NERA
ECONOMIC CONSULTING

Financeability considerations under the DPP

Electricity Networks Association

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1. Introduction and summary

1. The Electricity Networks Association (ENA) has commissioned NERA Economic Consulting (NERA) to review the desirability of introducing an explicit role for financeability or alternatives into the regulatory framework for regulated energy networks and considering the potential for future implementation.
2. The term "financeability" refers to a business's ability to raise sufficient capital to meet its requirements and deliver its operations and its programme of capital expenditure. A business is said to be "financeable" if it can raise sufficient capital to continue to operate, and "unfinanceable" if it may not. The ability to raise capital depends on the business's ability to earn sufficient revenue to cover its operating costs, its debt interest payments, and retain sufficient profit to attract equity investors. Businesses that are not financeable will ultimately face financial distress, which will disrupt services to their customers and effect their ability to invest. Ensuring Electricity Distribution Businesses (EDBs) are financeable is therefore in the long-term interest of consumers.
3. In most industries, market forces in the market for the goods and services it sells determine the financeability of a business. For 'natural monopolies', such as EDBs, where competition is impractical, economic regulators determine the revenues businesses may earn over a given price control period. Accordingly, the financeability of EDBs in practice is at least partly due to regulatory decision-making. The financeability of the regulator's view of an efficient EDB is entirely due to regulatory decision-making (at least given information available at the time the decision was made). If the regulator sets cost allowances in line with those of an efficient EDB, and a rate of return that is sufficient to provide the market rate of return required by debt and equity holders for the profile of recovered revenues, efficient EDBs will be financeable.
4. Financeability concerns in regulatory determinations stem largely from several considerations under the price control method that apply to both New Zealand and countries where some regulators have already adopted financeability testing such as the UK and Australia:
    a. **Uses benchmark costs of debt**: New Zealand Commerce Commission (NZCC) like the UK and Australia uses benchmark cost of debt instead of passing through actual debt costs. As a result, efficient EDBs whose profile of embedded debt does not precisely match the benchmark index may be non-financeable, even if they procured that debt on efficient and competitive terms at the time of issuance;
    b. **Inflation indexation of the RAB:** Like the UK and Australia, NZCC also indexes the regulated asset base (RAB) for inflation so that the allowable revenue set for EDBs returns a real rate of return. However, the indexation defers the recovery of investments and reduces short term cash-flows relative to if the RAB is not indexed for inflation, resulting in a higher risk of financeability issues. When RAB indexation is combined with nominal debt-issuance, it can be more prone to financeability problems because companies earn a real cost of debt in their revenue building blocks but face nominal debt repayments;
    c. **Adoption of incentive regulation**: NZCC operates under an incentive regulation rather than a cost pass-through regime. As a result, EDBs are exposed to risk around differences between the level of allowances and outturn costs, which can put the financeability of EDBs at risk;
5. The following specific features of the NZ regime could also potentially lead to financeability concerns:
    a. **Use of alternative X-factors:** In order to smooth any large price increases across default price-quality path (DPPs), the NZCC can choose to set an alternative rate of change for some distributors, which will backload cash recovery and risk distributors failing the financeability test in earlier periods of the DPP. While there are no distributors that face an alternative X-factor in the current DPP, this could become a serious consideration in future DPP

determinations as New Zealand works towards decarbonisation. Decarbonisation will lead to large capex and thus allowable revenue will be likely to significantly increase in the upcoming DPPs, resulting in NZCC considering applying an alternative rate of change for a number of distributors.

b. **10% intra-period cap on gross allowable revenue:** Currently for DPP3, NZCC sets a default 10% intra-period cap on the percentage increase of each distributor's gross allowable revenue (or maximum allowable revenue (MAR)). The limit works in a present value-neutral way, with any under-recovery of revenue deferred to subsequent years of the DPP (or until the next DPP) via the wash-up mechanism. [1] Since the 10% limit applies to a distributor's gross allowable revenue which includes pass-through and recoverable costs, when there is an increase in these costs during a period, EDBs cannot recover their entire costs, as much of their allowable revenue will be used to cover their pass-through and recoverable costs which back-loads the cash recovery and again puts pressure on the financeability of the distributor in earlier periods.

6. In addition, the following environmental factors have the potential to lead to financeability concerns for EDBs, given the way the regime in NZ functions:

   a. **High inflation**: because the RAB is indexed, high forecast inflation has the effect of backloading recovery.

   b. **Low interest rates**: lower interest rates flow through to a lower regulatory cost of equity which leaves less residual cash flow to service debt.

   c. **Increased capex needs:** the need to increase investment to support decarbonisation will have the effect of making the RAB "newer", which given the backloaded recovery profile of an indexed RAB, may result in financeability concerns.

7. We have demonstrated many of the preceding points in the body of this report using a stylised calculation of the financial ratios for a notional distributor over DPP3 (specifically, we have averaged all the inputs to the DPP3 financial model to create the notional distributor). The purpose of this is not to prove that a financeability problem currently exists for EDBs in New Zealand, rather it is to show that financeability concerns *could* exist given the regulatory framework and operating environment for EDBs. Financeability is thus something the NZCC should keep an eye on.

8. Our recommendations are therefore as follows:

   a. **The NZCC should implement financeability testing** as the benefits to consumers of implementing financeability testing outweigh the costs. In particular, the costs are trivial as the NZCC already has the information needed to calculate the core financial ratios used by Moody's and S&P (we have done so using the NZCC's financial models as part of preparing this report).

   b. **Testing should focus on the benchmark efficient firm** represented by the NZCC's financial models, as this ensures the NZCC's decisions are internally consistent and focuses the financeability conversation on the levers that the NZCC controls.

   c. **Financeability testing should occur during the periodic Input Methodologies (IM) reviews and the DPP resets**, as these are the points in time when the NZCC makes decisions that may impact financeability.

   d. **A financeability test should focus on quantitative metrics used by credit agencies**. The test could more generally replicate the rating methodology used by credit rating agencies,

[1] NZCC, Default price-quality paths for electricity distribution businesses from 1 April 2020, Final decision reasons paper. November 2019, para 6.23-6.24.

though this would require the NZCC to make assumptions regarding the qualitative factors that credit rating agencies take into account.

e. Any remedies should map to the underlying problem. In particular, regulatory errors should not be addressed by front loading recovery and vice versa. Recovery can be brought forward by un-indexing the RAB (as the NZCC had once for Transpower) or directly accelerating depreciation.

f. The intra-period cap on MAR changes should be set consistent with forecast inflation and any alternative X factors. If an internally consistent approach to these parameters is not taken, then the intra-period MAR cap will bind and trigger a wash-up, deferring recovery which could worsen financeability.

g. The NZCC should consider changing the intra-period MAR cap to exclude pass-through and recoverable costs. At present, the intra period MAR cap applies to total allowable revenue. Therefore, changes in recoverable costs during the period, such as transmission charges, can result in the cap being hit and recovery being deferred despite EDBs incurring the costs and thus experiencing a reduction in short term cash flows, which could worsen financeability.

9. This report is structured as follows:

   a. Section 2 sets out the conceptual basis for financeability and financeability testing, including why it is likely to be in consumers' interests;

   b. Section 3 provides an overview of practical international experiences of financeability assessments;

   c. Section 4 discusses the conceptual features of New Zealand's current regulatory regime that can lead to potential financeability issues and demonstrates this using a stylized model;

   d. Section 5 sets out the possible options for implementing financeability testing in New Zealand;

   e. Appendix A describes Moody's credit rating methodology;

   f. Appendix B describes S&P's credit rating methodology; and

   g. Appendix C describes our approach to constructing a stylised model of EDB financeability.

2. Introduction to financeability and financeability testing

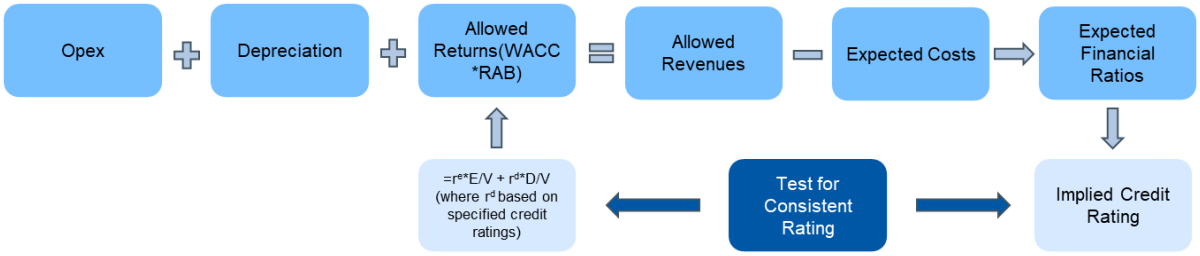
2.1. Financeability in a regulatory context

10. Financeability testing provides an opportunity for stakeholders to test the regulators' decision-making. It tests the internal consistency of regulatory decision making and provides an objective basis for assessing claims and evidence submitted by the stakeholders to price control decisions. It therefore provides an opportunity to improve the consistency and evidential basis of regulatory decision-making. As we discuss in section 2.2.1 below, ensuring EDBs are financeable benefits consumers as well as EDBs.

11. Assessing the underlying cost of equity is challenging from market data, which affords regulators discretion in setting the key parameters that underpin their estimate. Accordingly, financeability tests focus on the ability of regulated businesses to raise debt on the terms assumed by their regulators.

12. Figure 1 below presents an archetypal financeability test in a diagrammatic form. The test relies on the key building blocks of the price control as inputs (including opex, depreciation, and return on capital). The regulator may set operating costs using a range of different methods, including benchmarking and/or historical costs and depreciation of the installed asset base follows from the asset lives of historical capital expenditure (and with an indexed regulatory asset base (RAB), inflation). The allowed rate of return typically consists of an estimate of the weighted average of the regulator's estimates of the efficient cost of equity and debt capital. The regulator calculates financial ratios from those allowed revenues by deducting expected costs.

Figure 1: Financeability Test – Test for Consistency Between Allowed Return and the Expected Financial Ratios



Source: NERA illustration.

13. The relative importance of financial ratios and which ones regulators use vary, however, the most critical ratios typically involve Funds From Operation (FFO) (equal to revenue less opex, tax, and interest payments). Accordingly, capex and dividend payments tend to be less critical to the ultimate result. The two most prominent ratios used are:

    a. FFO interest coverage;

    b. FFO/Net debt, to interest coverage or net debt.

14. In setting allowances for debt costs, regulators implicitly or explicitly identify the credit-rating that they anticipate regulated entities will be able to achieve. Credit rating agencies, such as Moody's and S&P, rely on financial ratios to calculate credit ratings and publish thresholds for the level of each ratio consistent with each rating level. Investors use that guidance in setting the

interest rates that they require from borrowing firms.[2] If the projected financial ratios imply that a regulated business cannot raise debt finance on the terms (i.e., credit rating) assumed in the allowed rate of return, the regulator has not set overall revenues that allow the company to have a reasonable prospect of recovering its costs, and the regulatory determination is inconsistent.

