



28 March 2022

Matthew Clark  
Manager, Price-Quality Regulation  
Commerce Commission  
P O Box 2351  
Wellington  
By email to [regulation.branch@comcom.govt.nz](mailto:regulation.branch@comcom.govt.nz)

Dear Matthew

**Re: Cross submission GPB IM Review and DPP3 Reset.**

1. This following cross submission is in response to the posted submissions on the Commerce Commission's *Proposed amendments to input methodologies for gas pipeline businesses to the 2022 default price-quality paths* (IM paper), and the draft reasons paper *Default price-quality paths for gas pipeline businesses from 1 October 2022* (DPP paper) dated 10 February 2022. This submission is on behalf of the Major Gas Users Group (MGUG)<sup>1</sup>:
  - a. Ballance Agri-Nutrients Ltd
  - b. Fonterra Co-operative Group
  - c. New Zealand Steel Ltd
  - d. Oji Fibre Solutions (NZ) Ltd
  - e. Wilmar International
    - i. New Zealand Sugar Company Ltd
    - ii. Goodman Fielder NZ Ltd
2. Our members have been consulted on the preparation of this cross submission. Nothing in this cross submission is confidential and some members may choose to make separate cross submissions.

---

<sup>1</sup> Refining NZ left the group at the end of 2021 as a result of its decision to close the refinery and convert to a fuel import terminal.

## Summary of Our Submission

- X 1 After reviewing the submissions made by other parties we do not consider this has altered our view that the Commission has erred in its process and reasoning and arrived at the wrong conclusion that gas IM amendments are needed in DPP3.
- X 2 Given the size and scope of the challenges raised around process and reasoning, we would urge the Commission to consider holding an open forum to fully explore these core issues ahead of any final decision. We would recommend Commissioners be present so that these issues can be subject to robust discussion and debate and ensure confidence in any final decision.
- X 3 We consider the agenda for an open forum should cover the following critical points on which the Commission's draft decision appears to rest:
- a. Whether Part 4 (now, or ever) can consider repurposed gases as being part of "pipeline services". This is a matter of material significance for considering what the residual value of gas pipeline should be when considering economic stranding risk;
  - b. Determining what the counterfactual is in this decision, and whether it has been adequately considered to demonstrate why acting in DPP3 is better for the consumer, versus allowing potential settings to emerge from the IM review to apply from DPP4;
  - c. Matters raised in various submissions on other framework issues and principles (e.g. Mr Pat Duignan);
  - d. Testing the underlying assumptions about energy policies, volume versus revenue pathways, residual value, etc. that are influencing the Commission's view there are "*compelling reasons to act now.*"
  - e. The Commission's assertion that if settings are "reversible" there will be no long term detrimental impact for consumers.
- X 4 Should there be no further public process after these cross submissions are lodged, our suggested approach and way forward to meet the S52A objective, is for the Commission to:
- a. Set the DPP3 period at four years to give flexibility to address the emerging policy landscape around energy transition;
  - b. Assess starting prices for DPP3 based on current and projected profitability;
  - c. Use the provisions of S52G to urgently clarify that gas pipeline services need not be restricted to natural gas, but can include any gas requiring the use of gas pipelines;
  - d. Assess gas IM settings through the usual IM review process that can include information on New Zealand energy policies (Emission Reduction Plan, National Energy Strategy development, Gas Transition Pathway development) and apply any altered settings from the commencement of DPP4.
- X 5 The modelling work put forward by various submission (Frontier Economics) and the Gas Futures Infrastructure Working Group (GFIWG) offer no solutions to the problems highlighted in the

Commission's own modelling approach and work. Many of the same conflation and unnecessarily restrictive assumption impact on their analysis as it has for the Commission. These submissions offer no better or more meaningful insights as to why the Commission should act now, versus looking at what gas IM settings for DPP4 the Commission may need to apply.

- X 6 We agree with First Gas that the Commission's interpretation of gas pipeline services offers no incentive to invest in repurposing gas infrastructure for other gases. This lends further weight to our conclusion that the Commission needs to review whether the current framework is impeding sensible outcomes for consumers.
- X 7 We don't agree with First Gas' assertion that demand destruction risk is low. Their argument is overly simple, and not reflective of actual decisions facing consumers. It implies that all consumers are "average consumers". Direct comparison is only valid for where an average electricity consumer is also an average gas consumer, and it ignores the marginal energy cost differences that influence whether to have both gas and electricity connections. For the industrial sector the choices are wider than electricity or gas (networks). Consequently we consider First Gas's argument on the low risk of demand destruction risk oversimplified, and potentially miscalculating of the real risk.
- X 8 Examination of Powerco's Pricing Methodology demonstrates the importance of low volume users (G06 load group) to their revenue, and also illustrates the complex relationship between network revenue and gas volume. With 4% of the network gas demand the G06 load group delivers 12% of Powerco's revenue. This group is not identified in First Gas' analysis as a high disconnection risk group that could trigger a demand destruction spiral. The risk increases further where line charges for gas increase at a greater rate than for electricity.
- X 9 Vector's argument for the Commission to move GDBs to a revenue cap form of control lacks substance and appears opportunistic:
- a. Connection growth isn't something the Government has deemed inappropriate.
  - b. WAPC is still the appropriate form of control even if Vector chooses to limit its own growth opportunities through its connection subsidy policies.
  - c. Volume loss on Vector's network is isolated to central Auckland (Papakura gate) and entirely attributable to COVID measures (expected to be dropped soon). COVID impacts on other networks (Powerco, First Gas, GasNet) were not noticeable from the data.
  - d. While gas volume fell 7% for Vector over the last 4 years, their revenue rose by 10% over the same period. This reinforces the point we have raised on multiple occasions with the Commission (including in this submission) that gas volume is not a good proxy for financial viability of gas networks.

## Errors in Reasoning and Process

3. In our submission we outlined a number of areas where we felt that the Commission failed in its process and reasoning that rendered its draft recommendation questionable, but more likely unjustified. The areas included:

- a. Lack of reasonable opportunity (S52V(2)(b)) to engage effectively with the Commission, particularly on its emerging view about measures to maintain confidence in ex-ante FCM.
- b. The Commission's interpretation that it couldn't consider repurposed scenarios for gases other than natural gas. This appears to conflict with the underlying purpose of Part 4 to consider markets where there is limited or no competition. It also ignores the provisions of S52G to update the definition of gas pipeline services for emergent services.
- c. Lack of the development and assessment of a counterfactual (i.e. allow normal IM review to determine settings for DPP4) vs factual (i.e. act now for DPP3).
- d. Mischaracterisation of the net carbon zero climate policy objective as a zero carbon gas objective.

