Paper* considered several potential solutions to address affordability risks, including:

- steps to ensure consumers are well informed about information relevant to their switching decisions
- appliance conversion cost financing or subsidies
- consumer pricing solutions or steps to spread costs differently (e.g., to consumers that switch earlier).

The Working Group's study into network rightsizing – including by looking into the experience in Western Australia – suggests that well-planned switching processes have the potential to help minimise switching costs.

Many of those potential solutions imply a role for Government. They may also have a significant fiscal impact. For instance, the Working Group heard from Horizon Power about the costs involved in transitioning gas consumers in the country town of Esperance in Western Australia to alternative energy sources. The Western Australian Government committed AU$10.5 million to transition around 400 gas consumers (i.e., AU$26,250 per consumer).[16]

The Final Advice should point out the risk that energy affordability concerns could derail the phase out reflected in the EB4 demonstration path as consumers exert political pressure on the Government of the day. That advice should also recommend policy steps, such as appliance subsidies, to support consumers through the energy transition.

Issue 4: Gas network optionality

The Discussion Document (page 55) implicitly recognises that gas infrastructure may have a future role transporting renewable gases or gases supported by carbon capture, utilisation and storage for hard-to-abate sectors. Although the uptake of these technologies is uncertain, it is important that these and other developments remain available to New Zealand. This implies that there is value to Aotearoa New Zealand from the optionality that we have today.

Earlier analysis by the Working Group considered how gas networks could be repurposed to transport green gases such as biomethane or hydrogen. The *Findings Report* (page 1) noted that:

> *There is significant interest in the potential for zero-carbon gasses – hydrogen and bio methane produced from biogas – to play a role in New Zealand's energy transition | as part of this, there is interest in the potential role for repurposing gas pipelines, which would underpin, and require, a larger scale zero-carbon gas industry in New Zealand. Global interest in these gasses is also significant.*

Modelling undertaken by the Working Group suggests that blending biomethane or hydrogen could help mitigate potential price rises. For instance, the *Gas Transition Analysis Paper* (page 3) notes:

> *Blending biomethane may help reduce that price risk to gas consumers, although further work is needed to better understand what demand may look like under such a scenario.*

More broadly, the Working Group has also considered how optionality is relevant to decisions about the future of gas networks in Aotearoa New Zealand. A recent workstream explored how a real options framework could be used to inform those decisions by factoring in options to:

- repurpose the networks to transport green gases

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[16] See: Western Australian Government press release: https://www.wa.gov.au/government/media-statements/McGowan-Labor-Government/Esperance-electrification-project-an-energy-transition-first-20230331.

- use the networks to supply energy when other energy supply chains, such as electricity networks, are unable to (e.g., due to cyclone events)

- supply gas to consumers that may prefer gas, whether green or otherwise, to alternatives such as electricity.

Although these options may have value from a GPB or individual consumer perspective, that workstream focused on how these and other options may be relevant from a social (i.e., NZ Inc) perspective.

A key insight from that work is that there is value *to the country* in exploring whether existing gas pipeline infrastructure can support security of supply and other outcomes through the gas transition. Our proposed two-part strategy discussed in **Attachment B** was borne out of this thinking.

Some solutions identified in the *Options Scoping Paper* could help increase option value by improving the economics of pursuing green gases or removing information asymmetries (e.g., subsidies, direct procurement, or mandates). At the same time, strategies like network rightsizing – explored further in the *Network Rightsizing Progress Report* – could also improve option value by reducing the costs of waiting to make decisions about the future of gas networks. A more efficiently sized network will help reduce the ongoing holding (i.e., maintenance) costs of the network, without materially compromising its ability to support delivery of green gases in future.

When finalising the ERP2, the Government should keep an open mind to new developments in terms of market changes, technology, and consumer behaviour.

