



SUBMISSION

Part 4 Input Methodologies Review 2023

Draft Decision



Executive Summary

This is Firstgas' submission on the Commission's draft decisions in the 2023 IMs Review. Our submission is focused on the Commission's draft decisions on cost of capital, and particularly WACC percentile and asset beta used for gas pipelines.

Predictability in approach to cost of capital issues is particularly important

Cost of capital is, from an investor's perspective, the most critical input into the regulatory building blocks model. Investors' expectations for a normal return on capital are vital to the continued financeability of the business, and to our ability to invest for the long-term benefit of consumers. Investors reasonably expect that the WACC IM will be predictable and stable, and that changes to WACC parameters will principally reflect changes in market risk, rather than changes in estimation methods. That expectation is relevant to achieving the s 52A purpose because investors choose to invest in gas pipeline services in the expectation of a normal return over the life of the assets, not over a single regulatory period or 7-year IMs review period.

That is not to say that the Commission is prevented from amending its methodology. The IMs Review is obviously intended to provide an opportunity to do that. But the Commission should only amend the WACC IM with adequate justification and evidence supporting the need for change. The predictability that is needed to maintain investment incentives requires the Commission to properly explain, justify and support with evidence a proposed change in the WACC IM. Conversely, the Commission undermines investment incentives if it simply changes its mind on a matter on which it has previously opined without reference to a change in policy, evidence, or circumstances.

The Commission's own decision-making framework recognises that by setting a threshold for change in similar terms to that described above. The Commission acknowledges that "*when considering proposed IM changes, we must therefore be mindful of the importance of predictability, which plays a role in providing suppliers with incentives to invest in accordance with section 52A(1)(a)*".¹ We agree.

Making changes without new supporting evidence undermines predictability and stability

The Commission's draft decisions on cost of capital fall short of that threshold, and lack the rigorous justification and evidence that s 52A demands. For example, having set a WACC percentile above the midpoint in 2010, defended it in 2014, and reaffirmed it in the 2015/16 IMs Review, the Commission is now proposing to change to a midpoint WACC for gas pipelines on the basis of three and a half pages of discussion. The Commission offers no new evidence in support of its draft decision, and in fact acknowledges that there is no empirical support for a shift to a midpoint WACC. Essentially, the Commission has simply changed its mind on the basis of the same evidence that was available to it in 2010, 2014 and 2015/16. That is worrying because it signals to investors that the return on capital is subject to potentially idiosyncratic decision-making from time to time rather than changes in circumstances that warrant a different approach.

The risk in making such a significant change without taking advice or undertaking sufficient analysis is that the reasoning offered in support of the proposal may turn out not to be well-founded. And that is the case here. As our submission and the accompanying Oxera report explain, the Commission has made a series of assumptions in its reasoning that do not survive close scrutiny.

Gas pipelines face higher systematic risks in New Zealand than electricity networks

Stepping back from the detail, the Commission has applied a series of adjustments that results in a vanilla WACC for gas pipeline services (7.07% at current market rates) that is lower than the vanilla WACC for EDBs (7.12%). That is despite the Commission's acknowledgement, over multiple reviews of the IMs, that gas pipeline services face higher systematic risk than electricity lines services. It simply cannot be the case that investment in gas pipelines is less risky than electricity networks given the context of the energy transition, decarbonisation, and uncertainty on the future role of gas in New Zealand's energy mix. This is a strong indicator that aspects of the Commission's draft decisions are incorrect. From the perspective of an investor looking to deploy their marginal dollar, we do not believe that the Commission's regulatory WACC would justify investing in gas pipelines.

This is all against a background of an uncertain policy environment and investment headwinds for gas pipelines that will make it increasingly challenging for GPBs to attract capital. Meanwhile, gas remains an important part of New Zealand's energy mix and has a crucial role in supporting the transition to a low-carbon future. The Commission's draft decisions will unequivocally have a negative impact on investment

¹ Commerce Commission, *Part 4 Input Methodologies Review 2023: Framework paper*, 13 October 2022 at [2.24].

incentives at a point where maintaining those incentives is critical to delivering a service that meets the needs of New Zealand consumers.

The final decisions can better reflect investment conditions and impacts by applying an uplift to the WACC percentile or increasing the gas asset beta uplift

The evidence we present in this submission (and the accompanying report from Oxera) demonstrate that:

- the WACC estimate should remain at the 67th percentile for gas pipelines. The economic impact of gas outages are of a similar scale as electricity outages given the value of assets involved; and
- an asset beta uplift of 0.10 is more appropriate once daily betas are considered and recent trends in relative beta movements are taken into account.

Correcting these issues would result in a regulatory WACC for gas pipelines that better reflects the underlying risk involved in committing capital to the sector. That outcome is clearly important in achieving the purpose of Part 4, and also better enables gas infrastructure to play its necessary role in the energy transition by maintaining the reach and quality of service provided to consumers.

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1. Introduction

First Gas Limited (Firstgas) welcomes the opportunity to submit on the Commerce Commission's (Commission) draft decisions in the 2023 Input Methodologies (IM) Review. We are making this submission on behalf of our gas transmission business (GTB), gas distribution business (GDB) and our electricity distribution business (EDB), Firstlight Network. Firstlight Network is a member of Electricity Networks Aotearoa (ENA) and we support ENA's submission on the draft IMs review decisions. Nothing in this submission is confidential.

1.1 Structure of this submission

The structure of this submission is as follows:

- Part 2 discusses the relevance to the draft decisions of the s 52A purpose statement and the Commission's decision-making framework;
- Part 3 explains that the Commission's draft decisions do not result in a commercially reasonable WACC;
- Part 4 outlines our concerns with the Commission's approach to WACC percentile for Gas Pipeline Businesses (GPBs);
- Part 5 assesses the Commission's approach to estimating asset beta;
- Part 6 notes the implications of the Commission's draft decisions for the Firstlight (Eastland) Electricity Distribution Network;
- Part 7 discusses other aspects of the draft decisions with which we disagree; and
- Part 8 records our conclusions and recommended next steps.

1.2 Supporting Material

Together with Vector and Powerco, Firstgas commissioned Oxera to review the Commission's draft decisions on cost of capital issues for GPBs². We comment on this work in Section 3 of this submission, and refer to it elsewhere where appropriate.

The Gas Infrastructure Futures Working Group (GIFWG), of which Firstgas is a member, has made a submission on 19 July 2023³ in the form of a letter and the Working Groups Gas Transition Analysis Paper.

We reference these reports where relevant in this submission.

1.3 Contact details

For any questions regarding our submission, please contact:

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General Manager, Customer and Regulatory

[REDACTED]
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² Oxera, *Response to the New Zealand Commerce Commission's draft decision for Part 4 Input Methodologies Review 2023 on the cost of capital relating to the gas sector*, 19 July 2023

³ Letter to the Commerce Commission 'Joint gas network submission on the draft input methodologies'

2. Part 4 purpose statement and the Commission’s decision-making framework

We believe that the draft decisions fall short of fulfilling the intended purpose of Part 4 of the Commerce Act for GPBs. Under s 52A of the Act, the purpose statement requires that the suppliers of regulated goods or services —

“ s 52A(1)(a): have incentives to innovate and to invest, including in replacement, upgraded, and new assets; and

s 52A(1)(b): have incentives to improve efficiency and provide services at a quality that reflects consumer demands; and

s 52A(1)(d): are limited in their ability to extract excessive profits.”

The Commission gives effect to these limbs of the purpose statement via the real Financial Capital Maintenance (FCM) principle, which provides that regulated suppliers should have an ex ante expectation of maintaining their financial capital in real terms over the life of the assets (i.e. return of capital via depreciation and a “normal” return on capital). If the FCM principle is properly implemented, then suppliers will be incentivised to invest but equally will be limited in their ability to extract excessive profits.

Investment incentives are also relevant to s 52A(1)(b) because investment is required to provide services at a quality that reflects consumer demands. “Quality” in this context extends beyond simply those quality measures or standards that the Commission chooses to regulate for and extends to all non-price aspects of the service that reflect consumer demands, including the reach of the service and innovation in how the service is provided.

The Commission argues that if it determines a WACC at the true cost of capital, businesses will have an incentive to invest and asserts that the midpoint WACC is the best, unbiased estimate of the true cost of capital of the regulated business. However, the Commission also recognises that, while the true WACC may be higher or lower than the midpoint estimate, there are asymmetric consequences for consumers from under-estimating versus over-estimating the true WACC. This is the Commission’s asymmetric risk principle.

Both the real FCM and asymmetric risk principles were endorsed by the Court in *Wellington International Airport Limited* as appropriate elaborations of the statutory purpose statement.

The Commission’s “decision-making framework”

The Commission’s review of the IMs is guided by its decision-making framework. This decision-making framework was developed through public consultation and sets out how the statutory purpose statements above are given effect to by the Commission when reviewing the IMs. Specifically, the framework states that the objectives of an IM review are to:⁴

- promote the Part 4 purpose in s 52A more effectively;
- promote the IM purpose in s 52R more effectively (without detrimentally affecting the promotion of the s 52A purpose); and
- significantly reduce compliance costs, other regulatory costs, or complexity (again, without detrimentally affecting s 52A).

In accordance with the decision-making framework, the Commission states that it will consider the following matters when determining whether to review an IM and, if so, whether to amend that IM:

⁴ *Part 4 Input Methodologies Review 2023: Framework paper*, at [3.12].

- whether the IM's objective is still valid and consistent with s 52A;
- whether there is evidence that the current IM is no longer promoting s 52A, or that a change would better promote s 52A; and
- whether there has been a change in external circumstances in a way that disrupts the assumptions underlying the original policy decision, or means the IM is no longer achieving its policy intent; for example, changes in the industry or economic theory or practice.

Where the Commission decides to review and amend an IM, the decision-making framework provides that it should be able to justify that change with reference to a change in policy, effectiveness, evidence and/or external circumstances. Conversely, the decision-making framework means that the Commission should not amend an IM simply because it has changed its mind in relation to an earlier decision but without reference to any new evidence or change in policy or circumstances.

The importance of regulatory certainty, predictability and stability to achieving the s 52A purpose

An important aspect of FCM is the ex ante expectation that regulated suppliers earn normal returns on network assets over the life of those assets. Given the long-lived nature of gas network assets, regulated gas businesses and their investors make investment decisions with an expectation of what the regulatory regime will provide in terms of returns over the economic lives of those assets, rather than over a single regulatory period.

Therefore, application of the FCM principle requires that regulated suppliers' ex ante expectation of maintaining financial capital (i.e. the return of capital via depreciation and on capital via the WACC) exists in the relevant regulatory period and all regulatory periods that follow. This is crucial to ensure that regulated suppliers continue to be incentivised to invest in their networks, thereby achieving the s 52A purpose statement. Predictability and stability of the cost of capital settings over time is key to maintaining this expectation, and therefore investment, across regulatory periods.