15. For EDBs, this credit rating is the S&P rating of BBB+, which is equivalent to Baa1 under Moody's rating methodology.[3]

2.2. Should regulators care about financeability?

2.2.1. Financeability Testing is a Tool to Protect Consumers, Not EDBs

16. The previous section describes the need for a financeability testing from a regulatory framework point of view (i.e., ensuring internally consistent price controls), but the argument can also be made from a consumer benefit standpoint. Financeability testing offers at least four broad categories of benefits for consumers.

17. Firstly, financeability testing ensures that **consumers get access to the investment that they need**. Failing a well-calibrated financeability test means that an EDB would be unable to raise capital to finance new investments. This creates an incentive for EDBs to sweat assets and avoid new investments. If EDBs responded to that incentive, it would result in higher costs for consumers over the long term (e.g., due to excessive opex and reductions in the quality of service).

18. In some circumstances, even an unfinanceable EDB could be incentivised to invest in the network to, for instance, avoid penalties for failing to meet licence obligations. However, over the long term, EDBs will require new debt and/or equity injections to finance new investments. By definition, these capital injections will not be forthcoming in exchange for the returns on offer, if EDBs are not financeable.

19. Secondly, financeability testing **provides confidence in regulatory decision-making**. It is possible in principle for NZCC to set a maximum allowable revenue (MAR) that resulted in efficient EDBs being financeable without testing the financeability of their decision. However, without conducting financeability testing, it is not possible to be sure that a new DPP determination *ensures* that EDBs are financeable. Financeability testing offers a transparent method for cross-checking regulatory decisions and ensuring that the regulator is creating an investment climate that will deliver on consumers' needs.

20. Thirdly, by building confidence in the regulatory process, it **minimises financing costs for consumers**. In asset-intensive industries, the cost of capital accounts for a material proportion of the total price paid by consumers.[4] Providing a stable and transparent framework for assessing the financeability of networks provides investors with confidence and ultimately reduces, over the long-term, the returns investors require for investing in the sector.

21. Fourthly, financeability testing **minimises the costs of service over time**. In the absence of financeability testing, EDBs may go through periods of time in which they are not financeable as businesses. In these periods, they will be incentivised to eschew investment and wait for periods in which the regulator increases the cost of capital. Starving networks of the investment they need in fallow periods and investing intensively in periods when the business is financeable

[2] See Appendix A and B for detailed criteria (and the relevant financial ratios) applied by Moody's and S&P in rating firms.

[3] The Association of Corporate Treasurers, *Corporate credit ratings: a quick guide*, 2007.

[4] Using the stylised model we created using the DPP3 financial model with averaged EDB inputs to give a notional distributor, we calculate that the cost of capital accounts for on average 36% of the total revenue requirement between 2021 and 2025. A detailed description of the model we built can be found in Appendix C.

results in a boom-and-bust cycle which is likely to increase investment costs over time. This deferral could also have the effect of inequitably shifting costs to future consumers.

2.2.2. The Potential Benefits of Introducing Financeability Testing Materially Exceed the Cost of Doing So

22. A failed financeability tests stem from setting the allowed rate of return below the cost of capital given the risks and planned profile of recovery of capex. Much like the consequences of setting the cost of capital too low, the costs of failing to test for financeability are both potentially severe and asymmetric. The consequence of a reset process that over-rewards investment is additional capex, whilst the consequences of under-investment can be lost load, priced at $25,000/MWh,[5] causing higher prices for customers and imposing wider effects on the economy by having unreliable electricity.

23. The direct costs of financeability testing are low and largely administrative. The NZCC already produces detailed models of the costs and revenues of EDBs under the existing DPP processes. A financeability test would require the NZCC only to select a set of credit metrics for analysis, consult on those credit metrics with stakeholders and then calculate those credit metrics during the IM review and price path reset processes to cross-check its proposed allowances. As an example of its low cost, in the process of preparing this report, we have taken the DPP3 financial model and pulled the relevant information to calculate the core credit metrics of FFO/net debt and FFO interest cover. International precedent for financeability testing offers models that the NZCC could readily adopt (we discuss this precedent in section 3).

24. In addition to the theoretical merits of financeability testing, international regulatory practice suggests that it is likely to have benefits for consumers. Regulators (and legislators) internationally introduced financeability testing for the purpose of protecting long-term consumer interests. British regulators must have regard for the ability of licensed entities to finance their activities (the "financing duty"). British legislation requires regulators to have regard for the ability of licensed entities to finance their activities in order to protect consumers, not instead of it. The regulators of the energy and water sectors (Ofgem and Ofwat, respectively) have chosen how to interpret those duties, and both have concluded that explicit financeability testing is necessary to promote consumers' long-term interests.[6] Similarly, in the New South Wales water sector, the regulator (IPART) also decided that it was necessary to do so to protect consumers' interests, without a specific legal framework that suggests that it should.[7]

[5] NZCC, *Default price-quality paths for electricity distribution businesses from 1 April 2020: Final decision reasons paper*, November 2019, para 7.50.

[6] OFWAT, *Financeability and financing the asset base, Discussion paper,* March 2011, p4. Ofgem, *Regulating energy networks for the future, Working paper*, May 2010, p3

[7] IPART, *Financeability tests and their role in price regulation, Discussion paper,* September 2010, p.7.

3. Regulatory financeability tests in other jurisdictions

25. Internationally, and particularly in Great Britain (i.e., England, Scotland, and Wales) as well as for water in New South Wales, explicit testing of whether regulated businesses are financeable emerged for two main reasons:

    a. Regulatory decisions carry with them a risk of error. Regulators may inadvertently set allowed revenues for a regulated business at a level that does not allow an efficient business to finance its activities.

    b. Consumers have a clear interest in the continued provision of network services by efficient providers.

26. In response, regulators have considered that explicitly testing whether proposed allowances for network businesses enabled those businesses to finance their activities was in the interests of the consumers that they serve.

27. A regulated business may be unfinanceable for a range of reasons, including underperformance relative to its operating cost allowances. That underperformance may be due to the regulator misestimating the level of efficient operating costs or inefficiency by the unfinanceable firm. However, ensuring that a notionally efficient regulated business is financeable acts as the most basic cross-check on the consistency of the price control. Testing the financeability of a notionally efficient firm boils down to assessing whether debt and equity holders would be willing to make capital available to the business on the terms assumed by the regulator.

28. The following sections describe the financeability tests adopted by Ofgem, Ofwat, and IPART, as well as the remedies proposed for firms that fail the test.

3.1. Ofgem uses a basket of quantitative financial ratios

29. Ofgem is the energy regulator for Great Britain and their duty in terms of financeability is to "have regard to" the need to ensure that licensees can finance their activities.[8]

30. Ofgem focuses on the notional company for setting price control parameters to comply with its financeability duty.[9] While the financeability test should, in principle, draw on notional gearing (leverage) and efficient cost of debt, Ofgem also considers actual company debt positions to inform the notional structure and to increase monitoring of those companies more exposed to a material risk of financial distress. On the cost of debt, where a company's actual cost of debt differs from the regulators' allowance (e.g., where the regulator has allowed an industry-wide embedded debt cost rather than a company specific cost of debt), and that difference in the cost of debt is due to the time-profile of issuance, Ofgem may rely on actual debt costs in the test.

31. According to Ofgem, an "investment grade credit rating signals a strong likelihood that the company will be able to meet its liabilities".[10] However, Ofgem does not provide a specific methodology with explicit ratio thresholds or factor weightings for assessing financeability. In its 2019 Decision on the methodology for the upcoming round of price controls, RIIO-2, Ofgem states it is "likely to use a Moody's rating methodology simulator (as this methodology is the clearest to simulate) as a tool when reviewing network companies' financeability assessments".[11] As it is not required for the licensee to have a rating issued by Moody's, and not all companies

[8] Section 3A of the Electricity Act 1989 and section 4AA of the Gas Act 198.

[9] Ofgem, *Decision: RIIO-2 Sector Specific Methodology – Finance*, 24 May 2019, p. 82.

[10] Ofgem, *Consultation: RIIO-2 Sector Specific Methodology Annex: Finance*, 14 March 2019, p. 55.

[11] Ofgem, *Decision: RIIO-2 Sector Specific Methodology – Finance*, 24 May 2019, p. 82.

have such a credit rating, Ofgem will also assess key financial ratios against other rating agencies' ratio thresholds and evidence submitted by network companies. For its consultation on the RIIO-2 sector methodology, Ofgem proposed to continue to use a basket of quantitative ratios to assess financeability, together with qualitative factors.[12]

32. In addition to Ofgem's duty to ensure that an efficient network company is financeable when setting price controls, regulated companies themselves have licence requirements that require them "to take all appropriate steps within their power to maintain an investment grade credit rating".[13]

33. Specifically, given an adequate allowed return on a notional company basis, in the event of any financeability concerns, Ofgem argues that companies can:[14]

    a. Adjust dividend policies to retain cash within the ring-fence during the control period;

    b. Inject equity to reduce gearing;

    c. Re-finance debt or any other financial commitment; and

    d. Propose alternative capitalisation rates and depreciation rates: under the RIIO framework introduced in 2013, Ofgem adopted a totex framework for analysing costs and allows companies to propose their own proportions and asset lives for "fast" and "slow" money.

34. Ofgem recognises that this final option of adjusting capitalisation or depreciation rates, introducing a trade-off between an increase in revenues in the short term and a lower RAB growth, is NPV neutral. Thus, this measure can be used to increase cashflow and some of the financial ratios. However, accelerating depreciation also has the potential to make some financial ratios worse, even in the short term, such as the Adjusted Cash Interest Coverage Ratio (AICR), which feeds into Moody's credit ratings and is equal to revenues less depreciation divided by interest payments.[15]

3.2. Ofwat uses a basket of quantitative financial ratios

35. Ofwat, the water regulator in England and Wales, has a similar "financing duty" to Ofgem's, which requires it to ensure that "relevant undertakers are able (in particular, by securing reasonable returns on their capital) to finance the proper carrying out of those functions".[16]

36. As Ofgem does, Ofwat bases its financeability assessment on the notional structure and expects companies to target a credit rating at least two notches above the minimum investment grade (i.e., to target BBB+/Baa1). In its guidance document for the upcoming PR24 review period, Ofwat confirms it will continue to use a suite of financial metrics as part of its assessment of financeability.[17,18] Ofwat assesses financeability on a basket of ratios used by credit agencies, placing the greatest weight on gearing, interest cover, and funds from operations to net debt ratios.[19]

[12] A full list of financial metrics Ofwat uses is provided in the Appendix.

[13] Ofgem , *Consultation: RIIO-2 Sector Specific Methodology Annex: Finance*, 14 March 2019, p. 55.

[14] Ofgem, *Consultation: RIIO-2 Sector Specific Methodology Annex: Finance*, 14 March 2019 p. 57.

[15] Ofgem , *Decision: RIIO-2 Sector Specific Methodology – Finance*, 24 May 2019, p. 92.

[16] Water Industry Act 1991, 2 (2) (b).

[17] Ofwat, *Creating tomorrow together: consulting on our methodology for PR24 Appendix 10 – Aligning risk and return*, July 2022, p. 104,105.

