![POWERCO]

10 February 2023

Input Methodologies Review team
Via email im.review@comcom.govt.nz

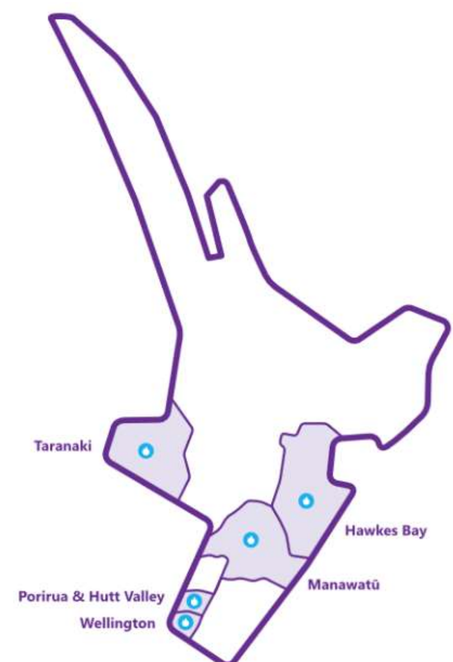
Tēnā koutou

The Commission's approach to addressing increased stranding risk for gas pipeline businesses is pragmatic and flexible to changing circumstances

Aotearoa New Zealand is preparing to rapidly evolve as the country embarks on an adaptation and mitigation path in response to our global climate change commitments. The energy sector is delicately balancing how we can do play our critical role in enabling Aotearoa to meet its emission reduction targets, with consumer expectations for a reliable and continuous supply of energy at an affordable price, and commercial realities around infrastructure investment in an uncertain regulatory environment. Powerco is one of Aotearoa's largest gas and electricity distributors, supplying around 340,000 (electricity) and 112,000 (gas) urban and rural homes and businesses in the North Island. These energy networks provide essential services and will be core to Aotearoa achieving a net-zero economy in 2050.

Incentives to invest with declining gas demand – both important and complicated

It is fair to say the consultation[1] paper's topic is technical. It is also important as it links the economic incentives on our gas business with how and when we invest to meet the needs of customers over our 6000km network. For many customers gas is an essential energy source which requires our on-going investment to provide a safe and reliable supply. Our 2022 asset management plan update[2] outlines our plans for the next ten years, indicating Powerco's forecast network capital expenditure is around $18m pa on a range of quality of supply, renewal, and growth projects across the motu. It the incentives on this investment which is at the centre of the Commission's consultation.



This submission assumes some familiarity with the topic and regulatory framework. A useful starting point is the 2022 Default Price-Quality Path (DPP) reset for gas networks which included an accelerated depreciation mechanism for existing and new assets. This was to better reflect the remaining economic life of network assets, given uncertainty about the rate at which natural gas use will decline over time and the detail of future policy settings. And it is NPV-neutral. That reset (and each reset) is a crucial

[1] IM Review - Options to maintain investment incentives in the context of declining demand
[2] https://www.powerco.co.nz/who-we-are/disclosures-and-submissions/gas-disclosures

input to ensuring gas infrastructure can meet its safety and reliability obligations as a lifeline utility and support New Zealand's emissions targets over the medium and long term.

The Commission's 'options' paper builds on the work done in 2022 to address the same issue and for the same reasons. Any subsequent changes will be part of the Input Methodologies (IM) review which is underway and concludes late 2023. These IM settings are then used to inform the DPP resets following this date, with the next one due in 2026. In our submission[3] on the draft DPP determination we emphasised that there are other regulatory settings which need to be considered in the IM review for gas networks. This included moving to a revenue cap and removing RAB indexation because they are both aligned with managing price impacts on consumers in an NPV-neutral manner. While these are outside the scope of the options paper, they are inter-related.

The rest of this submission summarises our comments on the options and how the timing of regulatory decisions and reviews interact. Our views are informed by an expert report prepared by Frontier Economics on behalf of Firstgas, Powerco, and Vector. It's a well-written review of the options and context.

The options

Underpinning this consultation is how regulatory settings promote the purpose of gas network regulation (Part 4 in the Commerce Act). The long-term benefit of consumers is promoted through suppliers having incentives to invest in assets used to deliver the gas network service. Frontier observe that the IM's should seek to minimise the risk of asset stranding for the benefit of consumers, not suppliers. Regulatory settings that preserve the expectation of a return on investment (FCM) serve the interests of consumers because it supports investment in continuing to supply gas safely and reliably. Frontier articulate this nicely in para 47 of their report:

> *Regulated suppliers will only agree to commit large amounts of capital and wait patiently to recover those investments over multiple regulatory periods if there is a strong commitment within the regulatory framework to provide suppliers with a reasonable expectation of recovering those costs fully*

The Commission proposes five options of possible IM changes which are intended to promote Part 4 and address the allocation of risk between networks and consumers. Frontier observes that all five of the options are consistent with the ex-ante FCM principle.

[A] GPB discretion to set the economic life for <u>new assets</u> consistent with GAAP

[B] GPB discretion to propose an updated economic life for <u>existing assets</u> consistent with GAAP

[C] Apply front-loaded depreciation to individual assets (possibly differentiate between existing and new assets)

[D] Allow ex-ante compensation facility in the IMs for stranding risk.

[E] allowing and removal of stranded assets from the asset base if they are underutilised.

Our position on these options is guided by our view that:

- the regulatory model reflects an assessment of the economic lives of the asset base as a whole
- GPBs can provide that assessment if it's practical for all parties
- Making NPV-neutral changes like removing RAB indexation and moving to a revenue cap mechanism is a priority

Given this, our view on the options equates to:

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[3] https://www.powerco.co.nz/who-we-are/disclosures-and-submissions/submissions

- **supporting option (A+B)** where gas networks propose economic asset lives of the network consistent with GAAP[4]. This essentially involves tweaking the current approach. We are confident any material concerns about data transparency can be mitigated. Powerco could implement this at the next gas DPP reset. Frontier's assessment is to combine A and B for a range of reasons. In simple terms: the expected life is for the network (or parts of), not the assets built at a point in time, so treat it that way.
- **Supporting option C in principle**, though the effects and interactions with other mechanisms would need to be considered. This option adds complexity and may not align with the low-cost approach to setting a DPP. Frontier suggest the rationale for front-loading cost recovery is aligned with removing indexation of the asset base. We agree.
- **Suggest options D and E be deferred, or if needed, implemented as an out-of-cycle IM change**. These options make provisions in the IMs to set an ex-ante allowance and the removal of assets from the RAB if stranded. Unlike options A-B-C, the mechanisms and modelling appear more complicated. For option D, the potential for windfall gains/losses from a regulatory modelling exercise make this option less appealing. Frontier discuss option E discount it with a key reason being that it does not promote efficient network investment, and therefore isn't align with the purpose of Part 4.

We see value working through the potential implementation of an A+B solution (and potentially an A+B+C) to ensure any IM drafting, audit requirements, processes, and assumptions is workable for all parties.

Frontier has outlined other measures the Commission might consider in section 4 of their report. We support these options which include:

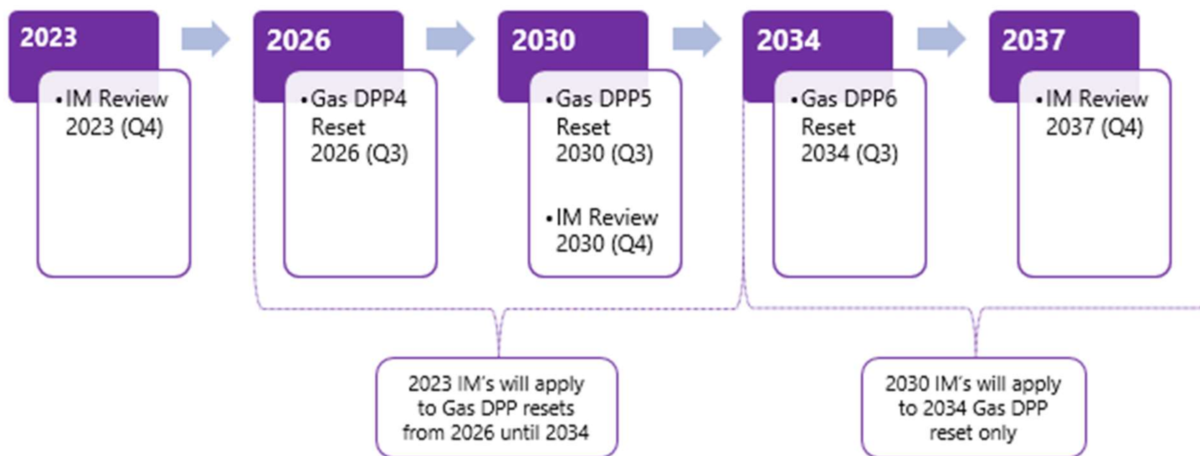
- Better information from the Commission to consumers to help them plan future investments and consumption
- Informed limits on annual price adjustments via willingness to pay studies
- Other mechanisms for managing price volatility and the cost burden on future users including tariff structures and Government targeted assistance. The observe that "*…when amending the IMs the Commission should be alive to the fact that there are solutions available beyond the regulatory framework—so a radical reallocation of long-term demand risk between consumers and suppliers may not be required*."

