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A review of the limit on EDB price increases

A report prepared for the Big 6 | 13 July 2023

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1.1 Background

1. In its final decision for the default price quality paths for electricity distribution businesses (EDBs) from 1 April 2020 (DPP3), the Commerce Commission (the Commission) introduced a 10% limit on the percentage annual increase in forecast revenue from prices. The price limit is applied on a nominal basis to all allowable revenue, including recoverable costs, incentive payments, transmission charges from Transpower and other pass-through costs.

2. When the limit binds, a proportion of an EDB's allowable revenue will be deferred and recovered in later years via a revenue wash-up and draw down mechanism. That is, in any year in which the limit binds, an EDB will not earn sufficient revenue to cover its prudent and efficient costs (and the costs that it has been permitted to pass through because they are entirely exogenous) for that year and will not receive the full value of incentive payments for past efficiency gains that it is entitled to receive in that year. In DPP3, the Commission stated that it expected the limit to bind relatively infrequently and, when it does bind, EDBs would be entitled to recover any unrecovered revenue in an NPV-neutral way in later regulatory periods.

3. Frontier Economics has been engaged by Aurora Energy, Orion, Powerco, Vector, Unison Networks and Wellington Electricity (collectively, the 'Big 6') to assess whether the Commission's price limit is consistent with the purpose of Part 4 of the *Commerce Act 1986*.

1.2 Authors of this report

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1.3 Key findings

The price limit was introduced to mitigate price shocks

8. The Commission introduced the price limit with the aim of mitigating potential price shocks for consumers. When introducing the price limit, the Commission identified new sources of price volatility, including from the change in the form of control to a revenue cap, some recoverable costs of significant magnitude will apply for the first time (such as IRIS recoverable costs), changes in the Transmission Pricing Methodology, and annual wash-up draw-down amounts.

9. The Commission notes that it wishes to see the limit bind only as an exception. It said that the limit should be set at a level that is high enough to allow for routine changes, such as the CPI change, the usual volatility of recoverable costs, and the usual volatility of quantities, to occur without triggering the limit on the annual percentage increase in forecast revenue from prices.

The price limit should not apply at the expense of efficiency

10. All aspects of the regulatory framework should be designed to achieve the Part 4 Purposes, which is to promote the long-term benefit of consumers by promoting outcomes that are consistent with outcomes produced in competitive markets. Nothing in section 52A of the Act suggests that the Part 4 purpose is promoted by insulating consumers from price volatility, or that the Commission should seek to smooth the regulated prices charged by EDBs.

11. In our view, three regulatory principles relevant to the assessment of the existing EDB price limits arise from the Part 4 purpose:

    a. The regulatory framework should provide EDBs with a reasonable expectation of recovering all of their efficient costs over the lifetime of the assets;

    b. The regulated cash flows in each regulatory periods should be sufficient to support the benchmark credit rating (at the benchmark level of leverage) assumed by the Commission when setting those allowances in the first instance; and

    c. The regulatory framework should provide EDBs with effective incentives to make efficiency improvements that can be shared with consumers, and provide consumers with regulated services at a level of quality that reflects consumer demand.

12. The Commission should ensure that any attempt to smooth regulated EDBs' prices does not compromise EDBs' ability to recover their efficient costs or dampen incentives for EDBs to improve efficiency or service quality, because such outcomes would undermine rather than promote the Part 4 purpose.

If the current price limit binds, it may lead to outcomes that do not promote the Part 4 purpose

13. The Commission's Draft Input Methodologies (IM) decision proposes to classify transmission charges as a pass-through cost, and to exclude all pass-through costs from the calculation of the price limit.

14. Whilst we think this proposed change of approach is sound, there are a number of reasons why the EDB price limit may still bind in DPP4:

a New Zealand has experienced high rates of inflation over several years of DPP3. This will increase EDBs' RABs significantly and result in a significant increase in the return on capital and return of capital over DPP4 (compared to DPP3 levels);

b Inflation could potentially remain high over DPP4 (if monetary policy action is unsuccessful in bringing inflation under control quickly). Since EDB price limit is expressed as a rate of nominal (rather than real) price increase, this would increase the risk of the price limit binding and preventing EDBs from recovering their revenue allowances fully within DPP4; and

c Government bond yields have increase significantly since the start of DPP3 and are expected to remain relatively high over DPP4. Under the Commission's current WACC methodology, this is likely to drive up the allowed rate of return for EDBs in DPP4.

15. In addition, we note that EDBs themselves may need to undertake significant investment in their networks in order to support New Zealand's energy transition, a significant part of which is the electrification of the economy. As this capital expenditure (which cannot be avoided if New Zealand is to deliver a successful energy transition) is rolled into EDBs' RABs, the EDBs' revenue requirements will need to increase. This is likely to put further pressure on the price limit specified by the Commission in future regulatory periods.

16. If the price limit binds in several consecutive periods, that could defer the recovery of EDBs' efficient costs over multiple periods. If the accumulated under-recovery of allowed revenues from prior years in the revenue wash-up account becomes sufficiently large and exceed consumers' willingness to pay, then there would be no feasible means of recouping those under-recoveries. This would result in EDBs' costs effectively becoming stranded. If EDBs cannot expect to recover all of their efficient costs over the lifetime of the regulated assets, then investors in the EDBs are unlikely to supply the capital required to invest in regulated assets. This would not promote the Part 4 purpose.

17. Furthermore, EDBs may be disincentivised from investing in energy efficiency and demand side management. Section 54Q of the Act requires that the Commission must promote incentives, and must avoid imposing disincentives, for suppliers of electricity lines services to invest in energy efficiency and demand side management.

18. If the regulated cash flows available to EDBs in each regulatory period are insufficient to support the benchmark credit rating (at the benchmark level of leverage) adopted by the Commission setting regulated allowances, then equity investors in an EDB that had adopted the efficient capital structure determined by the Commission could not expect to recover the allowed return on equity. This is because if the regulated cash flows are insufficient to support the benchmark credit rating of an EDB that had geared up to benchmark level of leverage, then the cost of debt of such an EDB would be higher than the allowed return on debt set by the Commission. This shortfall would have to be made up by equity investors sacrificing some of their allowed return to ensure that the EDB is able to service its debt obligations. Since it is not commercially viable for equity investors to supply capital for an expected return that is below the return required to compensate them for the risks they bear, an EDB in the circumstances described above would be unable to attract the equity capital needed to invest in regulated assets. Once again, this would not promote the Part 4 purpose.

19. Furthermore, this may disincentivise EDBs from making the capital investments needed to support New Zealand's energy transition over the coming decades. This could slow down and hinder the transition, making it harder for New Zealand to achieve its international net zero commitments and the targets that have been legislated in domestic statute.

20. Part of the allowed revenues that EDBs may receive are incentive payments (e.g., from the IRIS and the revenue-linked quality incentive scheme). In circumstances where EDBs do not expect to receive any such incentive payments, because they are likely to be operating under a binding price limit, the EDBs may face weakened incentives to deliver cost efficiency improvements and/or improvements in reliability and service quality. This too would not promote the Part 4 purpose.

21. Under a binding price limit, the recovery of some of the EDB's allowed revenues would be deferred to future periods via the Commission's revenue wash-up and draw down mechanism. This effectively smooths prices over different regulatory periods. However, one consequence of this smoothing is that consumers in the current regulatory period (in which the price limit binds) would pay *less* than the efficient costs required to deliver regulated services, while consumers in future regulatory periods would pay *more* than the efficient costs required to deliver regulated services. The shifting of the cost recovery burden from current consumers to future consumers may create intergenerational equity concerns.

The Part 4 purpose will be better promoted by removing or amending the price limit

22. We recognise that the Commission's Draft IM decision has proposed to reclassify transmission charges as a pass-through cost, and to exclude all pass-through costs from the calculation of the annual price limit for EDBs. We think this is a move in the right direction as this reduces the likelihood of the price limit binding in any given period, and because pass-through costs are (by definition) beyond the control of EDBs.

23. However, the indicative modelling presented in this report shows that, notwithstanding the proposed change, the price limit could bind over DPP4 if certain plausible scenarios are occur, and that revenue wash-up mechanism may not allow EDBs to recover their full revenue requirement within the subsequent regulatory period.

24. In our view, removing the price limit altogether would result in more efficient outcomes, and therefore better promote the Part 4 purpose, provided that EDBs seek to recover all of their efficient costs in each regulatory period. This is because it would remove constraints imposed by the limit on an EDB's ability to set prices that reflect the underlying economic costs of supplying network services. This would improve an EDB's ability to set prices that recover the efficient cost of existing infrastructure assets, thereby encouraging efficient investment in the network, and signal to users the cost of new network capacity, so as to encourage efficient usage of infrastructure capacity. Removing the price limit will also remove intergenerational equity issues that arise when the price limit binds. It will mean that customers in future regulatory periods are not subsidising the cost of supplying customers in the earlier regulatory periods.

25. If the Commission decides not to remove the price limit, we consider that certain changes to how the price limit applies will lead to more efficient price outcomes and therefore better promote the Part 4 purpose. Specifically, we consider that the price limit should be applied net of incentive payments under the IRIS mechanism and the quality standards, and net of inflation. In our view, these changes will strengthen the incentives on EDBs to achieve cost efficiencies and quality of service improvements. It will also reduce the instances in which the price limit will bind to when there are significant changes in an EDB's real costs. We consider that any price increases that arise as a result of applying these changes would be efficient and result in outcomes that better promote the Part 4 purpose. This is because it would remove constraints on the ability of EDBs to raise tariffs to the efficient level.

26. If the Commission decides not to adopt these proposed changes, there are a number of alternative options it could consider. For example, the Commission could:

a Restrict the price limit to a shorter, defined period of time (e.g., one or two years) so that the period over which cost recovery is deferred may be reduced.

b Raise the price limit. The combination of higher than anticipated inflation suggests that the likelihood of the price limit binding in future years is greater than what would have been expected at the time of the Commission's DPP3 Determination. While the level of a revised price limit is a matter of judgement for the Commission, we propose that a limit of 15% would be consistent with the Commission's objectives, and ensure that the limit does not bind to constrain routine changes in CPI and network costs.

c Apply a sliding scale to the price limit such that a 10% price limit applies to the first year of a regulatory period, but then increases gradually over the period. Under this approach, the price limit would become progressively 'looser' over the period.

d Leave the default price limit at 10% but set out clear rules in the IMs that would specify how the price limit would be increased (in a formulaic way) above the default 10% level if inflation and pass-through costs turn out materially different from the baseline assumptions adopted by the Commission when setting allowances. We note that the Commission adjusted the price limit applied to Aurora Energy recently in Customised Price-Quality Path (CPP) decision for these very reasons.

The Commission should urgently develop an IM that specifies how it would reset starting prices

27. Such an IM would remove a significant source of regulatory uncertainty currently faced by suppliers. This, in turn, would improve incentives for suppliers to invest prudently and efficiently at a time when significant amounts of network investment by EDBs is necessary to to support a smooth energy transition for New Zealand.

28. One of the principal reasons why the IMs regime was introduced was to provide all stakeholders with certainty about how the Commission would make regulatory determinations. In our view, the absence of an IM explaining how the Commission would approach a task as fundamental as resetting starting prices for each regulatory period fails to provide the level of regulatory certainty that was intended when the Act was amended to create the current regulatory framework.

2 Background to the price limit

2.1 How the price limit applies

29. In 2019, the Commission amended the Input Methodologies (IMs) to allow it to specify a limit or limits on the annual maximum percentage increase in forecast revenue from prices.[1] The Commission then introduced a price limit in its final decision for the default price quality paths for electricity distribution businesses (EDBs) from 1 April 2020 (DPP3).[2]

30. In this case, the Commission determined that:

    a the **value of the price limit would be 10%**, i.e., the annual increase in forecast revenue from prices during the DPP3 period cannot exceed 10%;[3]

    b the limit would be **applied on a nominal basis** i.e., the annual limit on real price increases is equal to 10% *less* forecast inflation;[4]

    c the limit is **applied to all allowable revenue**, including recoverable costs, IRIS incentive payments and pass-through transmission charges from Transpower[5] and

    d the limit **applied in every year** of the DPP3 period, except for the 2020/21 year.

31. The Commission stated that the price limit would be net present value neutral. When the limit binds, an EDB will earn less than its allowable revenue for that year. Any under-recovery of revenue as a result of the limit binding would be deferred to subsequent years of the DPP (or to the next DPP) via the revenue wash-up mechanism. A time value of money adjustment will be applied per the IMs at a discount rate of the post-tax WACC. [6]

2.2 Why the price limit was introduced

32. The Commission introduced the price limit in an attempt to mitigate potential price shocks for customers. The new sources of price volatility identified by the Commission are:[7]

    a the change in the form of control from a weighted average price cap to a revenue cap, which means that any reduction in quantities supplied will generally translate into price increases as a distributor seeks to restore its revenue to the allowable limit;

[1] Commerce Commission, *Electricity distribution services input methodologies amendments determination (No. 2)* [2019] NZCC 20 (26 November 2019), cl. 3.1.1(1)(b).