4. The submission of Mr Pat Duignan<sup>2</sup> has added a further argument as to why the Commission should defer decisions on gas IM amendments to the IM review process:

*This submission explains why the Gas Pipeline Distribution IMs **without** the proposed "Economic Network Stranding – adjusting depreciation" IM Amendment would be "materially better in meeting the purpose of Part 4" than the IMs with this amendment. The IMs that result from the complete IM review that is currently under way will likely be materially better still at meeting the purpose of Part 4.*

Munro Duignan Submission- p1

5. The argument is acknowledged as unorthodox by Mr Duignan, but as an ex-Commissioner we suggest that Mr Duignan's argument should be given weight by the Commission.
6. Equally, Mr Duignan questions whether Part 4 itself is still fit for purpose in the context in which the Commission has placed its decision framework. We've raised the same question in our submission<sup>3</sup>.
7. We consider that these challenges raised around process and reasoning are so fundamental to the decision framework being applied by the Commission that we recommend they be addressed and resolved in an open forum before the Commission reaches its final decision.
8. Accordingly we would request that the Commission runs a public conference with Commissioners present, to fully air and resolve the following issues:

---

<sup>2</sup> Munro-Duignan Submission on Gas DPP3 draft decision – 14 March 2022

<sup>3</sup> 202203 MGUG-Submission on draft decisions IM and DPP3 Final – p30

- a. Whether Part 4 (now, or ever) can consider repurposed gases as being part of “pipeline services”. This is a material matter, specifically concerning what the residual value of gas pipeline should be when considering economic stranding risk;
  - b. Determining what the counterfactual is in this decision and whether it has been adequately considered to demonstrate why acting in DPP3 is better for the consumer than allowing potential settings to emerge from the IM review;
  - c. Matters raised in various submissions on other framework issues and principles (we would refer the Commission to Mr Pat Duignan’s submission);
  - d. Testing the underlying assumptions about energy policies, volume vs revenue pathways, residual value, etc. that are influencing the Commission’s view that there are “*compelling reasons to act now;*”
  - e. The Commission’s assertion that if settings are “reversible” there will be no long term detrimental impact for consumers.
9. If instead, the Commission opts for no further public input after these cross submissions are lodged, our suggested approach and way forward to meet the S52A objective, is for the Commission to:
- a. Set the DPP3 period at four years to give flexibility to address the emerging policy landscape around energy transition;
  - b. Assess starting prices for DPP3 based on current and projected profitability;
  - c. Use the provisions of S52G to urgently clarify that gas pipeline services need not be restricted to natural gas, but can include any gas requiring the use of gas pipelines;
  - d. Assess gas IM settings through the usual IM review process that can include information on New Zealand energy policies (Emission Reduction Plan, National Energy Strategy development, Gas Transition Pathway development) and apply any altered settings from the commencement of DPP4.

## Economic Stranding Modelling

10. MGUG’s review of the Commission’s modelling<sup>4</sup> identified a number of fundamental issues with the modelling approach that we considered made the Asset Stranding Risk Model unreliable for basing any decision on accelerating revenue in DPP3, including:
- a. It makes no comparison between the factual (accelerate revenue in DPP3) and counterfactual (consider Gas IM settings for DPP4) to demonstrate that by acting now consumer benefits would exceed detriments.
  - b. It incorrectly conflated a (natural) gas pathway with a network revenue pathway.

---

<sup>4</sup> Major Gas Users Group (MGUG) – Submission on Gas DPP3 draft decision- 14 March 2022

- c. It mischaracterises the net carbon zero 2050 climate agenda as a zero carbon 2050 energy agenda.
  - d. A number of second order (internal model working) issues related to the arbitrariness of MAR assumptions, the zero residual value assumption, and the lack of optionality in CAPEX and OPEX pathways.
11. Frontier Economics review and suggestions for improving the Commission’s asset stranding model<sup>5</sup> don’t, in our view, resolve any of the input concerns in para 10. Nor do they alter our assessment that the model can’t address the central question of why “*the need to act now*”. While it offers suggestions on mechanical improvements for the modelling, it doesn’t offer any improvement on the fundamental input assumptions that underpin the working of the model.
12. The Gas Infrastructure Future Working group (GIFWG) submission<sup>6</sup> adopted its own modelling approach to the Commission’s model. These included four possible scenarios:
- a. *Fast wind-down scenario* – pipeline use ceases by 2040;
  - b. *Slow wind-down scenario* – pipeline use ceases by 2050;
  - c. *Optimistic hydrogen repurposing* – natural gas transitions to hydrogen or biomethane, with **no natural gas throughput by 2050**. Green gas will be 50% of existing natural gas throughput;
  - d. *Pessimistic hydrogen re-purposing* – As for Optimistic hydrogen repurposing except that green gas throughput will be 20% of existing natural gas throughput.
13. We acknowledge the caveats placed on the GIFWG analysis at the front of their submission include the statement that “*The analysis should not be relied on to inform financial or commercial decisions.*”<sup>7</sup> However to the extent this analysis provides input into the decision-making process we offer below more specific reasons as to why their framework and analysis can’t be relied on to make a regulatory decision on accelerating revenue in DPP3. By framing its scenarios in this narrow fashion (para 12), the GIFWG modelling approach is undermined by the same reasoning and unnecessarily restrictive assumptions as the Commerce Commission’s own modelling work including:
- a. All scenarios mischaracterise the policy environment by assuming zero natural gas by 2050, despite both the Climate Change Commission (CCC) and the Ministerial statements having imposed no such constraint;

---

<sup>5</sup> Frontier Economics (submitted by Vector, First Gas and Powerco on Gas DPP3 draft decision) – Review of Asset Stranding Model-13 March 2022, including Vector, First Gas and Powerco – Joint letter accompanying Frontier Economics Report – 14 March 2022.

<sup>6</sup> Gas Infrastructure Future Working Group – Submission on Gas DPP3 draft decision – 14 March 2022

<sup>7</sup> Ibid – Title Page

- b. It remains entirely plausible and consistent with a net zero accounting carbon target that natural gas can continue to be part of New Zealand’s energy system by 2050 and beyond<sup>8</sup>;
- c. Gas use, in whatever colour, need not be at some fraction of existing natural gas throughput. It may be more than 100% of today’s use, depending on how gas is being used – including new sectors, such as land and sea transport<sup>9</sup>;
- d. The model doesn’t assess the financial performance or position of any specific gas pipeline business, nor quantify the risks they face<sup>10</sup>;
- e. While an improvement over the Commission’s more simplified qualitative approach, the “willingness to pay (WTP)” assumptions are acknowledged (reasonably in our view) as “*notoriously difficult to assess, let alone forecast accurately*”;
- f. The model also doesn’t assess the factual vs counterfactual position which is central to the Commission’s argument “to act now”.