Timing considerations

The Commission is right to explore the interaction between the frequency and length of price-quality resets, IM reviews, and policy settings. The upshot is that with nothing changed, the 2023 IM review framework will apply to gas networks until 2034. We agree with the Commission's thinking to include any tools potentially needed up to this period into the 2023 IMs to deal with declining demand and to give Gas Pipeline businesses confidence that the principle of ex-ante FCM is maintained. Doing so avoids the need for continual IM amendments like those applied to the 2022 Gas DPP reset.

The figure below illustrates the regulatory timelines if the decision for a 4-year DPP period for gas networks and a 7-year period for IM reviews remains.

[4] Option A also has a potential implementation difficulty to address. The concept is that " At the time of a price reset, we could require suppliers to disclose the economic asset life assumptions used for assets commissioned within the regulatory period that is coming to an end" (3.61). That means a change in the 2030 reset could only be applied if the economic life assumptions have been established from the prior regulatory period (2026) because the 2022-26 period has specified asset live reduction/accelerated depreciation calculated to reach a target depreciation amount - not necessarily the GPB's view of the economic life.



This suggests that:

- changes made in the 2023 IM review will apply to the next two Gas DPP resets. The period from October 2026 to September 2034. The 2030 reset will occur during the 2030 IM review, so any changes in the review would not be included in the reset. The electricity DPP5 reset would also miss these IM changes because it would be decided in November 2029 for the 5-year period starting April 2030.
- From the October 2034 gas reset the 2030 IMs will apply.

As outlined in the Commission's consultation paper there is policy to be developed following the final decision for the 2023 IM review that we expect will have some impact the gas industry before the following IM review in 2030. These developments include the Gas Transition Plan 2023, Energy Strategy 2024, and second emissions reduction plan (2026). If nothing changes, this places increased importance on the 2023 review as this will shape and define the options available for gas network resets for the next decade.

Some options to address the timing mismatches include:

[1] Targeting a 2029 IM review. This could inform the 2030 gas reset (assuming 4-year reset in 2026).

[2] Targeting a 2028 IM review which would also allow application of any IM changes to the DPP4 electricity reset over 2029.

[3] Setting a 5-year gas DPP reset period at the 2026 reset so that it falls after the 2030 IM review.

From a simple timing and sector-wide perspective, **option 2** looks worthy of further consideration by the Commission. This timing would also leave a decent amount of time for any refinement and outcomes in the policy space relating to the energy strategy.

We look forward to engaging with the Commission on this topic in the draft IM decision, or potentially beforehand. If you have any questions regarding this submission or would like to talk further on the points we have raised above, please contact Jeremy.Smith@powerco.co.nz.

Nāku now, nā,

Andrew Kerr
Head of Policy, Regulation, and Markets
POWERCO

Attachment 1. Frontier – Options to maintain investment incentives in the context of declining demand

Options to maintain investment incentives in the context of declining demand

A report prepared for Vector, Powerco and Firstgas | 9 February 2023

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1 Executive summary

1.1 Background

1. On 20 December 2022 the Commission published a Consultation paper on the topic of how long-term demand risk should be allocated between regulated suppliers (gas pipeline businesses, in particular) and consumers.[1]
2. The Consultation paper explains that under the current regulatory framework, consumers bear most of the long-term demand risk. This is because the existing Input Methodologies (IMs) are based on the principle of ex-ante Financial Capital Maintenance (FCM), whereby regulated prices are set such that regulated suppliers can expect to recover their efficient costs fully over the life of each asset. This means that regulated prices today may need to increase if long-term demand is expected to fall (and vice versa).
3. The Commission considers that:
   a. Consumers may not have fully appreciated what it means to be allocated long-term demand risk, and the consequences on prices of the Commission's adherence to the ex-ante FCM principle—namely that prices may need to rise in the short-term if long-term demand is expected to fall;[2]
   b. Such price increases may:[3]
      i. suppress consumer demand for regulated services; and
      ii. have a chilling effect on consumer investment decisions (e.g., in appliances or production processes).
4. Consequently, the Commission is considering whether a change to the current allocation of long-term demand risk between consumers and suppliers would better promote the purpose of Part 4 of the *Commerce Act 1986*.
5. With these concerns in mind, the Consultation paper, and the IMs Process and Issues paper before it, identify a number of possible changes to the existing regulatory framework that the Commission intends to consider as part of the 2023 IMs review. The Consultation paper identifies two broad approaches that the Commission could follow, each involving a number of options.

1. Maintain the existing allocation of risk between consumers and suppliers

6. Under this approach, the Commission would maintain the existing ex-ante FCM principle. This approach would continue to leave long-term demand risk largely with consumers. However, the Commission would consider a number of options for changes to the IMs related to the treatment of asset lives and/or the profiling of the depreciation allowance (to better match expected long-term demand). The options proposed by the Commission are the following:

[1] Commerce Commission, *Options to maintain investment incentives in the context of declining demand*, 20 December 2022 (Consultation paper).

[2] Commerce Commission, *Process and Issues paper*, 20 May 2022 (Process and Issues paper), paras 5.168-5.169.

[3] *Process and Issues paper*, para 5.158.

a. **Option A** – Allow suppliers to propose the economic life for *new assets* consistent with GAAP at the time of each reset;

b. **Option B** – Allow suppliers to propose revisions to the economic life for existing assets consistent with GAAP at the time of each reset; and

c. **Option C** – Front-load the recovery of costs, for instance by:

   i. changing the method for profiling depreciation from the straight-line approach to an alternative approach (e.g., diminishing value/declining balance, tilted annuity or sum-of-digits); and/or

   ii. some other means (e.g., removing RAB indexation).

d. **Option D** – Provide for ex-ante compensation to suppliers for stranding risk (e.g., through an additional cash flow allowance akin to the stranding risk allowance provided for in the Fibre IMs).

7. In principle, the Commission could select one or a combination of these options.

2. Re-allocate some risk from consumers to suppliers

e. **Option E –** Introduce changes to the IMs that would allow ex-post removal of stranded assets from the RAB, while providing some ex-ante compensation for stranding risk. Under this option, suppliers would receive an ex-ante allowance for stranding risk. However, once demand for the assets falls sufficiently low, the assets would be removed from the RAB. The Commission considers that this approach would reallocate some long-term demand risk to suppliers while providing greater price stability and/or certainty for consumers. That is, some risk would be transferred from consumers to supplies, accompanied by appropriate compensation.

8. The Consultation paper does not propose as an option complete abandonment of the ex-ante FCM principle, whereby no further adjustments to asset lives or depreciation allowances would be made, and no ex-ante allowance for stranding risk would be provided. Such an approach would transfer all long-term demand risk from consumers to suppliers, with no ex-ante compensation for bearing this additional risk.

9. Frontier Economics has been engaged by Vector, Powerco and Firstgas to provide an independent opinion on the options and issues canvassed in the Consultation paper.

1.2 Authors of this report

10. This report was prepared by Professor Stephen Gray, Andrew Harpham and Dinesh Kumareswaran.

11. **Professor Stephen Gray** is the Malcolm Broomhead Chair in Finance at the University of Queensland (UQ) and Chairman of Frontier Economics. Stephen advises on issues relating to valuation, cost of capital, corporate financial strategy, and pricing issues. He has advised nearly all regulated businesses in Australia (across industries and jurisdictions) on rate of return matters. Stephen's work on empirical finance, asset-pricing and corporate finance has been published in leading academic and practitioner journals. At UQ Business School, Stephen teaches a range of award and executive education courses in financial management, asset valuation, and corporate finance. He has Honours degrees in commerce and law from The University of Queensland and a PhD in financial economics from Stanford University. He has received a number of academic awards including the Prime Minister's Award for University Teacher of the Year in the Economics and Business field in 2002.