The need for predictability and stability of the regulatory settings to incentivise investment and achieve the s 52A purpose statement has been recognised by both the Commission and the courts.⁵ The Commission's decision-making framework states:⁶

2.23 It is clear that Parliament saw the promotion of certainty as being important to the achievement of the purpose of Part 4. This is to an extent implicitly inherent in section 52A (for example, providing regulated suppliers with incentives to invest in accordance with section 52A(1)(a) requires recognition of the role that predictability plays). It is also expressed in the section 52R IM purpose, in section 52T, and in other aspects of the regime.

2.24 When considering proposed IM changes, we must therefore be mindful of the importance of:

2.24.1 predictability, which plays a role in providing suppliers with incentives to invest in accordance with section 52A(1)(a); and

2.24.2 the IMs' role in promoting certainty.

We are concerned that the Commission's draft decisions in relation to cost of capital do not properly implement the s 52A purpose or reflect the Commission's own decision-making framework. The Commission's decision to move from the 67th percentile to the midpoint WACC is not justified with reference to any new evidence, empirical analysis, or change in policy or circumstances. Rather, the Commission appears to have simply changed its mind with reference to essentially the same evidence base that was available when it made its initial decisions in 2010 and 2014. This is inconsistent with the decision-making

⁵ See, for example, *WIAL v Commerce Commission* at [213] to [221] and [687].

⁶ *Commerce Commission, Part 4 Input Methodologies Review 2023: Framework paper*, 13 October 2022 at [2.23] to [2.24].

framework. Moreover, given WACC is critical to investment incentives, suppliers reasonably expect that the Commission will offer a robust justification and persuasive evidence before changing its position.

Investors invest in regulated services on the basis of their expectation of returns to capital over the life of assets, not just over a single regulatory period, or septennial IMs review period. The absence of proper justification and evidence undermines the predictability and stability that is important to achieving the s 52A purpose because it signals to investors that returns to capital may be at risk of idiosyncratic decision-making from period to period.

3. Commission’s approach does not result in a commercially reasonable WACC

The Commission argues that its cost of capital IM results in a commercially reasonable WACC in part because of evidence that regulated assets are trading at multiples of RAB. But:

- the Commission’s reliance on limited examples in the market is misplaced; and
- a better cross-check of the reasonableness of the GPB WACC is the relativity between the EDB WACC and the GPB WACC that results from the Commission’s draft decisions. It is not plausible that GPBs will have a lower vanilla WACC than EDBs given the relative risks of investing in those businesses.

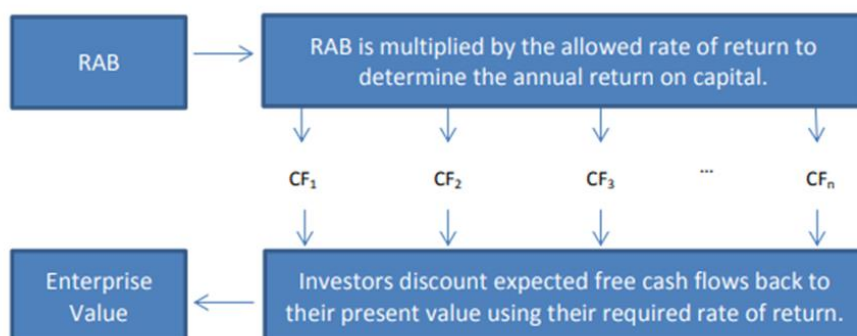
We believe that simple cross-checks indicate that elements of the Commission’s draft decisions on cost of capital need to change to achieve the purpose of Part 4 for GPBs.

3.1 Limited Application of RAB Multiple or Market to Asset Ratio Concept

Market-to asset ratio or RAB (regulated asset base) multiple measures the ratio of the market value (MV) of the regulated business to the value of the RAB.

$$\text{Market to Asset ratio/RAB multiple} = \frac{\text{Market Value of Regulated Business}}{\text{Regulated Asset Base}}$$

As the market value of the regulated business is equal to the net present value of future cash-flows of the regulated business, discounted at the cost of capital; the equation can be re-written to show the direct relationship between the regulatory allowed rate of return and investors’ expected cost of capital. The Commission explains the relationship in the following diagram⁷.



The following diagram illustrates the underlying relationship between RAB, the allowed rate of return, the actual cost of capital and enterprise value. The diagram assumes that there are no other sources of free cash-flow such as expected efficiency savings or growth opportunities which would result in larger expected free cash flows and therefore a larger estimate of enterprise value.

In this paper, the Commission also referred to Grant Samuel’s independent expert’s report⁸ relating to APA Group’s proposal to acquire the Australian gas distribution company Envestra. The report notes:

“...most assets generally trade at a premium to RAB. The precise reasons for this are uncertain but contributing factors probably include:

- expectations of volume growth above the levels used by regulators (at least until the next regulatory reset).
- expectations of savings relative to the level of operating and capital costs assumed by regulators.
- a cost of capital less than that assumed by regulators. Reasons for this might include:

⁷ Commerce Commission, *Amendments to the WACC percentile for price-quality regulation for electricity lines services and gas pipeline services: Reasons paper*, 30 October 2014 at [C12].

⁸ Grant Samuel, *Financial Services Guide and Independent Expert’s Report to the Independent Board Subcommittee in relation to the Proposal by APA Group*.

- *benefits from tax efficient structuring.*
- *the benefits of diversification. Most of the listed entities own a number of different assets which dilutes the exposure to any one asset in terms of operating and regulatory risks.*
- *use of higher levels of gearing than regulators assume (60%).*
- *long term funding at rates lower than current or expected regulatory determinations.*
- *growth options that may be available to an entity and reflected in its market capitalisation.*

The Commission used the RAB multiple for the sale of Firstlight (Eastland) Network as evidence that the 67th percentile has provided adequate incentives for investment but discounts the fact that the transaction (at higher than 1 RAB multiple) might have other underlying contributing factors. In fact there are well-known reasons why a regulated electricity business might have an enterprise value in excess of its RAB, including the benefits of diversification, growth expectation due to increasing electrification, achieving efficiency through reduction in operating costs, and the value of unregulated business opportunities (either present or future).

We refer the Commission to the submission made by our shareholders at the last IMs review in 2016.⁹ That submission describes a range of other potential contributors to RAB multiples above 1 that are equally applicable to the draft decisions. In contrast, we see no evidence that the RAB multiple observed in the recent Firstlight transaction indicating that the regulatory WACC is too high due to the allowance of an uplift in the WACC percentile.

3.2 Not plausible that GPB vanilla WACC is lower than EDB vanilla WACC

One of the consequences of the Commission's changes to its approach to estimating WACC for GPBs is that the GPB vanilla WACC in the draft decisions (7.07% at current market rates) is lower than the vanilla WACC for EDBs (7.12%). As a common sense cross-check that is not a plausible outcome:

- the Commission's framework has always recognised that gas pipelines services face more systematic risk than electricity lines services because: (i) gas has a higher income elasticity of demand, (ii) and the risk of economic network stranding due to a drop in economic activity is higher. Those factors still apply today.
- the risk of economic network stranding has increased since the Commission first determined the WACC IM in 2010, as shown by the Commission's recent decision in the Gas DPP reset.

Against that background, it is difficult to understand how the Commission has arrived at a GPB WACC that results in less compensation for investors than for electricity lines services. Put another way, an investor making a decision to invest their marginal dollar would be more likely to invest in electricity lines services than gas pipeline services because the risk-adjusted return on capital from investing in electricity lines services is higher. This operates to disincentivise investment in gas pipeline services, contrary to s 52A(1).

Given that capital is fungible, we encourage the Commission to review the outcome of its WACC decisions across regulated industries to ensure that final WACC decisions reflect the relative level of risk investors face when investing their capital.

3.3 These cross-checks suggest the Commission's draft decisions on the GPB WACC IM are flawed

Overall, the Commission's methodology results in an estimate of WACC for GPBs that is commercially unreasonable. In our view that is because:

⁹ See, [First-State-Investments-Submission-on-IM-review-draft-decision-Cost-of-Capital-4-August-2016.pdf](https://www.comcom.govt.nz/first-state-investments-submission-on-im-review-draft-decision-cost-of-capital-4-august-2016.pdf) (comcom.govt.nz)
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- the Commission has incorrectly set the WACC at the midpoint rather than retaining the 67th percentile; and
- the Commission's approach to estimating asset beta for gas pipelines does not represent the best estimate of asset beta.

We expand on these points in the next section of our submission.

4. The Commission’s draft decision on WACC percentile does not best give effect to s 52A purpose statement

The Commission has proposed reverting from the 67th percentile to the midpoint WACC estimate for GPBs. In summary, the Commission’s reasoning is that the main purpose of the uplift is to avoid outages from under-investment and: (i) gas pipelines are more reliable than electricity networks, (ii) outages are less costly, and (iii) other reasons offered in support of an uplift are not relevant to WACC percentile. However:

- the Commission has not obtained new evidence that supports a change in its view on the appropriate percentile for gas pipelines, but has rather simply changed its mind on the basis of the same evidence that it accepted in 2014 in support of an uplift. That does not meet the threshold the Commission has set itself in its decision-making framework, and undermines the predictability and stability in the WACC methodology that is essential to maintaining investment incentives over multiple regulatory periods;
- the asymmetric risk principle adopted by the Commission and endorsed by the Court has broader application than merely avoiding outages and extends to, for example, incentivising continued investment to maintain the reach and quality of gas pipeline services through the energy transition;
- the Commission has understated the consequences of gas outages for consumers;
- unlike electricity distribution, there are no ex post mechanisms that provide an alternative source of investment incentives;
- gas pipelines face significant headwinds to further investment and so any reduction in the WACC percentile – mathematically – must adversely affect incentives to invest at a critical juncture in the lifecycle of the regulated service;
- It remains open to the Commission to lower the WACC percentile at a future point once it has obtained sufficient evidence supporting that decision. But if it incorrectly lowers the percentile now, the reduction in investment incentives will negatively affect consumers over the long-run. The asymmetric risk principle therefore favours waiting until the Commission can be sufficiently confident in the consequences of its decision to adjust the percentile.

4.1 The Commission’s draft decision on WACC percentile

The Commission has reduced the GPB WACC percentile from the 67th to 50th percentile in reliance on its view that:

- an uplift is not required to incentivise investment in reliability; and
- investments other than for reliability are better targeted via ex post mechanisms.

Importantly, the Commission has not obtained any new evidence in support of its draft decision that a WACC uplift is not required. Rather, the Commission has simply re-evaluated its existing evidence, and offered an “in-principle” justification without empirical support.

4.2 No new evidence justifying a change in approach

The Commission’s decision-making framework for the IMs review emphasises that the Commission will not amend an IM simply because it has changed its mind in relation to a matter it has previously considered and determined. Rather, the Commission will review and change an IM if it is satisfied that:

- the policy intent underpinning the IM has changed, or

- the IM is no longer achieving the policy intent,

in each with regard to new evidence, updated economic theory, or changes in external circumstances.

The Commission has not sought or referred to any new evidence supporting a change in approach on the WACC percentile used for gas pipelines. Rather, it has simply changed its mind against the backdrop of the same evidence that it believed warranted an uplift in 2014. Notably, the Commission also defended an uplift in the High Court proceedings in 2010.