While the GIFWG analysis does offer an alternative approach to the Commission’s modelling work, we consider that it offers no other reliable or insightful conclusion other than that the future is highly uncertain and, it is impossible to discern why one view should be preferred over another.

## First Gas Submission

### Repurposing

- 14. We were pleased to note that First Gas<sup>11</sup> is striving to transition its pipeline businesses to meet the Government’s net carbon zero agenda.
- 15. First Gas submits that the Commission’s interpretation of “gas pipeline services”, by being restricted to carriage of “natural gas”, is placing unnecessary constraints around incentives to invest in a repurposed future.<sup>12</sup>

*“Regardless of legal interpretation or allowed expenditure, our main concern is to ensure that pipeline businesses have incentives to invest in preparing networks for a future that makes a positive contribution to New Zealand’s net zero target”*

First Gas Submission – p 4

- 16. We agree. First Gas’ position would be assisted if the Commission held a more inclusive view on the meaning of “gas pipeline services” in Part 4. We consider that a broader view of the

<sup>8</sup> See for example APGA September 2020– “*Gas Vision 2050: Delivering a Clean Energy Future*”.

<https://www.apga.org.au/resources/gas-vision-2050-publications>

<sup>9</sup> Ibid – p44 base case shows increased gas consumption – note modelling work done by Frontier Economics

<sup>10</sup> Gas Infrastructure Future Working Group – Submission on Gas DPP3 draft decision – 14 March 2022 – S3.5 p13

<sup>11</sup> First Gas Submission on Gas DPP3 draft decision – 14 March 2022

<sup>12</sup> Ibid – table 1 – Preserving option of using gas infrastructure for zero carbon gases in the future

definition of gas pipeline services should be a priority for the Commission. The Commission should utilise the provisions of S52G to achieve this. An updated definition would include any gas that requires the use of gas pipeline services where that market has limited or no competition.

### Demand Destruction

17. First Gas also assert that *delivered gas prices appear well-placed, relative to other energy options, to accommodate increases without demand destruction*<sup>13</sup>. First Gas' evidence for this assertion appears to rely on their interpretation of the historical price information published by MBIE<sup>14</sup>. We think this argument has misinterpreted the data and missed important nuances within the information, specifically:
  - a. The leverage of the fixed price component of delivered gas on average gas cost is ignored.
  - b. The importance of the Low User group in the residential/ commercial sector. This is both in terms of GDB revenue impact and the susceptibility to losing customers from this segment when prices rise faster for gas connections than they do for competing alternatives (such as electricity).
  - c. The options available to industrial consumers to break from gas connection services.

### Fixed Cost Leverage

18. While we accept the MBIE data, it is important that the Commission understands that the prices and figure presented are based on *average consumption*. Average consumption for residential is approximately 25 GJ pa<sup>15</sup> and delivered cost includes all fixed charges, variable charges, and taxes and levies (principally GST and carbon pricing).
19. Fixed charges (daily connection charges, or capacity reservation charges) have a leverage effect on the average delivered gas cost to a household that has a material influence on a decision to connect or stay connected.
20. The leverage of the fixed price components is illustrated in Figure 1. This demonstrates how average price for gas varies between residential customers depending on regions<sup>16</sup> and consumption patterns<sup>17</sup>. Given that a household may well be an "average" electricity consumer

---

<sup>13</sup> Ibid 3.2 – p13

<sup>14</sup> Source: Real annual average fuel prices – 2020 prices, Annual NZD per GJ (real), Ministry of Business, Innovation & Employment, <https://www.mbie.govt.nz/building-and-energy/energy-and-natural-resources/energy-statistics-and-modelling/energy-statistics/energyprices/>

<sup>15</sup> Energy in NZ records 7.2 PJ consumption in the residential sector. The Gas registry shows that the average active ICPs for 2020 was 293,091 connections.  $7.2e6/293091 = 24.57$  GJ

<sup>16</sup> One reason that it varies, is that gas transmission costs depend on the distance between gas injection and delivery point, and the extent to which it uses both the MPOC and VTC systems.

<sup>17</sup> We used the published prices for Contact Energy Ltd for dual fuel connections which includes 5% dual fuel discount. Note that Powerco is the distributor in Taranaki and Wellington. Powerco offers a low user (less than 16GJ pa) pricing structure. This pricing structure has been used in the figure.

as well as a low gas consumer<sup>18</sup>, it is not difficult to see why MBIE’s presentation may not be illustrative of individual households. For example, the MBIE data would seem to infer that the gap between average delivered gas cost and average electricity cost *for a household* is \$41.54/ GJ (\$81.56 GJ-\$40.02/ GJ). Analysed at an individual household level however the actual gap can be much smaller (Figure 1).

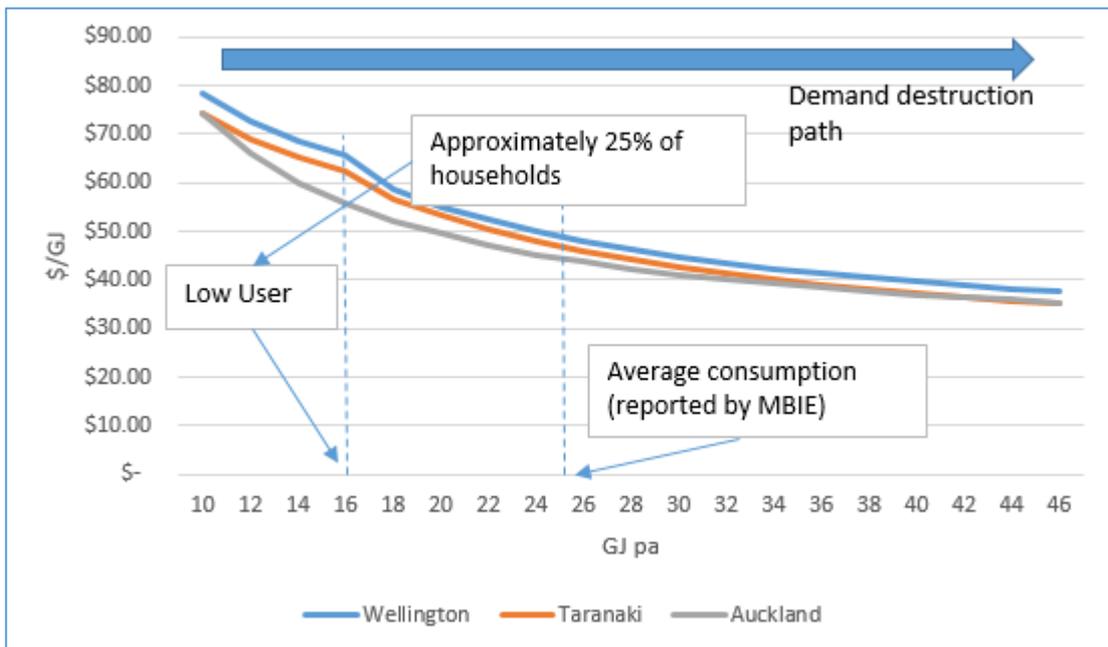


Figure 1: Residential Gas Price for Standard Consumers (2022 - Contact)