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13. **Dinesh Kumareswaran** is a Director of Frontier Economics and an economist with 20 years of experience in competition and regulatory economics. Dinesh advises regulators and regulated businesses on the different forms of economic regulation, the principles of best practice regulation, asset valuation, regulatory depreciation, the allowed rate of return, forecasts of efficient costs, incentive mechanisms and economic benchmarking. Before joining Frontier Economics, Dinesh was a Senior Economist at New Zealand's competition authority and economic regulator, the New Zealand Commerce Commission. Between 2010 and 2012, Dinesh lectured an MSc course in regulatory finance at the Imperial College Business School, London. Dinesh holds Master's and Honours degrees in economics from Victoria University of Wellington, New Zealand.

1.3 Key findings

Should the existing allocation of risk be altered (section 2)?

14. The Part 4 purpose codified in section 52A makes clear that one of the ways in which the long-term benefit of consumers is promoted is through suppliers having incentives to invest in assets used to deliver regulated services.

15. Suppliers will only have an incentive to invest if they have a reasonable expectation of recovering their investments. Abandonment of the ex-ante FCM principle, or any fundamental reallocation of long-term demand risk from consumers to suppliers, is likely to undermine these incentives and therefore be counter to the Part 4 purpose.

16. Whilst long-term demand for natural gas is expected to decline, the most authoritative projections suggest that some demand for natural gas in New Zealand will continue to exist for many decades to come. This is because some users face relatively high costs associated with switching away from natural gas, or have few other viable alternatives (e.g., industrial users that are dependent on natural gas for high temperature process heat), and will therefore remain highly reliant on natural gas for many years to come.

17. If the regulatory framework exposes suppliers to material asset stranding risk, they may be unwilling to make the investments in regulated assets necessary to continue to supply natural gas to remaining users reliably and safely. In these circumstances, suppliers may choose to shut down their networks prematurely, rather than face the risk of allowing their future investments in those networks to become stranded.

18. Consumers would consequently suffer the losses associated with unserved demand, which are likely to be large for those consumers that remain reliant on gas.

19. The IMs should seek to minimise the risk of asset stranding—not for the benefit of suppliers, but for the benefit of consumers. Without preserving the incentives for suppliers to keep making the investments required to support consumers through New Zealand's energy transition, consumers

are likely to be considerably worse off. It is difficult to see how such an outcome would promote the Part 4 purpose.

20. The Commission should therefore rule out abandonment of the ex-ante FCM principle, which has underpinned the regulatory framework since its inception. The Commission should also avoid any reallocation of long-term demand risk that materially increases the stranding risk faced by suppliers.

Assessment of the options proposed in the Consultation paper (section 3)

21. In relation to the options canvassed by the Commission, we recommend that:
    a. The Commission allow suppliers to propose the economic life of new and existing assets at each price reset (i.e., Options A and B should both be adopted);
    b. The Commission adopt approaches to front-load the recovery of costs (Option C), including:
        i. methodologies that would align the depreciation allowance to natural gas demand more closely than the straight-line method; and
        ii. removal of RAB indexation to avoid unnecessarily back-loading the recovery of costs from a potentially smaller customer base.
    c. The provision of an ex-ante allowance for stranding risk (Option D) would be less preferable than Options A, B and C. The uncertainty over the inputs required to estimate the ex-ante allowance could result in the allowance being set too high or too low to compensate suppliers for ex-ante stranding risk. This could result in windfall gains or losses to suppliers and consumers and presumes that network assets will not be repurposed.
    d. The Commission should rule out any reallocation of long-term demand risk from consumers to suppliers—for instance, by allowing some assets to be removed from the RAB if demand drops sufficiently (Option E). Any such reallocation of risk may undermine incentives for suppliers to invest prudently and efficiently in gas network assets that are necessary to support consumers through New Zealand's energy transition. Under-investment would ultimately be to the long-term detriment (rather than the long-term benefit) of consumers.

Other measures the Commission might consider (section 4)

22. There are a number of IM changes apart from those considered in the Consultation paper that could provide consumers with more long-term certainty and help consumers plan their own investment and consumption decisions. For instance, the Commission, with support from industry, could:
    a. Explain clearly to consumers (and other stakeholders, such as policymakers) the benefits they receive in exchange for bearing long-term demand risk, and the reasons why it is important that the Commission maintain the ex-ante FCM principle. The Commission has suggested that consumers may not have a clear understanding of the rationale for the current allocation of risk between consumers and suppliers. If that is so, the provision of better information by the Commission to consumers would be a more appropriate response than pursuing a fundamental reallocation of risk that may distort investment incentives and harm consumers over the long-term.
    b. At each price review, provide consumers with an indication of the long-term gas network price path that could be expected if the current cost recovery profile were to continue into the future.

c. Periodically undertake and publish robust willingness to pay studies to inform the limits on price increases when adjusting the recovery of costs in responses to changes in long-term expected demand.

2 Should the existing allocation of risk be altered?

2.1 The regulatory task

23. When making price-quality determinations for regulated gas pipeline businesses, the Commission must do so in a way that promotes the purpose of Part 4 of the *Commerce Act 1986* (the Part 4 purpose). The Part 4 purpose is summarised below in Box 1 below.

Box 1: The purpose of Part 4 of the Commerce Act 1986

The purpose of this Part is to promote the long-term benefit of consumers in markets referred to in section 52 by promoting outcomes that are consistent with outcomes produced in competitive markets such that suppliers of regulated goods or services—

(a) have incentives to innovate and to invest, including in replacement, upgraded, and new assets; and

(b) have incentives to improve efficiency and provide services at a quality that reflects consumer demands; and

(c) share with consumers the benefits of efficiency gains in the supply of the regulated goods or services, including through lower prices; and

(d) are limited in their ability to extract excessive profits.

Source: Section 52A of the Commerce Act 1986

24. Section 52A makes clear that a key way in which the long-term benefit of consumers is promoted is through investment in regulated assets. One of the main ways the Commission seeks to provide regulated suppliers with incentives to invest is the application of the ex-ante FCM principle.

25. The Commission explains the ex-ante FCM principle as follows:

> *Our ex-ante FCM principle is that regulated suppliers should have the ex-ante expectation of earning their risk-adjusted cost of capital (ie, a 'normal return'), and of maintaining their financial capital in real terms over the lifetime of their investments.*[4]

26. This concept is sometimes referred to as the NPV=0 principle because if a supplier expects to just recover all of its efficient costs (including its cost of capital), then the expected net present value (NPV) of the supplier's investment in regulated assets will be zero.

[4] *Consultation paper*, para 2.6.

27. The economic reasoning for this approach is straightforward: a forward-looking, rational firm will make sunk investments only if it has a reasonable expectation of recovering at least the full cost of those investments over the economic life of the assets. If the firm expects to recover less than its full costs, it would be expected to make an economic loss and therefore should not make the investment. By underpinning the regulatory framework with the expectation that regulated suppliers will be able to recover the full efficient cost of investments in regulated assets over the life of those assets (via application of the ex-ante FCM principle), the Commission provides suppliers with appropriate incentives to invest efficiently.

28. As the Commission itself explains:

> *Under our current approach it is important that sunk assets remain in the RAB. This is because in the next regulatory period, the current period's incremental investments become sunk. Removing assets from the RAB would therefore undermine ongoing investment incentives. In line with section 52A(1)(a), for businesses to have incentives to invest now, they need to have an expectation of at least recovering the full cost of their investments. This includes an appropriate return on those investments.*[5]

29. However, the Consultation paper goes on to suggest that the Commission need not continue to apply the same allocation of risk between consumers and suppliers in future, or apply the same treatment to existing and prospective investments:

> *consumers need not necessarily continue to bear asset stranding risk nor must we necessarily take the same approach for new and existing assets.*[6]

30. As noted in paragraph 4, the Commission's key concern appears to be that raising prices in circumstances where long-term demand is expected to decline (to provide suppliers with an opportunity to recover their efficient costs in full and avoid stranding outcomes) may not promote the Part 4 purpose. This seems to be the main reason why the Commission is reconsidering the current allocation of long-term demand risk between consumers and suppliers.

31. As the Commission explained in the Process and Issues paper:

> *Allocating long-term demand risk to consumers means that consumers are exposed to a degree of long-term price uncertainty. If demand diverges significantly from expectations, then it may be*

[5] *Consultation paper*, para. 2.15.

[6] *Consultation paper*, para. 2.17.