Because the Commission has not undertaken any theoretical or empirical analysis of the implications of its current WACC uplift for gas pipelines, it is not in a position to assess the consequences of changing to the midpoint. As described in this submission, reducing incentives to invest in gas pipeline services will have real implications for the reach and quality of the regulated service. For the Commission to now change its position, it needs to undertake an assessment of impacts.

In the cost of capital topic paper, the Commission states:

“As discussed above, the loss model that we used in deciding to use the 67th percentile was developed solely with reference to electricity outages. In 2014 we decided to apply the uplift to GPBs on the basis that gas pipelines are sufficiently similar to electricity networks that the same arguments apply.

The reason the loss model is based on electricity outages is that there is established literature on the cost of electricity outages. Oxera drew on this literature in 2014. We are not aware of any studies on the economic costs of outages to consumers of gas”

Furthermore, in the same paper the Commission asserted:

“Having reconsidered the available evidence, we believe that there are two respects in which gas is likely to differ from electricity:

6.105.1 the cost of electricity outages relative to the cost of gas outages; and

6.105.2 the likelihood that under-investment will go undetected and that this undetected under-investment will lead to outages is likely lower for gas.”

In general we consider that the Commission is saying it is revisiting the same evidence available in 2014, but has reached a conclusion, based on that same evidence, that GPBs should be differentiated from EDBs. This differentiation is driven by the Commission’s assertion that gas networks have better reliability and lower impact outages than expected for EDBs.

Given the significant impact of moving to a midpoint WACC, we think the Commission is obliged to undertake more considered analysis before making this decision. It is notable that the Commission acknowledges that it has no empirical basis for estimating the effects of gas outages on consumers.

The Commission’s decision-making framework explains that the Commission will only change an IM where a change is justified. It follows that the Commission should not change an IM – particularly an IM as critical to investor expectations as the WACC IM – simply because it has reviewed the evidence that was available to it in 2010 and 2014 and has now formed a different view. That undermines the predictability and stability that is essential to the maintenance of investment incentives.

4.3 Asymmetric risk principle has broader application than merely avoiding outages and extends to investments to maintain reach, quality and innovation

The Commission asserts that the asymmetric risk principle is mainly about avoiding outages, and therefore the issues raised by Oxera on behalf of First Gas are not relevant to percentile.

While the Commission has tended to focus on consumer losses from outages, that is not the only asymmetric risk of under-investment. The principle articulated in the Commission’s reasons papers has broader application: any investment that benefits consumers is relevant to WACC percentile if the forgone benefits of that investment would exceed the disbenefit of higher prices in the short term. The Court endorsed that broader principle in *Wellington International Airport Limited v Commerce Commission*. And the Commission has in the past considered other asymmetric consequences of under-investment; for example the timing of technology change in relation to Chorus’ copper UBA and UCLL services. The Commission’s statement now that WACC percentile is only a matter of outages has no theoretical or empirical support.

Gas will continue to be a critical component of New Zealand's energy mix for the immediate future. For so long as consumers are willing to pay for the service, it is important that suppliers are incentivised to invest. Investments that are valued by consumers include: (i) maintaining the reach of the service, (ii) maintaining the quality of the service, noting that there are aspects of service quality that extend beyond reducing outages, and (iii) continuing to innovate to extend the life of the regulated service within the framework of New Zealand's climate change policy (e.g. exploring the potential of biogas and hydrogen to displace natural gas usage). The Government has made clear that it wants suppliers of gas pipeline services to assure customers that the service will continue to be available for so long as it is needed.

Examples of First Gas investing to maintain the reach of the service while the current regulatory settings have applied include:

- Tauriko growth: First Gas developed a new delivery point near Tauranga to support increased demand for gas to support the installation of a major new wallboard manufacturing plant.
- Gilbert Stream Realignment: First Gas relocated gas transmission pipelines to avoid coastal erosion and maintain the availability of service for the long term.
- Kiwirail is building a new train station at Drury near Auckland, located over the existing 200 pipeline. Realignment of the pipeline is required to circumvent the area of major development and construction activity for expected population density and growth. The new pipeline will be suitably designed or high density regions and adequately protected.

Examples of First Gas investing to maintain the quality of the service while the current regulatory settings have applied include:

- Undertaking a number of projects (40 in 2022 alone) to reinforce the reliability of our existing network, including the business-as-usual Intelligent Pigging programme, heater refurbishments and work to combat identified obsolescence.
- Investments to support network optimisation, including modernising our compressor fleet, which reduces emissions and results in more efficient use of gas.
- Utilising innovative approaches and technology such as a Street Evaluating Laser Methane Assessment (SELMA) to proactively identify and address pipeline defects adding real value to our inspection, monitoring, and maintenance of the network.

Examples of First Gas investing to support innovation while the current regulatory settings have applied include:

- Establishing our Future Fuels team as part of our commitment to the further development and delivery of our renewable fuels strategy. We are investing in New Zealand's first large-scale biogas upgrading facility (a non-regulated investment) and have been planning for our hydrogen blending trials to establish how existing gas infrastructure can be used to transport green hydrogen. This strategy increases the sustainability of the gas pipeline service and increases the lifespan of the regulated service within the framework of the New Zealand Government's climate change goals.
- Developing an approach to estimate more accurately the sources of methane emissions from all our assets with a view to identifying the major contributors and developing solutions to these issues. These solutions are currently being planned for delivery over the coming years and the impact of these improvements demonstrates that a 30% reduction target is achievable. This work has been adopted through the Ministry for the Environment's latest emissions factors for gas transportation assets.¹⁰

¹⁰ Ministry for the Environment, *Measuring Emissions: A guide for organisations 2023 detailed guide*, July 2023 at section 3.5. environment.govt.nz/assets/publications/Measuring-Emissions-Guidance-DetailedGuide-2023_ME1764.pdf

- Changing the Cello system for telemetry to communicate on our distribution networks (which use 2/3G cellular technology). These networks are retiring, prompting the need to upgrade the fleet. In addition to the Cello units the server and platform to support the Cello units is obsolete and no longer supported. The organisation is actively exploring options to update the data acquisition and analysis system for the Cello units promptly. The goal is to eliminate the need for purchasing the same type of Cellos and the associated monitoring and analysis systems in the future. The focus is on finding a more sustainable and modernized solution encompassing improved hardware and software design.

Before removing the WACC uplift the Commission needs to make a proper assessment of the potential implications for these categories before reducing investment incentives.

4.4 The Commission has understated the consequences of gas outages for consumers

Understanding gas outages and impacts on consumers

The Commission justifies its decision to reduce GPBs WACC to the 50th percentile (i.e., no uplift), while moving the percentile for electricity networks to the 65th percentile on the basis that:

1. The expected cost of outages is lower for gas users than electricity users, and
2. Evidence suggesting that gas networks are more reliable than electricity networks.

On the first point, the Commission considers that the expected cost of outages is lower for gas users than electricity users because for many, gas is a secondary energy source.¹¹ In our view, the evidence does not support that position. In reality most gas is consumed as a primary energy source. Most of Aotearoa New Zealand's gas is consumed by industrial consumers and electricity generators (89%). Commercial and residential consumption, where gas is more likely to be a secondary energy source, is relatively small (5.3% and 4.8% respectively).¹² To really understand the cost of gas outages, the Commission needs to understand the economic impact on industrial users. The Commission's second point, that gas networks are more reliable than electricity networks, is based on (i) the fact that "there are more studies on the costs of electricity outages than gas outages" and (ii) GPBs SAIDI and SAIFI results compared to EDBs SAIDI and SAIFI.¹³

The existence of more studies on electricity reflects the public interest in electricity outages

Our view is that a key reason that electricity outages receive more coverage and analysis than gas is electricity plays a central role in household energy use. This creates a strong degree of public and political interest in electricity reliability, as we saw in the 9 August 2021 electricity outage that affected approximately 34,000 consumers.

Public interest is not relevant to the Commission's task of setting an efficient cost of capital. Rather, the Commission needs to look at the underlying economic impacts of outages. While gas outages typically affect a relatively small number of industrial energy users, there is nothing to suggest the economic impact is any less significant.

SAIDI and SAIFI measures have limited application to GPBs

The Commission relies on the use of SAIFI and SAIDI measures to assert that GPBs outperform EDBs on reliability.

We understand the figures used were taken from the FY2021 performance summaries for gas and electricity distributors and that SAIDI and SAIFI results were averaged across GDBs and EDBs. The formula was divided by 1000 for GDBs to bring the formula in line with the comparable formula for EDBs.

- The Commission's use and comparison of SAIDI and SAIFI values to demonstrate greater reliability of gas networks compared to electricity networks and the comparative risk of underinvestment is unpersuasive for several reasons: GTBs do not report SAIDI / SAIFI meaning a substantial part of

¹¹ Commerce Commission, *Part 4 IM Review 2023 Draft decision: Cost of capital topic paper*, 14 June 2023 at [6.106].

¹² Ministry of Business, Innovation and Employment, *Gas Data for 2022*. <https://www.mbie.govt.nz/building-and-energy/energy-and-natural-resources/energy-statistics-and-modelling/energy-statistics/gas-statistics/>

¹³ *Part 4 IM Review 2023 Draft decision: Cost of capital topic paper* at [6.107].

New Zealand's GPB assets have been excluded from the Commission's analysis. While the same is true for Transpower in relation to the electricity industry, it is particularly important in the context of gas since gas transmission forms a significant part of the GPB asset base overall, for which the change in regulatory settings is proposed.

- SAIDI and SAIFI are typically used in the power sector to measure the reliability of electricity distribution networks. That is not the case for gas. While SAIDI and SAIFI can be calculated for gas distribution networks, these measures are not directly comparable to electricity distribution networks, particularly when determining relative reliability, due to some fundamental differences between the two types of networks. These differences include:
 - Nature of the product: unlike electricity, where demand and supply must be matched in real time, gas can be more readily stored. Therefore, supply interruptions might not be as immediately disruptive for customers.
 - Continuity of service: gas is typically supplied continuously, and interruptions are relatively rare. Thus, SAIDI and SAIFI may not provide a meaningful picture of a gas network's reliability.
 - Underground infrastructure: SAIDI values are generally much lower in gas than in electricity because they are not as exposed to weather events and overhead power cables.
- Other regulators rely on a range of different metrics in their incentive regimes to measure the performance of gas networks, such as customer satisfaction or shrinkage and environmental emissions.¹⁴ This suggests that relying purely on the comparison of SAIDI and SAIFI values is insufficient to indicate the performance of gas networks relative to electricity networks.
- The Council of European Energy Regulators (CEER) has stated that “[e]ven though the gas indicators are borrowed from the electricity sector, they should not be interpreted the same way” indicating that SAIDI and SAIFI values are suggestive of different things in relation to gas and electricity networks.¹⁵

SAIDI and SAIFI averages do not reflect the significant consequences of low frequency, high consequence events

There are good reasons why gas networks appear more reliable when measured using averages like SAIDI and SAIFI, including the following:

- the gas industry has a strong safety culture given that gas explosions (if they occur) pose high risks including to human life and property,
- well designed, constructed and maintained gas pipelines have high structural integrity, and
- gas industry engineering design and construction practices are mature.