21. A further illustration of the demand destruction risk can be given by looking at low user group. In their FY 22 Gas Distribution Pricing methodology,<sup>19</sup> Powerco identifies 26,384 customers falling into the low user category (G06), versus 83,293 customers falling into their residential/ small commercial category (G11). That is, 24% of their residential customers use less than 16 GJ pa. (Powerco created the G06 pricing structure for the reason that low users are particularly sensitive to the connection fixed cost component and a lower fixed cost (but higher variable fee) was designed to keep them connected<sup>20</sup>).
22. The low user group represents 4% of Powerco’s gas volume but 12% of their total revenue. For the G11 load group the numbers are 32% and 60% respectively<sup>21</sup>. Powerco’s interest to have low gas consumers choosing to stay connected seems important to their business model. The impact of the G06 consumers leaving in large numbers could be the trigger for accelerating demand destruction (even if a WAPC might initially project the revenue risk onto the GDB). This is especially given that for households, a gas connection is generally a discretionary choice,

<sup>18</sup> In fact it is more likely that a low gas user will be close to an average electricity user given that households are relatively similar in total energy needs.

<sup>19</sup> <https://www.powerco.co.nz/who-we-are/pricing-and-disclosures/gas-pricing>

<sup>20</sup> The price structure has been in place for some time. Our records only go back to 2011 and indicate that the G06 has been in place since at least then, but probably earlier.

<sup>21</sup> Ibid Figure 3 and Appendix 2

whereas an electricity connection is not. For example, by dropping the gas connection altogether and switching to electricity, the economic equation changes to considering the marginal (variable cost differences) cost of electricity versus gas. Taking the example of Contact's current pricing, the cost of the gas connection is \$1.708/ day, and the difference between the variable cost of electricity (\$0.171/kWh) and gas (\$0.077/kWh) is \$0.094/kWh<sup>22</sup>. What would the gas consumption need to be to justify disconnecting gas? The answer is  $\$1.708/\$0.094 = 18 \text{ kWh/day}$ .  $18 \text{ kWh/day} = 65.4 \text{ MJ/day} = 24 \text{ GJ pa}$ . So if a consumer uses less than 24 GJ pa of gas, the rational response is to start looking at disconnecting from gas<sup>23</sup>. This is a substantially lower barrier than the MBIE figure would seem to imply. Note, that the reverse option – disconnect from electricity to use more, lower priced gas is not feasible given the wider uses of electricity in a household.

23. Figure 1 in First Gas' submission also doesn't address the choices that industrial users face that lead to demand destruction. The choice for an industrial consumer is not one of just gas vs electricity prices. For a number of larger industrial consumers, including MGUG members and Methanex, the other options to deal with rising delivered energy costs are; to invest in network bypass; switch to other fuels (e.g. biomass); or close operation in New Zealand. Any of these choices helps to accelerate the GPB revenue destruction spiral. To be clear, this is not an argument supportive of First Gas' position that raising prices "doesn't matter" for consumers. Larger users in particular have a deeper concern that the Commission's draft reason undermines long term investment confidence in the gas sector at a time when gas should be supporting an energy transition.
24. We don't consider that First Gas' comparison of energy prices therefore gives a clear view in deciding that accelerating fixed charges can be accommodated without risking demand destruction. In fact, we would argue that the risk is real, and increases with gas connection charges outpacing electricity connection charges.
25. It would require a substantially more extensive analysis than given here to reveal exactly how a price shock in gas connections might flow through to connection choices. Our simplified view however, is that the network price impacts will flow through to households and businesses according to their consumption, location in the distribution network area, energy options, and strategic alternatives to operating in New Zealand. For the residential/ commercial sector low use connections will be impacted first – either disconnecting or choosing not to connect. This in turn shifts the network cost burden on to fewer consumers than otherwise would be the case, increasing their costs relative to substitutes.
26. Furthermore it seems surprising that in a climate being characterised as a "cost of living crisis" that First Gas should argue that raising network prices by up to 13% p.a. for the next four years to deal with an uncertain future in 30 years should be something that today's consumer would understand and support.

---

<sup>22</sup> Illustrative of Contact Energy prices in Taranaki.

<sup>23</sup> Other factors would need to be included, such as capital replacement cost of appliances, and consumers may simply prefer gas for reasons other than cost.

## Vector Submission – Form of Control

27. Vector has called for a revenue cap as the form of control for GDBs. Vector cites falling gas demand and claims an inability to forecast gas volumes in a dynamic environment (where greater uncertainty exists around the impacts of CCC recommendations and Covid-19 related disruptions)<sup>24</sup>.
28. Vector assert that a weighted average price cap (WAPC) incentivises regulated businesses to pursue new connections. Vector considers the regulatory incentive may not be “appropriate” in the current context of New Zealand’s transition to “net zero”.
29. The Commission decided on a WAPC form of control for GDBs for reasons outlined in its Input Methodologies Reasons Paper in 2010.<sup>25</sup> Essentially WAPC form of control was considered appropriate where multiple services are supplied and where demand can be influenced to a reasonable extent by the supplier.
30. Vector’s call to switch GDBs to a Total Revenue Cap form of control appears driven by its decision to change its policy on new connections as well as anticipating that accelerating prices will incentivise disconnection rates (in ways we’ve outlined in para 22-23) .
31. Vector has introduced a policy that requires new connections to be paid for by the connecting party<sup>26</sup>. It appears Vector is creating its own barrier to new connections, which in our view would suppress demand growth. In other words *demand is being influenced to a reasonable extent by the supplier* – (which meets the criteria of a WAPC).
32. It also seems plausible in our view, that Vector is forecasting disconnection rates to increase with the accelerated revenues being proposed by the Commission (and which Vector seems happy to support). The decision to accelerate revenue is not outside of Vector’s control given their advocacy work to promote this outcome to the Commission.
33. We find it surprising that Vector hold a view that new gas connections should be curtailed and incentives to grow connections aren’t appropriate. The Minister stated as recently as 10 March 2022 at the BusinessNZ Energy Council that the Government wanted to work with industry around developing and enabling low carbon gases and that using existing gas pipelines could limit cost rises and offset transmission investment requirements<sup>27</sup>.