> *necessary to change the long-term depreciation profile to efficiently manage demand risk between current and future consumers in a way that maintains an expectation of FCM.*
>
> *An observable outcome of this risk allocation is that regulated prices may increase when demand unexpectedly declines and decrease when demand unexpectedly increases. This may not promote the Part 4 purpose.*[7]

32. However, we note that:

    a. Section 52A does *not* specify long-term price certainty/stability as one of the ways of promoting outcomes that are consistent with those produced in competitive markets. This is self-evident from competitive markets in the real world. Take, for example, international commodity markets (e.g., for minerals and other natural resources) that are highly competitive. Consumers in such markets have no real certainty over the long-term price of such commodities. In fact, long-term prices in such markets are highly *uncertain*. That does not make such markets uncompetitive. Long-term price certainty may be very desirable for consumers of regulated services. However, it is not at all clear that long-term price certainty is necessary to promote the Part 4 purpose.

    b. Section 52A(a) specifies that one way the long-term benefit of consumers would be promoted is if regulated suppliers face "incentives to innovate and to invest, including in replacement, upgraded, and new assets." As discussed above, incentives to invest prudently and efficiently are preserved if suppliers expect that they can recover all of their efficient costs, and that their investments would not become stranded once they are made.

    c. Section 52A(c) specifies that the long-term benefit of consumers would be promoted through lower prices that are the consequences of "efficiency gains in the supply of the regulated goods or services", *not* the stranding of suppliers' investments.

    d. Section 52A(d) specifies that the long-term benefit of consumers would be promoted by limiting suppliers' "ability to extract excessive profits." Suppliers can only extract excess profits if they are permitted to recover more than their efficient costs (i.e., if the expected NPV of the regulated cash flows were materially higher than zero). Raising prices (e.g., via accelerated depreciation) to allow suppliers to just recover their efficient costs and avoid stranding outcomes *would not* result in suppliers extracting excess profits.

33. In other words, none of the limbs of section 52A would be promoted by reallocating risk from suppliers to consumers or abandoning the ex-ante FCM principle. Hence, there is no trade-off between the application of the ex-ante FCM principle to promote incentives to invest in regulated assets and some other consideration that would promote the Part 4 purpose.

[7] *Process and Issues paper*, paras. 5.156 and 5.157.

2.2 The Part 4 purpose is best promoted through the current allocation of long-term demand risk

34. As the Consultation paper explains, the current regulatory arrangements allocate most of the long-term demand risk to consumers.[8] The benefits that consumers receive in exchange for bearing this risk are:

    a. the preservation of strong incentives for suppliers to invest prudently and efficiently in regulated assets to deliver secure and reliable regulated services; and

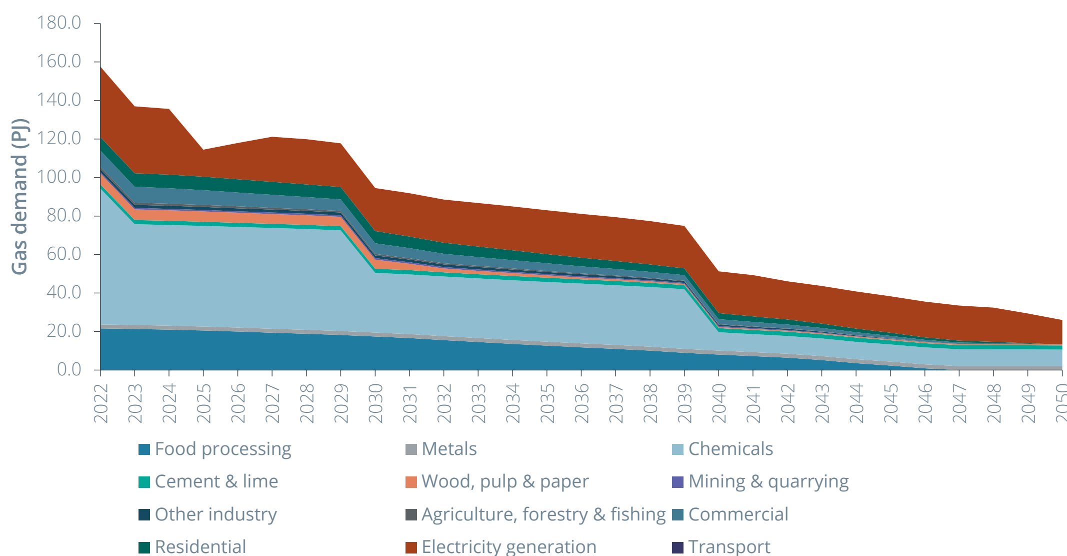
    b. lower allowed revenues than would be required if suppliers were bearing additional risk

35. Whilst demand for gas in New Zealand is expected to decline substantially over time, current projections suggest that some demand for gas will continue to exist for many decades to come. For example:

    a. The Climate Change Commission's advice to the New Zealand government on its first three emission budgets presented projections of gas utilisation under a 'demonstration path' scenario (**Figure 1**). Those projections indicated some gas utilisation (26PJ) would persist even in 2050.[9]

    b. The Commission's final gas DPP3 decision considered a range of possible RAB stranding or 'wind-down' scenarios for gas pipeline businesses. The Commission concluded that "both a 2040 wind-down and a 2070 wind-down remain plausible scenarios", but that "most weight should be accorded to the 2060 scenario."[10]

Figure 1: Climate Change Commission projections of gas demand



Source: Climate Change Commission, ENZ scenarios dataset for 2021 final advice.

[8] Suppliers face some stranding risk because they are provided with an expectation (not a guarantee) of recovering their efficient costs.

[9] *Climate Change Commission, Ināia tonu nei: a low emissions future for Aotearoa*, May 2021.

[10] Commerce Commission, *Default price-quality paths for gas pipeline businesses from 1 October 2022, Final Reasons Paper*, 31 May 2022, p. 199.

36. That is, whilst many users may transition gradually away from gas to electricity as the economy decarbonises, a reasonably large group of consumers may continue to use gas for many decades to come. These consumers are likely face the highest costs associated with switching from electricity to gas usage and would therefore be highly reliant on gas.

37. In addition, as the figure above indicates, a significant quantity of total natural gas usage well into the 2040s is expected to be for electricity generation. In those circumstances, all users of electricity in New Zealand would benefit from the long-term availability of natural gas.

38. This means that regulated gas networks will need ongoing investment (albeit less than has occurred historically) in order to continue to deliver gas to those users who face the highest costs associated with transitioning away from gas.

39. Furthermore, some ongoing investment in the existing networks may be desirable to keep alive the option of repurposing those networks to deliver alternative fuels such as biogas and hydrogen. Allowing the networks to be run down, without any ongoing investment, may mean the cost of repurposing the networks in future would be higher than would be efficient.

40. Suppliers of regulated gas services are unlikely to make these ongoing investments unless they have a reasonable expectation of recovering the cost of those investments. A transfer of long-term demand risk from consumers to suppliers, and an increase in stranding risk faced by suppliers, would reduce the incentives that suppliers face to make the future prudent and efficient investments necessary to continue supplying to those consumers that wish to continue using regulated gas services. As the Consultation paper acknowledges:

> *Removing assets from the RAB would therefore undermine ongoing investment incentives. In line with section 52A(1)(a), for businesses to have incentives to invest now, they need to have an expectation of at least recovering the full cost of their investments. This includes an appropriate return on those investments.* [11]

41. Exposing suppliers to the risk that investments may in future be removed from the RAB may deter the ongoing investment necessary to deliver regulated services. This could result in premature shutdown of existing gas networks (either in part or in whole), and consumers would suffer the losses associated with unserved demand—which are likely to be large for those consumers that remain reliant on gas (including those consumers that have made investments of their own in appliances and production processes).

42. The Consultation paper recognises (correctly, in our view) that ongoing investment in gas networks will be required to support the energy transition in New Zealand, and that it is important to maintain the ex-ante FCM principle in order to incentivise those investments:

> *Investment is required to ensure networks continue to provide a safe and reliable supply of natural gas until they are no longer needed. This means that it is important that we continue to deliver ex-*

[11] *Consultation paper*, para 2.15.

ante FCM through the BBM to provide incentives for continued investment. This requires the IMs to appropriately address asset stranding risk.

Under the current IMs we address the risk of asset stranding for individual assets and promote continued incentives to invest. This is by allowing assets to remain in the RAB when capacity permanently exceeds consumer demand rather than becoming economically stranded.[12]

43. In our view, the IMs should seek to minimise the risk of asset stranding—not for the benefit of suppliers, but for the benefit of consumers. Without preserving the incentives for suppliers to keep making the investments required to supply services as long as demand exists, consumers are likely to be considerably worse off. It is difficult to see how such an outcome would promote the Part 4 purpose.
44. The Consultation paper explains that an important consideration for the Commission is the stranding risk that *consumers* might face:[13] namely, the risk that consumers may invest in appliances and production processes and then find that they are unable to utilise those investments fully. In our view, the most effective way of preventing consumers' investments from becoming stranded would be to incentivise suppliers to not withdraw supply prematurely through underinvestment in their networks. That is, effective management of the stranding risks faced by suppliers would also help mitigate the stranding risks faced by consumers. This means that regulatory action by the Commission to manage suppliers' stranding risks would align the interests of consumers and suppliers, rather than put them in conflict.

