



RAB Indexation



Report for Transpower | 13 July 2023



Frontier Economics Pty Ltd is a member of the Frontier Economics network, and is headquartered in Australia with a subsidiary company, Frontier Economics Pte Ltd in Singapore. Our fellow network member, Frontier Economics Ltd, is headquartered in the United Kingdom. The companies are independently owned, and legal commitments entered into by any one company do not impose any obligations on other companies in the network. All views expressed in this document are the views of Frontier Economics Pty Ltd.

Disclaimer

None of Frontier Economics Pty Ltd (including the directors and employees) make any representation or warranty as to the accuracy or completeness of this report. Nor shall they have any liability (whether arising from negligence or otherwise) for any representations (express or implied) or information contained in, or for any omissions from, the report or any written or oral communications transmitted in the course of the project.



Contents

1	Executive summary	4
2	The investment context for the 2023 IMs	6
2.1	The investment task that lies ahead	6
2.2	Transpower's transformational capital expenditure	7
2.3	Consumer benefits from network expenditure	9
3	The cash flow timing problem	11
3.1	Two separate issues: Quantum and timing	11
3.2	The new approach proposed in the Draft Decision	12
3.3	The return on debt timing problem under the Draft Decision	13
3.4	Efficiency and inter-generational equity	13
3.5	The near-term implications of the return on debt timing problem for Transpower	14
4	Response to Draft Decision analysis	16
4.1	Overview	16
4.2	Transpower's planned investment is 'less significant'	16
4.3	Stranding risk has declined	17
4.4	Compliance and regulatory costs are small relative to the benefits of RAB indexation	17
4.5	No financeability issues for Transpower	19
5	Proposed alternatives	20
5.1	Is now the time for a material change?	20
5.2	Option 1: Maintain status quo in current IMs review	20
5.3	Option 2: A hybrid approach to match the regulatory allowance to the benchmark efficient cost of debt	21



1 Executive summary

1. Frontier Economics has been engaged by Transpower to provide our views on the proposed change in the regulatory approach applied to Transpower that is set out in the Commerce Commission's (the Commission's) Draft 2023 IMs Decision.¹
2. The relevant context for this proposed change is as follows:
 - a Very significant investment, in the tens of billions of dollars, will be required over coming years to achieve New Zealand's decarbonisation objectives;
 - b Transpower's share of this expenditure is significant. The Commission's models indicate that Transpower's capital expenditure will be materially higher over RCP4 and RCP5 than even the very significant expenditure over RCP3. The total capex forecast for RCP4 and RCP5 is greater than the current RAB. Thus, the investment required is transformational and of national significance; and
 - c It will be impossible to meet New Zealand's decarbonisation objectives without this capital investment.
3. The Draft Decision proposes a change to the regulatory framework whereby part of the return on capital would now be provided in the form of RAB indexation, rather than as a cash allowance.
4. The proposed change creates a particular problem in relation to the allowed return on debt. Although the proposed approach maintains a nominal allowance for the return on debt (consistent with observed debt management practice), it delays part of the allowance into future regulatory periods. The result is a shortfall between the return on debt cash allowance and the (benchmark efficient) nominal interest bill each year. Because the full nominal interest bill must be paid in cash every year, equity holders are required to cover any shortfall, in return for the promise of future benefits arising from RAB indexation.²
5. The Commission's modelling shows that the proposed changes would have the effect of:
 - a Suspending dividend payments over the course of the following decade;
 - b Significantly increasing the (already substantial) quantum of equity capital that must be raised; and
 - c Altering consumer prices so that part of the current interest bill will be paid by future consumers.
6. This raises the question of whether a change in approach that produces the above outcomes can reasonably be considered to reflect "outcomes in competitive markets" in accordance with the Part 4 purpose.³ Or whether a commercial entity operating in competitive markets would seek to *avoid* making a material change to its approach that would produce the above outcomes.

¹ Commerce Commission, June 2023, *Financing and incentivising efficient expenditure during the energy transition topic paper*.

² For example, a larger asset base produces higher future allowances and may enable the firm to raise additional debt.

³ *Commerce Act* (1986), s. 52A(1).



7. Moreover, it is precisely this current point in time when the proposed change to RAB indexation would have the greatest impact on Transpower – just when significant increases in investment of national significance in New Zealand’s decarbonisation efforts is required. This raises the question of whether now is the right time to proceed with such a change to the regulatory regime.
8. We propose two alternative approaches for the Commission to consider:

a Option 1: Maintain the status quo in the current IMs review and reconsider at the next review

Under this approach, the Commission’s current approach would apply to Transpower for RCP4 and RCP5. This would allow cash flows to be provided in the same manner for the next two regulatory control periods – which corresponds to the periods of very significant investment. At the next IMs review, the Commission would consider whether a change of approach was warranted in light of Transpower’s capex profile at that time.

b Option 2: A hybrid approach to match the regulatory allowance to the benchmark efficient cost of debt

Under this ‘hybrid’ approach:

- There would be no change to the Commission’s proposed approach to the allowed return on equity. The real component would be provided in the allowed revenues and the inflation component would be provided via RAB indexation (and the existing revenue wash-up); and
- The allowed return on debt would be provided in full in the allowed revenues and there would be no indexation in relation to the allowed return on debt.

That is:

- For equity, the Commission’s proposed new approach would be used; and
- For debt, the current approach would be maintained.