[18] A full list of financial metrics Ofwat uses is provided in the Appendix.

[19] Ofwat, *Creating tomorrow together: consulting on our methodology for PR24 Appendix 10 – Aligning risk and return*, July 2022, p. 104.

37. Ofwat does not consider it necessary for companies to target a specific position for each financial ratio within the guidance range set out by the credit rating agencies since a credit rating is an in-the-round assessment and not reliant on a single specific financial metric.[20]

38. When there is a potential financeability problem, Ofwat notes that companies have two options to address financeability at the notional level. Companies can:[21]

    a. Reduce dividends when real regulatory capital value (RCV) growth exceeds 10 percent to maintain gearing close to the notional level of 60%; and

    b. Advance revenue from future customers using Pay-As-You-Go (PAYG) and RCV run-off. In other words, water companies in England and Wales are able to propose as part of their business plans what proportion of their expenditure should be expensed within the year (PAYG) and what proportion should be capitalised and depreciated (RCV run off).

39. For example, a number of companies addressed notional financeability in their PR19 business plans via PAYG and RCV run-off. Ofwat has considered these measures to be appropriate when they do not have a material impact on financial resilience over the long term, and there is sufficient evidence of customer support. In addition, Ofwat stated that it considers:[22]

    [T]he use of PAYG or RCV run-off to address a financeability constraint to be preferable to increasing the cost of equity above the level expected by market participants for the period of the price control.

3.3. IPART uses financial ratios to verify its regulatory decisions

40. IPART routinely relies on financeability assessments to verify its decision-making.

41. For its price determinations, IPART estimates the revenues that a regulated business requires to recover its efficient costs over the control period. To do so, it uses a "building block" approach to estimate these costs. However, IPART recognises that this approach does not ensure that a regulated company will be able to raise funds to finance its activities per se.[23] Thus, IPART conducts a financeability test to assess whether its pricing decisions are likely to have an effect over the control period on regulated businesses' financial sustainability and the ability to raise funds to fund their activities:[24]

    The purpose of the financeability test is not to assess or assign a credit rating for the business. Rather, it is to check whether our pricing decisions are likely to give rise to a financeability concern and to identify the reasons for any concern.

42. IPART's objective is for its pricing decision to be consistent with businesses maintaining a BBB target rating.[25] IPART performs its tests using three of the four financial ratios used by Moody's to assess regulated companies' credit ratings: Funds from operations (FFO), interest cover, gearing, and FFO divided by debt.[26] As explained in Appendix A, Moody's credit rating methodology involves assessing both qualitative factors and quantitative ratios. IPART's test

[20] Ofwat, *Creating tomorrow together: consulting on our methodology for PR24 Appendix 10 – Aligning risk and return*, July 2022, p. 28.

[21] Ofwat, *PR19 final determination, Aligning risk and return technical appendix*, December 2019, p. 94.

[22] Ofwat, *Technical appendix 3: Aligning risk and return*, January 2019, p. 25.

[23] IPART, *Financeability tests and their role in price regulation*, September 2010, p. 2.

[24] IPART, *Review of our financeability test*, November 2018, p. 10.

[25] IPART, Review of our financeability test, November 2018, p. 35.

[26] See Appendix C for the list of ratios used by IPART and their definition.

however uses only quantitative ratios, on the basis that a test based only on quantitative ratios is more transparent.[27]

43. It is not clear from IPART's published documents precisely what it meant by transparency in this context, but we assume that it intended to indicate that the process Moody's follows to assess qualitative factors cannot be replicated and therefore any financeability assessment taking qualitative ratios into account would depend on Moody's expert (and subjective) judgement.

44. For its 2018 financeability test, IPART tests the impact of its decision on both the notional company and the actual business. IPART explains that the purpose of the benchmark test was to ensure that the regulator's "pricing decisions allow an efficient business to raise finance and remain financeable during the regulatory period". The test based on the companies' actual cashflows instead "generates a warning that the actual business might face a financeability concern over the course of the regulatory period".[28] In other words, the failure of the benchmark test indicates that IPART has set an internally inconsistent price control whilst the failure of the test based on actual cashflows (alone) suggests that the company may not be behaving prudently from a financial perspective.

45. Once IPART calculates the financial ratios for both the benchmark and the actual tests if the firm does not meet the target ratios in all years of the regulatory period, IPART will:[29]

    a. rank the ratios, placing more weight on the Interest Coverage Ratio and FFO divided by debt ratios;

    b. assess the trends in the financial ratios over the regulatory period, and decide whether the business faces a potential financeability concern;

    c. if there is a financeability concern with respect to the benchmark test, IPART would reassess its pricing decisions and adjust its regulatory settings; and

    d. if there is a financeability concern with respect to the actual test, IPART could include any other idiosyncratic factors in its analysis, in order to tailor its response to solve the problem. For example, if the company has made imprudent or inefficient decisions, IPART would recommend injecting more equity, accepting a lower rate of return on equity, or both. On the contrary, if the financeability concern is related to a temporary cash flow problem, IPART would consider an NPV-neutral adjustment to its pricing, e.g., a temporary increase in prices followed by a reduction at a later time so that the two price changes offset each other in net present value terms.

46. IPART has conducted financeability tests of its own volition, without a specific statutory requirement. Doing so illustrates that IPART believes that financeability tests are core to its obligations to "protect and promote the interests of consumers, taxpayers, and citizens of New South Wales".[30] The avenues by which financeability testing may improve consumer welfare are manifold: for instance, financeability ensures that consumers avoid unnecessary disruption from financial distress in the short term, and could signal a reliable and consistent regulatory regime that lowers the cost of capital over the long term.

[27] IPART, *Review of our financeability test*, November 2018, p. 20.

[28] IPART), *Review of our financeability test*, November 2018, p. 16.

[29] IPART, *Review of our financeability test*, November 2018, p. 58.

[30] IPART , *Code of Ethics and Conduct*, May 2018, p.1.

4. Conceptual features of the New Zealand regulatory regime that could lead to the need for a financeability test

47. Financeability testing is most necessary where there is the highest risk that the price control allowances determined by the regulator does not automatically ensure that the firm is financeable. New Zealand shares many features with Australian or the UK regimes that have already adopted financeability tests. In this section we describe these features and illustrate the cashflow and credit metric impact of these different features using a stylised model based upon the DPP3 financial model and the "average" EDB.

48. We summarise our overall modelling approach in Section 4.1. In the rest of this section, we discuss the following features of the New Zealand regime and contextual factors which suggest there is the potential for financeability concerns to arise:

    a. Indexation of the RAB (Section 4.2) and how the associated backloading is exaggerated when:

        i. Forecast inflation is high

        ii. Capex needs are high relative to the existing RAB; and

        iii. EDBs issue nominal debt.

    b. The use of alternative X-factors to backload recovery (Section 4.3);

    c. The cap applied to the within (intra) period changes in the MAR (Section 4.4); and

    d. The impact of low interest rates (Section 4.5).

4.1. Summary of modelling approach

49. To demonstrate the impact of different price control parameters on financeability of an EDB, we have built a stylised Building Blocks Model (BBM) based on the DPP3 financial model. For the purposes of our illustrations, the model generates cost, revenue and financing parameters for a notional EDB, based on industry average values for existing Regulated Asset Base (RAB), lives of existing assets, forecast asset disposals, capital expenditure (capex) plans, and operating expenditure (opex) over a five-year period from 2021 to 2025. We incorporate price control parameters as defined by NZCC, such as allowed financing costs and notional gearing.

50. From this model, we are able to calculate the core credits metrics of FFO/Net debt[31] and FFO interest coverage.[32] These are two of the three metrics used in IPART's financeability test and the metrics that have the most weight placed on them by Moody's and S&P among quantitative rating factors. The final quantitative metric used by IPART is gearing, but this is not sensitive to the price control parameters we vary in the model, so we do not include it in our analysis. More detail on this model as well as the thresholds we used for different credit metrics is set out in Appendix C.

51. At a high level, we use the cut-off for each quantitative metric for Moody's credit rating Baa, which is broadly equivalent to the NZCC's assumed BBB+ S&P rating (specifically, Baa1 is equivalent to BBB+). Moody's thresholds for quantitative metrics do not distinguish between the different levels of Baa, rather a range for the whole Baa range (Baa1 – Baa3) is provided for each metric. To be conservative, in our analysis we have used the lower cut off for each metric at

[31] (Revenue – opex – tax – interest)/(RAB * notional gearing), where interest is (RAB * notional gearing * cost of debt).

[32] (Revenue – opex – tax)/interest

which point the rating for that metric switches to Ba. More detail on Moody's credit scoring methodology is provided in Appendix A.

52. Consistent with IPART, we adopt the standard that an EDB should be financeable under both metrics in each year of a notional DPP period (defined as 2021 to 2025 in our model, but this is simply illustrative).

53. In the remainder of this chapter, we demonstrate how different price control parameters would affect the measured financeability metrics over the course of the notional DPP period.

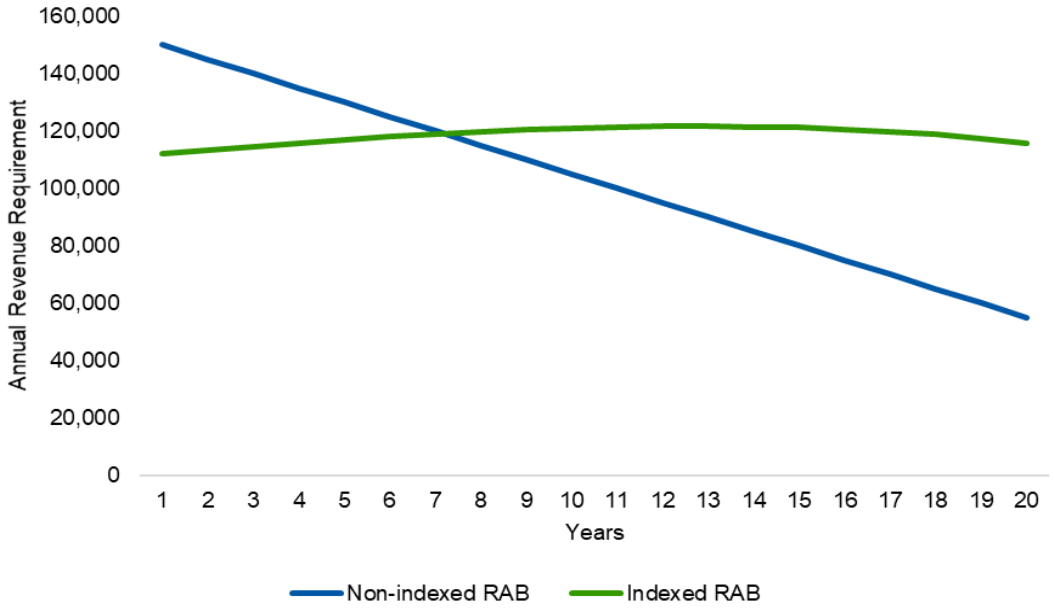
4.2. Indexation of the RAB

54. Much like in Australia and the UK, EDBs operate in a regime whereby the RAB is indexed for inflation. Such indexation defers the recovery of investments and reduces short term cash-flows relative to a non-indexed RAB, and is, therefore, more prone to failing a financeability test.