However, such averages do not adequately deal with low frequency high consequence events. Best practice risk assessment makes clear that it is important to consider the combined impact of both the probability and the consequence of a risk occurring. The overall risk rating of a low probability event could be high if there is large adverse consequence flowing from the event.

For example, the consequences of low probability but significant gas pipeline outages can be high and take long periods to be repaired. We set out examples of these types of events below.

The Maui Pipeline Outage 2011

The 2011 Maui pipeline outage resulted in a critical contingency period of five days with economic losses estimated at \$200 million in 2012, equating to approximately \$255 million in 2023. The Ministry of Business, Innovation and Employment's (MBIE) review of the outage found that the gas users affected by that outage included “electricity generators, hospitals, milk processing plants, bakeries, restaurants, and industries reliant on process heat or steam from gas fired boilers.” The effects of the outage were mainly economic, resulting from lost production due to the five-day contingency event. The effects were mitigated by the utilisation of the smaller Kapuni pipeline to sustain domestic and critical loads. While there was discussion in the review of the

¹⁴ Refer to Oxera's Report, Section 4A.

¹⁵ [CEER Benchmarking Report 6.1 on the Continuity of Electricity and Gas Supply 20 July 2018](#)

potential for some industrial consumers to install back up energy supply (e.g. Fonterra), it is unclear to what extent this has been pursued. Without the Kapuni pipeline, the effects would have been larger and felt for much longer.

The 2011 Maui pipeline outage was the result of an overload caused by landslide movement at the Pukearuhe site. MBIE's review noted that Aotearoa New Zealand's gas supply is highly dependent on the Maui pipeline, which traverses unstable land north of Taranaki. The gas supply chain continues to be vulnerable to the risk of earth movement. As the risk and nature of climate related events change, other risks will start to threaten that supply chain.

Esso Longford 1998

Victoria was left without its primary gas supplier following the explosion and two-day fire at the Esso Longford plant in 1998. Within days, VENCORP shut down the State's entire gas supply. The resulting gas shortage was devastating to Victoria's economy, crippling industry and the commercial sector (in particular, the hospitality industry which relied on natural gas for cooking). Loss to industry during the crisis was estimated at around A\$1.3 billion at the time.

As natural gas was also widely used in households for cooking, water heating and home heating, many Victorians endured 20 days without gas, hot water or heating.

This suggests a similar order of economic cost to that estimated for the Maui pipeline outage, given the Esso Longford outage was four times longer and the Victorian gas system is a similar size to New Zealand's.

Varanus Island 2008

Australia also suffered what was known as the Western Australian (WA) gas crisis in 2008. This was a major disruption to natural gas supply in Western Australia caused by the rupture of a corroded pipeline and subsequent explosion at a processing plant on Varanus Island, off the state's north west coast. The plant, operated by Apache Energy, which normally supplied a third of WA's gas, was shut down for almost two months while a detailed engineering investigation was undertaken, and major repairs carried out. Gas supply from the plant partially resumed in late August. By mid-October, gas production was running at two-thirds of normal capacity, with 85% of full output restored by December 2008.

For a State heavily reliant on continuous supply of gas for industrial processing, manufacturing, residential use and electricity generation, the sudden loss of almost 35% of gas supply had immediate social impacts, and significant short and long-term economic effects. Many businesses were forced to curtail or cease operations, resulting in workers being stood down or forced to take annual leave, and the Government requested that businesses and household conserve energy. An emergency coordination committee of Government and industry representatives rationed and redirected remaining gas supply sources. When many large gas users switched to diesel for power generation, the risk of a shortfall in transport fuel led to the Federal Government authorising the release of emergency fuel reserves stored at the Garden Island naval facility.

The incident raised significant public and political issues related to energy security, adequacy of existing infrastructure, contingency planning, and the role of regulatory agencies. The plant took three months to repair, although partial supplies were restored within six weeks of the explosion. The impact to the WA economy was estimated to be at least A\$2 billion, which again is a similar order of magnitude to the case studies from NZ and Victoria discussed above.

GDBs require long periods to relight

Part of the issue with gas outages, that distinguishes them from EDB outages, is the physics involved in re-lighting. In the case of electrical outages, once the issue leading to the fault is resolved the network can typically be re-energised relatively quickly, and shutdown can often be managed through battery back-up or UPS systems.

In the case of natural gas, the energy is delivered by the movement of physical molecules through pipelines, which is very different. In the case of GDBs, reduction of systems below minimum pressures can lead to unsafe conditions. If pressures fall too low, supply must be isolated at the consumer connection before re-livening the network. When reliable gas supply is restored, each consumer must be systematically reconnected and their individual appliance re-livened. Were gas delivery lost to a significant city (e.g. Auckland with 117,000 connected consumers), this would involve weeks to months involving loss of supply.

Such a scenario could lead to impact on vulnerable consumers who do not have the financial resources to swap to alternate fuel (e.g. converting to LPG or electrical appliances). It is also unlikely in such an event sufficient appliances or available trade resources would be available for rapid conversions in significant numbers.

Impact to networks and critical users is managed through regulation

Protection of gas distribution networks is so important in New Zealand, that a specific set of regulations exist under the Gas Act, the Gas Governance (Critical Contingency Management) Regulations 2008, to determine how load is shed from the gas system in the event of a supply restriction or interruption.¹⁶

Load shedding is managed by setting Curtailment Bands:

Curtailment Band	Consumption	Description
0		Gas Storage
1	> 15TJ/day	Consumers with alternative fuel capability supplied directly from the transmission system
2	> 15TJ/day	Consumers without an alternative fuel capability supplied directly from the transmission system
3	>10 TJ/annum and up to 15 TJ/annum	Large Industrial and commercial consumers
4	>250 GJ/annum and up to 10 TJ/annum	Medium-sized industrial and commercial consumers
5	>2 TJ/annum	Essential services designated consumers
6	< 250 GJ/annum	Small commercial customers
7	Any	Critical care designated consumers

(Note: Domestic consumers are not included in the curtailment bands)

During a critical contingency, any curtailment of gas consumption must occur in the order of the defined groups of consumer installations (curtailment bands). For example, curtailment band 0 is curtailed first and curtailment band 7 is curtailed last.

The regulations also specify the rights of certain users to apply for a designation. The purpose of a designation is to modify the curtailment arrangements as they apply to a consumer installation that needs to continue using gas in a critical contingency.

Groups that may apply for a designation include the following:

- **Critical Care:** Hospitals, primary health care, prisons, essential support for critical care providers, residential care or support of people with disabilities or people who are frail, dispensing medicine.
- **Essential Services:** Mortuary services, heat treatment of biohazards, municipal water supply, treatment of municipal sewage, cremation of human remains, emergency services; >2 TJ per year
- **Electricity Supply:** To start up or switch to generation plant that runs on fuel other than natural gas, or to synchronise a unit that provides ancillary services,
- **Critical Processing:** To avoid serious damage to plant, mitigate serious environmental damage, or prevent inhumane treatment of animals at an abattoir, commercial or industrial process that is underway, can be completely shut down within 18 hours, and for which an immediate shutdown would require disposal of dangerous or toxic chemicals or extensive operations and must be approved by the industry body as meeting specified criteria

¹⁶ Refer to Critical Contingency Operator information guide for further details, <https://www.cco.org.nz/publications/>

These regulations support the use of certain consumers retaining access to gas even when supply is severely constrained. Clearly, when considered in this context, gas is not a secondary fuel source for many consumers.

Present regulatory settings support investment

Firstgas has made substantial investment in projects to manage the risks that could lead to significant pipeline outages. By way of example, in the period 2017 to 2022, Firstgas completed over 67 projects worth approximately \$75 million, that targeted pipeline and compressor asset reliability and renewal to ensure supply reliability and avoid incidents of a similar nature to the 2011 Maui Pipeline outage.

One such project, involving a bypass of a pipeline feature discovered at Pariroa, was well publicised. Execution of the bypass was carefully timed for minimum load use with consumers ceasing use or switching over to alternate fuel for the bypass installation period.

Evidence that settings for investment are fit for purpose

In 2019 the Commission engaged an external expert (AECOM) to assess the risk management practices applied by GPBs against an internationally recognised risk management framework. These reviews covered both general risk management practices and the specific practices which Firstgas apply in managing the geotechnical risks affecting transmission pipelines.

In both cases the assessments found that the practices are appropriate to the risk. In particular, AECOM had the following to say:

“First Gas Transmission (FGL-TR) is approaching the level of risk management we believe to be best appropriate for such an organisation. We consider the current rating is commendable considering:

- *the organisation is very new, and has needed to implement changes to systems and approaches established by the previous networks owner to reflect the size of FGL and the relevant networks; and*
- *there is clear evidence of ongoing improvement activities.*

We were impressed by the demonstrated use of systems and risk principles to drive actions. We were also impressed with the clear evidence throughout the FGL offices that risk was a high priority with scheduled risk management workshops seen, incidental conversations regarding risk management overheard and risk management framework posters displayed in prominent places. We also observed that there was a strong culture of continuous improvement.”

“First Gas Distribution (FGL-DTR) is approaching the level of risk management we believe to be best appropriate for such an organisation. We consider the current rating is commendable considering:

The organisation is very new, and has needed to implement changes to systems and approaches established by the previous networks owner to reflect the size of FGL and the relevant networks.

There is clear evidence of ongoing improvement activities.

We were impressed with the clear evidence throughout the FGL offices that risk was a high priority, and that there was a good culture of continuous improvement.”

“...First Gas, in assessing their exposure to geotechnical risks, has:

- *made appropriate enquiries to understand and manage the risks;*
- *sought adequate expert advice where required;*
- *received advice that has adequately responded to the questions asked; and*
- *appropriate processes in place for monitoring identified risks”*

Importance of continuing to invest in infrastructure to support future development

Network reliability is affected by GPBs investment decisions. Uncertainty over whether we can expect to recover efficient costs, or an expectation that pipelines need to be wound down, would likely lead us to adjust our investment and operational decisions in ways that lead to lower reliability in the future. By relying on historical reliability, the Commission's draft decision does not appear to account for how future reliability could be change during the energy transition.

Indeed, as part of its recent analysis, the GIFWG explored what expenditure could look like under alternative transition pathways. Unsurprisingly, GPBs predicted that there would be a significant reduction in investment when faced with a network winddown. This would undoubtedly effect reliability outcomes.

Moreover, the GIFWG's current study into network rightsizing also sheds some light into how future reliability could change. The discussion above has focused on what we might term 'temporary' outages. These are situations where the intent of the GPB is to reinstate supply as quickly as possible. However, in a world where future demand is increasingly unclear, such outages could easily become 'permanent' if a GPB decides that it is uneconomic to reinstate supply. Such situations could be natural examples where decommissioning the affected section of the pipeline makes more sense than spending to keep it operational – that is, an opportunity to right size presents itself. Such a permanent outage would clearly have a much greater consequence for affected gas consumers than a temporary outage of the nature captured in the SAIFI and SAIDI measures considered by the Commission.

One theoretical example of a potential permanent outage that the Working Group has discussed is supply to Gisborne. At the end of a long transmission line, if a catastrophic event were to occur that disrupted supply to the region and the costs to restore it were significant, then the GPB may well decide that it does not make sense to restore it. Although consistent with good asset management, such a decision would obviously negatively affect gas consumers in Gisborne, even those that only rely on gas as a second energy source.