## Falling gas demand

34. Vector considers that Constant Price Revenue Growth (CPRG) forecasts are out of line with volumes delivered on their networks “*which have been declining for the past four years*”.

---

<sup>24</sup> Vector Submission on Gas DPP3 draft decision 14 March – para 5 p2

<sup>25</sup> 22 December 2010- Input Methodologies (EDBs & GPBs) Reasons Paper – p192, para 8.37, 8.3.8

<sup>26</sup> From 1 July 2021 all new residential and commercial connections will pay 100% of project costs upfront. A Vector contribution and rebates will no longer be offered <https://www.vector.co.nz/personal/gas/pricing>

<sup>27</sup> <https://www.bec.org.nz/events/past-events/bec-breakfast-with-the-minister>

35. We have analysed this last statement, taking into account the Commission's implicit view that volume decline is a proxy for revenue loss. We consider that Vector's position provides the practical demonstration of why the Commission's view is misplaced.
36. This example reinforces our position in the process and issues paper and submission that the Commission needs to model revenue, not gas volumes in forming a view about financial viability of GPBs.
37. The following figures show the following:
  - a. Vector's gas volumes can be more accurately described as having declined in the last two years (not four years as claimed by Vector). This is principally an outcome COVID measures taken by the Government, particularly border closure from April 2020 (Figure 2).
  - b. Other networks (First Gas, Powerco, GasNet) have not seen a drop in gas volumes in the last four years (Figure 3).
  - c. Vector's drop in gas volume is attributable to just one of its 16 gas gates, Papakura. Papakura services the central Auckland area, including the hospitality sector most affected by loss of international tourists (Figure 4).
  - d. While gas volume has dropped, overall gas connections have continued to grow, including after 1 July 2021 when the new gas connection policy took effect (Figure 5).
  - e. Even as gas volume fell 7% over 4 years<sup>28</sup>, Vector's notional revenue has continued to grow uninterrupted in each of the four years to be 10% higher than it was in 2018 (Figure 6).

---

<sup>28</sup> More accurately it has fallen since COVID controls were implemented in April 2020 (two years ago)