55. In New Zealand, NZCC uses a nominal weighted average cost of capital (WACC) and an indexed asset base. This means that inflation is compensated for by revaluing the asset base each year. To ensure that the regulatory regime allows regulated entities to earn back the Net Present Value (NPV) of their investments (and no more, all else equal), the indexation of the asset base is treated as income and deducted from the annual revenue requirement to prevent double counting of inflation adjustments. Effectively NZCC's approach results in a revenue/price-path that includes a real return on capital; with a revaluation of the RAB providing the compensation for inflation over the period.

56. The alternative approach would be to use a nominal rate of return and not index the asset base.[33] Relative to the approach adopted by the NZCC, this would result in front loading of recovery and a RAB that falls more quickly. This is demonstrated in Figure 2 which shows a stylised example of the different recovery profiles.

Figure 2: Revenue Path Example – Indexed vs Un-Indexed RAB ($m Nominal)



Source: NERA illustration. Example assumes a 5% WACC, 20 year asset life, straight line depreciation and forecast revaluations of 2% per year.

[33] Some suppliers have also proposed this in the past. See para 247., from NZCC, 2016, Input methodologies review and decisions: Topic paper 1: Form of control and RAB indexation for EDBs, GPBs, and Transpower.

57. The NZCC currently adopts an un-indexed approach to roll forward the RAB for Transpower. In the 2010 IM Review for Transpower the NZCC provides an explanation of why they have decided on un-indexing the RAB and the effect it will have on Transpower:[34]

> *"Transpower will apply an un-indexed approach to update the value of the RAB. This is important because an un-indexed approach results in relatively high initial cash flows on any investments that Transpower makes in future."*
>
> *"Transpower is planning to invest over $3 billion in upgrading and renewing the transmission network over the next five years, which will more than double the value of Transpower's RAB. […] The level of Transpower's investments will result in it having, relative to other lines businesses, high investment programme funding requirements;"*
>
> *"updating the RAB value 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;"*

58. The AER has recognised this difference in the profile of recovery and the NPV equivalence of the two revenue profiles: [35]

> *Under an alternative approach where a nominal rate of return was used in combination with an un-indexed (historical cost) RAB, no adjustment to the depreciation calculation of total revenue would be required. This alternative approach produces a different time path of total revenue compared to our standard approach. In particular, overall revenues would be higher early in the asset's life (as a result of more depreciation being returned to the TNSP) and lower in the future—producing a steeper downward sloping profile of total revenue. Under both approaches, the total revenues being recovered are in present value neutral terms—that is, returning the initial cost of the RAB.*

59. While the choice between the two revenue profiles is theoretically neutral, the reprofiling does have cashflow implications, which can affect an EDB's ability to meet its interest payments, and thus can affect financeability. This matters for the present context because the indexation of RAB compensates parties for inflation through the RAB rather than current cash-flows. It follows that the financial ratios that EDBs are able to achieve under an indexed RAB approach are therefore worse in earlier years of an asset's life than they would be under an unindexed RAB approach.

60. Table 1 depicts how high forecast inflation needs to get for the hypothetical distributor in our model to fail the financeability test, defined as failing to achieve a Baa rating in a single year in a single metric. This table shows that when the RAB is indexed, our notional EDB (essentially an average company across all EDBs) fails the financeability test when the forecast inflation rate is higher than 1%. The same distributor is able to stay financeable under higher inflation rates (and only fails once the inflation rate is above 3%) if the RAB is not indexed, as demonstrated in Table 2.

[34] NZCC, *Input Methodologies (Transpower) Reasons Paper*. December 2010, para 4.3.12, and para 5.2.2 .

[35] AER, *AusNet Services transmission determination 2017–18 to 2021–22: Draft Decision, attachment 5 – Regulatory depreciation*, July 2016, p.22.

Table 1: Financeability metrics at different forecast inflation rates for a distributor that has an indexed RAB

Inflation rate	FFO interest coverage					FFO/net debt				
	2021	2022	2023	2024	2025	2021	2022	2023	2024	2025
0%	Aa	Aa	Aa	Aa	Aa	A	Baa	Baa	Baa	Baa
1%	A	A	A	A	A	Baa	Baa	Baa	Baa	Baa
2%	Baa	Baa	Baa	Baa	Baa	Baa	Ba	Ba	Ba	Ba
3%	Ba	Ba	Ba	Ba	Ba	Ba	Ba	Ba	Ba	Ba
4%	B	B	B	B	B	B	B	B	B	B

Source: NERA analysis

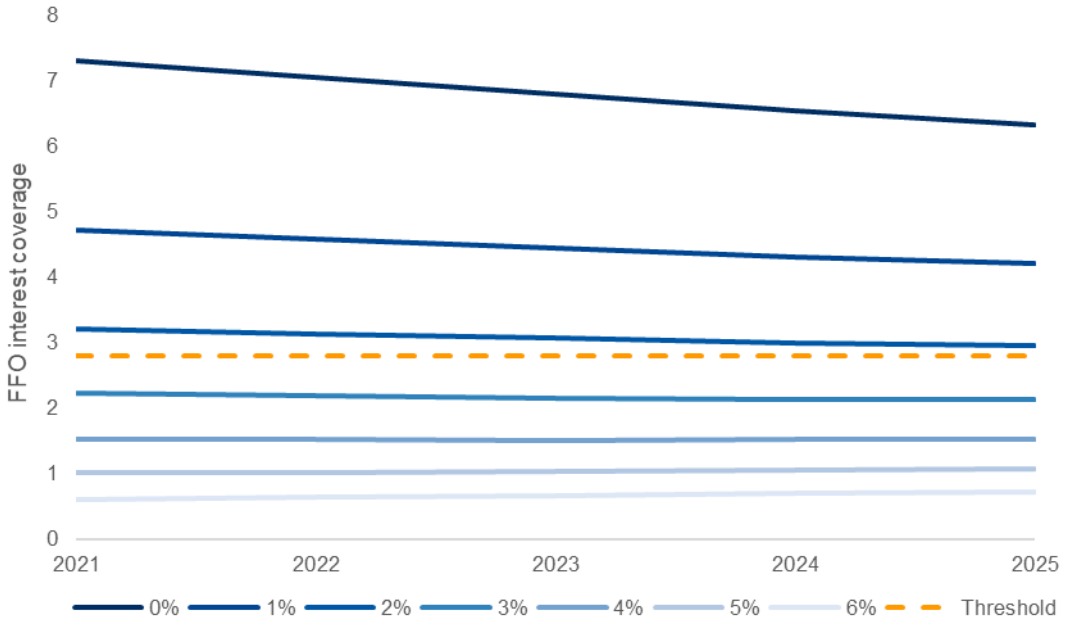
Table 2: Financeability metrics at different forecast inflation rates for a distributor that has an unindexed RAB

Inflation rate	FFO interest coverage					FFO/net debt				
	2021	2022	2023	2024	2025	2021	2022	2023	2024	2025
0%	Aa	Aa	Aa	Aa	Aa	A	Baa	Baa	Baa	Baa
1%	A	A	A	A	A	Baa	Baa	Baa	Baa	Baa
2%	A	A	Baa	Baa	A	Baa	Baa	Baa	Baa	Baa
3%	Baa	Baa	Baa	Baa	Baa	Baa	Baa	Baa	Baa	Baa
4%	Ba	Ba	Baa	Baa	Baa	Baa	Baa	Baa	Baa	Baa

Source: NERA analysis

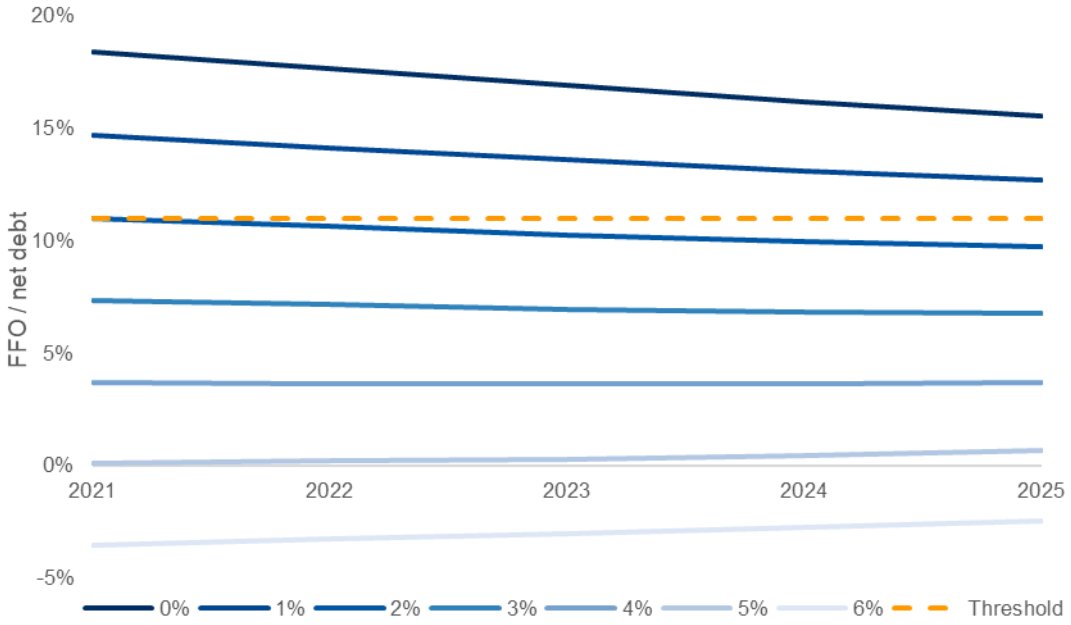
61. In Figure 3 and Figure 4 below, we show how the raw quantitative score of each metric varies by year under different inflation rate assumptions, compared to the Baa threshold.

Figure 3: FFO interest coverage at different forecast inflation rate with indexed RAB



Source: NERA analysis

Figure 4: FFO/net debt at different forecast inflation rates with indexed RAB



Source: NERA analysis

62. There are several factors that are likely to exacerbate the potential financeability issues caused by indexation:

    a. **High inflation environment:** The current high inflation environment, if it feeds through to high *forecast* inflation, results in more backloading of the cash recovered due to the indexation. This is demonstrated by Table 1 and Table 2 above, which show that the hypothetical distributor's credit metrics deteriorate as forecast inflation increases (all other things being equal).

    b. **Biased inflation forecasts:** Mismeasurement of inflation given RAB indexation can result in systematic under-recovery of the real WACC and exacerbate financeability concerns. Actual, rather than benchmark, financeability may also deteriorate where the regulatory regime indexes the RAB using inflation outturns but uses a measure of forecast inflation to set the rate of return, where inflation outturns are routinely below forecast.

    c. **EDBs issue nominal (unindexed) debt**: By indexing the entire RAB, the NZCC approach effectively assumes that EDBs issue inflation indexed debt, whereas we understand that none of the largest 6 EDBs issue inflation indexed debt. While the NZCC has suggested in the past that this issue can be addressed by issuing inflation-linked debt/swaps instead of nominal debt,[36] we understand that the reason EBDs don't issue inflation indexed debt is that there is no liquid market in NZ.

    d. **Increased capex needs:** The upcoming need for large amounts of capex to fund decarbonisation and renew aging assets[37] will exaggerate the issues caused by indexation and nominal debt costs, and results in significant financeability issues as the balance may tip towards most assets being in the under-recovery phase (i.e., left hand side of Figure 2 above). For this exact reason, as mentioned above, the input methodologies provide for an unindexed asset roll forward approach to Transpower's RAB. This treatment was concessionary and

[36] NZCC, *Input methodologies review decisions Topic paper 1: Form of control and RAB indexation for EDBs, GPBs and Transpower*, December 2016, para 244.2.