To be clear, we are not saying that we expect to make such decisions in the near term. Far from it. What we are suggesting, however, is that it is important for the Commission to look forward (not back) when assessing the risk and economic cost of gas outages. As the GIFWG is exploring, a transition to net zero by 2050 could significantly affect future investment and decommissioning decisions by GPBs that could meaningfully affect that risk. Decisions by the Commission on allowed rates of return should seek to avoid increasing that risk.

We note for completeness, that maintaining investment in gas infrastructure is also important because this infrastructure is vital for supplying renewable gases and supporting decarbonisation efforts – see section 3C of Oxera's report on this matter, and Section 7 of our submission this time last year on the draft framework paper.¹⁷

The Commission's draft decision penalises GPBs for investing in system reliability

As Oxera points out in its report,¹⁸ the fact that the Commission considers the reliability of GPBs to be better than that of EDBs and the data indicates it has been improving, should be rewarded, not penalised in a regulatory system. A perverse outcome from this draft IM decision would appear to be that the Commission is disincentivising, relative to current settings, GPB's investing to reduce the likelihood of gas outages.

If performance then worsens as a result before the next reset, this would presumably trigger a WACC increase. We do not see how such a setting change is in the best interest of consumers.

4.5 There are no ex post mechanisms to incentivise investment in gas pipeline services

The Commission differentiates between investment outcomes that can be readily targeted through ex post outcomes and those that are more amenable to incentivisation through ex ante mechanisms such as the WACC percentile.

EDBs are provided an uplift from mid-point WACC to the 65th percentile and under the quality incentive scheme, are also rewarded when they exceed pre-determined quality standards and vice versa. However, higher than mid-point WACC percentile is the only incentive available to GPBs, which the draft decision

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¹⁸ Refer to Oxera's Report, Section 3.

proposes to take away. GPBs continue to have only minimum quality standard measures in relation to emergency response times and interruptions.

Furthermore, the types of investments that might be forgone if regulated suppliers are under-incentivised are more amenable to an ex ante mechanism than an ex post mechanism because they cannot easily be identified in advance and made subject to an ex post incentive mechanism.

This coupled with uncertainty over the future of natural gas and the introduction of low carbon and renewable gases, means that a WACC percentile above the median point (or a higher asset beta) is the only tool available to GPBs to attract investment in their networks to ensure these standards are met.

Furthermore it also incentivises GPBs to invest in assets even though doing so may not necessarily result in Price-Quality Path outcomes.

As discussed above, the most significant gas outage in recent NZ history was the Maui Pipeline outage in October 2011. The impact of this event was significantly mitigated by the use of the smaller Kapuni pipeline, that runs in parallel to the Maui pipeline, to keep the downstream networks from being shut off. Had the Kapuni pipeline been unavailable, all gas supply would have likely ceased and the impact considerably increased in terms of cost and scope – likely of a similar scope to consequences experienced by the states of Victoria and Western Australia due to the Esso Longford and Varanus island events respectively.

The relevance of this is that investing in the Kapuni pipeline has no impact on the price-quality path, since an outage of the Maui pipeline would still qualify as a Major Interruption. Without an incentive, such as the 67th percentile of WACC or better, it makes little financial sense for GPBs to continue to invest in assets that provide some redundancy to reduce the impact on consumers from outages.

4.6 The Commission's decision reduces incentives to invest at a time when GPBs are facing substantial investment headwinds

The timing of the Commission's decision is particularly concerning given the significant headwinds for future investment in gas pipeline services.

A recent report from Goldman Sachs, a globally renowned investment banking, securities, and investment management firm, notes that:

“...the energy industry has been under-investing since the peak of 2014, with investments in traditional energy (oil, gas upstream) falling 61% from the peak and driving a 35% reduction in global primary energy investments, from US\$1.3trn in 2014 to US\$0.8trn in 2020. A number of oil and gas project investment decisions have been delayed since 2014.”¹⁹

The report also notes that:

“...the ongoing focus on de-carbonization (is) driving a higher cost of capital in oil & gas developments. The cost of capital for new clean energy projects continues on a downward trajectory, improving the affordability and competitiveness of clean energy. The shift to low carbon will continue, fuelled by a divergence in the cost of capital...”

It is unrealistic to believe that a reduction in WACC percentile from 67th to the 50th for the GPBs will not affect the level of investment in the sector and that investors will continue investing in the sector with heightened risk and reduced profitability. It is also impractical to believe that the businesses will be able to maintain the quality and reliability of supply that the Commission has acknowledged in the draft decision.

The shift in demand dynamics presents challenges for investors seeking profitable ventures in the gas sector. The financial returns that do not adequately compensate for the underlying risk in investment and unsupportive/disincentivising regulatory frameworks and policies play a significant role in pushing the

¹⁹ Goldman Sachs, *Carbonomics Security of Supply and the Return of Energy Capex*, 17 March 2022.

<https://www.goldmansachs.com/intelligence/pages/gs-research/carbonomics-security-of-supply-and-the-return-of-energy-capex/report.pdf>

investors away. Governments and regulatory bodies need to provide a stable and predictable investment environment, ensuring fair and transparent market conditions. Well-defined regulations that encourage the development of renewable gases, incentivize the use of gas infrastructure, and support the decarbonisation of the gas sector can bolster investor confidence.

Climate Policy Uncertainty and Investment Risk,²⁰ a report by International Energy Agency, clearly articulates the need for an adequate level of investments and supportive regulatory settings as:

“Getting the right type of investment in infrastructure for energy supply and consumption is a minimum requirement to enable the transition towards a sustainable energy system. One of the key tasks of climate change policy makers is therefore to create incentives to encourage the necessary investments to be undertaken. However, the translation of climate policies into clear investment signals is not straightforward. Energy infrastructure investments occur in a highly dynamic context, where climate policy is one of many different risk factors to take into account.

Policy uncertainty is an important example of how stated policy aims may not translate easily into investment action. Uncertainty has consistently been raised by business in discussion with governments and regulators as a cause for concern and a potential barrier to investment, as described in the quotes below.

.....Significant uncertainties that are unclear or unmanageable lead us to make decisions not to invest in projects affected by such uncertainties. One uncertainty that fits this description is the risk of adverse governmental laws or actions. In general, we choose to invest in markets where the regulator has made the commitment to develop rules that are transparent, stable and fair. The rules do not have to be exactly what we want, so long as we can operate within their framework. Consequently, we look for markets where the rules of competition are clear, encouraged and relatively stable. Source: Geoffrey Roberts, President & CEO, Entergy Wholesale Operations, U.S. Senate Hearing on S.764, June 19, 2012”

The report further states:

*“Effective policies are those that will not hamper the future energy demand and supply structure through creating unacceptable investment risks for firms that supply energy”.*²¹

Regulatory policy uncertainty is a potential source of idiosyncratic risk for GPBs. Regulations lacking in stability, credibility and predictability cause chaotic market conditions and raise financial instability not only of the regulated businesses but also for their financiers/financial institutions by creating unintentional systematic spillovers from exposures to the increased risk. Reduction in WACC percentile for GPBs is a classic example of this. A change in regulation should have been proposed after an explicit consideration of the impact on GPBs, their capital requirement (to maintain a reliable supply for the consumers) and investors’ appetite to invest in GPBs exposed to increasingly elastic demand combined with a heightened risk of asset stranding.

At the 50th percentile, the incentive to invest will be too low to attract investment to GPBs with increasing demand elasticity and asset stranding risk. Asset Stranding risk is not unique to New Zealand, it is looming over the international oil and gas sector and can have widespread impacts locally and internationally.

According to a study by UN Environment Program Finance Initiative, Climate Risks in the Oil and Gas Sector:

²⁰ See, [Climate Policy Uncertainty and Investment Risk - International Energy Agency](#).

²¹ Ibid, page 117.

“Over US\$1 trillion of oil & gas assets are at risk of becoming stranded, of which US\$600 billion are held by listed companies”²².

The potential costs from underinvestment in GPBs are material. Evidence from actual high impact low frequency events could result in an economic cost to economy way higher than the cost to provide a WACC uplift higher than the midpoint. Maui Pipeline outage is a classic example where one outage for 5 days was estimated to cost NZD 200m to the economy.

We expect that investors are adequately incentivised to maintain required level of investment in GPBs to enable a smooth transition to a green future. We suggest the Commission to afford economic principles that are positively impactful, stable over time, credible in implementation and predictable in evolution.

4.7 The Commission should apply s 5ZN of the CCRA when considering whether or not to apply a WACC uplift

The Commission has acknowledged that it can have regard to the Government’s 2050 net zero target, emissions reductions budgets and plans under s 5ZN of the CCRA, provided that taking account of those matters would not be inconsistent with the s 52A purpose. In the present context, s 5ZN supports resolving the question of WACC uplift in favour of retaining the 67th percentile given the role that GPBs have in supporting the transition to a low-carbon future.

Natural gas has a significant role to play in the shift to a low-carbon future. GPBs must have incentive to maintain the resilience and sustainability of their infrastructure in order to enable a smooth transition to renewable gases and establish a robust position in the energy businesses of the future. The viability and timing of a smooth transitioning to green energy resources including biomethane, green hydrogen, etc., depends to a large degree on the level of reliance that the New Zealand industry and peaking powerplants have on natural gas. Therefore, when formulating regulatory measures, it is imperative to consider the New Zealand industry’s reliance on gas as a primary source of energy, energy system’s dependence on gas peaking plant to manage winter peaks, and households dependence on gas as a primary or secondary source of energy during extreme weather events. Discouraging gas infrastructure investment (through unfavourable regulatory policies) would not be a prudent decision. It must be ensured that gas infrastructure is adequately maintained and optimised for the resilience of energy system and the integration of cleaner energy sources.

Obtaining the appropriate investment in gas infrastructure is essential to maintain quality of supply as well as is a crucial prerequisite for facilitating the transition towards a sustainable energy system. While the focus on the electrification and renewable energy sources is paramount, gas can play a significant role in the transition by continuing to meet the needs of energy consumers that still rely on gas, supporting the integration of intermittent renewables into the power grid, and maintaining reliable energy supply for hard to abate industrial processes, e.g., steel manufacturing, ammonia-urea production, methanol production, glass making. To continue reliable energy supply to the industrial and residential customers and enable a smooth transition to renewable energy, investments are essential in developing and upgrading gas infrastructure, including pipelines, storage facilities, and liquefied natural gas (LNG) terminals.

Strategic investments in gas infrastructure are essential to enhance the flexibility of the energy system, allowing for the integration of intermittent renewables. By developing and upgrading gas infrastructure, supporting the integration of renewable gases, and enabling the deployment of energy-efficient technologies, the potential of gas as a transitional fuel will be maximised while reducing its environmental footprint. Moreover, gas-fired power plants provide backup capacity during periods of low renewable generation, ensuring a reliable electricity supply. Additionally, investments in carbon capture and storage (CCS) technologies associated with gas-fired power plants can potentially enable the capture and sequestration of

²² See page 27, <https://www.unepfi.org/wordpress/wp-content/uploads/2023/04/Oil-and-Gas-Sector-Risks.pdf>.

carbon dioxide emissions, mitigating the environmental impact of gas use. In conclusion, securing the appropriate investment in gas infrastructure is crucial for providing a reliable energy supply to our customers as well as for the transition towards a sustainable energy system.