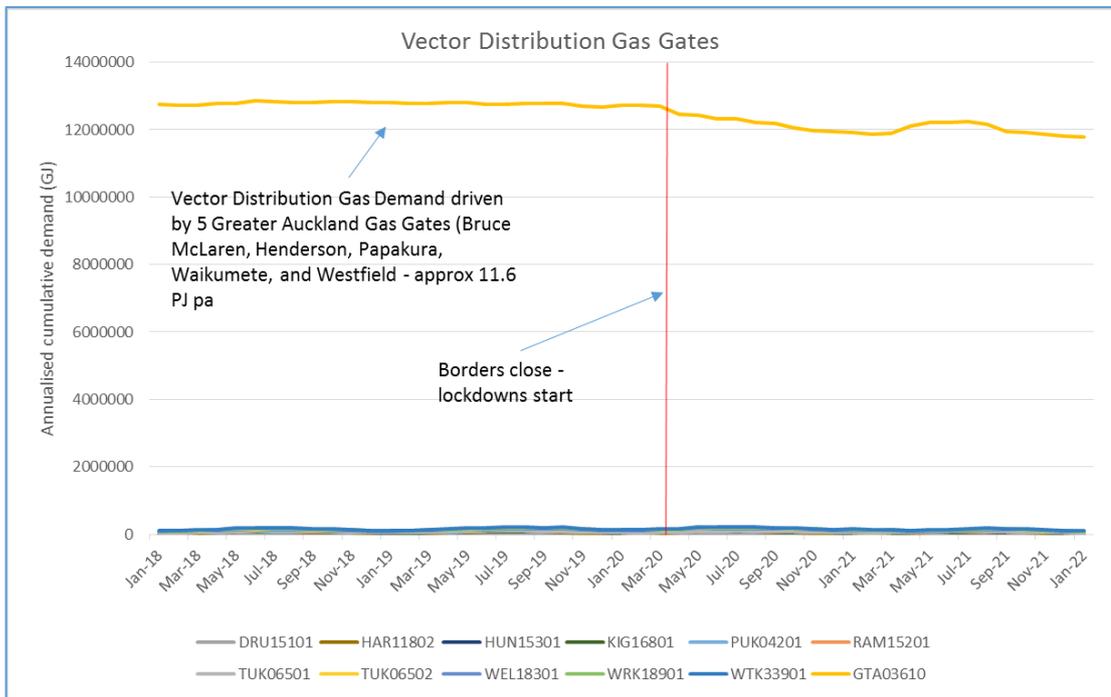


Figure 2: Vector Gas Distribution – source: OATIS - Daily Delivery Reports

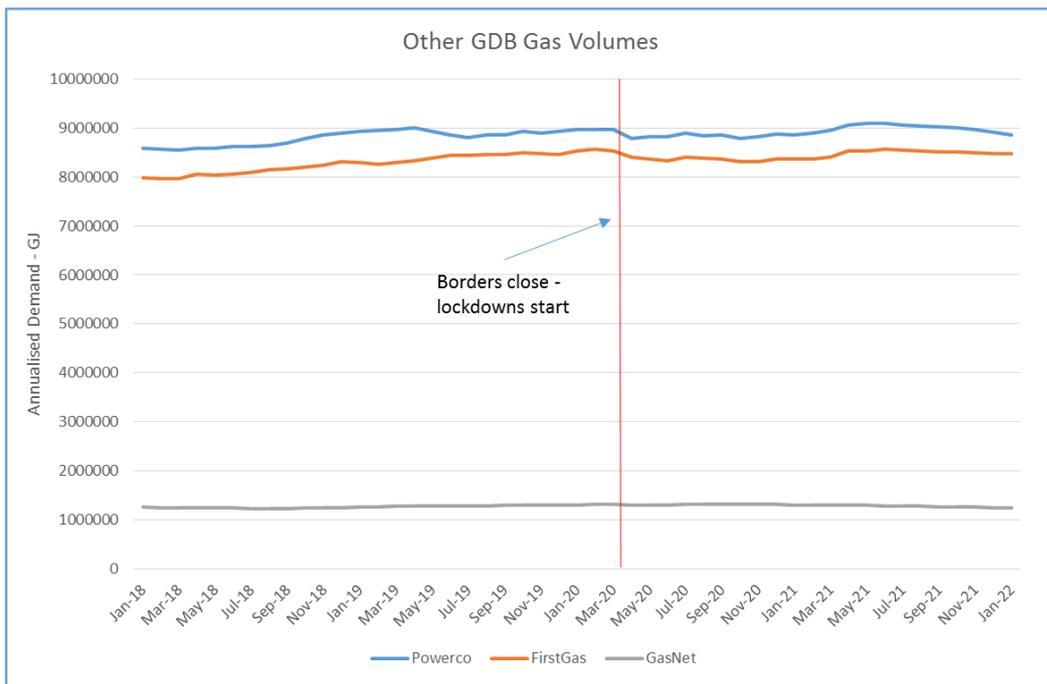


Figure 3: Powerco, First Gas, Gas Net - source: OATIS Daily Delivery Reports

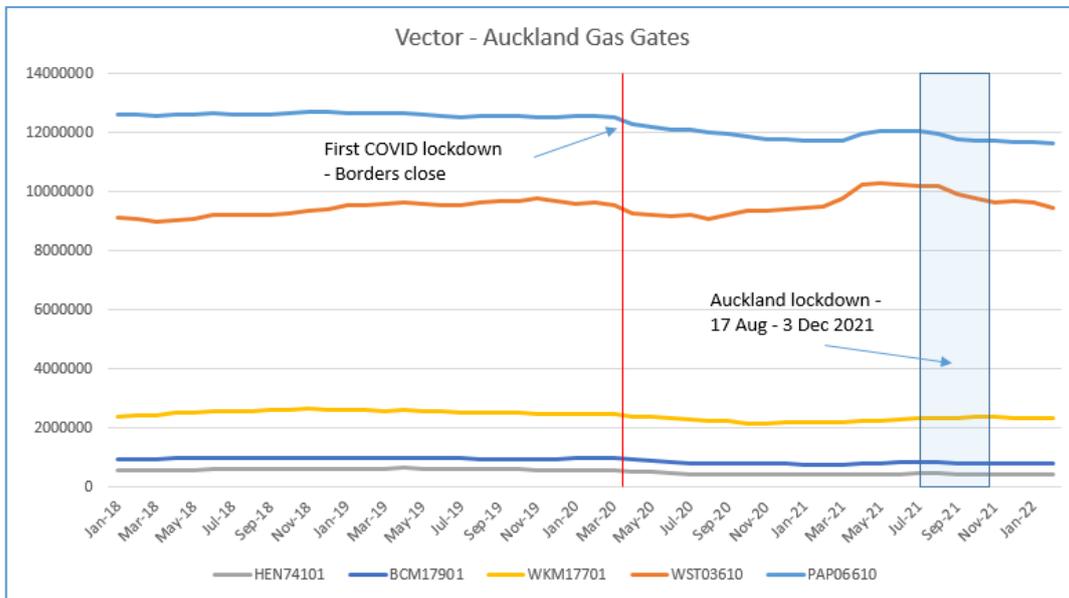


Figure 4: Vector - Auckland Gas Gates - source: OATIS Daily Delivery Reports

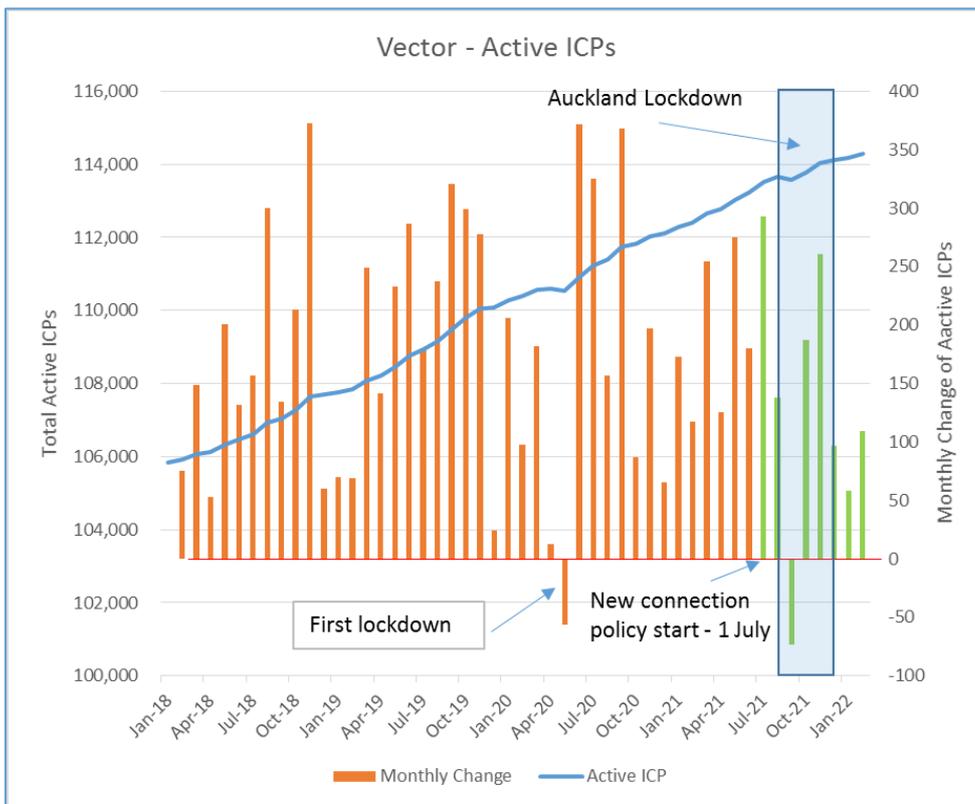


Figure 5: Vector Active ICP - source: Gas Registry

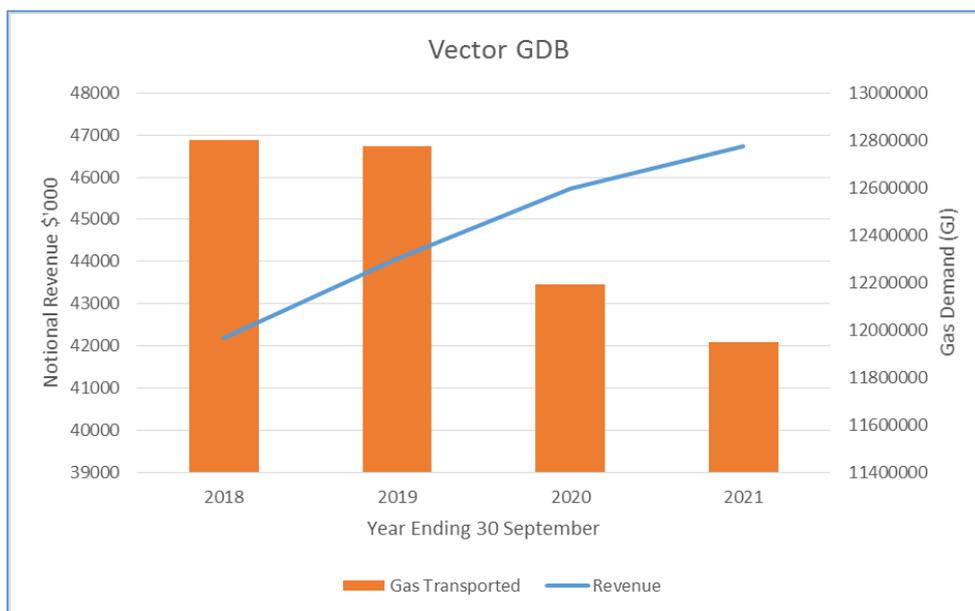


Figure 6: Vector GDB Gas volume and Revenue - Source: OATIS and Gas Compliance Statement

38. We then considered Vector’s future connection growth using statistical time series modelling. This approach relies only on the actual connection data, not Vector’s forecasts in their AMPs
39. All of our data is from public sources including Daily Delivery Reports, Gas registry, and Vectors’ Gas Compliance disclosures.
40. We used the monthly data for Vector Distribution from October 2018 to February 2022<sup>29</sup> listed as *Active ICP by Distributor* in the GIC gas registry<sup>30</sup>.
41. We used the open-source statistical software package “R” which is used extensively by the statistics community, to develop a time series model based on the data<sup>31</sup>. While there are a number of statistical modelling approaches to choose from, we picked a simple exponential time series approach (ets). The model itself was assessed