[37] ENA, *Part 4 Input Methodologies Review, Submission to the Commerce Commission.*, July 2022.

was intended to aid Transpower with financing its investment needs over the short to medium term. This has allowed Transpower's cash flows to be advanced compared to other sectors.[38]

63. We illustrate the impact of increased capex needs in two ways:

    a. Changing the remaining life of existing assets at the start of the period (i.e., making existing assets at the start of our hypothetical reset "newer"); or

    b. Flexing the forecast capex, such that the balance of new to old assets changes over the regulatory period.

64. The tables below show how the financial metrics respond differently to the change in the average remaining life of the RAB depending on whether the RAB is indexed or not. As new assets are commissioned to achieve decarbonization or new assets replace aged assets, the average remaining life of the RAB will improve. Table 3 and Table 4 show how when the RAB is indexed the hypothetical distributor will fail to pass the financeability test in all scenarios including the base case (average remaining asset life of 24 years) because as mentioned above when the RAB is indexed the distributor is compensated more as the assets mature. Therefore, if there is an increase in new assets being commissioned and the average remaining life of the RAB improves, this will result in there being more assets in the under-recovery phase and thus lead to lower allowable revenue for the distributor. On the other hand, if the RAB is not indexed, as the right half of Table 3 and Table 4 indicate, there will be no financeability issues.

Table 3: FFO/net debt and average RAB remaining life for hypothetical EDB

		Indexed RAB					Unindexed RAB				
		2021	2022	2023	2024	2025	2021	2022	2023	2024	2025
Remaining life	24	Baa	Ba	Ba	Ba	Ba	Baa	Baa	Baa	Baa	Baa
	25	Ba	Ba	Ba	Ba	Ba	Baa	Baa	Baa	Baa	Baa
	26	Ba	Ba	Ba	Ba	Ba	Baa	Baa	Baa	Baa	Baa
	27	Ba	Ba	Ba	Ba	Ba	Baa	Baa	Baa	Baa	Baa
	28	Ba	Ba	Ba	Ba	Ba	Baa	Baa	Baa	Baa	Baa
	29	Ba	Ba	Ba	Ba	Ba	Baa	Baa	Baa	Baa	Baa
	30	Ba	Ba	Ba	Ba	Ba	Baa	Baa	Baa	Baa	Baa

Source: NERA analysis

Table 4: FFO interest coverage and average RAB remaining life for hypothetical EDB

		Indexed RAB					Unindexed RAB				
		2021	2022	2023	2024	2025	2021	2022	2023	2024	2025
Remaining life	24	Baa	Baa	Baa	Baa	Baa	A	Baa	Baa	Baa	A
	25	Baa	Baa	Baa	Baa	Baa	Baa	Baa	Baa	Baa	Baa
	26	Baa	Baa	Baa	Baa	Baa	Baa	Baa	Baa	Baa	Baa
	27	Baa	Baa	Baa	Ba	Ba	Baa	Baa	Baa	Baa	Baa
	28	Baa	Baa	Baa	Ba	Ba	Baa	Baa	Baa	Baa	Baa
	29	Baa	Baa	Ba	Ba	Ba	Baa	Baa	Baa	Baa	Baa
	30	Baa	Ba	Ba	Ba	Ba	Baa	Baa	Baa	Baa	Baa

Source: NERA analysis

[38] NZCC, *Proposed amendments to input methodologies for Transpower*, March 2014, para 34.

65. While it is not reported in the tables above, results from our analysis indicate that if the RAB is not indexed, the hypothetical distributor will not fail the financeability test until the average remaining life of the RAB is 41 years. This is unrealistic given that the remaining life of a newly commissioned asset is 44 years which means that to have an average remaining life of the RAB of 41 years the EDB must have replaced their entire asset base in the last 5 years.

66. Another potential issue that could lead to financeability issues is when EDBs face a capex uplift due to expected/unexpected capital expenditures as mentioned in the above sections. Table 5 and Table 6 show how a benchmark entity's credit rating changes depending on how much the capex is increased by. Interestingly, for FFO/interest coverage credit ratings deteriorate as the amount capex is flexed by increases, while for FFO/net debt credit ratings improve as the amount capex is flexed by increases. In both FFO/interest coverage and FFO/net debt, later years of the DPP period are more susceptible to failing the financeability test compared to earlier years. This occurs as the RAB becomes progressively "newer" at the back end of the period when we flex capex, and therefore the backloading of recovery becomes more pronounced.

Table 5: FFO/interest coverage under different capex uplift scenarios and indexed RAB

Capex uplift	2021	2022	2023	2024	2025
105%	Baa	Baa	Baa	Baa	Baa
110%	Baa	Baa	Baa	Baa	Baa
115%	Baa	Baa	Baa	Baa	Baa
120%	Baa	Baa	Baa	Baa	Baa
125%	Baa	Baa	Baa	Baa	Baa
130%	Baa	Baa	Baa	Baa	Baa
135%	Baa	Baa	Baa	Baa	Baa
140%	Baa	Baa	Baa	Baa	Baa
145%	Baa	Baa	Baa	Baa	Ba
150%	Baa	Baa	Baa	Baa	Ba

Source: NERA analysis

Table 6: FFO/net debt under different capex uplift scenarios and indexed RAB

Capex Uplift	2021	2022	2023	2024	2025
105%	Baa	Ba	Ba	Ba	Ba
110%	Baa	Ba	Ba	Ba	Ba
115%	Baa	Ba	Ba	Ba	Ba
120%	Baa	Ba	Ba	Ba	Ba
125%	Baa	Ba	Ba	Ba	Ba
130%	Baa	Ba	Ba	Ba	Ba
135%	Baa	Ba	Ba	Ba	Ba
140%	Baa	Ba	Ba	Ba	Ba
145%	Baa	Ba	Ba	Ba	Ba
150%	Baa	Ba	Ba	Ba	Ba

Source: NERA analysis

4.3. Use of alternative (negative) X-factors

67. At each DPP determination, NZCC assesses whether alternative rates of change are necessary based on: (1) whether a distributor's increase in allowable revenue – including any incremental rolling incentive scheme (IRIS) incentives – would otherwise exceed +10% in real terms across DPPs; and (2) whether a decrease in a distributor's allowable revenue would cause financial hardship due to the change in cashflow profile between DPPs.39 While the current DPP3 did not implement any alternative rates of change for any distributors, in a scenario with large increases in forecast capex associated with decarbonization, there will be a large increase in allowable revenue as a result which makes alternative X-factors more likely in the future to smooth the price increases. The use of alternative X-factors will help ease the transition to higher prices for consumers but will backload cash recovery for distributors (within a DPP period) and put pressure on their financeability in the earlier periods of a DPP.

68. Table and Table 8 below show how adopting an alternative X-factor can deteriorate an EDB's credit ratings in the earlier periods of a DPP. As the alternative X-factor becomes larger in absolute value terms, the lower the allowable revenue in earlier years, and thus the financeability metrics deteriorate in these years.

Table 7: FFO/net debt for each year under different X-factors with indexed RAB

FFO / net debt

X-factor	2021	2022	2023	2024	2025
0%	Baa	Ba	Ba	Ba	Ba
-1%	Ba	Ba	Ba	Ba	Ba
-2%	Ba	Ba	Ba	Ba	Ba
-3%	Ba	Ba	Ba	Ba	Baa
-4%	Ba	Ba	Ba	Baa	Baa
-5%	Ba	Ba	Ba	Baa	Baa
-6%	Ba	Ba	Ba	Baa	Baa
-7%	Ba	Ba	Ba	Baa	Baa
-8%	Ba	Ba	Ba	Baa	Baa
-9%	Ba	Ba	Ba	Baa	Baa
-10%	Ba	Ba	Ba	Ba	Baa

Source: NERA analysis

[39] NZCC, *Default Price-quality path for electricity distribution businesses from 1-April 2020 Final decision Reasons paper*, November 2019, para 6.10.

Table 8: FFO interest coverage for each year under different X-factors with indexed RAB

X-factor	FFO interest coverage				
	2021	2022	2023	2024	2025
0%	Baa	Baa	Baa	Baa	Baa
-1%	Baa	Baa	Baa	Baa	Baa
-2%	Baa	Baa	Baa	Baa	Baa
-3%	Baa	Baa	Baa	Baa	Baa
-4%	Ba	Baa	Baa	Baa	Baa
-5%	Ba	Baa	Baa	Baa	Baa
-6%	Ba	Baa	Baa	Baa	Baa
-7%	Ba	Ba	Baa	Baa	Baa
-8%	Ba	Ba	Baa	Baa	Baa
-9%	Ba	Ba	Baa	Baa	Baa
-10%	Ba	Ba	Baa	Baa	Baa

Source: NERA analysis

4.4. 10% intra period cap on gross allowable revenue

69. The revenue cap places a limit on the change in total revenue (including pass-through and recoverable costs) of 10% per year. If the EDB under-recovers (or over-recovers) the revenue allowance in a given year, this under-recovery is added (or subtracted in the case of an over-recovery) to the net allowable revenue two years following the under(over)-recovery. This under/over-recovery is carried forward using the regulatory WACC and thus is theoretically NPV-neutral.[40]

70. If a distributor reaches this threshold, this means that the distributor will under-recover in that year, triggering a wash-up that is recovered in the following two years, which has the effect of backloading recovery.[41] As we have already discussed, backloading recovery can worsen the cashflow position of the firm and thus worsen credit metrics.

71. As a starting point, we note that with a large negative X-factor or in an environment of high expected inflation, the 10% cap is much more likely to be triggered or may be triggered before even considering changes in pass-through or recoverable costs. It is thus important that the NZCC considers these factors jointly when setting the intra-period cap so that its own decision is internally consistent in this respect.

72. High expected inflation and/or negative X factors, combined with the 10% limit on changes in the MAR have the potential effect of further backloading recovery, which has the potential to create or exaggerate financeability issues. The current +10% limit on the annual increase in the distributor's gross "forecast revenue from prices" includes pass-through and recoverable costs.[42]

[40] NZCC, *Electricity distribution services input methodologies determination 2012*, May 2020.