[2] Commerce Commission, *Default price-quality paths for electricity distribution businesses from 1 April 2020 – Final decision – Reasons paper*, 27 November 2019 (DPP3 Reasons Paper), at H22.

[3] DPP3 Reasons Paper, at H53.

[4] DPP3 Reasons Paper, at H53.

[5] DPP3 Reasons Paper, at H29.

[6] DPP3 Reasons Paper, at H61-H62.

[7] DPP3 Reasons Paper, at H25.

b some recoverable costs of significant magnitude will apply for the first time, such as IRIS recoverable costs;

c if a new Transmission Pricing Methodology is applied during DPP3, the Transpower New Zealand Limited (Transpower) transmission charge recoverable cost, which could cause a significant revenue increase for some distributors as a result of a reallocation of some portions of those charges; and

d annual wash-up draw-down amounts.

33. The Commission notes that setting the value of the limit at 10% in nominal terms is a judgment call and reflects 'a reasonable balance between what might be considered upper and lower bounds for our setting of this limit.'[8]

> *We have in the past used both 5% and 10% as indicators of target maximum real price increases. For the assessment periods ending 31 March 2014 and 31 March 2015, we restricted price increases to 10% real. For DPP2, we tried to restrict price increases to the first assessment period of the regulatory period (assessment period ending 31 March 2016) to 5% by applying a negative X value for some distributors, but in practice allowed for real price increases of up to 11% by setting X at -11% for one distributor.*[9]

34. The Commission notes that it wishes to see the limit bind only as an exception. It said that the limit should be set high enough to allow for routine changes, such as the CPI change, the usual volatility of recoverable costs, and the usual volatility of quantities, to occur without triggering the limit on the annual percentage increase in forecast revenue from prices.[10]

35. Economic regulators are generally concerned about the impact of their determinations on consumers, and most regulators similar to the Commission present bill impact analysis to explain to consumers the likely effect of their decisions. However, the imposition of annual price limits (of the kind introduced by the Commission at DPP3) is unusual. For example:

a Ofgem (the economic regulator in Great Britain) does not apply any formal limit on the annual increase in ex-ante totex allowances; and

b Nor does the Australian Energy Regulator (AER). The AER does apply so-called 'side constraints' that limit the rebalancing of revenue recovery between tariff classes to 2% above the allowed annual revenue path. For example, if the annual increase in the revenue path change is 5%, then the side constraint limits the change in revenue recovery from any tariff class at 7% (5% + 2%), without breaching the total allowed annual revenues.[11] However, the AER does not impose a fixed limit on the rate at which allowed revenues are permitted to increase annually.

[8] DPP3 Reasons Paper, at H53-H54.

[9] DPP3 Reasons Paper, at H53-H55.

[10] DPP3 Reasons Paper, at H56.

[11] AER, *Annual Pricing Process Review, Final position paper – Side constraint mechanism*, November 2022.

36. Economic regulators that are comparable to the Commission generally adopt the position that regulated businesses should be permitted to recover all of their efficient and prudent costs in each regulatory period.

2.3 Submissions by stakeholders

37. Stakeholders made several submissions on how the proposed price limit should operate in their responses to the Commission's draft decision for DPP3.

38. Orion, Wellington Electricity and Vector submitted that the price limit should only be applied to EDB's costs and not to the component of revenues related to the recovery of pass-through and recoverable costs. The Commission rejected this proposal, arguing that the purpose of the limit is to mitigate the risk of price shocks to consumers, and excluding potential sources of such shocks would reduce the effectiveness of the limit and not be in consumers' interests.[12]

39. Wellington Electricity and Vector submitted that the Commission should apply a similar price limit on Transpower to ensure that EDBs do not carry the cash flow burden of smoothing Transpower's prices. The Commission rejected this proposal, noting that any issue as to whether Transpower should smooth its revenues is not a DPP issue. Further, the Commission argued that Transpower's RCP3 proposal includes price smoothing without annual updates to its MAR, and this mechanism should remove the necessity of having to apply a similar limit to Transpower.

40. Aurora submitted that the price limit should be applied in constant-price terms, rather than nominal terms. The Commission rejected this proposal because:[13]

    a the approach would not have a material impact on the operation of the limit;

    b the approach would add complexity to both the specification of the limit and to the calculations relating to the limit; and

    c the Commission expects that the limit will bind relatively infrequently.

[12] DPP3 Reasons Paper, at H63-H64.

[13] DPP3 Reasons Paper, at H67-68.

3 Relevant economic principles

3.1 The Part 4 purpose

41. When making price-quality determinations for EDBs, the Commission must do so in a way that promotes the purpose of Part 4 (the Part 4 purpose) of the *Commerce Act 1986* (the Act). The Part 4 purpose, as set out in section 52A of the Act, is summarised below in Box 1 below.

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

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

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

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

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

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

Source: Section 52A of the Commerce Act 1986

3.2 Key regulatory principles arising from the Part 4 purpose

42. In our view, three regulatory principles relevant to the assessment of the existing EDB price limits arise from the Part 4 purpose:

    a. The regulatory framework should provide regulated suppliers with a reasonable expectation of recovering all of their efficient costs over the lifetime of the assets;

    b. The regulated cash flows in each regulatory periods should be sufficient to support the benchmark credit rating (at the benchmark level of leverage) assumed by the Commission when setting those allowances in the first instance; and

    c. The regulatory framework should provide regulated suppliers with effective incentives to make efficiency improvements that can be shared with consumers, and to provide consumers with regulated services at a level of quality that reflects consumer demand.

43. We expand on these principles below.

3.2.1 Expectation of cost recovery over the lifetime of the assets

44. Section 52A(a) of the Act makes clear that a key way in which the long-term benefit of consumers is promoted is through investment in regulated assets.

45. One of the main ways the Commission seeks to provide regulated suppliers with incentives to invest is the application of the ex-ante FCM principle.

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

> *Our ex-ante FCM principle is that regulated suppliers should have the ex-ante expectation of earning their risk-adjusted cost of capital (ie, a 'normal return'), and of maintaining their financial capital in real terms over the lifetime of their investments.*[14]

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

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

3.2.2 Ability for the benchmark efficient EDB to maintain the benchmark credit rating

49. When setting the allowed rate of return for EDBs under the DPP framework, the Commission assumes a 'benchmark' credit rating that is used to determine the allowed return on debt (BBB+ under the current IMs). This benchmark credit rating may differ from the actual credit rating of the EDBs regulated by the Commission.

50. Similarly, for the purposes of setting the allowed rate of return for EDBs, the Commission determines a benchmark level of leverage, which determines:

    a The weights between the allowed return on equity and the allowed return on debt; and

    b In part, the equity beta.

51. The Commission has previously adopted a benchmark leverage level of 42% for EDBs. However, the Draft IM decision proposes to reduce the benchmark leverage level to 41%,[15] meaning that the Commission assumes that a benchmark efficient EDB would finance 41% of its RAB using debt and the remaining 59% using equity. The actual level of leverage of each EDB may differ from the benchmark 41% level of leverage assumed by the Commission when setting allowances.

[14] Commerce Commission, *Options to maintain investment incentives in the context of declining demand, 20 December 2022*, para 2.6.

[15] Commerce Commission, *Cost of capital topic paper Part 4 Input Methodologies Review 2023 – Draft decision*, 14 June 2023, para 4.157.

52. In our view, an internally consistent regulatory determination requires that the regulated cash flows available to an EDB in each regulatory period are at least sufficient to support the benchmark credit rating (BBB+) at the benchmark level of gearing (41%). If this is not the case, then equity investors in the EDB cannot expect to receive the return on equity allowance set by the Commission. In these circumstances, the (benchmark) EDB cannot be said to be financeable.

53. Consider an EDB that had geared up to a level that is exactly in line with the benchmark level of leverage determined by the Commission. If the regulated cash flows are at least sufficient to support the benchmark BBB+ rating, then:

    a Equity investors in the EDB could expect to earn the return on equity allowance set by the Commission; and

    b Debt investors in the EDB could expect to earn the return on equity allowance set by the Commission.

54. If the Commission's estimates of the required return on equity and the required return on debt are unbiased, then each of these types of investors would expect to receive the minimum return they require, and the EDB would be able to attract the capital it needs in order to invest in regulated assets.

55. However, if the regulated cash flows available to an EDB were only able to support a BBB credit rating (i.e., a rating level lower than the BBB+ benchmark), then:

    a The regulated EDB's return on debt allowance would be set by the Commission in line with a benchmark BBB+ rating; but

    b The EDB would be facing a cost of debt commensurate with a BBB rating.

56. That is, the regulatory allowance would be lower than the cost of debt faced by the benchmark EDB that had adopted a capital structure precisely in line with the benchmark level of leverage.

57. This shortfall between the regulatory allowance and the cost of debt incurred by the benchmark EDB would need to be made up by equity investors (the residual claimants on the cash flows of the business) sacrificing some of their returns.

58. Consequently, if there is an internal inconsistency in the regulatory decision such that the regulated cash flows are insufficient to support at least the benchmark credit rating, then equity investors in a benchmark EDB that had adopted the efficient capital structure assumed by the Commission would expect to earn a return that is *below* the return required by such investors in order to commit capital to the firm. If the EDB cannot attract the finance it needs, then it will be unable to invest in regulated assets.

3.2.3 Effective incentives for efficiency improvements and service quality

59. Sections 52A(b) and 52A(c) of the Act provide that the long-term benefit of consumers is promoted when regulated suppliers "have incentives to improve efficiency" and "share with consumers the benefits of efficiency gains in the supply of the regulated goods or services, including through lower prices."

60. This suggests that the regulatory framework should provide suppliers with effective incentives to make efficiency improvements so that the gains from those improvements can be shared with consumers.

61. The Commission's regulatory framework provides 'natural incentives' for suppliers to make cost efficiency improvements in the following way: the Commission sets expenditure allowances in line with its estimate of suppliers' efficient costs. If suppliers can reduce their actual costs over a regulatory period below the allowance, then the supplier can enjoy the gains from those efficiency improvements for the duration of the regulatory period until allowances are reset for the next period.

62. The Commission has introduced specific incentive schemes related to operating and capital expenditure allowances known as the Incremental Rolling Incentive Scheme (IRIS) mechanisms for 'non-exempt' EDBs and Transpower.

63. The IRIS mechanisms have two essential features:

    a. They specify the proportions of any efficiency gains that are to be shared between consumers and the suppliers that achieved those gains. This 'incentive rate' determines the strength of the financial incentives faced by suppliers to seek out and deliver cost efficiencies; and

    b. They ensure that the strength of the incentives to make efficiency improvements remains constant in every year of each regulatory period.

64. The efficiency rewards and penalties to suppliers under the IRIS mechanisms are delivered in the form of additions to or deductions from the Maximum Allowable Revenues (MAR) of the suppliers in the regulatory period after those rewards and penalties were generated.

65. Section 52A(b) the Act also imposes a statutory requirement on the Commission to promote quality incentives. The Commission does this by setting a quality path for suppliers consisting of a number of quality standards and a revenue-linked quality incentive scheme that is currently applied to the System Average Interruption Duration Index (SAIDI).[16]

66. The Commission explains the rationale for the revenue-linked quality incentive scheme as follows:

> *The revenue-linked incentive scheme for reliability is designed to provide distributors with incentives to consider cost-quality trade-offs in their decision-making. In the absence of adequate incentives, distributors may be incentivised to reduce expenditure, at the expense of quality, to increase profitability.*[17]

67. The revenue-linked quality incentive scheme provides financial rewards to EDBs in the form of higher allowed revenues if they are able to improve reliability above a target level reflecting average historical performance. Symmetrically, the revenue-linked quality incentive scheme imposes financial penalties on EDBs in the form of reduced allowed revenues if their reliability deteriorates below the target level.

[16] DPP3 Reasons Paper, Attachment J.

[17] DPP3 Reasons Paper, at J10.

3.3 Considerations about price volatility and the Part 4 purpose

68. As discussed in section 2, the main impetus for the introduction of the price limits was the Commission's desire to avoid exposing consumers to "price shocks" and "price volatility."

69. However, section 52A of the Act does not identify price smoothing or the insulation of consumers from price shocks/volatility as a means of promoting the Part 4 purpose.

70. The purpose of Part 4 is to promote the long-term benefit of consumers by promoting outcomes that are consistent with outcomes produced in competitive markets. Section 52A of the Act does *not* specify price smoothing or the removal of price volatility as one of the ways the Commission should seek to promote outcomes that are consistent with those produced in competitive markets. Competitive markets in the real world can exhibit a high degree of price volatility. Take, for example, international commodity markets (e.g., for minerals and other natural resources) that are highly competitive. Prices in such markets can be highly volatile. That does not make such markets uncompetitive. Price stability may be desirable for consumers of regulated services. However, it is not at all clear that price stability is necessary to promote the Part 4 purpose.