in terms of its validity using various statistical tests on the residuals<sup>32</sup>. The model we developed met the test for independent and identically distributed (iid) residuals. The model was then used to forecast to end September 2026. This provided the expected value of total ICP connections and the prediction range (95% prediction interval).

<sup>29</sup> October 2018 is the first month of the distribution pricing year that falls within the 4 year window Vector is using in its assertions.

<sup>30</sup> <https://www.gasindustry.co.nz/work-programmes/switching-and-registry/current-arrangements/reports/>

<sup>31</sup> We can supply the R code and data on request.

<sup>32</sup> A good (descriptive) model would have residual values that are randomly distributed around zero, are independent, show constant variance, and ideally are also normally distributed.

42. The following presents the outcome of the modelling work:
- a. Model fitted to the data (Figure 7)
  - b. Forecast to Oct 2026 (Figure 8)
  - c. Time series decomposition showing error, trend, and seasonal components (Figure 9)

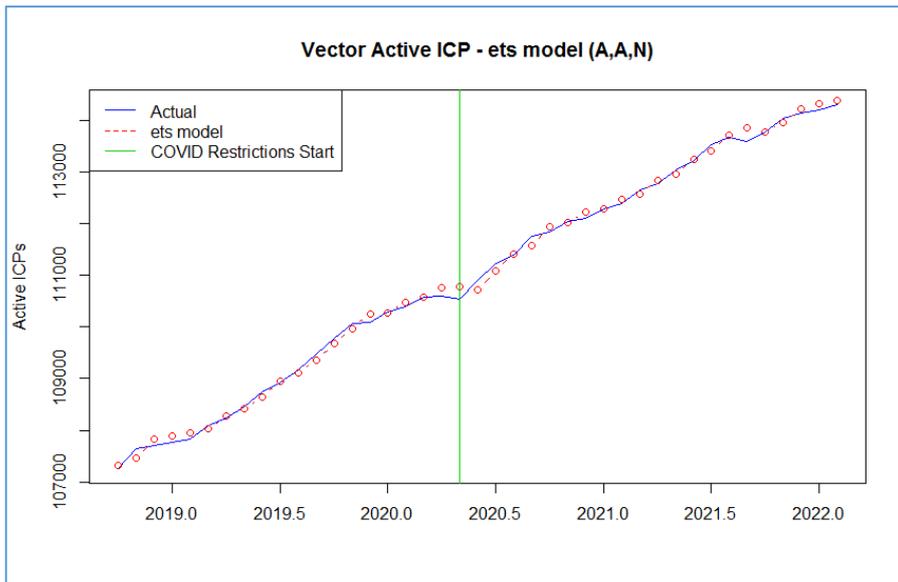


Figure 7: Actual vs Model<sup>33</sup>

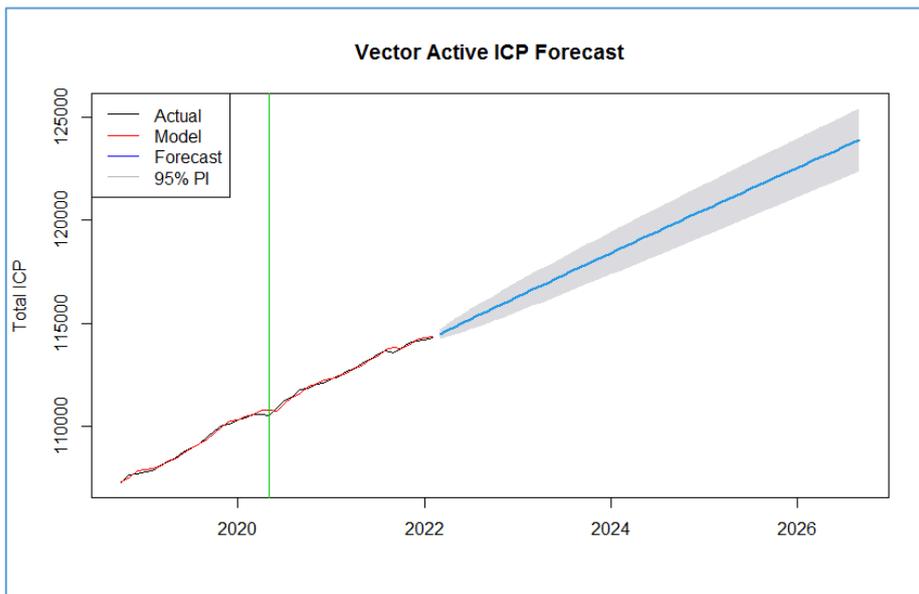


Figure 8: Vector Active ICP Forecast

<sup>33</sup> The model forecasts connection as the sum of the trend and error terms (no seasonal term). Hence the ets model is described as (A,A,N).