[41] If an EDB under-recovers (or over-recovers) the revenue allowance in a given year, this under-recovery is added (or subtracted in the case of an over-recovery) to the net allowable revenue two years following the under(over)-recovery. This is called the "wash-up" mechanism and while this system ensures the EDBs recover any under-recovered revenue allowances (leading to a positive wash-up balance), the time lag of the recovery (recovery made two years following the under-recovery) leads to a backloading of cash recovery.

[42] NZCC, *Default Price-quality path for electricity distribution businesses from 1-April 2020 Final decision Reasons paper*, November 2019, para 6.23, 6.24.

73. The IM determination lists the costs that EDBs can pass through or recover.[43] Costs that can be passed through are rates on system fixed assets paid or payable by an EDB to a local authority under the Local Government (Rating) Act 2002, and levies payable under the Commerce Act and the Electricity Industry Act 2010. Recoverable costs include IRIS incentive adjustments, Transpower and electricity line services charges, Transpower's new investment contract charges, distributed generation allowance, Fire and Emergency NZ levies, and avoided transmission charges.

74. While triggering this limit results in an NPV neutral reprofiling of cashflows, if there are high pass-through/recoverable costs in a given year, such as an increase in transmission charges, this will result in a deterioration of the cashflow in the year that the cost occurs, which raises the potential for a financeability issue in that year. It could be likely that there are such cost increases during periods (in particular, changes in transmission charges), which could cause particular issues in a high inflation environment if the intra-period cap is not set to account for this.

75. Thus, the intra-period cap should be set to account forecast inflation, the X-factor and any expected changes in pass-through or recoverable costs. In this regard it could be worth exploring whether the intra-period cap should apply to total revenue excluding pass-through and recoverable costs.

76. While not within the scope of this paper, changes to the opex IRIS could also be considered to result in the IRIS recoverable cost being smoothed across the period to avoid tripping the 10% intra-period threshold.

4.5. Correlation between the interest rate and credit metrics

77. Under the NZCC's current approach to calculating WACC, as the interest rate falls, the allowed cost of equity falls. All other things equal, this results in reduced profitability for the firm and, given debt has priority over equity, can reduce the residual cashflow available to pay debt holders and thus worsens EDBs credit metrics. Mechanically in the NZCC model, a lower risk-free rate has three impacts:

    a. The cost of equity falls (which worsens credit metrics);

    b. The cost of debt falls (which improves credit metrics); and

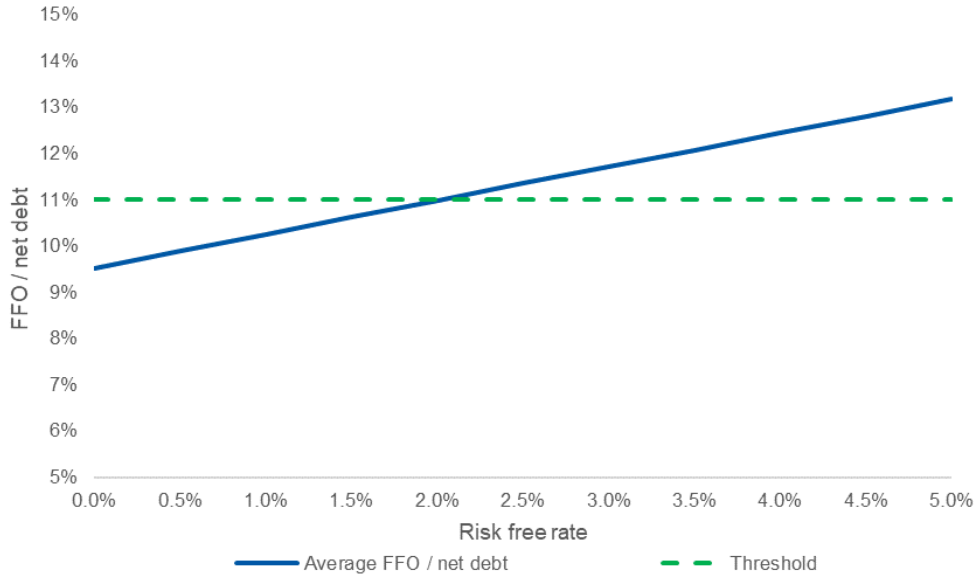
    c. The conversion of the BBAR to the MAR will give a lower total revenue stream if the BBAR is flat or falling over the period (which worsens credit metrics) and a higher revenue stream if BBAR is increasing over the period (which improves credit metrics).44

78. As we now show, which impact dominates depends on the credit metric in question. Figure 5 below shows the impact of a falling risk-free rate on the core ratio of FFO/net debt. For this metric, a lower risk-free rate worsens the credit metric because a falling interest rate worsens the FFO metric.

[43] NZCC, *Electricity distribution services input methodologies determination 2012*, May 2020, para. 3.1.2, para 3.1.3.

[44] Intuitively, if the BBAR is increasing over time, then the BBAR is weighted towards future periods. A lower discount rate would discount the later cashflows less, which happen to be larger. In this situation a higher smoothed cashflow profile is needed to give the same NPV as the BBAR.

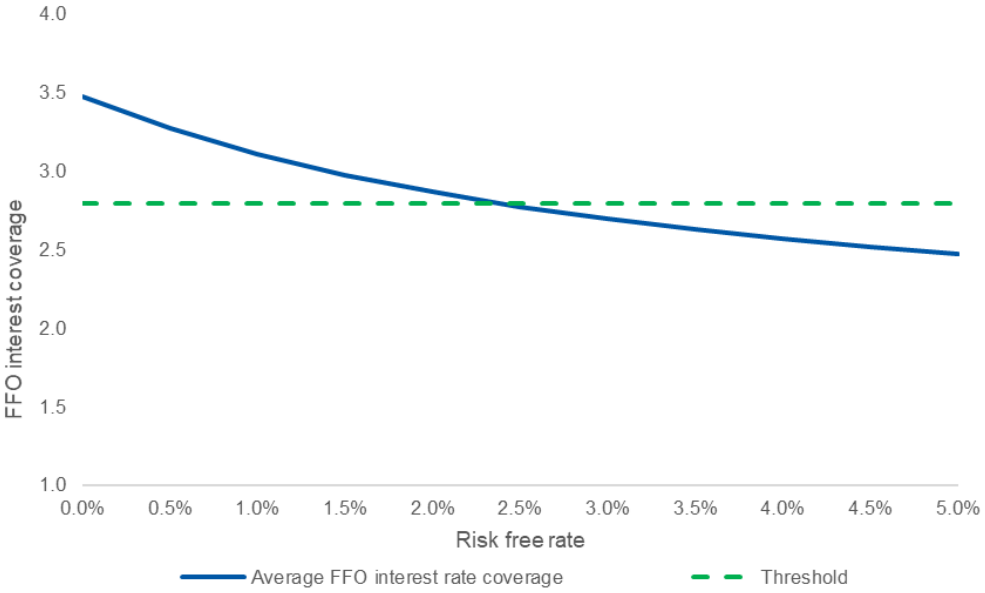
Figure 5: Average 5-year FFO/Net debt



Source: NERA analysis

79. Interestingly, when we examine the other core ratio of FFO interest coverage, the opposite occurs, as shown in Figure 6 below. This is because the numerator in the ratio is the notional interest expense, which declines as the interest rate declines. This is driven by the regulatory assumption that the EDB refinances the entirety of its debt portfolio at the beginning of the regulatory period and thus the same interest rate assumption that drives the cost of equity drives the cost of debt. If a trailing average approach was taken to the base rate component of the cost of debt, this link would be broken, and a falling interest rate used for the cost of equity would likely deteriorate this metric as well. This also means that if a financeability test was calculated using the actual forecast debt cost, a lower regulatory risk-free rate assumption would likely flow through to a deterioration in this credit metric, if firms adopt a refinancing strategy that differs from the "on the day" approach implicit in the NZCC's cost of debt calculation.

Figure 6: Average 5-year FFO Interest Coverage



Source: NERA analysis

5. Options and considerations for implementing financeability testing

80. Introducing financeability testing in New Zealand would require the NZCC to take a series of decisions about the design of any test. In designing a financeability test the NZCC would need to decide on at least four dimensions of any test in order to realise the benefits of financeability testing:
    a. Identity of the Target Firm;
    b. Methodology and Calculations;
    c. Frequency of testing; and
    d. Remedies.
81. We discuss each of these dimensions in turn.

5.1. Identity of the target firm

82. As a first step, financeability tests require a notional firm and a set of accounts in order to calculate financial ratios. In principle, the NZCC could run financeability tests based on the:
    a. *Benchmark Efficient Entity (BEE):* The starting point for incentive regulation is usually that decisions on costs and allowances should be made with reference to notional costs and financial structures. This approach would be in line with Ofgem's, Ofwat's, and IPART's approaches.
    b. *Actual Entity:* The risk of failure of actual entities could provide an argument for relying on actual costs to assess financeability.
    c. *Hybrid of actual and BEE (IPART approach):* Hybrid approaches are also possible: IPART used what it described as "actual" financeability as a cross-check on its work in previous price controls, applying the test to the BEE but using actual financing costs.
83. In our view, the primary purpose of a financeability test is to test the internal consistency of the regulatory price control, and therefore it makes sense to apply a financeability test to the BEE. Applied this way, testing does not need to require any information beyond what is already contained in the financial models used at each reset. Indeed, as part of this report, we have developed a spreadsheet that pulls information from the DPP3 financial model and calculates the core credit ratios of FFO/Net Debt and FFO interest coverage.
84. The actual or hybrid IPART approach requires more information, in particular about the actual forecast debt costs of the firm. While there are reasons that this may be a useful exercise, (for example, it can illustrate if firms are making imprudent decisions in a situation where the BEE passes but the actual entity fails), it moves the exercise beyond testing the levers the NZCC controls. If not assessed in conjunction with the benchmark test, it may mask issues with the regulatory price path. In particular, it can result in a situation where the actual entity passes but the BEE fails. This would indicate that the price path set is problematic, as it implies the actual firm has needed to find a way to compensate for a deficiency in the price control.
85. Therefore, our view is that the BEE should be the primary focus of any regulatory financeability test.

5.2. Methodology and calculations

86. We briefly described the approaches used by British regulators and IPART as well as the methodologies taken by credit-rating agencies in Section 3. The NZCC could adopt one of these

methodologies or approaches directly as part of the reset decision-making process. Alternatively, it could set out its own set of credit metrics drawn from the methodologies used by credit-rating agencies.

87. Replicating the methodologies used by Moody's and S&P would most directly address the question of whether the EDBs can actually raise debt on the terms the NZCC assumes. Therefore, in one sense this would be the preferred option. Weighing against this is:

    d. Both Moody's and S&P's methodologies have qualitative factors[45] that essentially relate to the regulatory regime, which can introduce circularity to the analysis. For example, the quantitative scores might suggest a fail but the qualitative factors pull the score up to a pass. This could result in the odd situation where the regulator sets an unfinanceable price control but considers it to be financeable because the credit rating agencies have historically viewed the regulatory regime favourably.

    e. Not all of the ratios used by S&P and Moody's methodologies can be calculated without making additional assumptions (for example around dividend payments).