71. Furthermore, none of the limbs of section 52A of the Act call for the smoothing of prices to avoid price volatility to consumers:[18]

    a. Section 52A(a) of the Act specifies that one way the long-term benefit of consumers would be promoted is if regulated suppliers face "incentives to innovate and to invest, including in replacement, upgraded, and new assets." As discussed above, incentives to invest prudently and efficiently are preserved if EDBs expect that they can recover all of their efficient costs, and that their investments would not become stranded once they are made. As we discuss in section 4.3, applying smoothing to prices in a way that reduces the likelihood of EDBs recovering their efficient costs may undermine incentives to invest efficient in regulated assets, and therefore would be counter to promoting the Part 4 purpose.

    b. Sections 52A(b) of the Act specifies that the long-term benefit of consumers would be promoted through EDBs having "incentives to improve efficiency and provide services at a quality that reflects consumer demands", not when those incentives are blunted by artificially restricting revenues to a level that prevents EDBs from reaping the rewards from improving efficiency and service quality. This issue is also discussed further in section 4.3.

    c. Section 52A(c) of the Act specifies that the long-term benefit of consumers would be promoted through lower prices that are the consequences of "efficiency gains in the supply of the regulated goods or services", not through the smoothing prices at a level below that which would be required to recover EDBs' efficient costs.

    d. Section 52A(d) of the Act specifies that the long-term benefit of consumers would be promoted by limiting EDBs' "ability to extract excessive profits." EDBs could only extract excess profits if they are permitted to recover more than their efficient costs (i.e., if the expected NPV of the regulated cash flows were materially higher than zero). Allowing EDBs to recover just recover their efficient costs and no more would not result in EDBs extracting excess profits.

[18] Whilst section 53P(8)(a) permits the Commission to set the rate of change in regulated prices in such a way as is "necessary or desirable to minimise any undue financial hardship to the supplier or to minimise price shock to consumers", section 52A does not identify the minimisation of price shocks to consumers as a means of promoting the Part 4 purpose.

72. In summary, nothing in section 52A of the Act suggests that the Part 4 purpose would be promoted by the pursuit of price stability—particularly if that would compromise EDBs' ability to recover their efficient costs or dampen incentives for EDBs to improve efficiency or service quality.

3.4 Conclusion

73. All aspects of the regulatory framework should be designed to achieve the purpose of Part 4 of the Act. The Part 4 purpose is to promote the long-term benefit of consumers by promoting outcomes that are consistent with outcomes produced in competitive markets.

74. Nothing in section 52A of the Act suggests that the Part 4 purpose would be promoted by insulating consumers from price volatility, or that the Commission should seek to smooth the regulated prices charged by EDBs.

75. In our view, three regulatory principles relevant to the assessment of the existing EDB price limits arise from the Part 4 purpose:

    a. The regulatory framework should provide regulated suppliers with a reasonable expectation of recovering all of their efficient costs over the lifetime of the assets;

    b. The regulated cash flows in each regulatory periods should be sufficient to support the benchmark credit rating (at the benchmark level of leverage) assumed by the Commission when setting those allowances in the first instance; and

    c. The regulatory framework should provide regulated suppliers with effective incentives to make efficiency improvements that can be shared with consumers, and to provide consumers with regulated services at a level of quality that reflects consumer demand.

76. The Commission should ensure that any attempt to smooth regulated EDBs' prices does not compromise EDBs' ability to recover their efficient costs or dampen incentives for EDBs to improve efficiency or service quality, because such outcomes would undermine rather than promote the Part 4 purpose.

4 Impact of the price limit

4.1 The Draft IM decision

77. As explained in section 2, the existing price limit is applied:

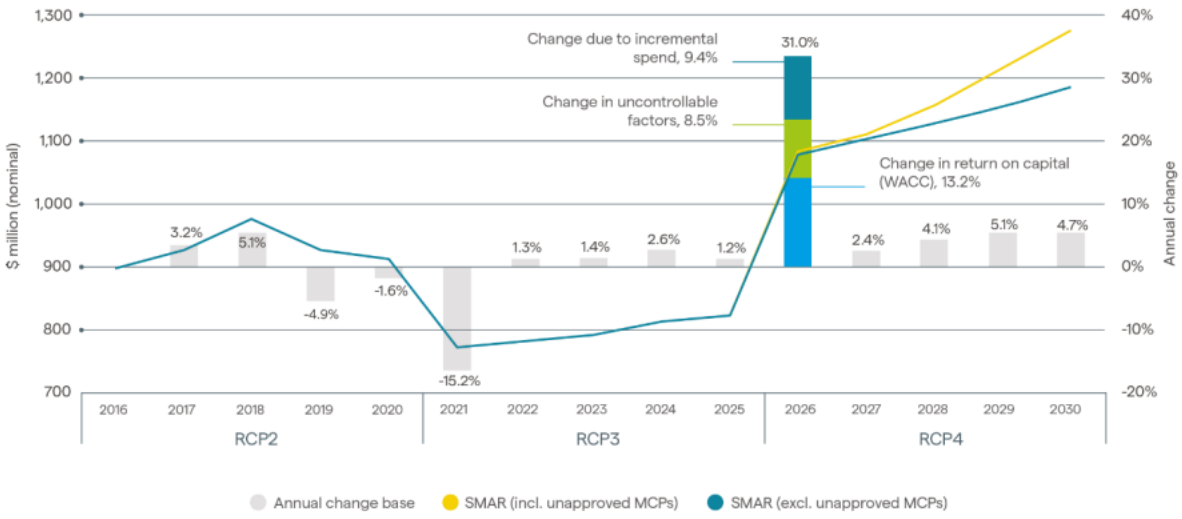
    a on a nominal basis (i.e., the annual limit on real price increases is equal to 10% *less* forecast inflation); and

    b to all allowable revenue, including EDBs' recoverable costs and any pass-through costs and transmission charges from Transpower.

78. The Draft IM decision proposes to exclude from the calculation of the annual price limit any pass-through costs and to reclassify transmission charges as a pass-through cost.[19] We agree with this proposal from the Commission.

79. Transpower is currently forecasting a significant increase in its revenue requirement over its next regulatory period (RCP4), which corresponds to DPP4 for the EDBs. Of particular note, Transpower is forecasting a 31% nominal increase in its revenue requirement from the final year of RCP3 to the first year of RCP4, with smaller increase thereafter. We understand these revenue increases exclude the recovery of major capital projects that Transpower proposes to undertake over RCP4.

Figure 1: Transpower's draft RCP4 revenue proposal (nominal)



Source: Transpower RCP4 consultation document, September 2022, Figure 24.

80. It is unclear at this early stage in the process what revenue allowance the Commission will set for Transpower for RCP4. However, Transpower's draft proposal does signal that it expects its revenue requirement to increase substantially, given the extent of investment it expects to undertake over

[19] Commerce Commission, *Financing and incentivising efficient expenditure during the energy transition topic paper, Part 4 Input Methodologies Review 2023 – Draft decision*, 14 June 2023, para D10.

the coming regulatory period, and due to other factors that have already crystalised (i.e., under-recovery of revenue over RCP3 that would need to be recouped in future regulatory periods).[20]

81. In our view, the Commission's proposal to exclude transmission charges and all other pass-through costs from the calculation of the price limit is reasonable. These costs are entirely beyond the control of EDBs. It would be unreasonable to require EDBs to effectively bear these costs in a given regulatory period rather than to recovery them in full as a consequence of the annual price limit imposed by the Commission.

4.2 Reasons why the price limit might bind in DPP4

82. As far as we are aware, the price limit has not bound historically because in previous EDB regulatory periods inflation expectations have been relatively modest and the annual increases in Transpower's allowed revenues have also been reasonably small.

83. However, notwithstanding the Commission's recent proposal to exclude all pass-through costs (including transmission charges) from the calculation of the EDB price limit, there are a number of reasons why the price limit may bind in DPP4:

    a The rate of inflation has increased significantly over DPP3. This will increase EDBs' RABs significantly and result in a significant increase in the return on capital and return of capital over DPP4 (compared to DPP3 levels);

    b Inflation could potentially remain high over DPP4 (if monetary policy action is unsuccessful in bringing inflation under control quickly). Since EDB price limit is expressed as a rate of nominal (rather than real) price increase, this would increase the risk of the price limit binding and preventing EDBs from recovering their revenue allowances fully within DPP4; and

    c Government bond yields have increase significantly since the start of DPP3 and are expected to remain relatively high over DPP4. Under the Commission's current WACC methodology, this is likely to drive up the allowed rate of return for EDBs in DPP4.

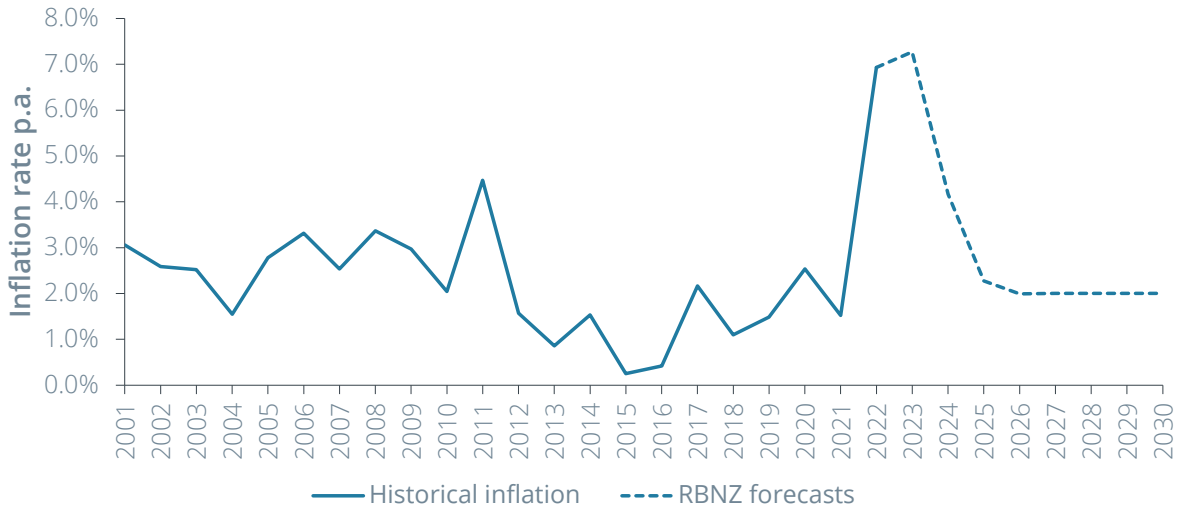
84. We explain each of these issues briefly in turn below, and section 4.4 presents indicative revenue modelling that suggests that the price limit could very well bind during DPP4.

4.2.1 Actual inflation has increased sharply during DPP3

85. **Figure 2** plots the historical and forecast rates of Consumer Price Index inflation for New Zealand, obtained from the Reserve Bank of New Zealand (RBNZ).

[20] Transpower, RCP4 consultation, Transpower Ltd, September 2022, pp. 22-24.

Figure 2: Historical and forecast inflation



Source: RBNZ data.

86. The figure indicates that the annual rate of inflation over DPP3 (2020-25) is expected to be significantly greater than 2.0% p.a., the midpoint of the RBNZ's inflation target range:

    a The rate of actual inflation in 2021 was 1.52%;

    b The rate of actual inflation in 2022 was 6.93%;

    c The rate of inflation is forecast to be 7.27% in 2023;

    d The rate of inflation is forecast to be 4.16% in 2024; and

    e The rate of inflation is forecast to be 2.27% in 2025.

87. That is, based on historical inflation to date and the RBNZ's forecasts over the remainder of DPP3, EDBs' RABs are expected to grow by approximately 24% over the current regulatory period due to RAB indexation alone.

88. This growth in the RAB is appropriate and necessary to deliver investors in the EDBs the real returns they require under the Commission's regulatory framework. However, this RAB growth will mean that EDBs can expect a relatively high level (compared to previous regulatory periods) of return on capital and return of capital over DPP4. This will push EDBs' BBAR up, compared to previous periods in which the price limit did not bind.