2.3 The Commission should rule out abandonment of the ex-ante FCM framework

45. As noted above, the Consultation paper does not indicate that the Commission is actively considering abandonment of the ex-ante FCM framework during this IM review. All of five of the options canvassed in the Consultation paper are consistent with the ex-ante FCM principle.
46. However, we think that a clear statement by the Commission ruling out abandonment of the ex-ante FCM principle would enhance certainty and ongoing supplier confidence in the regulatory regime. This is because the ex-ante FCM principle is the bedrock of the incentive regulation.
47. Regulated suppliers will only agree to commit large amounts of capital and wait patiently to recover those investments over multiple regulatory periods if there is a strong commitment within the regulatory framework to provide suppliers with a reasonable expectation of recovering those costs fully.
48. Such a commitment to provide an opportunity to recover costs fully is only worth something when there is a realistic risk of stranding. By way of analogy, an insurance policy is only valuable to the party insured if there is a reasonable prospect of an insurable event occurring. If the likelihood of having to make an insurance claim is nil, then the insurance policy would be worthless. Likewise, the Commission's longstanding commitment to the ex-ante FCM principle would only be worth something if the Commission adheres to it at a time when regulated suppliers actually face some

[12] *Consultation paper*, paras 2.25 and 2.26.

[13] *Consultation paper*, para 2.5.

future risk of long-term demand falling sharply. Abandonment of the principle now would signal strongly that the Commission's commitment to the ex-ante FCM principle is illusory.

49. It is worth noting that a number of owners of regulated gas pipeline businesses also own regulated electricity networks and are being asked to make significant investments in those assets to support New Zealand's decarbonisation efforts. Any abandonment of the ex-ante FCM principle in relation to gas suppliers now (at the very time when adherence to that principle is necessary) would send a strong signal to investors in electricity distribution businesses (EDBs) that they too could be exposed to material stranding risk at some point in the future. That could result in a chilling effect on the investments required to deliver electrification of the New Zealand economy.

50. The Process and Issues Paper describes a scenario in which suppliers may be forced to write-off some portion of their RAB because the market reaches a 'tipping point' due to mass disconnections.[14] Such a tipping point could be reached regardless of which option is adopted by the Commission. In these circumstances, we think the best course of action would be for the Commission to preserve incentives for prudent and efficient investment by continuing to apply the ex-ante FCM principle. If it turns out that consumers are unwilling or unable in future to pay prices that would allow full cost recovery, then suppliers may have no choice but to write-off asset value. Such outcomes should be driven by market circumstances, not choices made by the regulator. We see no benefit to consumers from the Commission hastening or amplifying the stranding losses that suppliers might suffer by abandoning the ex-ante FCM principle.

51. For these reasons, we recommend that the Commission rule out clearly and comprehensively the possibility of the IMs abandoning the ex-ante FCM principle, which has been the foundational principle of the current regulatory framework since its inception.

2.4 Conclusion

52. We conclude that:

    a. Section 52A makes clear that one of the ways in which the long-term benefit of consumers is promoted is through suppliers having incentives to invest efficiently in assets used to deliver regulated services. None of the elements of the Part 4 purpose would be promoted by abandoning the ex-ante FCM principle. Hence, there is no trade-off between the application of the ex-ante FCM principle to promote incentives to invest in regulated assets and some other consideration that would promote the Part 4 purpose.

    b. Suppliers will only have an incentive to invest if they have a reasonable expectation of recovering their investments. Abandonment of the ex-ante FCM principle, or any fundamental reallocation of long-term demand risk from consumers to suppliers, is likely to undermine these incentives and therefore be counter to the Part 4 purpose.

    c. Whilst long-term demand for natural gas is expected to decline, the most authoritative projections of suggest that some demand for natural gas in New Zealand will continue to exist for many decades to come. This is because some consumers face relatively high costs associated with switching away from natural gas and will therefore remain highly reliant on natural gas for many years to come.

    d. If the regulatory framework exposes suppliers to material asset stranding risk, they may be unwilling to make the investments in regulated assets necessary to continue to supply natural gas to remaining users reliably and safely. In these circumstances, suppliers may

[14] *Process and Issues paper*, para. 5.151.

choose to shut down their networks prematurely, rather than face the risk of allowing their future investments in those networks to become stranded.

e. Consumers would consequently suffer the losses associated with unserved demand, which are likely to be large for those consumers that remain reliant on gas.

f. The IMs should seek to minimise the risk of asset stranding—not for the benefit of suppliers, but for the benefit of consumers. Without preserving the incentives for suppliers to keep making the investments required to support consumers through New Zealand's energy transition, consumers are likely to be considerably worse off. It is difficult to see how such an outcome would promote the Part 4 purpose.

g. The Commission should therefore rule out abandonment of the ex-ante FCM principle, which has underpinned the regulatory framework since its inception. The Commission should also avoid any reallocation of long-term demand risk that materially increases the stranding risk faced by suppliers.

53. In relation to the options canvassed by the Commission, we recommend that:

a. The Commission allow suppliers to propose the economic life of new and existing assets at each price reset (i.e., Options A and B should both be adopted);

b. The Commission should adopt approaches to front-load the recovery of costs (Option C), including:

i. methodologies that would align the depreciation allowance to natural gas demand more closely than the straight-line method; and

ii. removal of RAB indexation to avoid unnecessarily back-loading the recovery of costs.

c. The provision of an ex-ante allowance for stranding risk (Option D) would be less preferable than Options A, B and C. The uncertainty over the inputs required to estimate the ex-ante allowance could result in the allowance being set too high or too low to compensate suppliers for ex-ante stranding risk. This could result in windfall gains or losses to suppliers and consumers.

d. The Commission should rule out any reallocation of long-term demand risk from consumers to suppliers—for instance, by allowing some assets to be removed from the RAB if demand drops sufficiently (Option E). Any such reallocation of risk may undermine incentives for suppliers to invest prudently and efficiently in gas network assets that are necessary to support consumers through New Zealand's energy transition. Under-investment would ultimately be to the long-term detriment (rather than the long-term benefit) of consumers.

3 Assessment of the options proposed in the Consultation paper

54. The Consultation paper outlines five options for possible changes to the IMs that would apply to gas pipeline businesses that the Commission is considering (summarised below in **Figure 2**).

Figure 2: Overview of the options considered in the Consultation paper

1. Maintain existing allocation of risk	2. Re-allocate some risk from consumers to suppliers

• **Option A** – Allow suppliers to propose the economic life for new assets consistent with GAAP at the time of each reset
• **Option B** – Allow suppliers to propose revisions to the economic life for existing assets consistent with GAAP at the time of each reset; and
• **Option C** – Front-load the recovery of costs, for instance by:
  • changing the method for profiling depreciation from the straight-line approach to an alternative approach; and/or
  • some other means (e.g., removing RAB indexation).
• **Option D** – Maintain the ex-ante real FCM principle and provide compensation to suppliers ex-ante for stranding risk (e.g., through an additional cash flow allowance akin to the stranding risk allowance provided for in the Fibre IMs).
	• **Option E** – Allow ex-post removal of stranded assets from the RAB, while providing some ex-ante compensation for stranding risk.
	  • Suppliers would receive an ex-ante allowance for stranding risk.
	  • However, once demand for the assets falls sufficiently low, the assets would be removed from the RAB.

Source: Frontier Economics analysis of Consultation paper.

55. The first four options (i.e., Options A to D) would involve maintaining the existing allocation of long-term demand risk between consumers and suppliers but would allow changes in the way regulatory allowances are set in response to emerging stranding risk. These four options are not mutually exclusive in the sense that the Commission could adopt one or more of the options.

56. Option E would involve some re-allocation of long-term demand risk away from consumers to suppliers by exposing gas pipelines to the risk of having unutilised (or under-utilised) assets removed from the Regulatory Asset Base (RAB), if demand falls sufficiently.