Although this approach is more complex than maintaining the status quo, it has the advantages of:

- Providing a return on equity equal to the real return plus actual inflation, in line with the Commission’s preferred approach for equity;
- Providing the nominal return on debt in line with the benchmark efficient practice and the Commission’s new preferred approach for the quantum of the return on debt allowance; and
- Matching the timing of the regulatory allowance to the timing of the benchmark efficient interest payments so there is no shortfall to be covered by equity holders.

In our view, any additional complexity associated with this approach would be worthwhile given the significant benefits this approach would deliver. Furthermore, this additional complexity, which in our opinion is not material, could easily be accommodated under Transpower’s Individual Price-quality Path arrangement.



2 The investment context for the 2023 IMs

2.1 The investment task that lies ahead

9. Electrification is at the core of New Zealand's decarbonisation strategy and this will require extensive investment in transmission and distribution networks over a short period of time. Indeed, it will be impossible for New Zealand to meet its decarbonisation commitments without this extensive network investment.
10. In our report of February 2023,⁴ we noted that Boston Consulting Group (BCG) estimates that \$30 billion will need to be invested in the 2020s to upgrade transmission and distribution infrastructure. BCG expects that an additional \$35 billion will be required in both the 2030s and 2040s.⁵
11. Investment of this scale is unprecedented. As of 2021, the regulated asset base of New Zealand's Electricity Distribution Businesses (EDBs) totalled \$13.5 billion, with capital expenditure (capex) in that year of \$1.1 billion. Thus, the required capital expenditure is orders of magnitude higher than current levels. And this high level of expenditure is required year after year for decades in order for New Zealand to meet its current decarbonisation commitments. It is difficult to see how New Zealand could meet its net-zero commitments without this investment being delivered.
12. Our February 2023 report also notes that the *Climate Change Response (Zero Carbon) Amendment Act* of 2019 and the *Nationally Determined Contribution* (NDC1) set out three main emissions reduction targets for New Zealand:
 - a 50% reduction of net emissions below gross 2005 levels by 2030;
 - b Net zero emissions of all greenhouse gases excluding biogenic methane by 2050; and
 - c 24% to 47% reduction below 2017 biogenic methane emissions by 2050, including 10% reduction below 2017 biogenic methane emissions by 2030.
13. The Climate Change Commission recognises that electrifying transport and process heat will require significant expansion in electricity generation capacity. It also recognises that increased demand and generation must be accompanied by expanding infrastructure for transmission and distribution.⁶
14. Transpower estimates that an additional 70% of renewable generation is required to electrify process heat and transport, to decarbonise the New Zealand economy.⁷

⁴ Frontier Economics, February 2023, *Efficient investment in a decarbonising economy*.

⁵ Boston Consulting Group, *Climate Change in New Zealand: The Future is Electric*, 25 October 2022.

⁶ Climate Change Commission, *Inaia tonu nei: a Low Emissions Future for Aotearoa*, 31 May 2021.

⁷ Transpower, *A Roadmap for Electrification: Decarbonising transport and process heat*, 10 February 2021.



15. Transpower's submission to the Climate Change Commission stated that New Zealand's electricity sector will need to build and deliver "as much new electricity generation in the next 15 years as it has in the last 40 years".⁸
16. Transpower also estimates that 60 to 70 new grid scale connections will be required before 2035 to meet the increased electricity demand.⁹
17. BCG's 2022 report into New Zealand's decarbonisation roadmap estimates that an investment of \$42 billion across generation, transmission and distribution will be required before the end of the decade. This amount includes:
 - a \$10.2 billion in new utility-scale renewable generation capacity;
 - b \$1.9 billion in new flexible generation and demand resources;
 - c \$8.2 billion in transmission infrastructure; and
 - d \$22 billion in distribution infrastructure.¹⁰
18. The magnitude of the investment task is similar in other jurisdictions. For example, Frank Calabria, CEO of Origin Energy in Australia, recently observed that:

It is a truly staggering task to achieve those 2030 targets, and we must act with more urgency, as each month that passes makes the challenge harder with the propensity for adding costs.¹¹

and that:

All of this will be occurring concurrently, representing a magnitude of investment and construction akin to the wartime reconstruction effort.

That \$76 billion in investment to deliver the transition ... needs to be paid for.

2.2 Transpower's transformational capital expenditure

19. The Commission has provided a number of demonstration models with its Draft Decision. Among those models is one relating to Transpower, setting out the very significant capex investment profile over the period to 2035. That capex profile is based on the Asset Management Plan set out in the consultation for Transpower's RCP4.¹²
20. The model published by the Commission identifies the capex requirements that are summarised in Figure 1 below. That figure demonstrates that there is a step change in Transpower's capex requirements over RCP4 and RCP5. That is, capex requirements are materially higher over the next two regulatory control periods, even relative to the (current) high levels of capex over RCP3.

⁸ Transpower, *Transpower submission on Climate Change Commission first draft advice to Government*, p.8, March 2021.

⁹ Transpower, *Submission to the Infrastructure Commission on the Commission's strategy consultation document - Infrastructure for a Better Future*, p.7, 2 July 2021.

¹⁰ Boston Consulting Group, *Climate Change in New Zealand: The Future is Electric*, 25 October 2022.