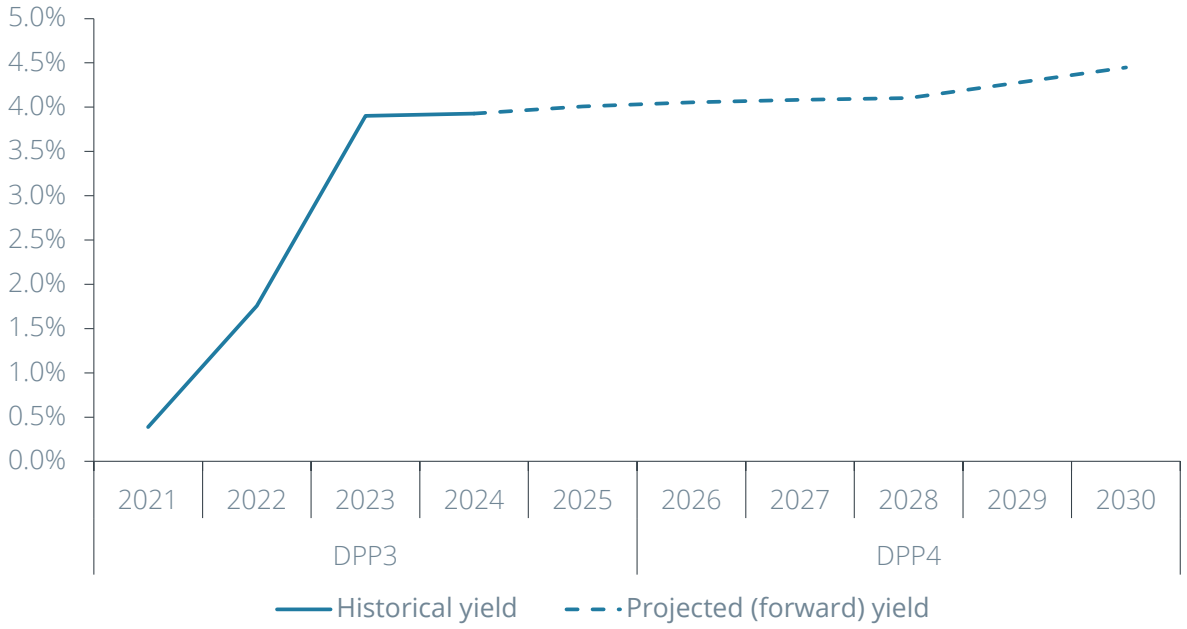
4.2.2 Inflation could remain high over DPP4

89. Whilst the RBNZ is currently forecasting that it will be able to return inflation close to 2.0% p.a. by 2025 (the start of DPP4), there is a high degree of uncertainty at present about how quickly central banks around the world (including in New Zealand) will be able to bring inflation under control. If the rate of inflation persists at elevate levels into DPP4, that would increase the risk of the price limit binding in that period—since the price limit is specified as a rate of nominal (rather than real) price increase. That is, if inflation continues to run high, there would be less headroom available to EDBs below the price limit to allow recovery of their efficient costs over DPP4.

4.2.3 Interest rates have increase sharply since the start of DPP3 and are expected to remain high for some time

90. As shown in **Figure 3** below, the yields on five-year New Zealand Government bonds have risen sharply from approximately 0.40% (average over FY2021) at the start of DPP3 to a current level close to 4.0% (average over FY2023). Bloomberg forward curve data (presented as the dashed curve in the figure below) suggests that five-year Government bond yields are currently expected to remain at or above 4.0% over DPP4.

Figure 3: Historical and projected yields on 5-year New Zealand Government bonds



Source: RBNZ and Bloomberg data

91. Under the Commission's current WACC Input Methodology for EDBs (and other regulated suppliers), the allowed rate of return is highly sensitive to prevailing Government bond yields. As Government bond yields rise, so to would the allowed rate of return. If the Commission maintains its existing WACC Input Methodology (or some similar approach), then the revenue requirement for EDBs over DPP4 would be expected to increase significantly from DPP3 levels, all else remaining equal.

4.2.4 The Commission's approach to setting starting prices

92. Section 53P(3) of the Act requires that the starting prices for each regulatory period set by the Commission must be either:

    a the prices that applied at the end of the preceding regulatory period; or

    b prices, determined by the Commission, that are based on the current and projected profitability of each supplier.

93. To date, the Commission has set starting prices for EDBs that are based on the current and projected profitability of each supplier using a 'building blocks' approach to determine the MAR that each EDB may earn in the first year of each regulatory period.[21,22]

94. However, the Commission has not established an IM that specifies how it will set starting prices and, in particular, how it would determine any limit on the extent to which the MAR may increase from the final year of one regulatory period to the first year of the next (sometimes referred to as the 'P0 adjustment' or the 'starting price adjustment').

95. This was a matter of contention when the Commission first established the IMs in 2010. Following the publication of the 2010 IMs, Vector sought a judicial review of the Commission's decision to not publish an IM detailing how it would reset starting prices for each regulatory period. Among Vector's concerns were the following:

    a The absence of such an IM left too much unresolved uncertainty about how the Commission would reset starting prices for each regulatory period. A key purpose of the IMs regime was to provide suppliers and consumers with as much upfront certainty as possible about how each regulatory determination would be made. The absence of an IM explaining how the Commission would approach a task as fundamental as resetting starting prices for each regulatory period fails to provide the level of regulatory certainty that was intended when the Act was amended to create the current regulatory framework.

    b The regulatory framework only allows merits reviews to be sought in relation to IM decisions made by the Commission. The absence of this IM means that no party (suppliers, consumers or any other interested party) could seek a merits review of the methodology the Commission may use to reset starting prices.

96. The High Court ruled in favour of Vector.[23] However, the High Court's judgment was subsequently overturned by the Court of Appeal,[24] and the Court of Appeal's judgment was upheld by the Supreme Court.[25]

97. The question of how the Commission sets starting prices has become important (and is likely to remain important in coming years) because in its most recent regulatory decision for gas pipeline businesses (GPBs) the Commission decided to impose a 10% limit on the starting price adjustment.[26]

98. This had knock-on implications for the rate of change in regulated prices over the regulatory period:

    a In circumstances where the required increase in real prices between the final year of DPP2 and the first year of DPP3 was less than 10%, then starting prices for DPP3 were set to allow

[21] DPP3 Reasons Paper, at 5.22.

[22] The Commission now applies a revenue cap to EDBs. Hence, while the Act refers to "starting prices" the Commission generally refers to "allowable revenues" that EDBs may earn. DPP3 Reasons Paper, at 5.5.

[23] *Vector Ltd v Commerce Commission*, [2011] NZHC 976.

[24] *Commerce Commission v Vector Ltd* [2012] NZCA 220, [2012] 2 NZLR 525.

[25] *Vector Ltd v Commerce Commission*, [2012] NZSC 99.

[26] It is worth noting that the Commission only decided to cap the starting price adjustment for GPBs at DPP3, when the MAR increased from DPP2 levels. The Commission did not limit the starting price adjustment for GPBs (or EDBs) in prior regulatory periods when the MAR was reduced from one period to the next. In other words, the Commission seems to have applied limits on the starting price adjustment in an asymmetric way, imposing such limits only when consumers are facing price increases.

full recovery of the MAR for the first year, with no increase in real prices allowed in any subsequent year. This was the situation that applied to Vector. The Commission found that allowing Vector to recover its full MAR in the first year of DPP3 would require a starting price adjustment of 7.7%. Since this represented a real price increase of less than 10%, Vector's starting prices were set in line with its full MAR. Vector's prices were only allowed to increase in line with CPI over the subsequent years of DPP3.

b Where the required increase in real prices between the final year of DPP2 and the first year of DPP3 exceeded 10%, then the starting price adjustment was capped at 10%. However, in these cases the Commission set an "alternative rate of change", whereby the prices of GPBs whose adjustment to starting prices was capped at 10% were allowed real increases in prices over the regulatory period. This was the situation faced by GasNet, Powerco, First Gas Distribution and First Gas Transmission.

99. Importantly, the Commission capped the annual real increase in the MAR for all GPBs at 10% per annum.

100. Hence, there is an important relationship between the starting prices set by the Commission and the extent to which the price limit in subsequent years may bind.

a If the full starting price adjustment was allowed by the Commission, then there would be no need for any real increases in prices over the remaining years of the regulatory period. In turn, this would mean that any limit on the increase in prices in subsequent years would be less likely to bind.

b However, if the starting price adjustment was capped by the Commission, then any price limit imposed by the Commission for subsequent years would be more likely to bind, because some increase in the supplier's real prices in those years would be necessary to recover the MAR over the period.

101. That is to say, in situations where the Commission decides to cap the adjustment to starting prices, there may be a need for prices in subsequent years of the regulatory period to increase by more than CPI in order for the supplier to be made whole over the regulatory period. However, a limit on annual price increases in subsequent years of the regulatory period could result in the supplier recovering less than its MAR over the period.

102. It is not at all clear that any of these outcomes were (or could have been) anticipated by the Court of Appeal or the Supreme Court that upheld the Commission's decision to not develop an IM that specified how starting prices would be reset. At the time those judgments were handed down, the Commission had not yet made any regulatory determinations under the Part 4 regime. It certainly had not foreshadowed that it might impose a limit on the starting price adjustment. Indeed, this is a relatively new development that, for the reasons explained above, could have important implications for investment incentives.

103. In response to the Commission's draft DPP3 decision for GPBs, Vector raised concerns that the 10% cap on the starting price adjustment applied by the Commission appeared to be arbitrary and noted that the Commission had not presented any analysis as to how it had arrived at that number.[27] In other words, Vector was concerned that the Commission had not presented any reasoning at all to justify its 10% limit on the starting price adjustment.

[27] Vector, *Default Price-Quality Paths for Gas Pipeline Businesses from 2022 Submission on the Commerce Commission's Draft Decision*, 14 March 2022, p. 27.

104. The Commission's response to Vector's concerns was that the choice of the 10% figure was a "judgement call" (i.e., it was not underpinned by any testable evidence or analysis). The only justification that the Commission offered for the figure was that it had been used in previous decisions:

> *The 10% cap was a judgement call and reflected a balance between ensuring prices reflect the costs of providing the service, including the impact of shorter economic lives of assets, and minimising price shocks to consumers. The value of 10% has been used in a number of previous resets, for example in the 2010 to 2015 reset for Alpine Energy Limited, Centralines, The Lines Company, and Top Energy Limited where a 10% cap on price increases was applied.*[28]

105. In summary, the Commission has recently introduced a cap on starting price adjustments for some suppliers (i.e., GPBs) that:

a Was not foreshadowed at the time the Court of Appeal and the Supreme Court handed down judgments in relation to Vector's application for judicial review of the Commissions' decision not to publish an IM that specified how starting prices would be reset.

b Was not supported using any testable evidence or analysis. Rather, the Commission has simply noted that the cap is a matter of judgement.

c May result in suppliers being unable to recover their efficient costs over a regulatory period because the imposition of the cap may require prices in subsequent years to increase in real terms, but those price increases may also be limited by the Commission.

d Cannot be subjected to merits review by suppliers, consumers or any other party because the Commission has not developed an IM that specifies how it will reset starting prices, and only IMs may be subjected to merits review under the current regulatory framework.

e It may or may not decide to extend to other suppliers (e.g., EDBs) in future. Given that the limit on starting price adjustments imposed by the Commission on GPBs was based only on its judgment, there is no way to anticipate what circumstances the Commission may deem it appropriate to extend the cap to other suppliers. It was this sort of uncertainty that the IMs framework was intended to resolve.

4.3 Implications of the price limit binding

106. Section 3 explained that three regulatory principles relevant to the assessment of the existing EDB price limits arise from the Part 4 purpose:

a. The regulatory framework should provide EDBs with a reasonable expectation of recovering all of their efficient costs over the lifetime of the assets;

[28] Commerce Commission, *Default price-quality paths for gas pipeline businesses from 1 October 2022 Final Reasons Paper*, 31 May 2022, at 4.41.

b. The regulatory framework should ensure that sufficient regulatory cash flows are available to EDBs in *each* regulatory period to support the benchmark credit rating (at the benchmark level of leverage) assumed when setting those allowances in the first instance; and

c. The regulatory framework should provide EDBs with effective incentives to make efficiency improvements that can be shared with consumers, and to provide consumers with regulated services at a level of quality that reflects consumer demand.

107. This section explains why these principles may be undermined if the existing price limit is retained and binds in future regulatory periods, including DPP4.

108. This section also considers the implications for intergenerational equity in the circumstances where the price limit binds.

4.3.1 EDBs may not have an expectation of recovering their efficient costs

109. As explained in section 3, according to Part 4 of the Act, an important way of promoting the long-term benefit of consumers is to ensure that EDBs are incentivised to invest efficiently in regulated assets. A failure to invest in regulated services would hinder the ability of EDBs to deliver regulated services and satisfy consumer demand, which would result in lost economic welfare to consumers.

110. The Commission has recognised the statutory requirement for the regulatory framework to promote efficient investment by regulated suppliers and has established the ex-ante FCM principle as a means of providing appropriate incentives for efficient investment in regulated assets.