57. For the reasons explained in section 2, we think that it is essential that the Commission continue to provide strong incentives for gas pipeline businesses to make the future investments necessary over the next several decades to support consumers in their transition to a decarbonised economy. Any changes to the regulatory framework that would increase the stranding risks faced by suppliers may undermine those incentives and cause long-term detriment to consumers. Therefore, we think that Option E should be ruled out by the Commission.

58. We note that when the Commission established the first set of Input Methodologies in 2010, it considered carefully how RAB values should be determined and rolled forward from one regulatory period to the next. The Commission decided that it would not adopt an approach that would periodically revalue the RAB using replacement costs—for example, using the Optimised

Deprival Value (ODV) method that had previously been applied to update the value of suppliers' asset values over time—partly because the scope for regulated assets to be 'optimised out' of the RAB under a replacement cost approach may undermine investment incentives and therefore not promote the Part 4 purpose. For instance, the Commission stated that:

> *In addition, rolling forward RAB values using some form of replacement cost-based approach can potentially result in poor investment incentives. The majority of EDBs still do not support undertaking periodic replacement cost-based revaluations on an ongoing basis under Part 4, and for similar reasons.*[15]

59. And that:

> *In fact, Powerco's response to the Chair's question highlighted the concern that undertaking future ODV revaluations to roll forward the RAB may itself result in poor investment incentives. It was this type of submission, including earlier submissions from Powerco, that led the Commission to remove the requirement for periodic ODV revaluations in 2008.*[16]

60. In our view, the Commission's decision against a replacement cost approach to revalue suppliers' RABs periodically, in order to preserve investment incentives, was sound. Option E, which would result in the optimisation of suppliers' RABs to remove underutilised assets, would have the same poor incentive properties as the replacement cost approach that the Commission decided against in 2010. For precisely the same reasons that the Commission rejected a replacement cost approach to revaluing suppliers' RABs, we think the Commission should also reject Option E now.
61. The remainder of this section provides our assessment of Options A to D.

3.1 Options A and B – Allowing suppliers to propose the economic life of new and existing assets

62. The first two options proposed by the Commission are the following:
    a. **Option A** – Allow suppliers to propose the economic life for new assets consistent with GAAP at the time of each reset; and
    b. **Option B** – Allow suppliers to propose revisions to the economic life for existing assets consistent with GAAP at the time of each reset.
63. The Consultation paper defines the economic life of an asset as follows:

[15] Commerce Commission, *Input methodologies (electricity distribution and gas pipeline services), Reasons Paper* (2010 IMs Reasons paper), December 2010, para. 4.3.82.

[16] *2010 IMs Reasons paper*, para. F4.31

> *The economic lifetime of an asset is its expected useful lifetime. It depends on how the asset is used, demand for the asset, and under what conditions it is typically replaced.*[17]

64. The Consultation paper goes on to explain (correctly, in our view) that the economic life of an asset may be shorter than its physical life:

> *When we first set the Gas IMs in 2010, we noted that as a "standard approach, physical lives are the best, most objective proxy for economic lives". An asset's expected physical life is the expected life that an asset will be available to meet its original purpose. In supporting our decision at the time, we noted that in "most cases physical lifetimes will be in line with economic lifetimes" and that there was no "specific justification" for assuming shorter economic assets lives at the time. We acknowledged the risk that "market changes" in the demand for natural gas could result in the economic life of gas pipeline assets being shorter than physical asset lives.*
>
> *In Gas DPP3 we concluded that our assumption that physical asset lives are a reasonable proxy for economic lives is no longer appropriate for many gas pipeline assets.* [18]

65. In our view, it is the expected economic life of a regulated asset, rather than its expected physical life, that should determine the period over which the cost of that asset should be recovered from consumers. This is because the expected economic life of an asset is the period over which the asset is expected to generate economic returns. If the regulator allows the cost of the assets to be recovered over the expected physical life, but the expected economic life is shorter than the expected physical life, then then a proportion of the RAB would (in expectation) remain unrecovered and therefore stranded.

66. Consider, for example, a regulated asset with a current RAB value of $100 million, an expected physical life of 50 years and an expected economic life of 40 years. If the annual depreciation allowance for this asset was set using the straight-line method over the expected physical life, the supplier would be provided with a depreciation allowance of $2 million per annum. Over the expected economic life, the supplier would be expected to recover only $80 million, leaving a $20 million of RAB stranded since no demand would be expected to exist beyond year 40 to allow full recovery of the RAB. In order for the supplier to face no ex-ante risk of stranding, a depreciation allowance of $2.5 million per annum (over a 40-year expected economic life) would need to be provided.

[17] *Consultation paper*, para. 3.27.

[18] *Consultation paper*, paras. 3.29 and 3.30.

67. The approach of setting the depreciation allowance in line with the expected economic life is a standard approach followed by regulators, including regulators of gas pipelines.[19] As such, we support the Commission's proposed Options A and B.

68. The Consultation paper notes that the Commission could adopt Options A *and* B together so that asset lives for new assets commissioned during each regulatory period also reflect economic asset lives when they are added to the RAB.[20] However, the Consultation paper suggests that it may be unnecessary for the Commission to take the same approach for new and existing assets.[21]

69. In our view, there are strong reasons why the Commission should allow suppliers to propose the economic life of new and existing assets at each reset (i.e., the Commission should adopt Options A *and* B together).

    a. We agree with the Commission that suppliers are likely to be best placed to estimate the economic life of regulated assets at the time of those assets being commissioned, so allowing suppliers to propose the economic life of new assets "may result in lives that better reflect economic asset lives than the current approach."[22] However, we also think that suppliers are well-placed placed to estimate the economic life of existing assets. Hence, allowing suppliers to propose the economic life of existing assets (with supporting evidence), for the Commission to assess and approve, is likely to better reflect economic asset lives than the existing approach.

    b. The investments in existing assets were made by suppliers under the clear expectation that they would be provided with an opportunity to recover the full cost of those assets (i.e., that the Commission would apply the ex-ante FCM principle when regulating those assets). The simplest way to achieve this would be to align the asset life assumption for existing assets to the economic life of those assets. Since the economic life may change over time as market conditions change, suppliers should in our view have the ability to propose an adjustment to the asset life assumption to align with the latest estimate of economic life at each reset.

    c. If the Commission were to not adopt Options A and B together, then different asset life assumptions may be applied to identical assets, depending on whether they were built historically or whether they are expected to be built in the forthcoming regulatory period—even though both assets in reality would have the same expected economic life. We can see no good reason for such inconsistencies.

    d. 'New' assets will in future regulatory periods become 'existing' assets. Suppliers making forward-looking investment decisions may not be sufficiently incentivised to invest in new assets, even if Option A were adopted, if the ability to align the asset life assumption with the economic life of the assets would be lost once those assets become sunk and treated as existing assets (i.e., if Option B is not also adopted). The Commission made a similar point during the 2016 IMs review, when it rejected the 'split cost of capital' approach. Under that approach, the Commission would apply a lower WACC allowance to existing assets than to new investments. The Commission noted that investors' decisions about whether to commit

[19] We provide several examples of regulators determining the return of capital (i.e., the depreciation allowance) using the expected economic life (rather than the expected physical life) of the regulated assets in the following report: Frontier Economics, *Economic life for the purposes of setting the regulatory depreciation allowance*, 9 September 2022.

[20] *Consultation paper*, para. 3.73.

[21] *Consultation paper*, para. 2.17.

[22] *Consultation paper*, para. 3.74.

capital depend on outcomes over the full lifetime of the asset, rather than how those investments would be treated under the regulatory framework in the short-term:

> *The incentive to invest depends on an investor's expectation of a return over the lifetime of an asset. This will in turn depend on implementation of any split cost of capital approach and the confidence with which investors expect the arrangements to endure.*[23]

e. Applying different treatments to existing and new assets would also add unnecessary complexity to what is intended to be a 'low cost' (i.e., low burden) regulatory framework. The introduction of unnecessary complexity was another reason why the Commission rejected the split cost of capital approach during the 2016 IMs review.[24]

70. For these reasons, we support the adoption of Options A *and* B by the Commission.

71. In relation to Options A and B, the Consultation paper suggests that:

> *In both cases it may be necessary to apply a wash-up at the next price reset to ensure the long-term effects of changes in the time profile of depreciation are Net Present Value (NPV) neutral with respect to the WACC.*[25]

72. It is not clear to us why an ex-post wash-up would be required if Options A or B were adopted. Both options involve potential adjustments to the assumed economic life of the regulated assets in the supplier's RAB. Adjusting the asset life assumption would have the effect of reprofiling the expected recovery of the RAB (via the depreciation allowance) in an entirely NPV-neutral way. That is, as shortening of the asset life assumption would bring forward (speed up) the recovery of the RAB. Conversely, a lengthening of the asset life assumption would push back (slow down) the recovery of the RAB. In both instances, exactly the same asset value in NPV terms would be recovered over time. Since an adjustment of the assumed economic life of the assets is NPV-neutral, we see no reason why a wash-up mechanism would be required.