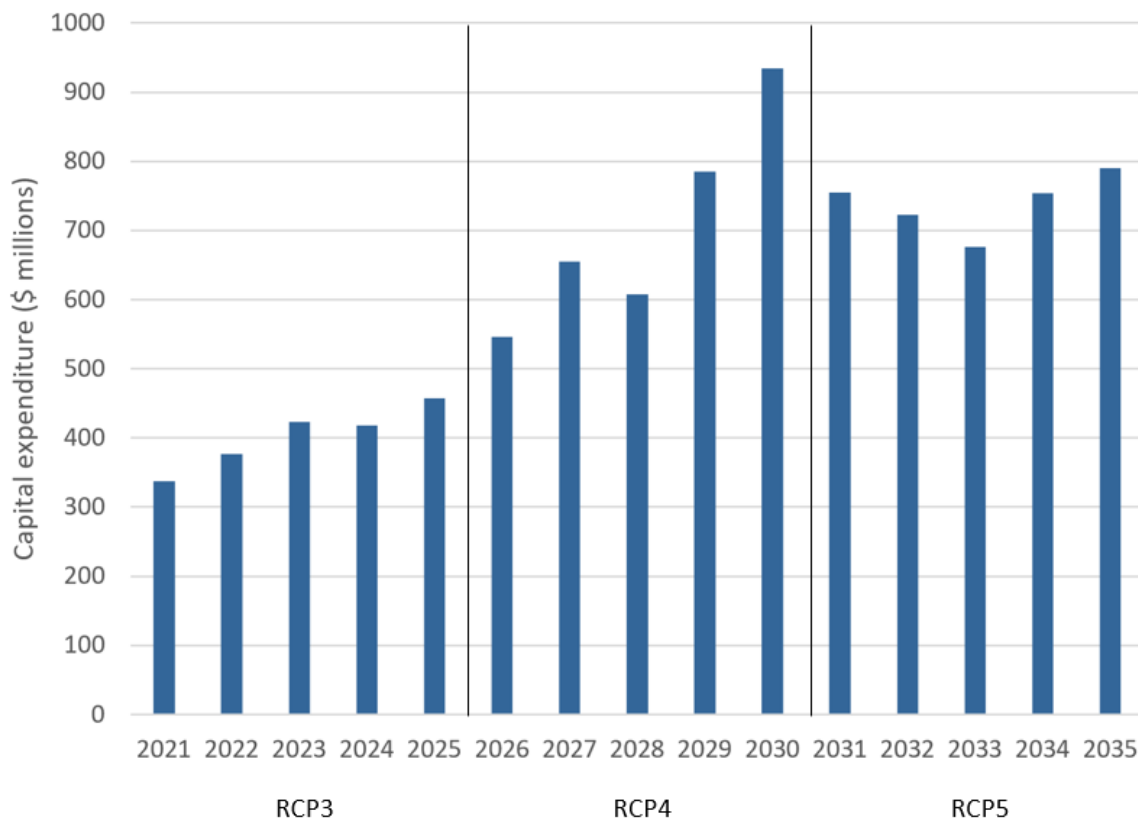
¹¹ <https://www.afr.com/companies/energy/deep-pockets-of-global-capital-keen-to-fund-transition-origin-ceo-20221121-p5b2vj>, emphasis added.

¹² https://comcom.govt.nz/_data/assets/excel_doc/0028/318466/Part-4-IM-Review-2023-Risks-and-incentives-topic-paper-Demonstration-model-Financial-impacts-of-indexation-of-Transpowers-RAB-June-2023.xlsm.



21. This level of capital expenditure is transformational in nature. According to the Commission's modelling, Transpower's RAB is expected to increase by over 50% over the course of RCP4 and RCP5 alone.¹³ This clearly goes well beyond replacement or even business-as-usual capex. It is transformational expenditure that will see the RAB that has been accumulated over many decades increased by 50% in just 10 years.

Figure 1: Transpower capex requirements



Source: https://comcom.govt.nz/_data/assets/excel_doc/0028/318466/Part-4-IM-Review-2023-Risks-and-incentives-topic-paper-Demonstration-model-Financial-impacts-of-indexation-of-Transpowers-RAB-June-2023.xlsm.

22. Of course, the significantly increased level of capital expenditure all needs to be financed. Consequently, the next 10 years will also require significantly increased levels of debt and equity to be raised.
23. These heightened levels of investment, and financing, are essential in supporting the transformation of New Zealand's energy sector.

¹³ https://comcom.govt.nz/_data/assets/excel_doc/0028/318466/Part-4-IM-Review-2023-Risks-and-incentives-topic-paper-Demonstration-model-Financial-impacts-of-indexation-of-Transpowers-RAB-June-2023.xlsm.



2.3 Consumer benefits from network expenditure

24. Our February 2023 report also identified the material net benefits to consumers that have been forecast from this material capex program. Recent modelling demonstrates that network investment over the next decade will benefit consumers in a number of ways, including:
- a Significant decarbonisation is impossible without electrification, which in turn requires material investment in networks;
 - b Enhanced network infrastructure facilitates more competition in the generation market, supporting a reduction in wholesale energy costs; and
 - c Augmentation of networks is required to enable customers to extract full value from their investment behind the meter, including rooftop solar, electric vehicles, and electric appliances.
25. A recent detailed assessment of the net benefits to consumers has been conducted by the Australian Energy Market Operator (AEMO) in its Integrated System Plan (ISP). AEMO has computed that every dollar of approved transmission network expenditure is expected to generate \$2.20 in customer benefits.
26. That is, the previously considered trade-off between customer prices on one hand and service quality and reliability on the other is now redundant. It is no longer the case that consumer benefits come at the expense of higher prices. Even disregarding any benefits to consumers associated with decarbonisation itself, recent modelling shows that targeted network expenditure can simultaneously:
- a Create tangible benefits for consumers; and
 - b Lower the total price paid by consumers.
27. In this regard, AEMO has identified:
- the three intrinsic benefits from investment in renewables: to reduce the cost of energy, to increase energy security, and to reduce emissions.*¹⁴
28. As part of its ISP, AEMO conducted an extensive cost benefit analysis in relation to a series of major transmission projects that formed the *Optimal Development Plan* (ODP). AEMO concluded that:
- The transmission projects within the ODP are forecast to deliver scenario-weighted net market benefits of \$28 billion, returning around 2.2 times their cost of approximately \$12.7 billion. They represent just 7% of the total investment in NEM generation, storage, and network to 2050; optimise benefits for all who produce, consume and transport electricity in the market; and provide both investment certainty and the flexibility to reduce emissions faster if needed.*
- All of the transmission projects in the ODP are needed. They will cost-effectively serve the needs of consumers, support Australia's transition to net zero emissions, and support regional employment and economic growth.*¹⁵
29. AEMO further identified that its Optimal Development Plan would produce the following benefits:

¹⁴ Australian Energy Market Operator, June 2022, *Integrated System Plan*, p. 27.

¹⁵ Australian Energy Market Operator, June 2022, *Integrated System Plan*, p. 15.



The primary benefits of the ODP are that it would:

- *provide a reliable and secure power supply,*
- *deliver \$28 billion in net market benefits⁵² by saving costs elsewhere,*
- *retain flexibility to decarbonise the NEM at least as fast as current government, corporate and societal ambitions, and*
- *be resilient to events that can adversely impact future costs to consumers, and relatively insensitive to changes in input assumptions.¹⁶*

30. And that:

These benefits highlight the value of the transmission network in an efficient power system transformation. The network would allow NEM consumers to secure the full benefit of zero-emission VRE [variable renewable energy] generation, which will become even more cost-efficient over the ISP time horizon. Without that transmission, the NEM would require more expensive generation capacity nearer to load centres – either offshore wind, or gas-fired generation with carbon capture and storage (CCS) to manage its cumulative emissions. These technologies have higher capital costs than land-based VRE with, in the case of gas, higher fuel costs.¹⁷

31. AEMO estimated that:

Of the total benefits, 50% are from deferring or avoiding the capital cost of generation and storage projects, and 40% from fuel cost savings.¹⁸

32. In particular, but for these network projects, the stated decarbonisation objectives could only be achieved by building more expensive generation facilities closer to existing grid connections and by building gas generation for firming purposes.
33. Importantly, the AEMO assessment of customer benefits does not include any additional benefit that consumers might obtain from their own behind-the-meter investment (e.g., rooftop solar, batteries, etc.).
34. An obvious, but very important, point is that no consumer receives any of the above net benefits from decarbonisation expenditure that does not proceed due to financing or other constraints.

¹⁶ Australian Energy Market Operator, June 2022, *Integrated System Plan*, p. 63.

¹⁷ Australian Energy Market Operator, June 2022, *Integrated System Plan*, p. 64.

¹⁸ Australian Energy Market Operator, June 2022, *Integrated System Plan*, p. 65. See also Table 4, p. 64 and Figure 30, p. 66.



3 The cash flow timing problem

3.1 Two separate issues: Quantum and timing

35. The Draft Decision explains that the benchmark efficient firm is assumed to issue floating rate debt in nominal terms. The benchmark firm is then assumed to use interest rate swaps to fix the base rate at the beginning of each regulatory period. The net effect of this is that the benchmark firm is required to pay a nominal interest bill each year equal to the (now fixed) base rate plus the margin that was fixed when the debt was issued. Indeed, the benchmark firm is contractually obliged to pay this nominal interest bill *in cash* every year.
36. Under the current IMs, Transpower receives the full return on debt allowance as part of its revenue allowance. That is, each year, Transpower receives a cash allowance in relation to the return on debt that is just sufficient to pay the (contractually obliged) cash interest payment on its debt.¹⁹
37. Thus, there is a match between the cash flow that Transpower receives in relation to the return on debt and the cash flow that Transpower is required to pay in relation to the return on debt.
38. The current IMs apply a different approach to EDBs and gas businesses than the approach that is applied to Transpower. For those businesses, the current approach is to:
 - a Begin with the same estimate of the nominal cost of debt;
 - b Deduct the Commission's forecast of inflation and provide the balance (i.e., the real component) as a cash allowance; and
 - c Index the RAB to reflect actual inflation outcomes.
39. Two issues arise from this approach:
 - a The quantum issue

The benchmark business²⁰ is contractually obliged to pay a nominal rate of return on debt. However, the compensation provided to it is equal to that nominal rate of return plus the difference between actual and forecast inflation. Thus, if actual inflation turns out to be more or less than the forecast, the regulatory allowance will be more or less than the efficient cost.
 - b The timing issue

The benchmark firm is contractually obliged to pay the full return on debt in cash every year. To the extent that part of the allowed return is not paid in cash, but rather via RAB indexation, there is a cash flow shortfall. Any such shortfall would need to be covered by equity holders, in exchange for the promise of future benefits arising from RAB indexation.
40. It is important to note that neither of these problems arise in relation to the current Transpower IMs – where there is a match between the cash flow that Transpower receives in relation to the

¹⁹ Or, more precisely, on the debt that the Commission considers would have been issued (in amount and form) by a benchmark efficient service provider.

²⁰ According to the Commission's assessment of the prudent and efficient financing approach.



return on debt and the cash flow that Transpower is required to pay in relation to the return on debt.