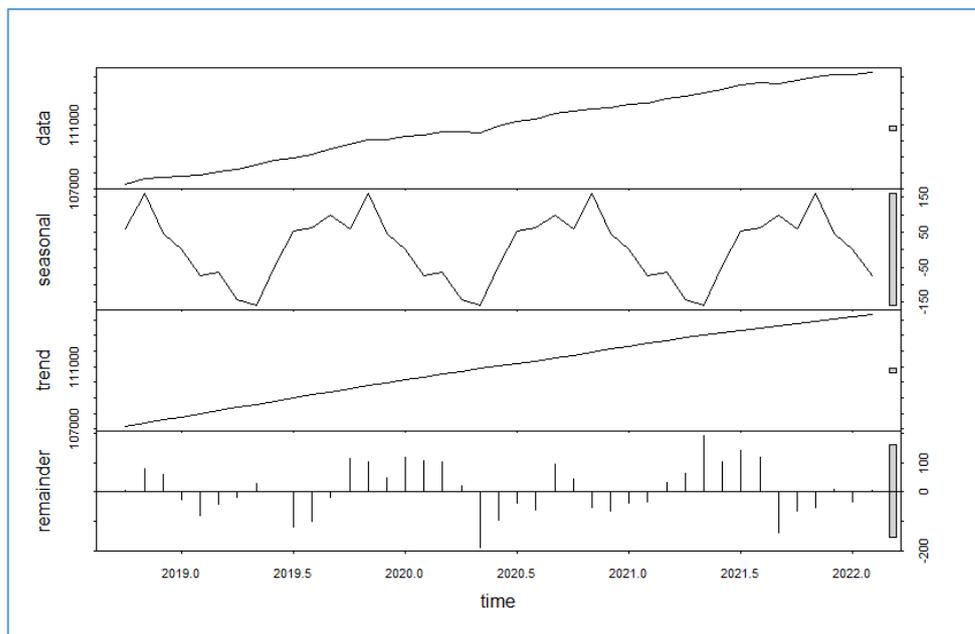


Figure 9: Time Series Decomposition

43. Based on this modelling work, the expected number of ICP connections for Vector at 30 Sep 2026 is 123,913 (95% range = 122,370-125,437) vs 114,294 total ICP connections as at end of February 2022 (hence 7.0% - 9.7% growth within 95% confidence interval).
44. We also decomposed the existing time series into underlying (secular) trend, seasonal component and remainder terms. This was to see if there is any statistical evidence of changes (particularly long term trend) influenced by more recent events (such as the CCC advice or Vector's disconnection policy) that might affect the forecast. We expected this to give us an indication on consumer confidence on whether they should continue to invest in natural gas appliances given all the uncertainty created from the CCC advice and government agenda for decarbonising the economy. The data decomposition is shown in Figure 9.
45. Figure 9 should be interpreted as follows:
  - a. **Data** is the actual time series as recorded in the gas registry.
  - b. **Trend** is the underlying secular trend. It shows an underlying trend growth of about 174 connections per month. This trend is steady.
  - c. **Seasonal** – there is also (unexpectedly perhaps) a seasonal feature to connection growth<sup>34</sup>. There are net disconnections from January through to June, with net positive connections from July to December.

<sup>34</sup> It is relatively minor, and the model itself doesn't pick it up as an important feature. There is no obvious reasons why connections should follow a seasonal pattern but it's possible that in winter months people see a greater value in the lower marginal cost of gas connection for space heating and decide to connect, whereas in summer months, when households use little gas but still have to pay a fixed charge each month for the connection, they may perceive that a gas connection isn't delivering the same value.

- d. **Remainder** component. These are the differences between observed and the sum of trend and seasonal components. The random components appears to have an average of zero and equally distributed above and below the line. Note that there is an outlier in May 2020 (also shown in Figure 5). We infer that this is as a result of the first COVID lockdown measures restricting connection activities.
46. The modelling approach relies on recognising the patterns from historical data. The most obvious challenge to this is that the trajectory may alter based on “disruptions”. The Climate Change report could be disruptive, but hasn’t shown itself as material on consumer expectations since the CCC position on gas was announced over 12 months ago. A possible disruption is Vector’s new policy on gas connection costs, although that too hasn’t shown up in the data to date, despite the policy being 6 months in effect. The other disruption could be the accelerated revenue proposal that results in both a higher disconnection rate and lower new connection rate (see our reasoning in para 22-23). Neither gas connection policy nor accelerated pricing, appears to us to be a systemic risk given that these are choices being made by Vector and other GPBs. In fact, in absence of any other information, the forecasting model suggest that the preferred approach for Vector should be to reverse its policy on gas connections and support a normal IM review process to deal with network stranding risk. This would offer them more revenue and a larger consumer base in 2026.
47. The conclusions that we would draw from this analysis are:
  - a. It is unclear why Vector should refer to volume loss over the “last four years” when volume loss only started with COVID controls two years ago.
  - b. Vector’s volume loss is not replicated on other networks, and is peculiar to COVID control impacts in central Auckland, which in turn is related to border closure and lockdowns. Both of these measures will no longer apply from April this year and volume recovery seems more likely than not.
  - c. Vector is perhaps trying to limit its growth opportunities via its connection policy, or anticipating net disconnections as a result of accelerated pricing to argue for a Total Revenue Cap to protect their downside risk. The decisions to limit their own growth are entirely within their own discretion and doesn’t justify a switch in the form of control.
  - d. Gas demand and revenue aren’t directly correlated. In this case the data would suggest a negative correlation (volume down, revenue up). The Commission should note that the relationship between gas volume and pipeline revenue isn’t a direct one when looking at how declining gas volumes might affect economic stranding risk.
  - e. Absent other demand shocks Vector is expected to continue to show growth in its connections through to October 2026

## Further Inspection of GPB arguments.

48. The submissions of Powerco, Vector, and First Gas include other matters of detail around allowable expenses, resetting forecasts for CPGR, and so forth in DPP3. Undoubtedly the submissions will have been made to enhance the commercial outcomes of GPBs. We haven't examined these in any detail as to whether the arguments are warranted or not. These appear to be matters of judgment for the Commission to deal with within the existing framework.
49. There have been a number of suggestions to run workshops (Mr Pat Duignan, and First Gas). We would support this, provided that the workshop agenda is framed around the substantive topics of process and reasoning that we have outlined in the front of this submission.

Yours sincerely

A handwritten signature in black ink, appearing to read 'R Hale'.

Richard Hale/Len Houwers  
Hale & Twomey Ltd/Arete Consulting Ltd  
Secretariat for the Major Gas Users Group