3.2 Option C – Front-loading cost recovery

73. The third option (**Option C**) proposed in the Consultation paper is to front-load the recovery of costs, for instance by:

a. changing the method for profiling depreciation from the straight-line approach to an alternative approach (e.g., diminishing value/declining balance, tilted annuity or sum-of-digits); and/or

[23] Commerce Commission, *Input methodologies review decisions, Topic paper 4: Cost of capital issues, Reasons Paper*, (2016 IMs Reasons paper), 20 December 2016, para 684.2.

[24] *2016 IMs Reasons paper*, para. 682.1.

[25] *Consultation paper*, para. X41.

b. some other means (e.g., removing RAB indexation).

74. One concern the Commission has expressed about the existing allocation of risk is that if gas demand falls substantially in future, the prices borne by remaining consumers may need to rise sharply. This may encourage more consumers to switch away from using natural gas, thus deepening the cost recovery problem/stranding risk faced by suppliers and increasing the cost burden on remaining consumers. This is sometimes referred to as the 'death spiral' problem.

75. In our view, this problem could be ameliorated by the Commission front-loading the recovery of costs, when demand for gas is relatively high. This would result in current consumers paying slightly more today (commensurate with the current utilisation of the networks) while leaving fewer costs to be recovered in future from a relatively smaller pool of residual consumers—thus reducing the cost burden on those future users. The price shocks faced by current consumers would be minimised by spreading the increased recovery of costs over a relatively large consumer base.

76. Hence, a key advantage of the alternative depreciation methods identified by the Commission is that they all allow the depreciation allowance to be reprofiled to align with demand, thus minimising price shocks and the burden on future consumers, who are likely to be the most reliant users of natural gas. We therefore support the Commission exploring alternative depreciation methods further.

77. In our view, the Commission should also give serious further consideration to the removal of RAB indexation for gas pipeline businesses. We have previously explained in a separate report how and why the removal of RAB indexation could help manage the stranding risk faced by gas pipeline businesses.[26] As we set out in that report, the effect of RAB indexation is to push more cost recovery into the future. This means that more costs will need to be recouped from a smaller and smaller pool of future consumers, thus raising the cost burden on each future user.

78. Removal of RAB indexation would arrest this problem, reduce the size of the future RAB that could become stranded and allow costs to be recovered more quickly by gas suppliers through the depreciation allowance.

79. The Commission has been reluctant to remove RAB indexation on the grounds that it provides protection to consumers and suppliers against inflation risk:

> *Some stakeholders submitted that removing RAB indexation could address the issue. We note that, while RAB indexation backloads the recovery of capital, therefore increasing the value at risk of stranding, the central purpose of RAB indexation is to maintain the regulatory value of the RAB in real terms over time, which provides an expectation of real FCM and delivers an ex-post real return (things other than inflation being equal). In doing so, it protects consumers and suppliers from inflation risk. The frontloading of cashflows achieved by removing RAB indexation could also be achieved through alternative depreciation profiles. However, removing RAB indexation would expose consumers and suppliers to inflation risk.* [27]

[26] Frontier Economics, *The case for a nominal returns framework for regulated gas networks in New Zealand*, 27 August 2021.

[27] *Process and Issues paper*, para 5.177.

80. The Commission is correct that RAB indexation protects consumers and suppliers against inflation risk, so removing RAB indexation would also result in the removal of this protection. However, we note that:

    a. The benefits to consumers and suppliers of protection against inflation risk are unlikely to be greater than the benefits of addressing the stranding risk and cost recovery problems identified by the Commission. This is because inflation risk (i.e., the risk that actual inflation turns out to be higher or lower than the Commission's forecast) is likely to be symmetric.[28] However, the potential consequences of asset stranding are entirely asymmetric and very large for consumers if not managed properly.

    b. The Commission has applied an approach of no RAB indexation to Transpower since 2010. If the Commission considers that it was appropriate in Transpower's case to remove the protection against inflation risk (given the unique circumstances that were faced by Transpower) it is unclear why similar reasoning would not justify the removal of RAB indexation for gas suppliers—given the unique circumstances faced by the gas industry at the present time.

81. The Consultation paper notes that the front-loading of cost recovery could be achieved in a more precise and controlled way using alternative depreciation approaches (better reflecting the using of assets over their economic lives) than the removal of indexation.[29] We agree with that point. However, we do not think that the Commission should view the removal of RAB indexation as an alternative to other approaches it might adopt to front-load cost recovery. Rather, we suggest that the Commission view the removal of RAB indexation as a complement to other approaches it might implement to front-load cost recovery and manage the asset stranding risk faced by suppliers *by preventing the unnecessary back-loading of costs*.

82. In our view, the Commission should consider Option C (including the removal of RAB indexation) as a complement to (rather than a substitute for) Options A and B. That is, the Commission should consider adopting Option C in addition to Options A and B. We note that because the removal of RAB indexation would result in less backloading of cost recovery, less frontloading of costs would needed in order to manage stranding risk.

3.3 Option D – Ex-ante compensation for stranding risk

83. The fourth option (**Option D**) proposed in the Consultation paper would be to include a mechanism in the IMs that would provide for ex-ante compensation to gas pipeline businesses if necessary to support an expectation of ex-ante FCM.

84. It is somewhat difficult to understand how Option D differs from Option E, which the Consultation paper explains would involve removing from the RAB any under/unused assets but would "need to apply in conjunction with an ex-ante compensation allowance (Option D) consistent with the ex-ante FCM principle."[30] Our interpretation is that:

    a. Under Option D suppliers would be provided with an ex-ante allowance, but that there would be no risk of assets being removed from the RAB if they were no longer required to deliver regulated services. In these circumstances, presumably some other mechanism (such as the

[28] If the Commission considers that the risk is asymmetric, that would imply its methodology for forecasting inflation is biased and therefore requires correction.

[29] *Consultation paper*, para 3.79.

[30] *Consultation paper*, para. 3.113.

acceleration of depreciation) would need to be implemented to allow suppliers an opportunity to recoup the cost of any such assets. That is, under Option D, asset stranding risk would be addressed partly via an additional ex-ante allowance and, if necessary, by adjustment of the depreciation allowance. As discussed below, this would be similar to the approach used by the Commission in the 2020 Fibre IMs and would preserve the ex-ante FCM principle.

b. Under Option E suppliers would be provided with an ex-ante allowance for bearing stranding risk. If some regulated assets become under/unutilised, they would be removed from the RAB with no adjustment to the depreciation allowance to provide an opportunity for full cost recovery.

85. The Consultation paper indicates that the level of any ex-ante allowance would not be specified in the IMs. Rather, the IMs would specify a methodology that would be implemented by the Commission at each price reset to compute the level of ex-ante compensation that might be required at that time.

86. The Consultation paper notes that one method that could be used to determine the ex-ante allowance is the 'Dixit and Pindyck' approach adopted by the Commission in the Fibre IMs. The Fibre IMs provide regulated fibre networks with a specific ex-ante cash flow allowance designed to provide the suppliers with (some) compensation for (non-systematic) stranding risk. This ex-ante allowance was:[31]

a. set entirely on a forward-looking basis, rather than retrospectively;

b. specified as 10 basis points per annum;

c. implemented through the regulatory cash flows rather than an uplift to the WACC allowance;

d. applied to the whole RAB to determine a 'stranding allowance'; and

e. permitted the option for the Commission to shorten asset lives in future (or make other adjustments to the regulatory depreciation profile) if required.

87. A critical point is that the approach adopted in the Fibre IMs did not reallocate long-term demand risk between consumers and suppliers. This is because the Fibre IMs still allow "for the possible shortening of asset lives (or alternative depreciation profiles)" *in addition to* the ex-ante stranding risk allowance.[32] That is, under the Fibre IMs, consumers continue to bear most of the long-term demand risk. The application of an ex-ante asset stranding allowance (in addition to the ability of the Commission to adjust the profile of regulatory depreciation) simply helps smooth prices over time. This approach seems consistent with Option D proposed in the Consultation paper.

88. Conceptually, the approach used in the Fibre IMs to determine the ex-ante stranding allowance involves estimating the expected (i.e., probability-weighted) stranding amount, and then solving for the 'risk margin' that would just (in expectation) make the supplier whole against stranding.