88. Based on this, our suggestion is that any testing focus on metrics readily available from the NZCC's. This would be low cost and avoid any circularity/subjective with the qualitative assessment, which is essentially IPART's rationale for focusing on quantitative metrics and assessing financeability based on the two financial metrics that Moody's puts significant weight on (FFO interest coverage ratio and FFO/Net debt).

5.3. Frequency of testing

89. Financial market conditions change over time and the financeability of EDBs will also change, so there is a decision to be made as to the frequency at which financeability tests are conducted. In principle the NZCC could conduct financeability tests:

    f. **Annually**, for all networks throughout the price control, which would allow the NZCC to respond to financial conditions as they emerged;

    g. **At periodic resets**, which would give NZCC the opportunity to assess financeability for the forthcoming DPP determination for each network to ensure they were financeable on an *ex-ante* basis; and/or

    h. **During the IM Review process**, which would give NZCC the opportunity to assess the impact of its IM decisions on the financeability of EDBs.

90. As a generalisation, we think it makes sense for the NZCC to assess financeability when it is making decisions that have the potential to affect the financeability of EDBs. This suggests that the appropriate time to test financeability would be during the IM reviews and at the DPP resets.

91. In the recent Part 4 IM Review Decision Making Framework paper published by the NZCC, it appears to have acknowledged that financeability testing could be an input in a decision to set an alternative X factor: [46]

    We do not consider that introducing a new economic principle in the form of a financeability test would further help us in applying the Part 4 purpose. However, we may take financeability into account to the extent doing so is consistent with promoting the Part 4 purpose in a particular context. Further, in

[45] Moody's relies on a mix of qualitative and quantitative factors with a fifty-fifty weighting. Moody's scores for qualitative factors are therefore directly part of the calculated credit score. Moody's qualitative factors are mostly external to the control of the firm being rated and flow from the risks imposed by the regulatory environment and revenue cap model. S&P relies on qualitative estimates of country risk, industry risk, and competitive position to set the initial range of expected credit ratings. Thus, by contrast to Moody's where the qualitative factors directly flow into the calculated score, S&P's qualitative factors sets a floor and ceiling on the credit rating determined by the quantitative factors.

[46] NZCC, *Part 4 IM Review Decision Making Framework Paper*, October 2022, para 4.33.5.

resetting a DPP, we may set an alternative rate of change for a particular supplier if, we consider it necessary or desirable to minimise any undue financial hardship to the supplier or to minimise price shock to consumers.

92. However, in our view it is equally important that financeability testing is conducted during the IM review, as the IM review will lock in decisions that affect the financeability of EDBs at the DPP reset, which limits the remedies available to the NZCC of a failed financeability test.

5.4. Remedies

93. Testing the financeability of EDBs will not increase the financeability of EDBs or the consistency of reset decisions per se. The financeability of EDBs will only improve if:

    a. following a failed test, the NZCC acts and adjusts the reset decision to ensure that EDBs are more financeable; or

    b. anticipating the potential for a failed test, the NZCC adjusts the reset decision.

94. In principle, remedies could consist of accelerating the profile of depreciation to ensure that distributors remain financeable or increasing the rate of return. In practice, accelerating depreciation has been the prominent response to failed financeability tests in the UK, though Ofgem and Ofwat have suggested other remedies, as we set out in Table 9 below.

Table 9: Ofgem and Ofwat's remedies in case of a failed test

Ofgem[47]	Ofwat[48]
▪ Adjust dividend policies to retain cash within the ring-fence during the control period ▪ Inject equity to reduce gearing ▪ Re-finance debt or any other financial commitment ▪ Propose alternative capitalisation rates and depreciation rates: under the RIIO framework introduced in 2013, Ofgem adopted a totex framework for analysing costs and allows companies to propose their own proportions and asset lives for “fast” and “slow” money	▪ Reduce dividends when real regulatory capital value (RCV) growth exceeds 10 per cent to maintain gearing close to the notional level of 60% ▪ Advance revenue from future customers using Pay-As-You-Go (PAYG) and RCV run-off. Thus, water companies in England and Wales are able to propose as part of their business plans what proportion of their expenditure should be expensed within year (PAYG) and what proportion should be capitalised and depreciated (RCV run off).

Source NERA analysis

95. Which remedy meets consumers’ needs will depend on the underlying cause of the financeability problem, i.e., whether the profile or the sufficiency of the rate of return is the primary driver of the lack of financeability. Understanding the source of the financeability issue is important, as if the problem is with the allowed rate of return being too low, accelerating depreciation to bring cash forward in some sense just kicks the can down the road.

96. In this regard, we note IPART’s approach appropriately recognises that the solution depends on the problem as shown in Table 10. In particular, if the benchmark test fails, IPART reassesses the

[47] Ofgem, *Consultation: RIIO-2 Sector Specific Methodology Annex: Finance*, 24 May 2019, p. 57.

[48] Ofwat, *PR19 final determination, Aligning risk and return technical appendix*, December 2019, p. 94.

regulatory pricing decision, whereas if the actual test fails, it liases with the business about the source of the issue.[49]

Table 10: IPART matches the remedy to the source of the financeability problem

Source of financeability concern	Remedy
Regulatory error	Correct the error by reassessing pricing decision
Imprudent or inefficient business decisions	Alert business owners to need to inject more equity/accept a lower return on equity.
Temporary cash flow problems	NPV-neutral adjustment to prices.

Source: IPART, Review of our financeability test, Final Report, 2018, p.63 Decisions 24-26.

97. Our view is therefore that an approach similar to IPART's, in the sense of focusing on quantitative measures and matching the remedy to the problem, would be most appropriate.

[49] IPART, *Review of our financeability test*, Final Report, 2018.

Appendix A. Moody's rating methodology for regulated electric and gas networks

A.1. Overview of Moody's Approach to assessing credit ratings

98. Moody's assesses credit rating for regulated electric and gas companies using a range of qualitative as well as quantitative factors (financial ratios), as set out in Table 11 below.

Table 11: Moody's assesses electric and gas credit rating based on qualitative and quantitative Factors

Broad Grid Factors	Factor Weighting	Sub-Factors	Sub-Factor Weighting
Regulatory Environment and Asset Ownership Model	40%		
		Stability and Predictability of Regulatory Regime	15%
		Asset Ownership Model	5%
		Cost and Investment Recovery (Ability and Timeliness)	15%
		Revenue Risk	5%
Scale and Complexity of Capital Program	10%		
		Scale and Complexity of Capital Program	10%
Financial Policy	10%		
		Financial Policy	10%
Leverage and Coverage	40%		
		AICR or FFO Interest Coverage	10%
		Net Debt / RAB or Net Debt / Fixed Assets	12.5%
		FFO / Net Debt	12.5%
		RCF / Net Debt	5%
Total	100%		100%

Source: NERA, Moody's (April 2022), Rating Methodology: Regulated Electric and Gas Networks, p. 4.

99. The qualitative factors include three key areas: Regulatory environment and asset ownership model (40%); scale and complexity of the capital programme (10%), as defined by the capex to RAB ratio; and financial policy (10%).

100. The quantitative factors (leverage and coverage) have a weighting of 40 per cent in the overall rating and are assessed based on Moody's calculation of four key financial ratios:

a. Adjusted Interest Cover Ratio (AICR) or Funds From Operations (FFO) interest coverage;

b. Net debt/Regulated Asset Base (RAB);

c. FFO/Net Debt; and

d. Retained Cash Flows (RCF)/Net Debt.

101. Table 12 shows how Moody's defines its quantitative metrics.

Table 12: Moody's definition of quantitative scores

Sub Factor	Definition
AICR	(Revenue - Opex - Tax - Depreciation) / Notional Interest
FFO Interest Coverage	(Revenue - Opex - Tax) / Notional Interest
Net Debt / RAB	(RAB x Notional Gearing) / RAB
FFO / Net Debt	(Revenue - Opex - Tax - Notional Interest) / (RAB x Notional Gearing)
RCF / Net Debt	(Revenue - Opex - Tax - Notional Interest - Net Dividends) / (RAB x Notional Gearing)

Source: NERA, Moody's (April 2022), Rating Methodology: Regulated Electric and Gas Networks, p. 14.

A.2. How Moody's assigns credit ratings for regulated electric and gas companies

102. As the first step of its rating assessment, Moody's assigns a rating score based on Moody's broad categories Aaa, Aa, A, Baa, Ba, B, or Caa to each of the sub-factors set out in Table 13.

103. The rating score for qualitative factors is based on Moody's criteria set out in the methodology document[50] and for financial ratios based on rating thresholds as shown in Table 13 below.

Table 13: Sub-factor rating thresholds for Moody's financial ratios

Sub Factor	Sub factor weight	Aaa	Aa	A	Baa	Ba	B	Caa
AICR or	10%	≥5.5x	3.5-5.5x	2-3.5x	1.4-2x	1.1-1.4x	0.9-1.1x	<0.9x
FFO Interest Coverage		≥7.5x	5.5-7.5x	4-5.5x	2.8-4x	1.8-2.8x	1.1-1.8x	<1.1x
Net Debt / RAB	12.5%	<30%	30-45%	45-60%	60-75%	75-90%	90-100%	≥100%
FFO / Net Debt	12.5%	≥35%	26-35%	18-26%	11-18%	5-11%	0-5%	<0%
RCF / Net Debt	5%	≥30%	21-30%	14-21%	7-14%	1-7%	(4)-1%	<(4)%

Source: NERA, Moody's (April 2022), Rating Methodology: Regulated Electric and Gas Networks, p. 4-8.

104. In the second step, Moody's converts the rating score into a numerical score based on a scale as in Table 14 below.

Table 14: Conversion of rating scores into numerical scores for each sub-factor

Aaa	Aa	A	Baa	Ba	B	Caa
1	3	6	9	12	15	18

Source: NERA, Moody's (April 2022), Rating Methodology: Regulated Electric and Gas Networks, p. 20.

105. As a third step, the numeric score for each sub-factor (or each factor, when the factor has no sub-factors) is multiplied by the weight for that sub-factor (or factor), with the results then summed to produce an aggregate numeric score.

[50] Moody's, *Rating Methodology Regulated Electric and Gas Networks*, April 2022.

106. A further weighting is then applied by rating category as set out in the table below. Moody's weights lower scores more heavily than higher scores in the scorecard because a serious weakness in one area often cannot be completely offset by strength in another.

Table 15: Additional weight for the aggregate numeric score

Aaa	Aa	A	Baa	Ba	B	Caa
1	1	1	1.15	2	3	5

Source: NERA, Moody's (April 2022), Rating Methodology: Regulated Electric and Gas Networks, p. 20.

107. The actual weighting applied to each sub-factor is the product of that sub-factor's standard weighting and its over-weighting, divided by the sum of these products for all the sub-factors (an adjustment that brings the sum of all the sub-factor weightings back to 100%.)

108. The numerical score for each sub-factor is multiplied by the adjusted weight for that sub-factor, with the results then summed to produce an aggregate numeric score before notching factors (the preliminary outcome). Moody's then considers whether the preliminary outcome that results from the weighted factors should be notched upward or downward in order to arrive at an aggregate core after notching factors. The Uplift for Structural Considerations notching factor can result in a total of up to three upward notches from the preliminary outcome to arrive at the scorecard-indicated outcome.