These investments would facilitate the efficient transportation, storage, and distribution of gas, ensuring a reliable and secure energy supply and ensuring an adequate return on investment is crucial for attracting investors to invest in gas distribution and transmission infrastructure, especially considering the declining gas demand.

4.8 ‘No regrets’ decision is to defer changing percentile until a future period

If the decision proceeds with its draft decision to revert to a midpoint WACC for GPBs, that will have an immediate and lasting impact on investment incentives. It will deter investment in the next regulatory period and, regardless of what decision the Commission makes at the next IM Review, it will have already signalled to investors that they cannot rely on the Commission maintaining the WACC percentile. In other words, a decision to adjust the WACC percentile now will have lasting effects on investment incentives.

Against that background, the Commission has to be confident that this is the right choice under the circumstances. In our view it has not done the analysis required to justify that choice.

However, the Commission can always revisit this decision at a future point once it has undertaken more analysis. In our view, therefore, the “no regrets” decision under the circumstances is to retain the 67th percentile in this IM Review and undertake further analysis in anticipation of the next review.

5. The Commission's approach does not result in the best estimate of asset beta

Asset beta is the other component of the cost of capital that we believe could be adjusted to reflect investment conditions that are specific to gas pipeline businesses. In this section we evaluate how asset beta estimation could be improved taking into account the impact of daily betas, the effects of Covid-19, and statistical differences between gas and electricity betas. Together these factors provide strong grounds for returning to an asset beta uplift of 0.10 above the beta estimate used for electricity networks.

5.1 Use of weekly and 4-weekly data (Low Frequency and Short Horizon Data)

The Capital Asset Pricing Model (CAPM) framework utilises historical returns to estimate systematic risk. CAPM states that the expected return of an asset is a function of its beta, representing its sensitivity to market movements, and the risk-free rate of return. The CAPM model supposes that the risk estimated by beta is stable and constant across time; hence it does not provide guidance on the specific time interval for measuring these returns, be it a day, a week, a month, or any other duration. Multiple researchers have provided evidence highlighting the significance of the choice of time interval and have demonstrated the presence of biases associated with different intervals.

Hawawini (2018)²³ demonstrated that betas measured over return intervals of arbitrary length will tend to be size biased. The betas of securities with a smaller market value than the average of all securities outstanding (the market) will decrease as the return interval is shortened whereas the betas of securities with a large market value relative to the market will increase. Their findings are congruent with the research findings put forth by Brailsford and Josev (1997)²⁴ Brailsford et al. (1997)'s findings indicate that the beta estimates of high capitalised firms fall, and the beta estimate of low capital firms rise as the return interval is lengthened.

Levhari and Levy (1977)²⁵ explored existence of a systematic mathematical bias that is a function of the horizon assumed in estimating CAPM. They demonstrated that any deviation from the 'true horizon' (which is unknown) causes a systematic bias in the regression coefficient. The systematic risk of defensive stocks ($\beta < 1$) tends to decline while that for aggressive stocks ($\beta > 1$) tends to increase with increases in the investment horizon. Smith (1978)²⁶ confirmed the proposition that estimates of beta increase (decrease) with intervaling for aggressive (defensive) stocks. The authors also acknowledge that their findings do not offer a definitive answer regarding the optimal interval choice for empirical research. The authors emphasised that if researchers have access to a database with frequent observations, there seems to be no valid reason to disregard or overlook any available information and not utilise it to its full extent. Agrawal, Gilbert and Harkins (2022)²⁷ analysed daily, weekly and monthly CAPM beta estimates over 1-year, 2-year and 5-year windows and concluded that there is no optimal combination. The authors conclude that the analysis leans towards shorter return intervals (daily or weekly but not monthly) and longer estimation periods (five years of returns). The prevailing approach adopted by the commission (leaning towards longer intervals) stands in stark contrast to the recommendations put forward by these academic researchers.

The Commission's current approach is calculating daily, weekly, and four-weekly asset betas but to give primary weight to the weekly and four-weekly values²⁸.

The Commission notes that daily asset beta estimates can be distorted by low liquidity stocks²⁹. However, the Commission also notes that the sample was reviewed for liquidity and an additional firm from CEPA's sample was removed³⁰. CEPA had analysed the sample for percentage days traded (illiquidity) and had dropped the companies for having a low percent of days traded³¹. Following the adjustment for illiquidity by CEPA and subsequently by the Commission, the sample should no longer exhibit any distortion in beta estimates (liquidity bias) resulting from illiquid stocks. Consequently, the mere presence of illiquid stocks should not be considered a valid reason to diminish the importance of daily betas or assign them less weight.

²³ Gabriel Hawawini (1983), *Why beta shifts as the return interval changes*, . Financial Analysts Journal.

²⁴ Timothy J. Brailsford and Thomas Josev (1997), *The impact of the return interval on the estimation of systematic risk*, Pacific-Basin Finance Journal.

²⁵ David Levhari and Haim Levy (1977), *The Capital Asset Pricing Model and the Investment Horizon*, The Review of Economics and Statistics.

²⁶ Keith V. Smith (1978), *The Effect of Intervaling on Estimating Parameters of the Capital Asset Pricing Model*, The Journal of Financial and Quantitative Analysis.

²⁷ Pankaj Agrawal, Faye W. Gilbert and Jason Harkins, *Time Dependence of CAPM Betas on the Choice of Interval Frequency and Return Timeframes: Is There an Optimum?*, Journal of Risk and Financial Management.

²⁸ Part 4 IM Review 2023 Draft decision: Cost of capital topic paper at [4.101].

²⁹ Part 4 IM Review 2023 Draft decision: Cost of capital topic paper at [4.102].

³⁰ Part 4 IM Review 2023 Draft decision: Cost of capital topic paper at [4.104].

³¹ CEPA, *Review of Cost of Capital 2022/2023: New Zealand Commerce Commission*, 29 November 2022 at section 2.1.2.

Cohen, Hawawini, Maier, Schwartz and Whitcomb (1980)³² demonstrated that betas of thinly traded securities rise as the return interval is lengthened whereas betas of high value securities and frequently traded securities fall. The Authors note weak serial correlation in individual securities' daily returns, with the proportion of securities yielding significant autocorrelations decreasing as the differencing (i.e., returns measurement) interval increases, and with predominantly negative sign for thin securities and positive sign for "thick" (high value) securities. The statement highlights that thin (illiquid) securities tend to exhibit predominantly negative serial correlation, indicating a reversal pattern. On the other hand, "thick" or high-value securities show predominantly positive serial correlation, suggesting a positive relationship between current and past returns, indicating a momentum effect. Having illiquid stocks excluded from the sample, momentum effect can be captured by using daily data or at least by assigning more weight to daily betas.

Moreover, daily returns exhibit stronger serial correlation or autocorrelation patterns compared to monthly returns, and it implies that the past daily returns may contain more relevant information or predictive power for forecasting future returns. The shorter time interval of daily returns allows for capturing more immediate market dynamics and potential patterns so the Commission's decision to give less weight daily betas should be reconsidered.

The Commission acknowledges that international evidence based on regulatory precedence and academic papers is ambiguous and notes that Australian Energy Regulator (AER), Queensland Competition Authority (QCA) and Economic Regulation Authority (ERA) use weekly estimates. QCA prefers weekly estimates over 4-weekly estimates because weekly estimates are based on large number of observations, are unlikely to capture statistical noise that might possibly be accompanied by higher-frequency (e.g., daily) return intervals and have lower standard errors³³. This is also true for daily estimates as daily estimates are based on a larger set of observations than weekly estimates resulting in lower standard errors. Brailsford and Josev (1997)³⁴ demonstrated that the standard error of the mean beta estimates rise as the return interval is lengthened. This finding is not unexpected as the number of observations used in the OLS regression decreases as the return interval lengthens given the fixed sample period. The Commission notes that Water Services Regulation Authority (Ofwat) uses daily data because it maximises the number of data points and allows for more precise and less volatile estimates³⁵. OFWAT's rationale for using daily data mirrors the findings of Brailsford et al. (1997). The Commission's estimates of standard errors also confirm that the daily beta estimates have consistently low standard errors.

Standard errors for the energy comparator sample, by period and frequency

	2007-12	2012-17	2017-22
Daily	0.11	0.12	0.11
Weekly	0.11	0.14	0.14
Four-weekly	0.11	0.11	0.16

Source – Cost of Capital issue paper – Table 4.2

The evidence of lowest and consistent standard errors suggest that greater importance or weight should be assigned to daily betas.

The Commission notes that a recent study of evidence implies that low-frequency beta estimates should always be preferred to high frequency beta estimates³⁶. The Commission referred to Gregory, Hua and Tharyan (2015),³⁷ providing evidence that low-frequency beta estimates should always be preferred to high-frequency beta estimates. On the contrary, Pham and Phuoc (2020)³⁸ demonstrated that CAPM using daily data yielded a statistically significant higher model fit and smaller beta standard deviation, model error, and Alpha compared with monthly data. Their findings also demonstrate that daily data is more reliable and efficient, has higher forecasting power, and fits better with the assumption of market efficiency compared

³² Kalman J. Cohen, Gabriel A. Hawawini, Steven F. Maier, Robert A. Schwartz, and David K. Whitcomb (1980), *Implications of Microstructure Theory for Empirical Research on Stock Price Behaviour*, The Journal of Finance.

³³ *Part 4 IM Review 2023 Draft decision: Cost of capital topic paper* at [4.106].

³⁴ Timothy J. Brailsford and Thomas Josev (1997), *The impact of the return interval on the estimation of systematic risk*, Pacific-Basin Finance Journal.

³⁵ *Part 4 IM Review 2023 Draft decision: Cost of capital topic paper* at [4.107].

³⁶ *Ibid*, at [4.102].

³⁷ Alan Gregory, Shan Hua and Rajesh Tharyan (2015), *In search of beta*.

³⁸ Chinh Duc Pham and Le Tan Phuoc (2020), *Is estimating the Capital Asset Pricing Model using monthly and short-horizon data a good choice?*, Heliyon.

with monthly data. These findings are also consistent with Chan and Lakonishok (1992)³⁹ and Brown and Warner (1985).⁴⁰

The Commission notes that weekly and monthly asset beta estimates lead to fewer observations that can affect the statistical significance of the results. The approach of averaging weekly and four-weekly betas across all possible reference days significantly reduces any concerns about a lack of observations for weekly and monthly estimates⁴¹. The Commission has not provided any empirical evidence on how their approach of averaging betas significantly reduces any concerns about a lack of observations and statistical significance of the estimates.

The Commission notes that they are not aware of any research evidence that has invalidated the findings by Gregory et.al (2015) that low frequency estimates should be preferred over high-frequency estimates⁴². We have provided references from academic papers supporting the use of high-frequency daily beta over low-frequency betas. We recommend that the Commission uses daily beta estimates or at least gives primary weight to daily beta estimates.