111. The ex-ante FCM principle holds that regulatory allowances should be set in such a way as to provide regulated suppliers with a reasonable expectation that they will be able to recover all of their efficient costs over the expected lifetime of those assets, once those costs have been incurred. This would provide regulated suppliers with confidence to invest, safe in the expectation that they will be provided a reasonable opportunity to recoup all of their efficient costs over the expected economic lifetime of the assets.

112. Under the existing regulatory arrangements, if the price limit binds in a particular regulatory period such that some of the EDB's efficient costs over that period cannot be recovered, then any such under-recoveries would be transferred into a "wash-up account" and be drawn down in future regulatory periods through additions to the EDB's BBAR in those periods.[29]

113. The Commission describes the mechanics of the wash-up account and subsequent draw-downs as follows:

[29] Any under/over-recoveries are transferred from one regulatory period to the next in an NPV-neutral way, taking into account an estimate of the EDB's opportunity cost of funds in the form of the weighted average cost of capital. See DPP3 Reasons Paper, at H114-122.

> *If the distributor has built up a positive balance in its wash-up account, it may use some or all this balance when setting prices, such that the prices would be higher than if it did not use any of this balance. This is generally referred to as drawing down the account.*[30]

114. On the face of it, this mechanism would seem to preserve the ex-ante FCM principle because any under-recovery of EDB allowed revenues in one period as a consequence of the price limit binding would be captured by the wash-up account and (in principle) drawn down (i.e., recovered by the EDB) in future periods.

115. The problem is that if the wash-up account balance is sufficiently large (e.g., because revenue under-recovery was material in the current period or in historical periods), and the attempt to recoup those past under-recoveries results in the price limit binding in future periods, then the recovery of the EDB's efficient costs could be pushed repeatedly and very far into the future.

116. Under-recoveries could accumulate in the wash-up account over successive regulatory periods because in each period the amount of revenue that the EDB would need to recoup in order to draw down the account exceeds the price limit. In these circumstances, the EDB might never recover its efficient costs because the price limit in each future period prevents a full draw down of the account. Eventually, the accumulated balance of the revenue wash-up account could become so large that it exceeds the consumers' willingness to pay for regulated services. In these circumstances, the accumulated under-recovery of allowed revenues from prior years in the wash-up account would need to be written down—effectively stranding some of the EDB's costs—because there would be no feasible way to recoup those losses from consumers.

117. This very outcome occurred recently in the case of NBN Co, the largest fibre network operator in Australia. NBN Co had to invest significant capital during the nationwide rollout of its network. Because NBN Co had to build up its customer base gradually, it endured a long period of significant under-recovery of costs. These 'losses', totalling an estimated $44 billion by the end of the 2022-23 financial year, were accumulated into a regulatory mechanism known as the Initial Cost Recovery Amount (ICRA), which plays a very similar role to the Commission's revenue wash-up account—namely, to record any unders/overs in revenue recovery, and roll those amounts forward in an NPV-neutral way using an estimate of the cost of capital. In December 2022, in a Special Access Undertaking to the Australian Competition and Consumer Commission (ACCC), NBN Co proposed to write off $31 billion within the ICRA, reflecting the commercial reality that consumer willingness to pay would not allow recovery of the full ICRA amount.[31] That is, $31 billion of NBN Co's costs was effectively stranded because the total under-recovery of its historical revenue requirement had become too large to recoup feasibly through future charges.

118. If EDBs expect that they may not recover all of their efficient costs, due to the operation of a binding price limit, that would violate the ex-ante FCM principle. That, in turn, could deter efficient investment by EDBs in regulated assets. This would ultimately be to the long-term detriment, rather than benefit, of consumers.

[30] DPP3 Reasons Paper, at H101.

[31] NBN Co, *nbn Special Access Undertaking Variation 2022 – Supporting submission, Part A: Executive summary and key narratives*, November 2022, p. 9.

119. Furthermore, inadequate incentive to invest in regulated assets could undermine the electrification of the economy and slow down the transition away from fossil gas, which the Government has identified essential to meeting its 2050 net zero commitments.

120. In addition, EDBs may be disincentivised from investing in in energy efficiency and demand side management. Section 54Q of the Act requires that the Commission "must promote incentives, and must avoid imposing disincentives, for suppliers of electricity lines services to invest in energy efficiency and demand side management."

121. For the avoidance of doubt, our concern is not about the application of the revenue wash-up account. A revenue wash-up is essential if the Commission intends to impose some limit on annual increases in EDBs' charges, and also because the EDBs are regulated under a revenue cap. Rather, our concern is that binding price limits could prevent timely draw downs of the revenue wash-up account, resulting in an accumulation of historical under-recoveries that might persist for several regulatory periods, and may eventually have to be written-off altogether.

4.3.2 The regulated cash flows may be insufficient to support the benchmark credit rating

122. Section 3 explained that an internally consistent regulatory decision would result in EDBs receiving sufficient regulated cash flows to support at least the benchmark credit rating, at the benchmark level of leverage, assumed by the Commission when setting those allowances in the first place.

123. If that is not the case, then equity investors in an EDB that had adopted a capital structure exactly in line with the efficient benchmark leverage assumed by the Commission would expect to earn a return on equity that is *below* the minimum return that the Commission has determined would be required to compensate equity investors fairly for the risks they bear when committing funds to the regulated business.

124. It is not commercially viable for equity holders to provide capital at an expected return below their opportunity cost of funds. Consequently, the EDB could not expect to attract the equity capital it requires to invest in regulated assets. In other words, the regulated assets would not be financeable.

125. The Commission has previously recognised the importance of aligning regulated suppliers' allowed cash flows to expenditure in order to minimise financeability concerns and to support investment. For example, in the 2010 IMs review, the Commission decided to apply a nominal returns framework to Transpower because the resulting front-loading of capital recovery would better match the cash flow requirements of the business, which was facing "a step change in capex" at the time.[32] The Commission noted that:

[32] Commerce Commission, Input methodologies (Transpower), Reasons Paper, December 2010, pp. 29-30.

> *using an un-indexed approach will, given the likely age structure of Transpower's asset base, be likely to lead to higher revenues for Transpower over the near term. This level of revenue will be likely to be better matched to Transpower's investment needs*[33]

126. Under a binding price limit, an EDB would be prevented from recovering its efficient costs in the years in which the limit binds. If the under-recovery is sufficiently large, the resulting regulated cash flows available to the EDB may be too low to support the benchmark credit rating at the benchmark gearing level—in which case the EDB may face a financeability constraint that prevents it from attracting sufficient capital to invest in regulated assets. The Commission should, in our view, perform analysis at each revenue determination to assess whether such a situation is likely to occur over the forthcoming regulatory period.

127. In our view, the best way to prevent such outcomes would be to ensure that EDBs are allowed to recover their efficient costs in each regulatory period.

4.3.3 EDBs may not face effective incentives to become more cost efficient and improve service quality

128. Section 3 explained, Part 4 of the Act also recognises that the long-term benefit of consumers is promoted by the regulatory framework ensuring that:

    a EDBs face incentives to make cost efficiency improvements and then sharing those gains with consumers; and

    b EDBs face incentives to provide services at a level of quality that reflects consumer demands.

129. In recognition of these statutory requirements, the Commission has developed:

    a the IRIS mechanism, which provides EDBs with financial incentives (i.e., higher revenue allowances) for delivering cost efficiencies that can be shared with consumers; and

    b a revenue-linked quality incentive scheme that provides EDBs with financial incentives (again, higher revenue allowances) for delivering service quality and reliability that exceeds a specified target level.

130. The incentives for cost efficiency and quality improvements created by these incentive mechanisms would be weakened significantly if EDBs could not access the financial rewards associated with lifting cost efficiency and quality performance. An EDB that knows that it will receive higher revenue allowances in the next period if it delivers cost efficiency improvements in this period and/or outperforms the quality target would be incentivised to deliver those improvements. However, if the EDB recognises that it is unlikely to receive the payments from the IRIS and/or the revenue-linked quality incentive scheme for a number of periods (or not at all) due to a binding price limit, then the EDB's incentives to deliver those efficiency and/or quality improvements could be blunted.

131. The Commission has noted the importance of providing strong incentives for cost efficiency as the economy decarbonises and electrification increases:

[33] Commerce Commission, Input methodologies (Transpower), Reasons Paper, December 2010, pp. 30-31.

> *we consider that there is a clear need for a concerted effort to rapidly improve efficiency (and accelerate innovation) to make a less costly transition to increased electrification than under business as usual.*[34]

132. A binding price limit could undermine the incentives for future efficiency improvements during the transition to greater electrification, which the Commission has identified as a high priority.

The Commission has also noted that there is evidence that those EDBs that have been exposed to greater incentives under the revenue-linked quality incentive scheme have tended to make the greatest improvements in reliability, and that EDBs themselves have advised the Commission that "the incentive scheme does impact distributors' decisions."[35] A binding price limit could neutralise the incentives that at least some EDBs appear to be responding to under the revenue-linked quality incentive scheme.

133. Furthermore, the Commission recognises that the IRIS and the revenue-linked quality incentive schemes are complementary and should operate together to deliver long-term benefits to consumers. For instance, the Commission explains that:[36]

a The IRIS discourages EDBs from pursuing inefficiently expensive solutions to improve reliability as a means of securing financial rewards under the revenue-linked quality incentive scheme, because the IRIS would impose financial penalties on the EDBs for doing so; and

b The revenue-linked quality incentive scheme discourages EDBs from pursuing inefficient cost-cutting that sacrifices reliability to consumers as a way of securing financial rewards under the IRIS, because the revenue-linked quality incentive scheme would impose financial penalties on the EDBs for doing so.

134. We agree with the Commission's analysis in this regard. As the Commission recognises, the financial rewards (and penalties) from both incentive mechanisms are necessary to balance and manage the price-quality relationship.

135. However, a binding price limit could disrupt the complementarity of these incentive mechanisms. For example, if the price limit is likely to bind in the next regulatory period such that the financial rewards from only one or the other of these incentive schemes will be received by the EDB, that could skew incentives in the current period in favour of pursuing greater reliability at an inefficient cost, or cost savings at the expense of reliability—whichever would be the most profitable outcome for the EDB. The unbalancing of incentives in this way is unlikely to promote the long-term benefit of consumers.

[34] Commerce Commission, *Part 4 Input Methodologies Review 2023, Process and Issues paper*, 20 May 2022, para. 5.86.

[35] DPP3 Reasons Paper, at J22.

[36] DPP3 Reasons Paper, at J16-18.

4.3.4 Intergenerational equity

136. In each regulatory period, the Commission derives an estimate of the efficient costs that EDBs should be permitted to earn, and that consumers are permitted to pay, in that period. The BBAR for each EDB represents the sum total of those efficient costs.

137. The problem that we have identified is that when the price limit binds, the EDB will be prevented from recovering its efficient costs in that period, and the recovery of those costs will be deferred to later periods. In these circumstances:

    a consumers in the current period would pay *less* than the efficient costs determined by the Commission, because the price limit would prevent some of the EDB's BBAR being recovered; and

    b consumers in future periods would be expected to pay *more* than the efficient cost determined by the Commission, in order for past under-recoveries to be recouped.

138. That is, the Commission's efforts to smooth prices for consumers in the near term would be expected to result in consumers in later regulatory periods paying above efficient prices. This would seem to create an intergenerational equity problem.

139. In our view, the more appropriate solution would be to allow customers in each regulatory period to pay the efficient costs of using regulated services—no more, and no less.

4.4 Results of indicative revenue and financeability modelling

4.4.1 Revenue modelling

140. Section 4.3.1 explained that in certain circumstances the Commission's annual price limit could bind repeatedly in consecutive regulatory periods. If EDBs persistently under-recover their revenue requirement, and significant under-recoveries accumulate in the revenue wash-up account, that could result in situation where EDBs do not *expect* that they will recover their efficient costs—thus violating the ex-ante FCM principle.

141. In order to test whether this could occur, we undertook indicative revenue modelling for the Big 6 over the DPP4 (i.e., FY2026-30) and DPP5 (i.e., FY2030-35) regulatory periods. Specifically, for each network, we forecasted the opening RAB to 2033, by starting at the 2022 closing RAB as per the latest information disclosures, adding forecast assets commissioned from the asset management plans[37] submitted to the Commission by the EDBs, and subtracting depreciation and disposals.[38] Revaluation gains are applied to the RABs using the latest inflation forecasts to the opening RAB. Operating expenditure forecasts to 2033 are also taken from the asset management plans. We continue forecasting to 2035 by maintaining real assets commissioned and real operating expenditure. We were unable to forecast the EDBs' efficient costs beyond DPP5 because we did not have forecasts of costs for the EDBs beyond that regulatory period.

[37] See https://comcom.govt.nz/regulated-industries/electricity-lines/electricity-distributor-performance-and-data/information-disclosed-by-electricity-distributors, collating information contained in the EDB's asset management plans. For Unison we used the draft 2023 Asset Management Plan provided by Unison.