89. In principle, a similar approach could be applied to gas pipeline businesses.[33] However, we see two main challenges associated with setting an ex-ante stranding allowance:

[31] Commerce Commission, *Fibre input methodologies: Main final decisions – reasons paper* (Fibre IMs Reasons paper), 13 October 2020, pp. 541-542; Attachment G.

[32] *Fibre IMs Reasons paper*, para. 6.984.2.

[33] Indeed, CEG has used this method to estimate a 'stranding risk premium' for gas pipeline businesses. See CEG, *Stranding risk depreciation vs uplift*, August 2021.

a. The inputs to the calculation of the ex-ante allowance (the probability of stranding, the proportion of the RAB that may become stranded, and the number of years until stranding occurs) are highly uncertain.[34] The use of Commission judgment to calibrate these inputs would be unavoidable and the final choice of inputs may be highly contentious.

b. Due to the uncertainty over the inputs to the calculation, there is significant scope for mis-estimation of the ex-ante allowance. That is, if the Commission over-estimates the probability of stranding, the stranding amount or how quickly stranding occurs, then suppliers would be provided with more compensation than would be required to recover their efficient costs. Conversely, if the Commission under-estimates the probability of stranding, the stranding amount or how quickly stranding occurs, then suppliers would receive less compensation than would be required to recover their efficient costs and some assets would be stranded.[35]

90. The scope to mis-estimate the ex-ante allowance could result in windfall gains or losses to suppliers and consumers.[36] We do not think that such windfall gains or losses would promote the Part 4 purpose. By contrast, adjustments to the regulatory depreciation allowance (e.g., by altering the estimated economic life of the assets or reprofiling the depreciation allowance to match expected demand) would be entirely NPV-neutral, with no scope for windfall gains or losses. For these reasons, we suggest that Options A, B and C would be preferable to the adoption of Option D.

3.4 Conclusion

91. In relation to the options canvassed by the Commission, we recommend that:

a. The Commission allow suppliers to propose the economic life of new and existing assets at each price reset (i.e., Options A and B should both be adopted);

b. The Commission should adopt approaches to front-load the recovery of costs (Option C), including:

i. methodologies that would align the depreciation allowance to natural gas demand more closely than the straight-line method; and

ii. removal of RAB indexation to avoid unnecessarily back-loading the recovery of costs. The back-loading of cost recovery could place a higher burden on those consumers that face the highest costs associated with switching away from natural gas.

c. The provision of an ex-ante allowance for stranding risk (Option D) would be less preferable than Options A, B and C. The uncertainty over the inputs required to estimate the ex-ante allowance could result in the allowance being set too high or too low to compensate suppliers for ex-ante stranding risk. This could result in windfall gains or losses to suppliers and consumers, potentially undermining section 52A(d).

[34] The Commission recognises this point at para. 3.102 of the Consultation paper.

[35] Under Option D, the risk of under-compensation for stranding risk could be ameliorated by also adjusting the depreciation allowance. However, this would add complexity to the regulatory framework. Under Option E (which we recommend should be ruled out by the Commission), suppliers would bear stranding losses if the Commission were to under-estimate the required ex-ante allowance.

[36] The scope for windfall gains or losses arises due to the ex-ante nature of the allowance, and the need to make highly uncertain assumptions when estimating the level of the required allowance. This shortcoming would apply to any approach that might be used to set an ex-ante allowance and is therefore not particular to the approach adopted by the Commission in the Fibre IMs.

d. The Commission should rule out any reallocation of long-term demand risk from consumers to suppliers (Option E). Any such reallocation of risk may undermine incentives for suppliers to invest prudently and efficiently in gas network assets that are necessary to support consumers through New Zealand's energy transition. Under-investment would ultimately be to the long-term detriment (rather than the long-term benefit) of consumers.

4 Other measures the Commission might consider

92. The previous section assessed the various options proposed in the Consultation paper for allocating long-term demand risk and managing stranding risk. This section discusses a number of other measures that the Commission might consider.

4.1 Better information to help consumers plan

93. The source of the Commission's concerns about the current allocation of long-term demand risk between consumers and suppliers seems in part to be an information problem—i.e., consumers did not understand properly the consequences of the current allocation of long-term demand risk, and exposure to long-term demand risk (in an environment of uncertainty about future demand) may have a chilling effect on the investments that consumers might make.[37]

94. In our view, the appropriate response to that problem would be for the Commission to provide consumers with better information. Specifically, the Commission:

    a. Should explain more clearly to consumers (via this IMs review as well as accessible fact sheets and other information-sharing materials) the benefits they receive in exchange for bearing more long-term demand risk. These benefits are discussed in section 2; and

    b. Could, at each price review (or within a regulatory period, via Asset Management Plans), provide consumers with an indication of the gas network price path that could be expected over future regulatory periods, if the current cost recovery profile were to continue, and if the Commission's demand forecasts turn out to be accurate. This could be done by extending the financial model used by the Commission to make price-quality determinations to cover several future regulatory periods. Such information would assist consumers plan their own future investment and consumption decisions, including deciding if/when they wish to switch away from natural gas.

4.2 Informed limits on annual price adjustments

95. During the gas DPP3 reset, the Commission decided to accelerate the regulatory depreciation allowances of the gas suppliers but limited annual real price increases to 10% per annum. This effectively capped the extent to which cost recovery could be brought forward for each gas supplier.

96. The 10% limit on real price increases was a matter of Commission judgment. It was not informed by any evidence on consumers' willingness to pay.

97. Nor is the Commission's suggestion that it should reconsider the existing allocation of long-term demand risk between consumers and suppliers informed by any evidence on consumers' willingness or ability to pay. It could be that the last consumers to switch away from gas are highly

[37] *Process and Issues paper*, paras 5.158, 5.168-5.169.

reliant on gas (e.g., because their switching costs are high) and, therefore, they have a relatively high willingness to pay. The Consultation paper does not consider this possibility.

98. Therefore, the Commission could consider undertaking robust willingness to pay studies, including studies that investigate the willingness to pay of different types of consumers (e.g., households, industrial users, businesses, etc.). These studies could be undertaken at each IM review and used to determine the maximum annual price increases that would be allowed in future price reviews. That is, depreciation would be accelerated (in an NPV-neutral way) to the extent that the maximum price increase (willingness to pay) allowed it. Alternatively, the Commission could set an expectation that suppliers would explain how considerations about consumer willingness to pay has informed their pricing proposals in the annual pricing methodologies submitted by suppliers.

99. It would be important to refresh these studies periodically (e.g., at each IM review) since the mix of consumers (and, therefore, the willingness of those consumers to pay for regulated gas services) would likely change over time as users transition away from gas. The publication by the Commission of the maximum annual price increases that would be permitted in upcoming resets would provide consumers with some certainty over future price adjustments.

4.3 Other mechanisms for managing price volatility and the cost burden on future users

100. There may be a range of other mechanisms that could be used to manage price shocks and the cost burden on future consumers, including:

    a. Adjustments to tariff structures. That is, tariffs could be restructured to recover more costs in future from those consumers with the highest willingness and ability to pay, and to smooth prices for those consumers with the lowest willingness and ability to pay. The willingness to pay studies referred to above could inform these adjustments.

    b. The Government could provide targeted assistance to those users with the lowest willingness or ability to pay, since it is principally Government action (through implementation of net zero commitments and policies) that is the driver of change in gas consumption patterns. Of course, since such Government support is beyond the scope of the regulatory framework, it cannot be reflected by the Commission in the IMs. However, when amending the IMs the Commission should be alive to the fact that there are solutions available beyond the regulatory framework—so a radical reallocation of long-term demand risk between consumers and suppliers may not be required.

4.4 Conclusion

101. There are a number of IM changes apart from those considered in the Consultation paper that could provide consumers with more long-term certainty and help consumers plan their own investment and consumption decisions. For instance, the Commission could:

    a. Explain clearly to consumers the benefits they receive in exchange for bearing long-term demand risk, and the reasons why it is important that the Commission maintain the ex-ante FCM principle. The Commission has suggested that consumers may not have a clear understanding of the rationale for the current allocation of risk between consumers and suppliers. If that is so, the provision of better information by the Commission to consumers would be a more appropriate response than pursuing a fundamental reallocation of risk that may distort investment incentives and harm consumers over the long-term.

b. At each price review, provide consumers with an indication of the long-term price path that could be expected if the current cost recovery profile were to continue into the future.

c. Periodically undertake and publish robust willingness to pay studies to inform the limits on price increases when adjusting the recovery of costs in responses to changes in long-term expected demand.

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