5.2 Dealing with the effects of Covid-19

The Commission notes that the average weekly asset beta for the first 10 weeks of COVID-19 (represented by the NZ lockdown period of 28 February 2020 to 13 May 2020) was 0.60⁴³. The first lockdown, starting on 25 March and ending on 13 May 2020, lasted precisely 7 weeks. However, it is noteworthy that the Commission's beta estimates during the Covid-19 period do not align with this exact duration. The Commission's decision to use data from February rather than March for analysis has not been accompanied by a clear explanation. It is important to understand the motivation and justification for selecting specific time periods (28 February instead of 25 March) in order to ensure the transparency and robustness of the analysis.

By including data from 28 February to 13 May, there is a likelihood of changed market dynamics during the COVID-19 pandemic within the period. These altered market dynamics can potentially compromise the reliability of the results obtained, as the underlying relationships and dynamics may have significantly changed between February and March 2020. The inclusion of this data in the beta estimation may disrupt the assumptions and relationships that the CAPM relies on, leading to potentially inaccurate estimates. It is crucial to exercise caution and consider the potential impact of these changed market dynamics when interpreting and utilizing the beta estimates based on February to May data.

Furthermore, it is worth noting that the Commission's utilisation of data from 28 February to 13 May, spanning 10 weeks, may not offer a robust foundation for reliable beta estimation. The limited number of observations available within this timeframe, whether it is 7 or 10 weeks, does not provide a sufficiently significant sample size for accurate beta estimates on a daily, weekly, or 4-weekly basis. Beta estimation relies on an adequate number of observations to effectively capture the relationships between an asset's returns and market returns. With a restricted time period, the small number of observations contributes to increased uncertainty and less precise estimates of beta coefficients. The Commission also notes less confidence on asset betas calculated over short periods:

.... "it is possible COVID-19 was not a systematic event and that the market has treated the COVID-19 period as having an anomalous effect on airports that was subsequently discounted. The weakness of this interpretation is that it relies on evidence from a short timeframe (12 months), and less confidence can be placed on asset betas calculated over short periods"⁴⁴.

The Commission has made adjustments to the betas to account for the impact of Covid-19. In determining an upper bound adjustment, the Commission assumes that a COVID-19-like event happens approximately once every 20 years and lasts for 18 months, which accounts for approximately 7.5% of the total time. When calculating the asset beta for a regulatory period, the pre-Covid-19 beta is assigned a weight of 92.5%, while the Covid-19 beta is assigned a weight of 7.5%⁴⁵. However, the Commission has not provided any

³⁹ Louis K. C. Chan and Josef Lakonishok (1992), *Robust Measurement of Beta Risk*. *The Journal of Financial and Quantitative Analysis*.

⁴⁰ Stephen J. Brown and Jerold B. Warner (1985), *Using daily stock returns: The Case of Event Studies*, *Journal of Financial Economics*.

⁴¹ *Part 4 IM Review 2023 Draft decision: Cost of capital topic paper* at [4.102].

⁴² *Ibid*, at [4.111].

⁴³ *Ibid*, at [4.119.2].

⁴⁴ *Ibid*, at [4.56].

⁴⁵ *Ibid*, at [4.62.3].

substantiating evidence to support the methodology used in these adjustments. The discretionary methodology employed in this case introduces increased uncertainty as it lacks precise repeatability.

It is important to note that the Commission's approach of assuming a COVID-19-like event occurs once every 20 years and lasts for 18 months, accounting for approximately 7.5% of the total time, may not accurately capture the frequency and duration of actual crises.

COVID-19 was a prime example of a systematic risk that had a profound impact on global financial markets. However, it is also important to note that an increase in systematic risk does not necessarily require another COVID-like event. Various crises and events can lead to heightened systematic risk and increased market volatility. For instance, the 2008's Global Financial Crisis (GFC) resulted in a surge of systematic risk as it exposed vulnerabilities in the global financial system and triggered a significant market downturn. Debelle (2009)⁴⁶ note that reaching its peak in November 2007, the Australian stock market observed a 54% decline from peak to trough, whereas the US market was 57%, Europe 61%, and the Japanese market observed a decline of 60%. Similarly, the dot-com bubble burst in the early 2000s, which was fuelled by the collapse of many internet-based companies, led to a substantial increase in systematic risk and market volatility. Most internet stocks declined in value by 75% from their highs, wiping out \$1.755 trillion from Nasdaq. The United States debt ceiling crisis saw over \$50 billion wiped off the Australian stock market. When Standard & Poor's downgraded America's credit rating from AAA to AA+, with a warning of a possible further downgrade while the European sovereign-debt crisis was also ongoing, the Dow Jones observed the sixth-largest drop in the index history and lost 634.76 points. The point we are trying to make is that considering COVID-19 as the sole event that can cause significant market volatility reflects a skeptical view of the market. COVID-19 was not different from other crises that led to heightened volatility and increased systematic risk in the markets.

Mestre and Terraza (2019) note that systematic risk increases sharply during the crisis period. After the subprime crisis, both the short-run and long-run betas were globally decreasing, but their values began to increase in mid-2007 with the subprime crisis and rise brutally in 2008 with the financial crisis and the Lehmann Brothers bankruptcy. The Betas reach a peak in mid-2009—early-2010 at the beginning of the global depression. Betas also increased during the European Debt Crisis in 2011–2012 and the Russian Rubles Crisis in summer-2014. The authors also note that during expansion or recovery periods, the short-run and long-run betas tend to decrease until the next crisis time. and Terraza (2019)^{[oeb]47} financial crisis and the Lehmann Brothers bankruptcy. The betas reach a peak in mid-2009—early-2010 at the beginning of the global depression. Betas also increased during the European Debt Crisis in 2011–2012 and the Russian Rubles Crisis in summer-2014. The authors also note that during expansion or recovery periods, the short-run and long-run betas tend to decrease until the next crisis time. Crisis in summer-2014. The authors also note that during expansion or recovery periods, the short-run and long-run betas tend to decrease until the next crisis time.

In summary, the last two decades have seen several significant crises, including the Global Financial Crisis (GFC), the European debt crisis, and other geopolitical and economic events that had prolonged impacts on markets. These crises spanned months or even years, indicating that the assumption of a singular crisis event lasting 18 months every 20 years may not adequately reflect the reality of market dynamics. Moreover, geopolitical events such as political conflicts, natural disasters like hurricanes or earthquakes, or major policy changes significantly impact market conditions and result in heightened systematic risk. These crises and events highlight how external factors can disrupt market stability and increase the level of systematic risk faced by investors. If the Commission intends to proceed with this approach, it would be advisable to conduct a more comprehensive assessment of historical crises, major geopolitical events, natural disasters and their durations. This would help ensure a more robust and accurate estimation of betas, particularly when considering unforeseen events. The inclusion of a wider range of crises and events from the past 20 years, such as the Global Financial Crisis and other significant events with varying durations, would provide a more realistic framework for capturing the potential impact of future crises on betas. By expanding the scope of historical analysis, the Commission can enhance the effectiveness and reliability of their estimations in addressing the implications of unforeseen events on the financial system.

For consistency purposes, the Commission can consider making adjustments to other periods for crises such as the Global Financial Crisis (GFC) or the Subprime Crisis in 2007-08, the Crude Oil Price Shock of 2008, the United States Debt-Ceiling Crisis and the August 2011 market decline, the European Debt Crisis in 2011-

⁴⁶ Guy Debelle, Assistant Governor - Financial Markets Australia (2009), *Some Effects of the Global Financial Crisis on Australian Financial Markets*.

⁴⁷ Roman Mestre and Michel Terraza (2019), *Time-frequency varying estimations: comparison of discrete and continuous wavelets in the market line framework*, Journal of Banking and Financial Technology.

2012, and the Russian Ruble Crisis in the summer of 2014, Russia-Ukraine war, and other major events causing major market disruptions. It is worth noting that betas tend to increase during these crisis periods.

It is important to emphasise that crises are inherent to the market, and they do not have to resemble the nature of COVID-19 to impact betas. CMA, in the final determination on cost of equity notes,

“.....the pandemic is only one factor among many that can be expected to affect returns in the next few years”⁴⁸.

To ensure consistency, we propose either applying a robust, transparent, consistent, and predictable methodology to adjust all data for all crises and major disruptive events or refraining from making non-robust adjustments altogether. In the latter case, crises would be treated as systematic risks that impact betas.

5.3 Differential between Gas and Electricity Asset Betas

The Commission has applied an uplift of 0.05 to the asset beta for GPBs. The Commission had initially applied an uplift of 0.10 to the asset beta in 2010 based on the submissions and advice from Dr Lally (provided in 2008) recommending a 0.10 uplift for GPBs due to differences in customer types, the nature of the product, and more valuable growth options⁴⁹, and an uplift of 0.05 in 2016 based on the following reasons⁵⁰:

- i) Asset betas for gas companies in the comparator sample have remained consistently higher than asset betas for electricity companies.
- ii) Gas generally has a higher income elasticity of demand than electricity and is likely to be more discretionary in New Zealand than in some other countries.
- iii) Gas penetration is relatively low in New Zealand relative to other countries included in the comparator sample analysis.
- iv) International regulatory precedent regarding the relativity between gas and electricity asset betas

Lally (2016)⁵¹ agreed with Oxera that stranding risk is greater for regulated gas businesses than regulated electricity businesses in New Zealand because the viability of the businesses rests on increasing the customer base; adverse GDP shocks may curtail such growth and even induce some gas customers to disconnect and switch to electricity, thereby raising prices in accordance with the regulatory process, leading to further loss of customers, and eventually to stranding. Since such stranding risk is partly systematic, the betas of regulated gas businesses must be higher than that of regulated electricity businesses. Lally (2016) argued against a beta uplift of 0.10 based on a lack of New Zealand evidence and the potential differences in market characteristics between New Zealand and the sample markets used for beta estimates.

The Commission agreed that a low proportion of New Zealand households are connected to gas relative to other countries in the comparator sample. This potentially increases the risk of economic network stranding for GPBs, which is likely to be at least partly systematic in nature⁵². While the Commission acknowledged the risk and implemented a beta uplift of 0.05 for the asset betas of gas businesses, it has not presented a strong rationale to substantiate the use of this specific uplift. The Commission has retained the uplift of 0.05 without providing robust justification to support its application.

Asset betas for gas companies are higher than for electricity

The Commission's decision to apply an uplift of 0.10 to gas asset betas in 2010 placed high weight on the then-increasing differential between gas and electricity asset betas. However, the Commission's latest position contradicts its earlier opinion by focusing on the difference in asset betas approximately 17 years ago. The Commission notes that a chart of asset betas from 1996 -2006 did not indicate a persistently higher asset beta for the gas sub-sample⁵³. This complete negation overlooks the potential changes in market conditions and industry dynamics that have taken place during that time. Disregarding the evolving

⁴⁸ See [5.269].

https://assets.publishing.service.gov.uk/media/617fe5468fa8f52980d93209/ELMA_Final_Determination_Vol_2A_publication.pdf^[50]

⁴⁹ [Commerce Commission, Input Methodologies review decisions - Topic 4: Cost of capital issues, 20 December 2016 at \[Cost of capital topic paper 2016 Paragraph\]347.1\]](#).