[38] Maintaining a constant weighted average remaining life as per 2022 regulatory depreciation, and maintaining disposals as a constant share of opening RAB as per 2022.

142. We used a forecast nominal vanilla WACC of 6.99% and 7.07% for the DPP4 (i.e., FY2026-30) and DPP5 (i.e., FY2030-35) regulatory periods. This is based on the Commission's Draft 2023 cost of capital IM and forecasts of the nominal risk-free rate calculated using forward curve data for New Zealand obtained from Bloomberg.

143. We then derived the building blocks allowable revenue (BBAR) as per the Commission's current financial models, for each business for each regulatory period. We then aggregate across the Big 6 to find the forecast efficient costs in each year of DPP4. We do not include forecasted Transpower costs as these are proposed to be pass-through costs, which the Commission has proposed to exclude from the 10% annual price limit.

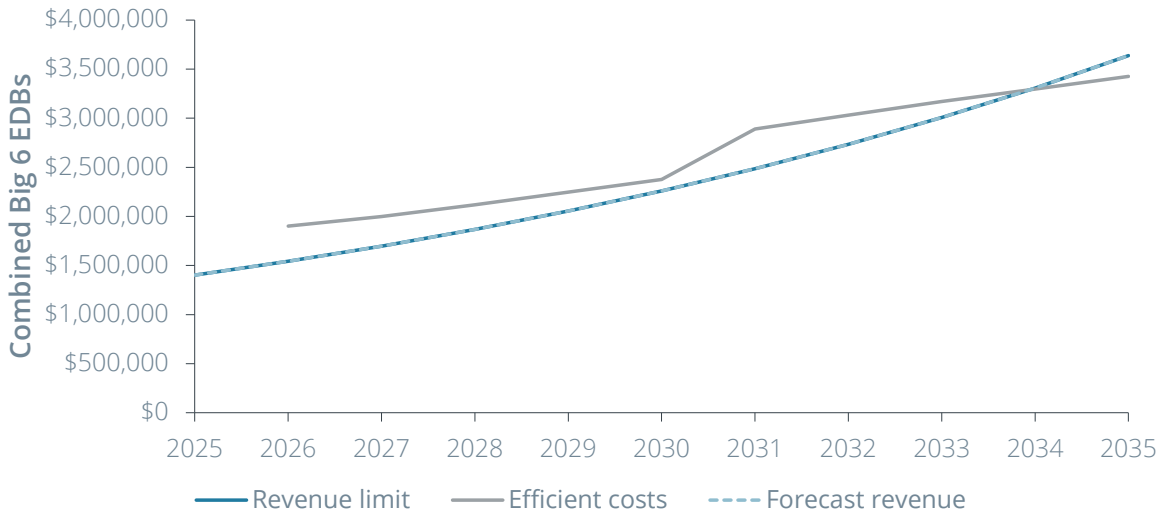
144. To test the impact of the 10% nominal limit on revenue increases, we first start from nominal prices in 2025 as the DPP3 decisions.[39,40] We find the NPV of the revenues for DPP4 if revenues were to increase by 10% each year to the present value of the efficient costs. If the former is greater than the latter, the revenue increase limit will not bind, and we would then solve for the appropriate X-factor.

145. If the latter is greater, revenues that increase by 10% nominal each year would not be forecasted to compensate the aggregated EDBs for their efficient costs. The difference would be included in a revenue wash-up balance to be recovered in future periods.[41]

146. We assume that the starting price adjustments (i.e., the increase in prices from the last year of one regulatory period to the first year of the next regulatory period) would be capped at 10%.[42]

147. We find that for both regulatory periods the 10% nominal revenue increase limit would bind, leaving a positive wash-up balance at the end of DPP5. Thus, the forecast revenue is equal to the revenue limit as shown in **Figure 4**.

Figure 4: Forecast revenue comparison ($000s nominal)



[39] Applying the November 2022 transition decision for Powerco.

[40] We adjust for the forecast difference in price levels between the original decision and the latest forecasts.

[41] Applying WACC to the balance each year.

[42] This issue is discussed in more detail in section 4.2.4 below.

Source: Frontier Economics of EDB data

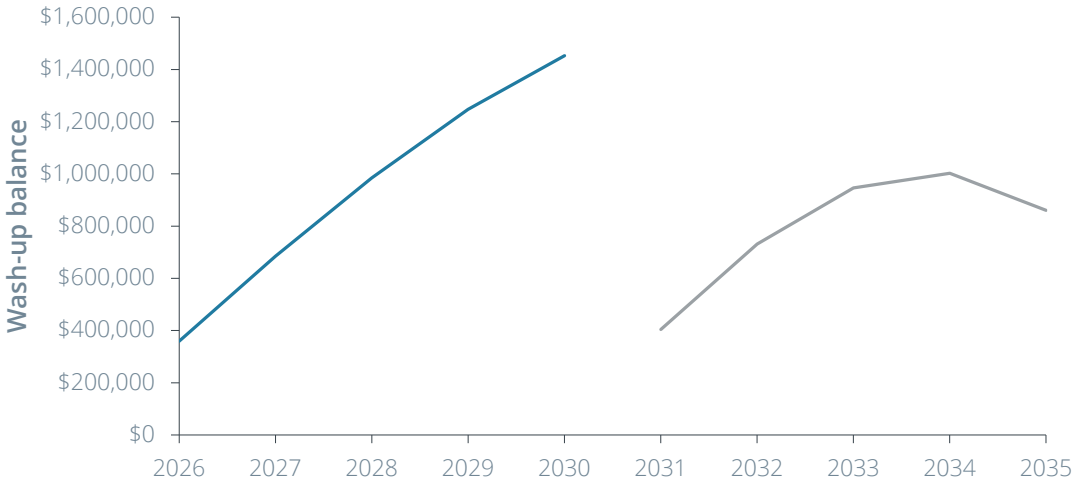
148. Note that recovery of the wash-up balance is included in the efficient costs during the DPP5 regulatory period. The wash-up balance over time is presented below in **Figure 5** and **Table 1**.

149. We found that, based on this information, the aggregate regulated revenue for the Big 6 would need to increase by more than 10% per annum over DPP4 in order for the EDBs to recover all of their efficient costs. In other words, the Commission's 10% is likely to be bind—even if transmission charges and other pass-through costs were excluded from the calculation of the annual price limit as proposed by the Commission.

150. As a consequence of the annual price limit binding, our indicative modelling suggests that nearly $1.5 billion of revenues could be left unrecovered by the end of the DPP4. This unrecovered revenue would accumulate in the revenue wash-up account to be recovered in subsequent regulatory periods.

151. The modelling indicates that much of this revenue would be recovered over DPP5. However, by the end of that period, more than $860 million could remain unrecovered by the Big 6.

Figure 5: Cumulative wash-up balance ($000s nominal)



Source: Frontier Economics analysis of EDB data

Table 1: Cumulative wash-up balance ($000s nominal)

Year	Closing wash-up balance
2026	$359,135
2027	$684,911
2028	$984,489
2029	$1,247,404
2030	$1,452,714
2031	$404,553
2032	$731,427
2033	$946,020
2034	$1,002,448
2035	$860,405

Source: Frontier Economics analysis of EDB data

174. We were unable to model outcomes beyond DPP5 because we did not have the necessary data (e.g., EDB expenditure forecasts) to do so. However, we note that if the under-recovery of revenue persists over multiple periods, that could result in investors no longer expecting that the EDBs would be able to recover all of their efficient costs in full—thus violating the ex-ante FCM principle.

4.4.2 Financeability modelling

175. Rating agencies such as Moody's take into account a range of qualitative factors and a small number of financial metrics when conducting rating assessments of regulated electricity networks.[43] A number of regulators in the UK and Australia have developed formal 'financeability tests' to assess whether the regulatory allowances they set would be sufficient to support the benchmark credit rating (at the benchmark gearing level) used by the regulator to determine the regulatory allowances over a period. These financeability tests draw on the financial metrics used by rating agencies such as Moody's.

176. The indicative revenue modelling presented above indicates that the annual price limit of 10% set by the Commission is likely to bind during DPP4. If this occurs, EDBs will not be able to recover within that regulatory period their full revenue requirement. This may create a cash flow adequacy problem, in the sense that there may be insufficient regulated cash flows for a benchmark supplier that has geared up precisely to the benchmark leverage level to maintain the benchmark credit

[43] See, for example, Moody's, *Regulated Electric and Gas Networks, Rating Methodology*, 13 April 2022.

rating over the regulatory period. This is known, within a regulatory context, as a financeability problem.

177. In order to test whether the binding of the annual price limit in DPP4 would create a financeability problem for EDBs, we use the indicative revenue modelling presented above to construct projected financeability metrics for each year of DPP4 and DPP5, based on the forecasted revenues and regulatory accounts of the aggregated EDBs, and assuming that the Commission's existing 10% annual price limit continues to be maintained.

178. We present two metrics that are used by Moody's in evaluating regulated electricity networks—both of which are computed using information that relates to the benchmark suppliers, rather than the actual businesses of the companies supplying regulated services.

179. The first metric is the Funds From Operation (FFO) interest coverage ratio (FFO ICR). [44] This metric is used by Moody's to evaluate the ability of the business to meet its interest obligations using the available funds from operation. The formula is:

$$FFO\ ICR = \frac{FFO + Interest\ Expense}{Interest\ Expense}$$

180. The second metric is the FFO net debt ratio, where the numerator is FFO and the denominator is net debt. This metric is useful in evaluating the ability of a network to generate sufficient cash flow to cover future debt repayments.

181. The projected metrics are presented below in Table 2.

[44] FFO is defined as revenue minus operating expenditure, interest payments and tax payments.

Table 2: Financial credit metrics

Year	FFO ICR	FFO / Net Debt
2026	3.16x	12.5%
2027	3.35x	13.6%
2028	3.51x	14.6%
2029	3.66x	15.4%
2030	3.83x	16.4%
2031	3.94x	17.3%
2032	4.12x	18.4%
2033	4.33x	19.6%
2034	4.57x	21.0%
2035	4.83x	22.6%

Source: Economics analysis of EDB data

215. The Moody's range for broad BBB businesses is 2.8x to 4.0x for the FFO ICR and 11% to 18% for the FFO Net Debt ratio. The implied thresholds for BBB+ businesses are 3.6x and 15.7%, respectively. Thus, the aggregated business falls short of Moody's BBB+ thresholds for these two key metrics until approximately 2029.

216. We note that when calculating both of these ratios, Moody's effectively assumes all of the firm's cash flows would be made available to service its debt obligations. This means that even if the no dividends were paid at all, and if the EDBs were to commit all of the regulated cash flows to meeting the benchmark debt obligations, the Big 6 collectively would not be considered financeable on the FFO ICR and FFO Net Debt ratio until close to the end of DPP4. That is to say, the financeability problem identified by these two ratios could not be 'fixed' by the benchmark EDBs withholding dividend payments from shareholders.

217. We also derive the Retained Cash Flow (RCF) Net Debt ratio, another rating metric considered by Moody's. To construct RCF Net Debt Ratio, we subtract from FFO a benchmark dividend yield for EDBs. The Commission does not currently define a benchmark dividend yield for EDBs. However, we have been advised by the Big 6 that a benchmark dividend yield of 4% may be considered reasonable. Furthermore, we note that Ofgem assumed a benchmark dividend yield of 3% in its recent RIIO-2 price control decisions.[45] We have therefore modelled the RCF assuming both 3% dividend yield and a 4% dividend yield, for illustrative purposes. The results are presented below in **Table 3**.

[45] Ofgem, *RIIO-2 Final Determinations – Finance Annex (Revised)*, 3 February 2021, p. 137.

Table 3: RCF Net debt metrics

Year	RCF ND @ 3%	RCF ND @ 4%
2026	8.4%	7.0%
2027	9.5%	8.1%
2028	10.4%	9.0%
2029	11.3%	9.9%
2030	12.3%	10.9%
2031	13.2%	11.8%
2032	14.3%	12.9%
2033	15.5%	14.1%
2034	16.9%	15.5%
2035	18.4%	17.1%

Source: Frontier Economics analysis of EDB data

251. The Moody's range for broad BBB businesses is 7% to 14%. The implied threshold for BBB+ businesses is 11.7%. Thus, the aggregated business would not be considered financeable on this metric until 2030 (i.e., the final year of DPP4) if a 4% dividend yield were assumed, and until 2031 (i.e., the first year of DPP5) if a 3% dividend yield were assumed.

252. The modelling above suggests that on several of the metrics considered by Moody's when rating regulated energy networks, EDBs may not remain financeable over most of DPP4 due to the operation of the existing 10% annual price limit.