3.2 The new approach proposed in the Draft Decision

41. The Draft Decision proposes a new approach that would be applied to EDBs, Transpower and gas businesses.²¹ Our understanding of the proposed approach is that:
 - a The Commission begins by estimating the required nominal rate of return on equity and debt for a benchmark efficient service provider;
 - b The Commission's forecast of inflation is deducted from the nominal return on debt and equity and the remaining real return on capital is included in the allowed revenue each year;
 - c In each year during the regulatory period, the RAB is indexed using forecast inflation;
 - d At the end of the regulatory period, the RAB is adjusted/re-set to reflect actual inflation that has occurred over the regulatory period;
 - e There is an annual 'revenue wash-up' to provide an additional cash flow (positive or negative) to convert the nominal return over the regulatory period into a real return;²² and
 - f There is a 'cost of debt adjustment' to convert the allowed return on debt back into a nominal return. This adjustment 'undoes' the revenue wash-up in relation to the allowed return on debt.²³
42. The net effect of this process is that:
 - a The allowed return on equity ends up being a real rate plus actual inflation; and
 - b The allowed return on debt ends up being nominal, being a real rate plus forecast inflation.
43. For EDBs and gas businesses, the difference between the current approach and the proposed new approach is that the revenue wash-up is effectively removed in relation to debt. This now provides debt holders with the nominal return on debt that the Commission adopts at the start of each regulatory period – rather than the real return plus actual inflation that is provided under the current regulatory arrangements.
44. For Transpower, the difference between the current approach and the proposed approach is that:
 - a Under the current approach, the entire nominal return on debt is provided as a cash allowance, whereas under the proposed approach, part of that allowance will now be provided in the form of RAB indexation; and

²¹ Commerce Commission, June 2023, *Financing and incentivising efficient expenditure during the energy transition topic paper*, pp. 173-175.

²² In each year of the regulatory period, the RAB is indexed by forecast inflation. Thus, the firm receives a nominal return, being the real return provided via allowed revenue and forecast inflation provided via RAB indexation. The revenue wash-up is the difference between the value of RAB indexation based on forecast inflation and that based on actual inflation. The net effect is that the firm is provided with the real return via the revenue allowance and actual inflation provided as the sum of nominal indexation plus the revenue wash-up.

²³ The 'cost of debt adjustment' is referred to as the 'Adjustment to wash-up for fixed cost of debt' in the demonstration models provided with the Draft Decision. See, for example, https://comcom.govt.nz/_data/assets/excel_doc/0028/318466/Part-4-IM-Review-2023-Risks-and-incentives-topic-paper_-_Demonstration-model_Financial-impacts-of-indexation-of-Transpowers-RAB-June-2023.xlsm.



- b Under the current approach, the entire nominal return on equity is provided as a cash allowance, but under the proposed approach:
 - i The nominal return will be converted into a real return plus actual inflation; and
 - ii Part of that return will be provided in the form of RAB indexation.

3.3 The return on debt timing problem under the Draft Decision

- 45. Whereas the proposed approach matches the *quantum* of the regulatory allowance for the return on debt with the benchmark efficient cost of debt, there is a mis-match between the *timing* of the regulatory allowance and the contractual requirement to pay interest annually.
- 46. The proposed approach ultimately provides a nominal return on debt allowance. The quantum of that allowance matches the cost of debt that is assumed under the benchmark efficient financing strategy.
- 47. However, a debt timing problem arises because:
 - a The benchmark service provider is contractually required to pay the full nominal return on debt as a cash payment to the debt holders every year; whereas
 - b Part of the allowed return on debt is provided in the form of RAB indexation rather than as a cash payment.
- 48. There is no such timing problem under the current approach that is applied to Transpower.
- 49. The result of the cash flow timing problem is that the regulatory allowance in relation to the return on debt is insufficient to pay the benchmark interest bill each year.
- 50. Any such shortfall must first be paid out of the revenue (cash) allowance for the return on equity. That is, funds that would otherwise be available to be distributed as dividends must instead be used to fulfil the contractual obligation to make annual interest payments in full.
- 51. In cases where dividends are exhausted by this requirement, equity holders will be required to make further equity injections to ensure that the interest bill can be paid in cash every year.
- 52. Equity holders are compensated for the deferral of dividends and for additional equity injections via the promise of higher future payments arising from indexation of the RAB.²⁴

3.4 Efficiency and inter-generational equity

- 53. The nature of the timing problem identified above is that costs are deferred from current consumers to future consumers. Specifically:
 - a Current revenues (and consumer prices) are insufficient to pay the interest bill each year;
 - b This requires equity holders to cover the shortfall;
 - c Which they do, in return for the higher future payments that result from indexation of the debt component of the RAB.

²⁴ For example, a larger asset base produces higher future allowances and may enable the firm to raise additional debt.



54. That is, the net effect is that future consumers pay part of the interest bill incurred by current consumers. This raises the question of whether such a deferral of interest costs is consistent with efficiency and inter-generational equity.
55. In the standard regulatory framework, consumers in each year are required to fund the operating costs that are incurred each year. Because consumers in a particular year benefit from the operating costs that are incurred in providing the service to them that year, it is those consumers who pay for those operating costs. That is, the regulatory principle is that the consumers who benefit from those costs should be the group who pays for those costs.
56. The same applies to depreciation, which is a measure of the extent to which network resources are 'used up' or consumed over the course of a year. Again, it is consumers in that year that are required to pay for the benefit they receive from 'using up' network resources over the course of the year.
57. It is unclear why the same principle should not be applied to interest. Like operating costs, the interest bill must be paid in cash every year. That is one of the costs that is incurred in providing the network service to consumers over the course of that year.
58. It is not clear how shifting part of the annual interest cost to future generations would be consistent with either efficiency or inter-generational equity.
59. In relation to efficiency, the fundamental principle of regulatory economics is that each group of consumers should pay the efficient cost of the service that is provided to them – no more and no less. It is this fair, cost-reflective pricing that sends efficient pricing signals through the system. It ensures that there is neither over- nor under-investment in, and that there is neither over- nor under-utilisation of, network assets. This is why consumers each year must pay for the operating costs incurred in providing the network service to them. Future consumers are not asked to pay a portion of the operating costs that have been paid out many years before.
60. Inter-generational equity issues are best considered in terms of the last year of a network's life before it ceases to operate. Is it reasonable for consumers in that year to pay the full interest bill incurred in that year, plus a portion of the interest bills that have been paid in previous years?