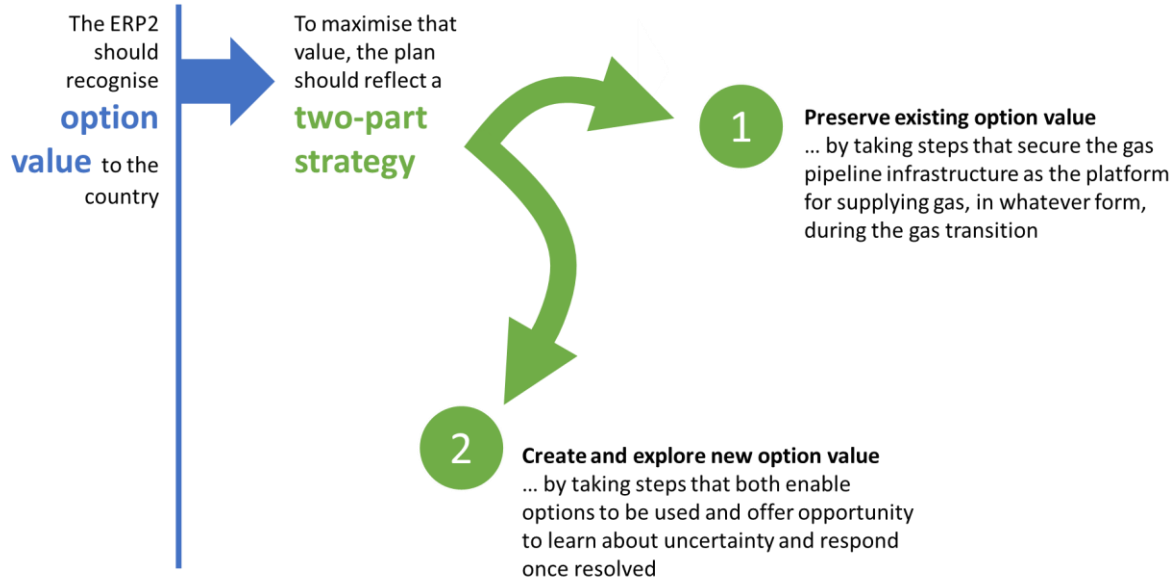
Attachment B | Gas pipeline optionality

There are options

The Working Group's more recent work has highlighted that, when it comes to decarbonising gas supply, Aotearoa New Zealand has a range of options and these are valuable to the country *even if* they are taken up in the future once more information is known.[17] When finalising the ERP2, it will be important to recognise this value before irreversible policy and other decisions are made.

To make the most out of this potential option value, we have considered a two-part strategy (summarised in Figure 4) that seeks to maximise this value for the benefit of the country and energy consumers specifically.

Figure 4: Two-part strategy



The strategy involves:

1. **Preserving *existing* option value** | by undertaking steps that secure the gas pipeline infrastructure as the platform for supplying gas, in whatever form, during the gas transition.

   The reality is that even if natural gas is phased out and that infrastructure is eventually wound down, this will take time and the infrastructure will need to remain operational for quite some time to ensure that energy consumers – and the country – are not unnecessarily harmed (e.g., by having that infrastructure shut down sooner than is socially desirable). But there is also real option value that the country could benefit from, such as repurposing that infrastructure to transport renewable gases like biomethane.

   Moreover, a well-managed and planned transition will also help to protect the electricity system (both generation and networks) from unmanageably rapid increases in demand before the system is equipped to deal with them. Securing the gas pipeline infrastructure will help protect against uncertainties in other parts of the energy system, such as future electricity costs and investment needs, and the economic and technical feasibility of biomass for transport and industrial energy decarbonisation.

[17] We use 'value' here in a broad sense, going beyond pure financial value to include outcomes such as reliability, security and quality of energy supply and environmental impacts, *from a societal (i.e., whole of country) perspective.*

2. **Creating and exploring *new* option value** | by actively exploring the potential to re-purpose gas pipelines to transport renewable gases or to take advantage of opportunities for carbon capture and sequestration.

   When done well, this will give Aotearoa New Zealand the best chance of realising value from those gases and the existing infrastructure. It would be a real shame for the country if decisions were made prematurely that effectively destroy that option value, or opportunities were missed that put our energy supply system in a worse position for generations to come.

The next two sections elaborate on this strategy.

Steps to preserve value for the country

The **first part** of the proposed strategy is key to preserving option value. In our view, gas pipeline infrastructure should be seen as 'a critical enabler' of a well-managed transition away from fossil gas while maintaining Aotearoa New Zealand's energy security. As noted within Issue 1 discussed in Attachment A, this is entirely consistent with the objectives set out in the Issues Paper.

Preserving pipelines as a critical enabler of a well-managed transition will require Government to **signal an intent** to support financial capital maintenance of that infrastructure and the regulatory compact that underpins it, which could involve:

- Amending the Commerce Act to require the Commerce Commission to factor in climate change outcomes and objectives when making regulatory decisions, similar to recent changes made to the legislative frameworks in Australia and the UK.[18]

- Issuing one or more Government Policy Statements that encourage or require the Commerce Commission to implement options-preserving, no-regrets financial mechanisms that promote financial capital maintenance and mitigate negative impacts on gas consumers. An example of this is tilted accelerated depreciation, but that is only one such mechanism available. While this is currently an option open to the Commerce Commission, it is not guaranteed over the longer term.

- Clarifying who is responsible for pipeline decommissioning costs if they are removed from service; and, if it is the GPBs, then implement policy that allows for these costs to be fairly recovered from gas consumers while demand is high enough (e.g., by provisioning for an end-of-life fund).

- Supporting network rightsizing strategies that the GPBs are exploring and which can help reduce potential asset stranding risk.

For the most part, these steps are intended to give confidence to those that need to invest in gas infrastructure to keep it operational during the transition, and potentially beyond. The importance of maintaining confidence among regulated infrastructure investors becomes even more critical given the quantum of investment needed in electricity and water infrastructure. Actions (or inactions) that jeopardise financial capital maintenance for GPBs risks a contagion of under-confidence spreading across the wider investment and financing community in Aotearoa New Zealand.