4.5 Conclusion

253. There are several reasons why the EDB price limit may bind in DPP4:

    a New Zealand has experienced high rates of inflation over several years of DPP3. This will increase EDBs' RABs significantly and result in a significant increase in the return on capital and return of capital over DPP4 (compared to DPP3 levels);

    b Inflation could potentially remain high over DPP4 (if monetary policy action is unsuccessful in bringing inflation under control quickly). Since EDB price limit is expressed as a rate of nominal (rather than real) price increase, this would increase the risk of the price limit binding and preventing EDBs from recovering their revenue allowances fully within DPP4; and

c Government bond yields have increase significantly since the start of DPP3 and are expected to remain relatively high over DPP4. Under the Commission's current WACC methodology, this is likely to drive up the allowed rate of return for EDBs in DPP4.

d The Commission has recently decided to cap the adjustment to starting prices for GPBs at 10%. If the required starting price adjustment is greater than 10%, then suppliers' real prices would need to increase over the remaining years of the regulatory period to provide them with an opportunity of recovering all of their efficient costs. However, this would increase the likelihood of the price limit binding beyond the first year of the regulatory period. Because the Commission has not developed an IM that specifies how it would reset starting prices for each regulatory period, there is no way of knowing if/when the Commission might extend this cap on the starting price adjustment to EDBs.

254. Indicative revenue modelling we have undertaken suggests that the imposition of the Commission's price limit could result in a significant under-recovery of efficient costs for the Big 6 collectively during DPP4—notwithstanding the Commission's proposal to exclude all pass-through costs (including transmission charges) when calculating the price limit.

255. If the price limit binds in several consecutive periods, that could defer the recovery of EDBs' efficient costs over multiple periods. If the accumulated under-recovery of allowed revenues from prior years in the revenue wash-up account becomes sufficiently large and exceed consumers' willingness to pay, then there would be no feasible means of recouping those under-recoveries. This would result in EDBs' costs effectively becoming stranded. If EDBs cannot expect to recover all of their efficient costs over the lifetime of the regulated assets, then investors in the EDBs are unlikely to supply the capital required to invest in regulated assets. This would not promote the Part 4 purpose.

256. The modelling also indicates that the Big 6 may face a financeability problem as a result of the binding price limit for several years during DPP4.

257. If the regulated cash flows available to EDBs in each regulatory period are insufficient to support the benchmark credit rating (at the benchmark level of leverage) adopted by the Commission setting regulated allowances, then equity investors in an EDB that had adopted the efficient capital structure determined by the Commission could not expect to recover the allowed return on equity. This is because if the regulated cash flows are insufficient to support the benchmark credit rating of an EDB that had geared up to benchmark level of leverage, then the cost of debt of such an EDB would be higher than the allowed return on debt set by the Commission. This shortfall would have to be made up by equity investors sacrificing some of their allowed return to ensure that the EDB is able to service its debt obligations. Since it is not commercially viable for equity investors to supply capital for an expected return that is below the return required to compensate them for the risks they bear, an EDB in the circumstances described above would be unable to attract the equity capital needed to invest in regulated assets. Once again, this would not promote the Part 4 purpose.

258. For the avoidance of doubt, our modelling does not show that these outcomes *will* occur. Rather, the modelling indicates that these outcomes *could* occur. The key point is that these potential outcomes (if they were to occur) would be a direct consequence of a regulatory choice made by the Commission and, therefore, could be avoided if the Commission were to make different choices in relation to the annual price limit.

259. Part of the allowed revenues that EDBs may receive are incentive payments (e.g., from the IRIS and the revenue-linked quality incentive scheme). In circumstances where EDBs do not expect to receive any such incentive payments, because they are likely to be operating under a binding price

limit, the EDBs may face weakened incentives to deliver cost efficiency improvements and/or improvements in reliability and service quality. This too would not promote the Part 4 purpose.

260. Under a binding price limit, the recovery of some of the EDB's allowed revenues would be deferred to future periods via the Commission's revenue wash-up and draw down mechanism. This effectively smooths prices over different regulatory period. However, one consequence of this smoothing is that consumers in the current regulatory period (in which the price limit binds) would pay *less* than the efficient costs required to deliver regulated services, while consumers in future regulatory periods would pay *more* than the efficient costs required to deliver regulated services. The shifting of the cost recovery burden from current consumers to future consumers may create intergenerational equity concerns.

5 Proposed solutions

261. In section 4.3, we identified a number of potential concerns associated with the Commission's price limit which, if it binds in future regulatory periods, may lead to outcomes that would not promote the Part 4 purpose. In this section, we consider a number of options for addressing these concerns.

5.1 Efficiency is maximised by removing the limit

5.1.1 Promoting the Part 4 purpose requires tariffs linked to efficient costs

262. A critical aspect of the Part 4 purpose (and indeed a central tenet of best practice regulation) is the promotion of efficiency. In practice, the promotion of efficiency requires setting prices that allow EDBs to recover the efficient cost of existing infrastructure assets, that encourage the optimal use of existing infrastructure assets, and that signal to users the cost of new infrastructure capacity.

263. To achieve this objective, prices should be set to reflect the underlying economic costs of supplying regulated services. Linking tariffs with network costs ensures compliance with the ex-ante FCM principle and provides EDBs with appropriate incentives to invest efficiently. It promotes efficient utilisation of the regulated assets by ensuring that consumers' usage is linked to their willingness to pay the true cost of providing network services when required. In addition, it would be a fairer charging system since electricity users would pay for the costs they impose on the network as a consequence of their electricity consumption.

264. It is well established in economic literature that setting prices equal to marginal cost will promote efficient use and production of goods and services. Marginal cost is the increase in total costs that arises from a decision to produce an additional unit of output. In regulatory settings, regulators commonly require firms to price on the basis of long-run costing concepts, such as long-run marginal cost (LRMC). The efficiency justification for this type of pricing is that it explicitly allows consumers to face the (opportunity) costs of maintaining and expanding service capacity over time. Setting prices that send signals about the costs of increasing capacity is particularly important in situations where existing infrastructure is likely to need enhancement to service demand growth.

265. In practice, setting prices equal to LRMC will usually generate insufficient revenue to recover the total cost of existing assets. This means that there is a need to recover the remaining revenue requirements via additional charges. This necessitates a 'second-best' tariff structure, where the additional revenue is sourced from charges that minimise changes in network use, relative to what would have occurred if consumers pay only the marginal cost of supply. For network infrastructure there are two options that could satisfy this principle, namely:

    a charging a two-part tariff with a fixed network supply charge per customer, which does not vary according to a customer's use of the network; and/or

    b marking up consumption or capacity based charges to those customers or parameters that are likely to be less responsive to changes in price – commonly known as 'Ramsey pricing.'

266. We note that the Government's decarbonisation policies are expected to drive rapid increases in electricity demand in New Zealand. Significant increases in network investment are likely to be required in order to respond to this increase in demand and to maintain electricity network reliability. It is important that the DPP framework incentivises efficient tariffs in order to provide

the right signals for network investment and usage, and to ensure that EDB's are well positioned to respond to the decarbonisation challenges that may arise in the future.

5.1.2 Removing the price limit will result in more efficient outcomes

267. The price limit applied by the Commission is entirely independent from any consideration of changes in an EDBs prudent and efficient costs. This means that, if the price limit binds, EDBs will be prevented from raising prices to the efficient level, i.e., network prices will be less than the efficient cost of providing network services. The more often the price limit binds, and/or the greater the amount of allowable revenue that is deferred as a result of the price limit binding, the further removed prices will become from efficient costs.

268. The consequences of this are significant. In particular, EDBs may be unable to recover their prudent and efficient costs. This would be inconsistent with the FCM principle and would weaken the incentives to invest efficiently. It may also become more difficult for EDBs to set variable tariffs that reflect marginal cost. This is because changes in allowable revenue over a regulatory period would not be aligned with changes in the drivers of network costs over that period. If this results in variable tariffs being set below LRMC, then customers would not face prices that signal the efficient cost of additional network infrastructure. This would lead to inefficient network usage decisions and also provide inefficient signals to EDBs about the demand for network expansion.

269. In our view, removing the price limit will result in more efficient outcomes. This is because it would remove constraints imposed by the limit on an EDB's ability to set prices that reflect the underlying economic costs of supplying network services. This would improve an EDB's ability to set prices that recover the efficient cost of existing infrastructure assets, thereby encouraging efficient investment in the network, and signal to users the cost of new network capacity, so as to encourage efficient usage of infrastructure capacity. Removing the price limit would also remove intergenerational equity issues that arise when the price limit binds. It will mean that customers in future regulatory periods are not subsidising the cost of supplying customers in the earlier regulatory periods.

270. For the reasons outlined above, we consider that removing the price limit altogether would better promote the Part 4 purpose. This is particularly so since, as explained in section 3, nothing in Section 52A of the Act suggests that price smoothing is one of the ways in which the Commission should promote the Part 4 purpose.

271. In our view, the Commission's focus on insulating consumers from price volatility is misplaced. There is nothing inherently pernicious about the variability of prices faced by consumers. As we have noted in a previous report, many efficient and competitive markets produce prices that are highly unstable over time.[46] That does not mean that consumers in those markets are being harmed in any way. The 'invisible hand' guiding those competitive markets does not seek to cap price changes so as to protect consumers from price volatility.

272. It may be reasonable for the Commission to be concerned about a situation in which regulated prices are set above consumers' willingness to pay for regulated services. Those consumers that are unwilling (or unable) to pay the regulated price will ration or forego consumption. The lost economic welfare from foregone consumption could be very large for those affected consumers in particular.

[46] Frontier Economics, *Options to maintain investment incentives in the context of declining demand*, 9 February 2023, para. 32.

273. If the Commission's 10% annual price limit is aimed at addressing that problem, it is in our view too blunt an instrument to be useful, and may inadvertently cause more long-term harm to consumers than good—for instance by disincentivising efficient investment or improvements in efficiency and service quality.

274. Willingness to pay for regulated services varies between cohorts of consumers. Some consumers may have very low willingness/ability to pay for regulated services, and it is those consumers that are most likely to be harmed by regulated prices rising sharply. Other consumers may have a very high willingness to pay and may therefore accept even very large price increases because consumption would still be worthwhile for those users even if prices were to rise significantly.

275. The Commission's 10% annual price limit is a one-size-fits-all approach that treats all groups of consumers the same, regardless of their true willingness to pay or tolerance for price increases. Some users may only be able to manage price increases that are lower than 10% per annum, whereas other users may be willing to accept price increases that are much larger than 10% per annum.

276. A better way of ensuring that regulated charges reflect the willingness to pay of different consumer groups is through the structure of network tariffs, which the Commission does not have a role in regulating. The setting of policies around distribution pricing is currently the responsibility of the Electricity Authority and may therefore be better dealt with through a separate regulatory framework than Part 4 of the Act.

5.2 Amendments to the price limit can improve efficiency

277. If the Commission decides to not remove the price limit altogether, we consider that certain changes to how the price limit applies would lead to more efficient price outcomes and therefore better promote the Part 4 purpose than under the existing arrangements.

278. These changes include:

    a Applying the price limit net of incentive payments;

    b Applying the price limit net of inflation; or

    c Increasing the price limit or apply the price limit more flexibly.

279. We consider each of these changes in turn below.

5.2.1 Apply the price limit net of incentive payments

280. We noted in section 3, that the Commission has introduced a specific incentive scheme for EDBs relating to operating and capital allowances known as the IRIS mechanism. The IRIS mechanism provides EDBs with financial rewards (i.e., higher revenue allowances) for delivering cost efficiencies that can be shared with consumers. The current formulation of the IRIS mechanism rewards EDBs for making cost savings by allowing them to retain a proportion of the cost saving in the five years after the saving is made.

281. Section 52A(b) the Act also imposes a statutory requirement on the Commission to promote quality incentives. The Commission does this by setting a quality path for EDBs based on the duration and frequency of interruptions on the distribution network that customers experience. EDBs that perform better than the quality targets set by the Commission may receive a financial reward via an increment to the revenue allowance in the next regulatory period.

282. In our view, the application of the price limit to incentive payments has three key issues:

    a it may change the time profile of recovering rewards to be different to what the Commission intended when the schemes were introduced;

    b it means that the incentive schemes apply differently to rewards (which may be deferred if the limit binds) and penalties (which would be realised even if the limit binds); and

    c it means that incentive payments are subject to an additional requirement which is outside the control of EDBs.

283. First, the application of the price limit means that both the IRIS mechanism and the quality linked revenue incentives operate in a different manner to how the Commission intended in its DPP3 decision. This is because a consequence of the price limit binding is that it may defer the recovery of incentive payments under these schemes.

284. Consider, for instance, a situation where an EDB spends less than its forecast operating and capital expenditure allowances in DPP3. In DPP4, the EDB would be entitled to receive IRIS payments that reflect the cost efficiencies it achieved in the previous period. If, however, the price limit binds in a particular year of DPP4, the recovery of some or all of these incentive payments would be deferred to the next regulatory period. The same outcome may result in relation to incentive payments that an EDB would be entitled to receive for delivering improvements in service quality as against its quality targets.