⁵⁰ *Ibid.*, at [371.1] to [371.3].

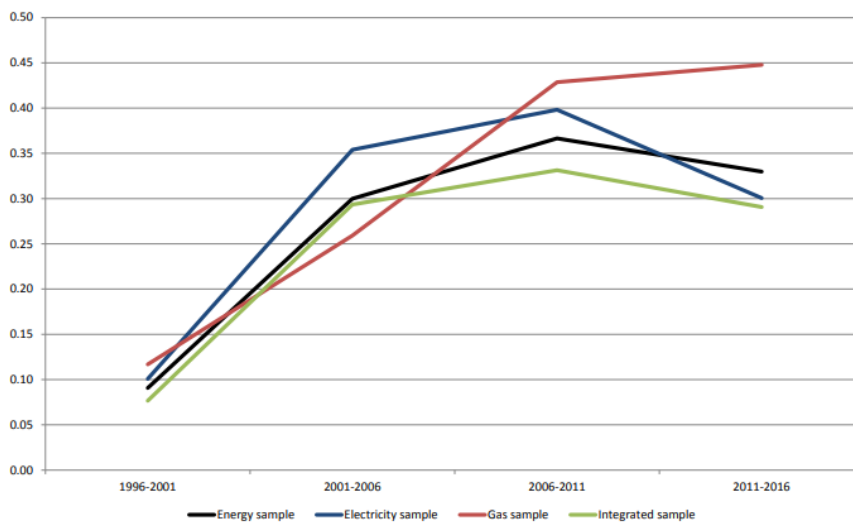
⁵¹ Martin Lally (2016) [Review of further WACC submissions 2016](#)^[50], page 9.

⁵² [Input Methodologies review decisions - Topic 4: Cost of capital issues](#) at [344.2].

⁵³ [Part 4 IM Review 2023 Draft decision: Cost of capital topic paper](#) at [4.129].

landscape over the past 17 years may lead to an imprudent approach that fails to account for important insights necessary for the accurate assessment of asset betas.

Figure 5.3.1 Comparison of sub-samples over time (assuming zero debt beta)



Source - [Input methodologies review decisions - Cost of capital topic paper - 2016](#)

A closer examination of the asset beta data from 1996 to 2016 reveals a reversed situation, with indications of an increasing difference between gas and electricity betas from 2006 and onwards. During this period, the disparity between the asset betas of gas and electricity businesses seems to have grown, if anything. This reversal could be attributed to several factors. Firstly, shifting market dynamics within the energy sector have influenced the risk profiles of gas and electricity businesses differently. The gas industry has experienced unique challenges and opportunities during that timeframe, leading to an elevated asset beta compared to electricity. Secondly, industry-specific factors such as supply-demand dynamics, infrastructure investments, geopolitical influences, and net-zero agenda have contributed to the increased difference in betas between the two sectors.

The practice of relying on outdated data has been challenged by businesses operating under other regulatory regimes as well. Cadent Gas's reply before the CMA notes that,

“.....it cannot be concluded with any degree of confidence that signals of gas risk included in the NG share price from five or more years ago are appropriate proxies for gauging the risk of a gas distribution network at present: The different sector risks around the Net Zero agenda that have only crystallised in the last few years”⁵⁴.

A recent report from Goldman Sachs, a globally renowned investment banking, securities, and investment management firm, notes that ongoing focus on de-carbonisation is driving a higher cost of capital in oil & gas developments.

To ensure a comprehensive and accurate assessment, we propose that the Commission does not rely on decades-old information and instead should give due consideration to two recent five-year periods and daily asset betas when determining the asset beta uplift for gas businesses. Using recent data would enable the Commission to make more informed decisions and set appropriate uplift values that accurately reflect the risk characteristics of gas businesses in the present market context. By incorporating data from a recent 5-year period and daily asset betas, the Commission can account for more recent market dynamics and industry trends (capture momentum effect) that might have influenced the risk profiles of gas companies. Additionally, evaluating two recent 5-year periods and daily asset betas would provide a more robust analysis of the changing nature of the gas sector and its associated asset betas. In section 5.2, we have provided evidence demonstrating the significance of using daily data.

⁵⁴ [Cadent Gas Limited reply before the CMA](#), at [85b].

Balancing gas asset beta uplift

The Tables below depict that the differential between gas and electricity beta has been consistently significant for daily data. The Commission also repeated statistical testing using an illustrative debt beta of 0.1; however, including a debt beta assumption in the analysis does not change the results.

We note that the differential is consistently significant for daily beta estimates. In the previous session (5.1), we presented evidence supporting the notion of assigning greater significance to daily betas.

Results of the test of whether there is a statistically significant difference between the means of the gas and non-gas samples (p-values, debt beta = 0)

	2007-12	2012-17	2017-22	2018-20	2020-22	2021-22
Daily	0.219	0.019*	0.040*	0.002**	0.182	0.250
Weekly	0.329	0.024*	0.120	0.002**	0.387	0.320
Four-weekly	0.342	0.029*	0.164	0.012*	0.223	0.953

Source: Cost of Capital topic paper – Table 4.4

Results of the test of whether there is a statistically significant difference between the means of the gas and non-gas samples (p-values, debt beta = 0.1)

	2007-12	2012-17	2017-22	2018-20	2020-22	2021-22
Daily	0.216	0.018*	0.041*	0.002**	0.186	0.253
Weekly	0.324	0.023*	0.120	0.002**	0.390	0.322
Four-weekly	0.337	0.029*	0.164	0.012*	0.224	0.932

Source: Cost of Capital topic paper – Table 4.5

The Commission has divided the recent sample period/s into three distinct two-year segments but has not provided any rationale for the decision to split the data into two-year periods and for selecting data breakpoints within each 5-year period despite the potential impact of the interval and data breakpoints on the estimates. We have provided academic evidence, Agrawal et al. (2022) supporting daily or weekly but not monthly data and a 5-year estimation period. We also provided evidence in section 5.1, Smith (1978) emphasising that if researchers have access to a database with frequent observations, there seems to be no valid reason to disregard or overlook any available information and not utilise it to its full extent. The Commission itself notes that weekly and monthly asset beta estimates lead to fewer observations that can affect the statistical significance of the results⁵⁵.

The Commission notes that the results are sensitive to the inclusion of a gas firm (ONEOK Inc), which has a relatively high asset beta variability. If that firm is excluded from the analysis, the conclusion of a statistically significant difference in the means for the pre-COVID-19 period is weaker⁵⁶. Regardless of whether ONEOK is included or excluded from the sample, the results remain statistically significant and greater than 0.05.

The Commission notes that Oxera for Vector, First Gas, and Powerco found the difference in asset beta between gas and electricity sub-samples using updated data is 0.07, but the results are not statistically significant. However, the results are significant for daily data.⁵⁷ CEPA notes that the difference between the asset betas for the electricity and gas samples is generally greater than 0.05 and recommends that the beta for gas should be higher than that for electricity, with a difference greater than 0.05 between the two betas⁵⁸. The Commission highlights that the average asset beta value of the gas subsample for the most recent two five-year periods is 0.12 higher than the energy beta. However, when excluding the firm ONEOK from the

⁵⁵ Part 4 IM Review 2023 Draft decision: Cost of capital topic paper at [4.102].

⁵⁶ Ibid, at [4.139].

⁵⁷ Ibid, at [4.134].

⁵⁸ Review of Cost of Capital 2022/2023: New Zealand Commerce Commission at page 4

sample, the difference reduces to 0.08. The Table below provides a summary of the beta differential estimated by Oxera, CEPA, and the Commission.

Table 5.3.1

Observation	Beta Differential	Significant for daily data
Oxera	0.07	✓
CEPA	> 0.05	✓
Commission (Excl. ONEOK)	0.08	✓
Commission (Incl. ONEOK)	0.12	✓
Average (assuming CEPA 0.06)	0.0825	
Commission's decision	0.05	

The estimation of the average beta differential is 0.825, assuming a conservative approach for CEPA due to their recommendation for a beta greater than 0.05 without providing a specific number. The Commission's estimation of the beta differential ranges from 0.08 on the lower side to 0.012 on the higher side. The Commission, however, chose to provide an uplift of 0.05 and did not present any evidence supporting an uplift of 0.05. We recommend that the Commission reverts to an asset beta uplift of 0.10 considering the trajectory of beta differentials shown above.

6. Firstlight Limited

About Firstlight

In 2023 Firstgas Group acquired Eastland Network from Eastland Group, with the transaction completed on 31 March 2023. Firstlight Network is part of Firstgas Group, owned by Igneo Infrastructure Partners.

Firstlight Network (formerly Eastland Network) is the EDB supplying power for Tairāwhiti and Wairoa. It also owns the region's high voltage transmission network, as well as electric vehicle chargers from the top of the Coast down to Wairoa and Mahia.

Impact of the Draft Decision

Firstlight Network is subject to the same issues and challenges brought about by these draft decisions as articulated in the submissions from the 'Big 6' EDB's and the ENA. We refer the Commission to those Submissions for now, which we broadly support. We may make further commentary during cross submissions.

7. Other Matters

Definition of Opex

In its Draft Decision, the Commission has proposed the following amendments to the definition of OPEX.

- Excluding pecuniary penalties from Opex (GPBs and Airports only – excluded already for EDBs under the current IMs)
- Excluding costs of appeals from Opex - Under sections 52Z, 91 and 97 of the Commerce Act (all sectors)

The Commission states that penalties and fines are under management control; therefore, businesses should bear 100% of these costs. Firstgas does not oppose this position.

However, the regulated suppliers in all sectors can pass on the cost of any appeals against the IMs or other determinations to their consumers via the regulatory opex, and the Commission does not consider it appropriate to allocate the risk of the success or failure of appeals against determinations to consumers.

Firstgas does not support this position. The ability to appeal regulatory determinations is an important feature of the regime that Parliament has provided for. The ability to appeal is intended to improve the overall quality of regulatory outcomes, in the interests of consumers as well as suppliers and their investors. Excluding the costs of appeals from opex deters regulated suppliers from exercising their statutory right of appeal.

There is no basis under the workable competition standard in s 52A to exclude appeal costs from the costs that would be incurred by a prudent supplier operating efficiently.

Price Vs. Revenue Cap

We understand Vector and Powerco support moving from a price cap to a revenue cap for gas distribution businesses. We support the points they have made in their submissions.

8. Conclusion

We need to maintain an adequate level of investment to be able to leverage existing infrastructure and expand its capabilities to supply renewable gases and drive the transition to a greener energy future.

Our view is that attracting ongoing investment in gas pipelines is more important than ever and that either a WACC percentile estimate at the 67% percentile or higher is required and an asset beta uplift of 0.10 is more appropriate.

Correcting these issues would result in a regulatory WACC for gas pipelines that better reflects the underlying risk involved in committing capital to the sector. That outcome is clearly important in achieving the purpose of Part 4, and also better enables gas infrastructure to play its necessary role in the energy transition by maintaining the reach and quality of service provided to consumers.