3.5 The near-term implications of the return on debt timing problem for Transpower

61. In addition to the conceptual problems set out above, the debt timing issue creates some real practical problems for Transpower over the next 10 years. As explained above, transformational investment is required from Transpower over the next 10 years to enable decarbonisation of the New Zealand economy. This, in turn, will require significant levels of capital raising. Practical issues arise if capital raising, already at heightened levels from recent capital expenditure, is increased further by the debt timing problem.
62. Under the current IMs, Transpower's allowed return on debt each year is just sufficient to pay its (benchmark efficient) interest bill each year. But under the proposed changes, there will be a shortfall. And that shortfall will be added to the requirement for equity injections over RCP4 and RCP5.
63. We have noted above that the Commission has provided a number of demonstration models with its Draft Decision. Among those models is one relating to Transpower, reflecting the very significant capex investment profile over the period to 2035, where that profile is based on the Asset Management Plan set out in the consultation for Transpower's RCP4.



64. The Commission's demonstration model indicates that the equity proportion of Transpower's capex will be in excess of \$2 billion during each of RCP4 and RCP5 (i.e., 59% of total capex). This is very significant relative to the \$3.36 billion equity component of the RAB as at the beginning of RCP4.
65. By any metric, this is a very significant investment and financing task.
66. The magnitude of the very significant equity-raising task over RCP4 and RCP5 in the Commission's model is exacerbated by the debt timing problem that is explained above. The equity raising task is increased by the need for equity holders to finance the shortfall between the cash allowance for the return on debt and the cash interest payment that the benchmark firm is required to make.
67. The Commission's modelling shows that, under the proposed new approach, in RCP4 Transpower will be unable to pay any dividends and that an equity injection of \$466 million will be required. That is, the regulatory model assumes that all available cash flows in every year are used to finance capex and, beyond that, new equity of \$466 million must be raised.
68. To the extent that, in reality, Transpower is required by its owner to maintain the payment of some level of dividends, there would be a corresponding increase in the amount of new equity that would have to be raised.
69. The Commission's modelling also shows that the debt timing shortfall that is explained above is significant relative to the amount of new equity that must be raised. This shortfall is equal to the proportion of the allowed return on debt that is provided by way of RAB indexation rather than in cash. Specifically, it is the inflation component of the allowed return on debt that is provided by way of RAB indexation. Thus, the quantum of this shortfall each year is determined as:

$$\text{Debt timing shortfall} = RAB \times \text{Gearing} \times \text{Inflation}.$$

70. For FY2026, the amount of that shortfall is \$47 million, computed as:

$$\text{Debt timing shortfall} = 5,697 \times 41\% \times 2\% = 47.$$

71. The total shortfall over RCP4 is \$259 million, which represents 56% of the total equity that must be issued. That is, the quantum of new equity that must be raised increases significantly as the direct result of the change in approach to the allowed return on debt.
72. For RCP5, the total debt timing shortfall is even higher, at \$339 million.
73. Maintaining the Commission's current approach to Transpower would eliminate the debt timing problem and its effect on capital raising requirements.



4 Response to Draft Decision analysis

4.1 Overview

74. The Draft Decision sets out a number of reasons for the Commission's proposed approach of introducing RAB indexation for Transpower. This section identifies and responds to each of these reasons.

4.2 Transpower's planned investment is 'less significant'

75. The Draft Decision reviews the Commission's rationale for not indexing Transpower's RAB in the 2010 IMs:

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. This level of proposed investments is significantly larger than any of the EDBs in both an absolute and relative sense. In addition, unlike the EDBs, a significant portion of Transpower's planned investment programme involves expenditures being incurred a number of years in advance of commissioning. The level of Transpower's investments will result in it having, relative to other lines businesses, high investment programme funding requirements.²⁵

76. The key points raised in this rationale are:
- a A very significant amount of capital expenditure is required, relative to the existing RAB; and
 - b Expenditure is required in advance of commissioning.
77. Transpower is in precisely the same situation now. Indeed, Figure 1 above shows that the level of capital expenditure required over each of RCP4 and RCP5 dwarfs the expenditure over the current RCP3.
78. In our view, the scale of Transpower's capital investment program is not reasonably described as a 'factor that has become less significant.'²⁶ Rather, over RCP4 and RCP5 there will be a significant increase in capital investment, similar to the situation in RCP2 when the Commission reaffirmed the unindexed approach. This capital investment is transformative and of national significance.
79. The Draft Decision goes on to distinguish between the expenditure in 2010 being to "catch up with demand"²⁷ and the current proposed expenditure being "grid upgrades to meet forecast demand."²⁸ In our view, this is really a distinction without a difference. The key point is that Transpower is facing an investment task that is materially greater than the one it faced in 2010.