109. The aggregate numeric score before and after the notching factor is mapped to an alphanumeric score. For example, an issuer with an aggregate numerical score before notching factors of 11.7 would have a Ba2 preliminary outcome, based on the ranges in the table below. If the combined notching factors totalled two upward notches, the aggregate numeric score after notching factors would be 9.7, which would map to a Baa3 scorecard-indicated outcome.

110. The scorecard-indicated outcome is then assessed against (i) Other Considerations (ii)Instrument Considerations, and (iii) Cross-Sector Methodologies, to reach the final assigned rating.

Table 16: Scorecard-indicated rating

Grid-Indicated Rating	Aggregate Weighted Total Factor Score
Aaa	x < 1.5
Aa1	1.5 ≤ x <2.5
Aa2	2.5 ≤ x < 3.5
Aa3	3.5 ≤ x < 4.5
A1	4.5 ≤ x < 5.5
A2	5.5 ≤ x < 6.5
A3	6.5 ≤ x < 7.5
Baa1	7.5 ≤ x < 8.5
Baa2	8.5 ≤ x < 9.5
Baa3	9.5 ≤ x < 10.5
Ba1	10.5 ≤ x < 11.5
Ba2	11.5 ≤ x < 12.5
Ba3	12.5 ≤ x < 13.5
B1	13.5 ≤ x < 14.5
B2	14.5 ≤ x < 15.5
B3	15.5 ≤ x < 16.5
Caa1	16.5 ≤ x < 17.5
Caa2	17.5 ≤ x < 18.5
Caa3	18.5 ≤ x < 19.5

Source: NERA, Moody's (April 2022), Rating Methodology: Regulated Electric and Gas Networks, p. 21.

Appendix B. S&P's rating methodology for regulated electric and gas networks

B.1. Overview of S&P's approach to assessing credit ratings

111. To determine credit ratings, S&P assesses companies' risk along two key dimensions: (i) Business risk profile and (ii) Financial risk profile.

112. To assess companies' business risk profile, S&P considers three broad areas:

    a. Country risk: which considers a range of factors including economic, institutional and governance, legal and financial systems, that arise from doing business with or in a specific country.

    b. Industry risk: which considers a range of factors that affect the industry in which the rated company operates in, including industry growth trends, market structure & competition and industry cyclicality.

    c. Competitive position: which looks at the competitive position of the rated company, including competitive advantages; scale, scope & diversity; operating efficiency and profitability.

113. There are six possible scores from S&P's assessment of the Business risk profile based on the above factors: excellent, strong, satisfactory, fair, weak, and vulnerable.

114. To assess its financial risk profile, S&P considers a range of financial ratios as follows:

    a. "Core" ratios including:

i. Funds from operations (FFO)/debt; and

ii. Debt/EBITDA.

b. "Supplementary" coverage and payback ratios including:

i. Funds from operations (FFO)/ cash interest;

ii. EBITDA/interest;

iii. Cash flow from operations (CFO)/debt;

iv. Free operating cash flow (FOCF)/debt; and

v. Discretionary cash flow (DCF)/debt.

115. S&P defines its quantitative ratios as described in Table 17.

Table 17: S&P's definition of financial ratios

Financial Ratios	Definition
FFO / Debt	(Revenue - Opex - Tax - Notional Interest) / (RAB x Notional Gearing)
Debt / EBITDA	(RAB x Notional Gearing) / (Revenue - Opex)
FFO / Cash Interest	(Revenue - Opex - Tax - Notional Interest) / Notional Interest
EBITDA / Cash Interest	(Revenue - Opex) / Notional Interest
CFO / debt	(Revenue - Opex - Tax) / (RAB x Notional Gearing)
FOCF / debt	(Revenue - Opex - Tax - Capex) / (RAB x Notional Gearing)
DCF / debt	(Revenue - Opex - Tax - Capex - Net Dividends) / (RAB x Notional Gearing)

Source: S&P (November 2013), S&P Corporate Methodology, p. 30.

116. We note the key difference between S&P's and Moody's approaches to calculating financial ratios is the treatment of accrued interest on index linked debt. Moody's takes a "cash-flow" apporach to interest costs which recognizes the cash benefit of index-linked debt by calculating FFO and other ratios after subtracting cash interest but not the accrued interest on index-linked debt. In contrast, S&P takes a "P&L" approach to interest and calculates FFO and other ratios taking into account the full interest expense, including cash interest and the accrued interest. As a result of different treatment of debt interest costs, companies with index-linked debt will exhibit weaker ratios (i.e., FFO/debt) from S&P compared to Moody's.

117. S&P publishes explicit guidance on the relevant thresholds for each ratio which translate into one of six possible scores for financial risk profile: minimal, modest, intermediate, significant, aggressive, and highly leveraged. We understand that energy networks operating in a regulated environment are assessed by S&P against its low-volatility cash-flow financial metrics, summarized in Table 18 below.

Table 18: S&P ratio thresholds for an industry exhibiting low volatility

	Core Ratios		Supplementary Coverage Ratios		Supplementary Payback Ratios		
	FFO/ Debt	Debt/ EBITDA	FFO/ Cash Interest	EBITDA/ Interest	CFO/ Debt	FOCF/ Debt	DCF/ Debt
	%	x	x	x	%	%	%
Minimal	>35	<2	>8	>13	>30	>20	>11
Modest	23-35	2-3	5-8	7-13	20-30	10-20	7-11
Intermediate	13-23	3-4	3-5	4-7	12-20	4-10	3-7
Significant	9-13	4-5	2-3	2.5-4	8-12	0-4	0-3
Aggressive	6-9	5-6	1.5-2	1.5-2.5	5-8	(10)-0	(20)-0
Highly Leveraged	<6	>6	<1.5	<1.5	<5	<(10)	<(20)

Source: NERA, S&P (November 2013), S&P Corporate Methodology, p. 35.

118. Unlike Moody's, S&P does not have a prescribed approach to combining the different financial ratios in a final score for the financial risk profile. In the case of regulated energy companies, we understand that S&P focuses primarily on the FFO/debt core ratio for determining a company's financial risk profile.

119. Based on its assessment of the Business risk profile and financial risk profile, S&P then combines the two risk factors to form a rating anchor according to the "anchor" matrix set out in Table 19 below.

Table 19: S&P determines anchor rating based on assessment of business and financial risk

	Financial risk profile					
Business Risk Profile	Minimal	Modest	Intermediate	Significant	Aggressive	Highly Leveraged
1 (excellent)	aaa/aa+	aa	a+/a	a-	bbb	bbb-/bb+
2 (strong)	aa/aa-	a+/a	a-/bbb+	bbb	bb+	bb
3 (satisfactory)	a/a-	bbb+	bbb/bbb-	bbb-/bb+	bb	b+
4 (fair)	bbb/bbb-	bbb-	bb+	bb+/bb-	bb-	b
5 (weak)	bb+	bb+	bb	bb-	b+	b/b-
6 (vulnerable)	bb-	bb-	bb-/b+	b+	b	b-

Source: NERA, S&P (November 2013), S&P Corporate Methodology, p. 8.

Appendix C. Methodology for stylized model

C.1. Model construction

120. We have calculated the stylized financeability ratios reported in section 4 using a financial model based on the DPP3 financial model. This stylized model is a Building Blocks Model and calculates the financial ratios used in financeability analysis while varying certain price control inputs such as inflation assumptions, average asset lives, and the X-factor used in the BBM model. The inputs into this model, represent an 'averaged EDB'. We do this using the DPP3 financial model and data and calculating the averaged RAB, asset lives, opex and capex of all the EDBs.

121. To calculate cashflows we have used the outputs of the BBM regarding costs (opex, depreciation and tax) and the smoothed MAR regarding revenue. Note that the tax allowance value from the BBM model is used for 'tax payable' in calculating the FFO. This will likely understate the cash tax liability as this would be calculated on the final revenue rather than the pre-tax revenue.

C.2. Approach to credit metric thresholds

122. In section 4, we apply the financeability test adopted by IPART to our stylized model, and test whether the three financial metrics (FFO interest coverage, gearing (leverage), and FFO over net debt) are all above the Baa rating for a five-year period. In Section 4 we only reported the changes made in FFO interest coverage and FFO over net debt because gearing (leverage) is constant in the benchmark case.

123. We use IPART's financeability test because compared to the test conducted by Ofgem and Ofwat, IPART provides a clear description of the financial metrics and thresholds for whether or not a firm is financeable or not. It also is based solely on quantitative values rather than a mix of quantitative and qualitative (used by Moody's and S&P) which is simpler and is more objective. IPART uses three of the four quantitative financial metrics used in Moody's quantitative assessment section to derive the credit rating and test financeability, comprising the vast majority (88%) of the total quantitative assessment.[51] The metric which IPART does include which we do not (RCF/debt) requires dividend information which is not provided in the NZCC financial model that we base our stylized model off of. We have therefore excluded it from our analysis rather than rely on assumptions.

124. In its 2018 final report, IPART concluded that the passing threshold will be based on Moody's Ba threshold set for regulated water utilities.[52] In other words, to pass IPART's financeability test, firms must score at least the Ba value set by Moody's for regulated water utilities.[53] IPART set a target credit rating of Baa2 using Moody's rating method (equivalent to BBB of S&P) for all firms, but used the Ba threshold for each financial metric's target because "Moody's Ba benchmark ratios tend to be more consistent with the credit rating outcomes for Australian regulated water utilities (and Australian regulated energy and gas networks) and more applicable for our purpose (than the Baa range)".[54]

125. The NZCC uses S&P's BBB+ rating (equivalent to Baa1 of Moody's) to set the cost of debt. To be consistent with this, we use the lower end of the Baa range set by Moody's for regulated energy networks as our modelled threshold. Thus for the purpose of our exercise, we are imposing a more stringent threshold than IPART, but one that is internally consistent with

[51] Table 3 above.

[52] IPART, *Review of our financeability test, Final Report*, November 2018. P.53 Table 3.

[53] Moody's Investor Service, *Rating methodology – Regulated Water Utilities*, June 2018.

[54] IPART, *Review of our financeability test*, November 2018, p. 52,53.

NZCC's view of the cost of debt. Table 20 below shows the different target ratios adopted by IPART and Moody's, as well as the target ratios used in our financeability test.

Table 20: Nominal metrics used by IPART and credit rating agencies

	ICR	FFO over Debt
IPART (final decision using a Ba threshold)	>1.8x	>6%
Moody's (Baa) –Energy networks	2.8-4x	11-18%
Threshold used in NERA's analysis (based on Moody's Baa threshold)	>2.8x	>11%

Source: NERA analysis, IPART (November 2018), Review of our financeability test, p.53.

126. In practice, IPART's assessment of the notional company is based on a real interest rate and adjusted thresholds which capture how the relevant ratios change when inflation is excluded. By contrast, its assessment of actual businesses uses nominal definitions of interest, consistent with Moody's methodology and with how companies would actually finance their activities (index-linked debt is not commonly used). Our modelling approach relies on nominal interest.

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