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[18] Australian Department of Climate Change, Energy, the Environment and Water, *Incorporating an emissions reduction objective into the national energy objectives*, 6 June 2023. See: https://www.energy.gov.au/government-priorities/australias-energy-strategies-and-frameworks/national-energy-transformation-partnership/incorporating-emissions-reduction-objective-national-energy-objectives#:~:text=On%2019%20May%202023%2C%20Energy,the%20national%20energy%20objectives)%20respectively.

Our boards and management teams are increasingly facing questions over whether there is an opportunity for us to recover our efficient costs given the long (50+ year) timeframes that are allowed for within the regulatory framework. It is conceivable that, without some positive steps by Government, GPBs will need to cut back investment in a way that is rational for them but sub-optimal for Aotearoa New Zealand, at least while uncertainty remains high.

This creates a material risk to a well-managed transition. While pipeline owners can plan for an element of right-sizing, and a planned wind-down, unplanned asset failures are an unavoidable feature of infrastructure. We discuss this concern further within Issue 2 in Attachment A.

Preserving gas pipeline infrastructure as critical enabler of a well-managed transition over the longer term may require **more progressive steps** to help promote financial capital maintenance that should be explored further, such as:

- Government actively supporting (e.g., guaranteeing) recovery of allowed revenues determined by the Commerce Commission, whereby in the event that GPBs are unable to recover that revenue, government will step in to the pay the difference between what is recovered and what is allowed.

- Government securitizing some or a portion of the gas pipelines through government-backed bonds as a way to reduce cost impacts for gas consumers given the social good from decarbonisation, similar to that applied in other jurisdictions such as California.

- Government re-nationalising some or all of the gas pipelines as a way to both help manage gas consumer bill impacts and to improve coordination and alignment of incentives.

A further component of this strategy is looking at ways to reduce the future carbon footprint of existing gas consumption. Government could pursue this by supporting the largest gas consumers to decarbonise their operations and by supporting the uptake of carbon capture and storage technology (e.g., by recognising CCuS in the Emissions Trading Scheme).

Steps to create value for the country

The **second part** of the strategy is all about seeking to create or maximise option value from renewable gases in terms of reliability, affordability, and security of supply, and choice for energy consumers.

Exploring this potential will involve '**enablement steps**' that enable renewable gases to be developed and injected into existing gas pipelines. Potential steps include:

- Establishing or backing a renewable gas certificate scheme that allow suppliers and buyers to trade renewable gases and signals government support for renewable gases through the gas transition.

- Amending New Zealand's Emissions Trading Scheme or providing other financial support for renewable gas projects in much the same way that other decarbonisation projects are supported.

- Amending the Gas Act to ensure that the definition of gas is broad enough to cover renewable gases, such as biomethane and hydrogen, so that the Commerce Commission can consider the supply of those gases when making its regulatory determinations (i.e., under Part 4 of the Commerce Act).

- Updating gas technical standards to cover those gases, ensuring that there is a pathway for the safe production, transportation, and consumption of those gases via New Zealand's gas supply chain.

It will also involve '**learning steps**' that seek to discover whether and how renewables gases could have a genuine future in New Zealand, including by:

- Conducting consumer research into the likely uptake of renewable gases across consumer cohorts.

- Undertaking whole of system modelling to better understand the broader impact of alternative futures across New Zealand's energy supply, including as to reliability, affordability, and security of supply and recognising the linkages with electricity generation/flexibility, supply side dynamics, potential for imported energy, and large existing gas consumers such as Methanex.

- Directly funding or otherwise supporting renewable gas trials or other research and development, with requirements for these to publicly report back learnings.

Collectively, enablement and learning steps are critical to tapping into the potential value to Aotearoa New Zealand from using existing gas pipeline infrastructure to transport renewable gases.

Pursuing option value is not a cop-out

One criticism of our proposed two-part strategy could be that it effectively defers any real decisions as to the future of gas, potentially increasing the cost if decisions are eventually made to wind down gas pipeline infrastructure. To address this, we would encourage Government to articulate a set of future decision points or guiderails that allow for learnings from part two of our strategy to be factored in. This could involve, for instance, setting a minimum level for renewable gas injection to the pipelines which if not achieved by a certain date could trigger a re-think about the future of gas.

If, after undertaking enabling and learning steps it becomes clearer that renewable gases are not part of the way forward, then further effort can be put into finding the most cost-effective way to winddown gas pipelines with the least harm to gas consumers. Determining at what point such a decision can be made will depend on trading off potential option value from further learning against the potential cost of deferring the decision further – something that Government should actively turn its mind to.

We would also encourage Government to consider steps that improve coordination between energy and climate policy across policy makers and regulators.

Attachment C | Gas Infrastructure Future Working Group outputs

- Findings Report, August 2021
- Solutions Scoping Paper, November 2021
- Initial Analysis Paper, March 2022
- Further Analysis Paper, March 2022
- Gas Transition Analysis Paper, June 2023
- Network Rightsizing Report, August 2023
- Real Options Framework Paper, January 2024