285. The result is that the time profile of rewards under both the IRIS mechanism and the quality linked revenue incentives may not align with the Commission's decision in DPP3. Difficulty in predicting when the price limit will bind will contribute to uncertainty over when the rewards will be received.

286. Second, the application of the price limit means that the incentive schemes apply differently to gains from underspending expenditure allowances and achieving service targets, compared to losses from overspending expenditure allowance and falling short of service targets. While rewards may be deferred from the price limit binding, penalties would not since they operate to reduce an EDB's allowable revenue and would be realised even if the price limit binds.

287. Third, the application of the price limit means that the receipt of incentive payments are subject to an additional requirement, which is that the annual change in allowable revenue must be less than or equal to the stipulated price limit (i.e. 10%). Under the current formulation of the price limit, this requirement is outside the ability of EDBs to control. This is because the price limit includes pass-through costs, transmission charges and inflation, all of which are exogenous to EDBs. As noted above, the Commission has proposed to exclude transmission charges and other pass-through costs from the calculation of the price limit. However, under the Commission's Draft IM, the price limit would continue to be expressed in nominal rather than real terms, and inflation is outside the control of EDBs. In our view, it would be anomalous to introduce incentive mechanisms that are intended to reward EDBs for actively seeking cost efficiencies and service quality improvements, but to then make the receipt of these rewards conditional on circumstances that are outside EDBs' control.

288. The implication of these factors is that EDBs may be less incentivised to pursue cost efficiencies or service quality improvements (or may decide to delay the achievement of these) in circumstances where they expect the price limit will bind in the future and the timing for recovering rewards associated with these gains is uncertain.

289. For the reasons identified above, we think that excluding incentive payments from the price limit would strengthen incentives to reduce costs and improve service quality. We note that this change

may reduce the instances in which the price limit binds, potentially resulting in higher prices for consumers. In our view, this impact is outweighed by the gains that we expect would be realised by strengthening the incentive properties of the regulatory framework. Specifically, we expect that this change will increase the strength of the incentives provided under both the IRIS mechanism and the revenue-linked quality incentive scheme, leading to greater efficiency savings (and hence prices) as well as better service quality in the future.

5.2.2 Apply the price limit net of inflation

290. As discussed above, we support the Commission's proposal to exclude transmission charges and other pass -through costs when calculating the price limit.

291. In our view, the price limit should also be applied net of inflation. If this change were implemented, the price limit would only bind to constrain an EDB's tariffs if there were a significant increase in an EDB's real costs.

292. A key benefit of this approach is that it would provide EDBs with a greater opportunity to set tariffs by reference to the underlying economic cost of providing network services. Specifically, because the limit will bind less frequently, it will improve the ability for EDBs to recover their prudent and efficient costs in each regulatory period, and so lead to more efficient decisions about network investment. At the same time, it would reduce constraints on an EDB's ability to establish variable tariffs that reflect LRMC, leading to more efficient use of network infrastructure and providing better signals to EDBs for long term network expansion.

293. Our suggested change would also lead to greater visibility on the drivers of price changes. Under the current formulation, if the price limit binds, it would be unclear whether that was due to changes in distribution costs, inflation, or some combination of these factors. Our proposed change would ensure there is a clearer link between the price limit binding to constrain EDB prices, and the reason for the constraint being a significant change in EDB's real costs. That is, if the price limit binds, it is because EDB costs increased by more than the specified amount. Greater visibility on the drivers of price changes would promote the long-term benefit of customers as it would allow the Commission, EDBs and other stakeholders to propose more targeted solutions to addressing the cause of the price increase.

294. We recognise that this change may reduce the instances in which the price limit binds, potentially resulting in higher prices for consumers. In our view, implementing this change would be consistent with the Commission's stated aim that the price limit bind 'infrequently.' In addition, we consider that any price increases that arises as a result of applying this change to the price limit would be efficient and result in outcomes that better promote the Part 4 purpose. This is because it would result in tariffs rising to the efficient level (as distinct from tariffs rising above the efficient level). In this way, it would improve allocative efficiency in the market.

5.2.3 Adjusting the price limit

295. If the Commission decides not to apply the price limit net of incentive payments and inflation, then we consider that the limit should be increased.

296. The practical impact of the current price limit is that the annual limit on real price increases from changes in EDB costs is much less than 10% – specifically, it will be 10% less forecast inflation less the annual expected change in Transpower's costs.

297. At the outset, we note that a 10% limit on nominal price increases does not appear consistent with the Commission's decisions in past regulatory periods. In particular, in its DPP3 Determination, the

Commission noted that it had previously allowed a 10% to 11% increase in *real* prices. The associated increase in nominal prices those decisions would have been higher than the current 10% price limit.

298. In addition, when setting the price limit at 10%, the Commission noted that it wished to see the limit bind only as an exception. It said that the limit should be high enough to allow for routine changes, such as the CPI change, the usual volatility of recoverable costs, and the usual volatility of quantities, to occur without triggering the limit.[47] To date, the price limit has not been binding because inflation expectations have been relatively modest and annual increases in Transpower's allowed revenues have also been reasonably small.

299. In our view, however, a number of key circumstances are expected to change which may increase the likelihood that the price limit will bind (and bind more often) in the future. As set out in section 4, the rate of inflation is forecast to be 7.27% in 2023. This is considerably higher than 2.0% p.a., the midpoint of the RBNZ's inflation target range. Whilst the RBNZ is forecasting that it will be able to return inflation close to 2.0% p.a. by 2025, there is a high degree of uncertainty at present about how quickly it will be able to bring inflation under control.

300. Furthermore, it is likely that EDBs will need to make significant investments in their networks beyond the next regulatory period in order to increase electrification of the economy—a necessary task if New Zealand is to achieve its net zero commitments.

301. This would increase the likelihood of the existing price limit binding, particularly if inflation remains high for an extended period of time—an outcome that the Commission cannot (and should not) discount.

302. The combination of higher than anticipated inflation and rising real EDB costs due to investment demands and high interest rates may mean that the likelihood of the price limit binding in future years is greater than what would have been expected at the time of the Commission's DPP3 Determination. In our view, in order to ensure that the price limit continues to bind only infrequently, as the Commission originally intended, the limit should be increased above its current level of 10%.

303. While the extent to which the price limit should be raised is a matter for regulatory judgment for the Commission, we propose that a limit of 15% would be consistent with the Commission's objectives, and ensure that the limit does not bind to constrain routine changes in CPI and network costs. We note that this would also be more in line with some of the Commission's past regulatory decisions when accounting for the impact of inflation.

304. An alternative approach would be to adjust the price limit in a flexible way—for example, if inflation and/or pass-through costs turn out to be materially different from the baseline assumptions adopted by the Commission when setting allowed revenues in a particular regulatory period. The Commission applied such an approach recently in a Customised Price-Quality Path (CPP) determination for Aurora Energy, applying a 15.8% annual price limit rather than the standard 10% limit the Commission usually applies.[48] Whilst this may be easier to implement within a CPP, the Commission could set out in advance clear rules determining (in a formulaic way) how the price limit would be adjusted if actual inflation and pass-through costs turn out to differ materially from

[47] DPP3 Reasons Paper, at H56.

[48] Commerce Commission, *Decision on Aurora Energy's proposal for a customised price-quality path*, Final Decision, 31 March 2021.

the baseline assumptions made by the Commission. These rules can then be applied in a predictable and low-cost way in a DPP determination.

305. Other options that the Commission could explore include:

   a Restricting the price limit to a shorter, defined period of time (e.g., one or two years) so that the period over which cost recovery is deferred may be reduced; or

   b Applying a sliding scale to the price limit such that a 10% price limit applies to the first year of a regulatory period, but then increases gradually over the period. Under this approach, the price limit would become progressively 'looser' over the period.

5.3 The need for an IM that specifies how starting prices will be reset

306. As explained in section 4.2.4, the lack of an IM that specifies how the Commission would reset starting prices leaves significant regulatory uncertainty unresolved. This uncertainty is particularly problematic at a time when EDBs may need to make significant network investments to support a smooth energy transition for New Zealand, as well as investments in energy efficiency and demand side management. The IMs regime was designed expressly to minimise such uncertainty.

307. An IM that explains how the Commission would reset starting prices would reduce uncertainty faced by EDBs and, therefore, incentivise EDBs to make prudent and efficient investments. Hence, such an IM would help promote the Part 4 purpose.

308. The absence of such an IM has made it possible for the Commission to impose caps on the adjustments to starting prices that are simply "judgement calls" rather than reasoned decisions that are based on testable evidence and analysis. Indeed, the Commission has done just that in the recent DPP3 decisions for GPBs.

309. The threat of merits review provides an important discipline on regulatory decision-making because failure to provide sound reasons and justification for its decisions leaves the Commission open to legal challenge by parties affected by those decisions. This is evident from the detailed reasoning the Commission typically provides for IM decisions, and the extensive consultation, analysis and scrutiny that goes into the making of those IM decisions. The level of care, detail and justification provided by the Commission in its IM decisions stands in stark contrast to explanation provided by the Commission for its choice of the 10% price limit on the adjustment to starting prices.

310. As there is no IM that details how starting prices will be reset, no stakeholder (i.e., suppliers, consumers or other affected parties) can challenge the Commission's cap on the adjustment to starting prices through a merits review process.

311. In our view, a key reason why an IM that explains how the Commission would reset starting prices is necessary is because the scope for that IM to be subjected to a merits review would likely compel the Commission to justify more convincingly than it has done to date any cap it may seek to impose on the starting price adjustment. If the Commission is confident that it can justify convincingly any cap it decides to adopt, it should have no reasonable objection to publishing such an IM.

312. For the reasons explained in section 4.2.4, capping the adjustment to starting prices may increase the likelihood of the annual price limit binding in subsequent years of a regulatory period, and the associated investment incentive problems. Given the importance of strong incentives for efficient investment by EDBs at this juncture to support New Zealand's transition to net-zero, there is an

urgent need for the Commission develop an IM that specifies how it will reset starting prices and, in particular, how it would determine what cap (if any) there should be on the adjustment to starting prices.

5.4 Conclusion

313. A critical aspect of the Part 4 purpose is the promotion of efficiency. In our view, removing the price limit would result in more efficient outcomes, and therefore better promote the Part 4 purpose. This is because it would remove constraints imposed by the limit on an EDB's ability to set prices that reflect the underlying economic costs of supplying network services. This would improve an EDB's ability to set prices that recover the efficient cost of existing infrastructure assets, thereby encouraging efficient investment in the network, and signal to users the cost of new network capacity, so as to encourage efficient usage of infrastructure capacity. Removing the price limit would also remove intergenerational equity issues that arise when the price limit binds. It would mean that consumers in future regulatory periods are not subsidising the cost of supplying customers in the earlier regulatory periods.

314. If the Commission decides not to remove the price limit, we consider that certain changes to how the price limit applies (beyond the Commission's proposal to exclude transmission charges and other pass-through costs) would lead to more efficient price outcomes and therefore better promote the Part 4 purpose. Specifically, we consider that the price limit should be applied net of incentive payments under the IRIS mechanism and the quality standards and net of inflation. In our view, these changes would strengthen the incentives on EDBs to achieve cost efficiencies and quality of service improvements. It would also reduce the instances in which the price limit would bind to when there are significant changes in an EDB's real costs. We consider that any price increases that arises as a result of applying these changes would be efficient and result in outcomes that better promote the Part 4 purpose. This is because it would remove constraints on the ability of EDBs to raise tariffs to the efficient level.

315. If the Commission decides not to adopt these changes, there are a number of alternative options it could consider. For example, the Commission could:

    a Restrict the price limit to a shorter, defined period of time (e.g., one or two years) so that the period over which cost recovery is deferred may be reduced.

    b Raise the price limit. The combination of higher than anticipated inflation suggests that the likelihood of the price limit binding in future years is greater than what would have been expected at the time of the Commission's DPP3 Determination. While the level of a revised price limit is a matter of judgement for the Commission, we propose that a limit of 15% would be consistent with the Commission's objectives, and ensure that the limit does not bind to constrain routine changes in CPI and network costs.

    c Apply a sliding scale to the price limit such that a 10% price limit applies to the first year of a regulatory period, but then increases gradually over the period. Under this approach, the price limit would become progressively 'looser' over the period.

    d Leave the default price limit at 10% but set out clear rules in the IMs that would specify how the price limit would be increased (in a formulaic way) above the default 10% level if inflation and pass-through costs turn out materially different from the baseline assumptions adopted by the Commission when setting allowances.

316. We recommend that the Commission urgently develop an IM that specifies how it would reset starting prices. This would remove a significant source of regulatory uncertainty currently faced by

suppliers, which in turn would improve incentives for suppliers to invest prudently and efficiently—including to support a smooth energy transition for New Zealand.

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