²⁵ Commerce Commission, June 2023, *Financing and incentivising efficient expenditure during the energy transition topic paper*, paragraph 3.69.

²⁶ Commerce Commission, June 2023, *Financing and incentivising efficient expenditure during the energy transition topic paper*, p. 49.

²⁷ Commerce Commission, June 2023, *Financing and incentivising efficient expenditure during the energy transition topic paper*, paragraph 3.71.

²⁸ Commerce Commission, June 2023, *Financing and incentivising efficient expenditure during the energy transition topic paper*, paragraph 3.73.



The reasons why that investment is required now (i.e., to meet expected demand in support of national decarbonisation objectives rather than to clear a backlog of investment to catch up with demand) is irrelevant to whether Transpower faces significant cash flow demands as a consequence of that necessary investment program.

80. In our view, the regulatory framework should always support efficient investment, not only in 'catch-up' settings where:

*many of the grid assets were approaching the end of their useful lives,*²⁹

or where:

*the grid backbone was nearing its capacity.*³⁰

81. It is also important to be clear about the nature of investment 'support' in this setting. There is no increase in allowed returns and no departure from the NPV=0 principle. Rather, the 'support' in this setting is simply providing a return on debt cash allowance that is sufficient to pay the (benchmark efficient) interest bill each year.
82. In any event, it would seem to create perverse incentives where the level of regulatory support could be increased by allowing the regulated asset to run down.
83. Moreover, the timing of Transpower's capital expenditure must also be considered in light of national decarbonisation targets and commitments. In this sense, it would appear that a significant amount of 'catch-up' is currently required.

4.3 Stranding risk has declined

84. Stranding risk was not identified as one of the reasons for not indexing Transpower's RAB in the 2010 IMs. However, the Draft Decision notes that, in its 2016 IMs review, the Commission noted that it would be inconsistent to begin indexing Transpower's RAB at the same time as it was considering shortening asset lives for EDBs in response to emerging technologies.³¹
85. However, the key issue in this report is the debt timing problem, which is independent of any consideration of stranding risk. In particular, the key question is whether the return on debt cash allowance should be sufficient to pay the (benchmark efficient) interest bill each year. This question is independent of the level of stranding risk.

4.4 Compliance and regulatory costs are small relative to the benefits of RAB indexation

86. The Draft Decision recognises that a change to the regulatory regime would involve significant administrative and compliance costs for Transpower at a time when it is engaged in significantly

²⁹ Commerce Commission, June 2023, *Financing and incentivising efficient expenditure during the energy transition topic paper*, paragraph 3.71.

³⁰ Commerce Commission, June 2023, *Financing and incentivising efficient expenditure during the energy transition topic paper*, paragraph 3.71.

³¹ Commerce Commission, June 2023, *Financing and incentivising efficient expenditure during the energy transition topic paper*, paragraph 3.78.



increased levels of capital investment.³² It also recognises that it may be challenging for Transpower to implement all of the required changes to its systems before the commencement of RCP4.³³

87. However, the Commission concludes that the benefits of RAB indexation are likely to exceed these compliance and regulatory costs. The key benefit that has been identified is that:

*RAB indexation would also protect Transpower and consumers from inflation risk.*³⁴

88. The Commission has concluded that equity holders require compensation for a real rate of return plus actual inflation. RAB indexation provides the real part of that return in cash via annual revenues and the actual inflation part as a capital gain via RAB indexation. The same outcome can be achieved by applying no RAB indexation, but a ‘wash-up’ that produces the same effect.³⁵

89. In relation to debt, the Commission has concluded that debt holders require compensation for the nominal cost of debt – being a real rate of return plus forecast inflation – as explained above. Thus, there is no ‘inflation risk’ in relation to debt. Debt holders require, and consumers pay, the required nominal return on debt irrespective of actual inflation outcomes.

90. The required outcome in relation to the return on debt can be achieved by:

- a Applying no RAB indexation, in which case the return on debt cash allowance is sufficient to pay the (benchmark efficient) nominal interest bill each year; or
- b Applying RAB indexation and a wash-up/adjustment mechanism that has the net effect of:
 - i Providing a cash allowance that is sufficient to pay the real rate of return; plus
 - ii RAB indexation (net of wash-ups and adjustments) that is equivalent to forecast inflation.

91. Both of these mechanisms provide the same rate of return to debt holders and require the same overall payment from consumers. The difference is in the timing, whereby the first method provides a return on debt cash allowance that is sufficient to pay the (benchmark efficient) nominal interest bill each year, whereas the second method defers part of the cash interest bill to future consumers.

92. In our view, non-indexation of the debt portion of the RAB has the clear benefits of:

- a Providing the appropriate level of allowed return on debt in a way that:
 - i Does not require any wash-up and/or adjustment mechanisms; and
 - ii Does not require any change to the current approach to Transpower’s allowed return on debt.

³² Commerce Commission, June 2023, *Financing and incentivising efficient expenditure during the energy transition topic paper*, paragraphs 3.81-3.84.

³³ Commerce Commission, June 2023, *Financing and incentivising efficient expenditure during the energy transition topic paper*, paragraph 3.65.

³⁴ Commerce Commission, June 2023, *Financing and incentivising efficient expenditure during the energy transition topic paper*, paragraph 3.86.

³⁵ Commerce Commission, June 2023, *Financing and incentivising efficient expenditure during the energy transition topic paper*, paragraph 3.86 and section 5b.



4.5 No financeability issues for Transpower

93. The Draft Decision concludes that Transpower is unlikely to face a financeability problem even if a change to RAB indexation is made. In this regard, the Commission concludes that:

Transpower's capital expenditure plans would likely require the suspension or reduction of dividends and equity injections under either indexation or non-indexation. The lower revenue from RAB indexation would imply a need for greater equity injection and a longer suspension of dividends compared to continuing the status quo. We welcome comments on whether Transpower's (benchmark) cash flows would create concerns for its (benchmark) credit rating position. Our modelling at this point indicates indexation may not lead to a financeability problem.³⁶

94. The Commission's modelling on this point indicates that Transpower would need to suspend dividends throughout RCP4 and RCP5 and that it would require significant equity injections over that period. Moreover, we have demonstrated above that a significant portion of the new equity that must be raised is to finance the shortfall, that arises under RAB indexation, between the return on debt cash allowance and the (benchmark efficient) nominal interest bill each year.
95. The core of the Part 4 purpose is the promotion of "outcomes that are consistent with outcomes produced in competitive markets."³⁷
96. This raises the question of whether a material change in approach that has the effect of:
- Suspending dividend payments over the course of the following decade;
 - Significantly increasing the (already substantial) quantum of equity capital that must be raised; and
 - Altering consumer prices so that part of the current interest bill will be paid by future consumers,

can reasonably be considered to be reflective of outcomes and practices in competitive markets.

97. In our view, it is reasonable to suggest that a commercial entity operating in competitive markets would seek to *avoid* making a material change to its approach that would produce the outcomes set out above.
98. In the case at hand, the outcomes set out above are heightened due to the very significant capital expenditure program that is required over the next 10 years. Thus, this is the very period in which such a change in approach is likely to be most strongly avoided. It is precisely this current point in time when the proposed change to RAB indexation would have the greatest impact on Transpower – just when capital investment of national significance in New Zealand's decarbonisation efforts is required.

³⁶ Commerce Commission, June 2023, *Financing and incentivising efficient expenditure during the energy transition topic paper*, paragraph 3.97.

³⁷ *Commerce Act* (1986), s. 52A(1).



5 Proposed alternatives

5.1 Is now the time for a material change?

99. The previous sections of this report have identified that:
- a Transpower is required to significantly increase its capital investment over the next 10 years;³⁸
 - b That investment is a fundamental component of New Zealand’s decarbonisation objectives; and
 - c The Draft Decision proposes a material change to the current form of regulation for Transpower that would have the effect of:
 - i Suspending dividend payments over the course of the following decade;
 - ii Significantly increasing the (already substantial) quantum of equity capital that must be raised; and
 - iii Altering consumer prices so that part of the current interest bill will be paid by future consumers.
100. It is precisely this current point in time when the proposed change to RAB indexation would have the greatest impact on Transpower – just when capital investment of national significance in New Zealand’s decarbonisation efforts is required.
101. This raises the question of whether now is the right time to proceed with such a change to the regulatory regime. Or whether such a change should be considered at the next IMs review.
102. The remainder of this section sets out two alternatives to the proposed change in the regulatory regime for Transpower.

5.2 Option 1: Maintain status quo in current IMs review

103. We have noted above that the Commission’s modelling shows that the proposed change to the regulatory regime would produce outcomes that are problematic when viewed through the lens of competitive markets – suspension of dividends, substantially increased requirements for equity capital raising, etc.
104. The simplest solution to that problem is for the status quo to be maintained for Transpower in the current IMs review. Under this solution, the Commission’s current approach would apply to Transpower for RCP4 and RCP5. This would allow cash flows to be provided in the same manner for the next two regulatory control periods – which corresponds to the periods of very significant investment.
105. At the next IMs review, the Commission would consider whether a change of approach was warranted in light of Transpower’s capex profile at that time.

³⁸ Similar to RCP2, when the Commission reaffirmed the unindexed approach.



5.3 Option 2: A hybrid approach to match the regulatory allowance to the benchmark efficient cost of debt

106. An alternative solution is to adopt a hybrid approach whereby:
- a The timing of the regulatory allowance for the return on debt matches the timing of the benchmark efficient interest payments; but where
 - b The equity portion of the RAB is indexed to maintain the real return to equity.
107. Under this 'hybrid' approach:
- a There would be no change to the Commission's proposed approach to the allowed return on equity. The real component would be provided in the allowed revenues and the inflation component would be provided via RAB indexation (and the existing revenue wash-up); and
 - b The allowed return on debt would be provided in full in the allowed revenues and there would be no indexation in relation to the allowed return on debt.
108. That is:
- a For equity, the Commission's proposed new approach would be used; and
 - b For debt, the current approach would be maintained.
109. Although this approach is more complex than maintaining the status quo, it has the advantages of:
- a Providing a return on equity equal to the real return plus actual inflation, in line with the Commission's preferred approach for equity;
 - b Providing the nominal return on debt in line with the benchmark efficient practice and the Commission's new preferred approach for debt; and
 - c Matching the timing of the regulatory allowance to the timing of the benchmark efficient interest payments so there is no shortfall to be covered by equity holders.
110. In our view, any additional complexity associated with this approach would be worthwhile given the significant benefits this approach would deliver. Furthermore, this additional complexity, which in our opinion is not material, could easily be accommodated under Transpower's Individual Price-quality Path arrangement.

Frontier Economics

Brisbane | Melbourne | Singapore | Sydney

Frontier Economics Pty Ltd
395 Collins Street Melbourne Victoria 3000

Tel: [REDACTED]

<https://www.frontier-economics.com.au>

ACN: 087 553 124 ABN: 13 087 553 124