WACC uplift setting

Commerce Commission Input Methodology Review

NZIER report to Major Electricity Users Group (MEUG)

09 August 2023

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Key points

The Commerce Commission proposal to reduce the WACC uplift from the 67th percentile to the 65th percentile is a reduction in the WACC of approximately 0.08 percentage points and alters the estimated cost to electricity users of the transmission and distribution systems by about $15 million[1].

Electricity network owners have engaged experts to comment on the Commerce Commission proposal. The main areas of disagreement between the expert reports and the Commerce Commission are:

- The updated calculations of the loss analysis model and the WACC uplift model use different input values and a different approach to allowing for corporate tax. The EDBs expert reports argue the Commission should leave the uplift unchanged as the 67th percentile is at or near the bottom of the range of their estimate of the appropriate uplift, but their ranges vary.
- Whether international practice (the United Kingdom and Australia) for setting the WACC is moving toward setting the WACC at the midpoint (rather than 'aiming up'). The Commission does not action this advice from its own expert CEPA, while the EDB expert reports either argue that the practice has not changed or should not be applied to New Zealand.
- The scope of investment benefit that should be considered for the WACC uplift. The Commission argues the scope of investment should be limited to reduction in outages based on current loss estimates. The EDB expert reports argue that the investment benefit should be broadened to the benefit from decarbonisation technologies and a change in EDBs role towards distributed services organisations (DSO). However, the EDB expert reports do not describe the value of this investment, why it may not occur as part of EDB investment in response to changing markets, and why an uplift across the entire regulated asset base RAB is necessary to secure this investment.

The Commerce Commission's draft decision anticipates and responds to the arguments made in the expert reports attached to EDB submissions on the draft decision. The Commission also:

- Reiterated that its approach to the setting of the WACC percentile is based on judgement and that the loss analysis model is only a guide to how it exercises this judgement. (All of the expert reports argue that the loss value used by the Commission is too low to reflect the current loss value let alone their expectation of the increase in the loss value over time as the economy electrifies).
- Acknowledged the evidence provided by CEPA (the expert it engaged) of the shift towards setting the WACC at the 50th percentile by regulators in the United Kingdom and Australia but has also stated that it still believes the WACC should be set above the 50th percentile.

[1] This calculation is difficult to complete accurately from the CEPA report because there are inconsistencies between the reported values for the WACC at the 65th and 67th percentiles.

Contents

1 Scope

This report reviews expert submissions to the Commerce Commission (the Commission) on its proposal to reduce the weighted average cost of capital (WACC) uplift for electricity distribution businesses (EDB) from the 67th percentile to the 65th percentile. The Commission's rationale for this approach is described in detail in its 'cost of capital topic paper'[2]. The purpose of this report is to compare the arguments presented in the expert submissions to the rationale in the cost of capital topic paper.

The draft decision provides the Commission's response to nearly all of the arguments made in the expert reports attached to EDB submissions. There seem to be areas of disagreement between the expert reports and the Commerce Commission:

- The updated calculations of the loss analysis model and the WACC uplift use different input values and a different approach to allowing for corporate tax.
- International practice around setting the WACC uplift has changed.
- The scope of investment that should be considered for the WACC uplift.

The change in the maximum allowable revenue from the move from the 67th to the 65th percentile is modest. The intense debate around this point seems to be a proxy for discouraging any further reduction in the WACC uplift. The Commission points out clearly that the loss analysis model and the analysis of the distribution of WACC estimates are both tools that it uses in making a judgement about where to set the WACC uplift percentile.

The wider issue of ensuring investment and service outcomes that would be delivered by competitive markets have been excluded from the discussion by its narrow focus. The attempts by both submitters and CEPA to introduce the issue of the future value of network reliability as the light vehicle transport and process heat are electrified rely on vague qualitative propositions.

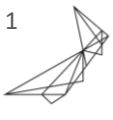
2 Commerce Commission proposal

The Commerce Commission proposal to reduce the WACC uplift from the 67th percentile to the 65th percentile is a reduction in the WACC of approximately 0.08 percentage points and alters the estimate cost to electricity users of the transmissions and distribution by about $15 million[3]. In reaching this draft decision the Commission has:

- Engaged CEPA to update the 2014 loss analysis model and WACC percentile estimation model (both developed by Oxera) current (2021 and 2022) market values.
- Considered expert opinion on the range of input values for the value of an outage as well as feedback from submitters on the treatment of the loss values.

[2] 'Cost of capital topic paper, Part 4 Input Methodologies Review 2023 – Draft decision, 14 June 2023', Commerce Commission New Zealand, pages 115 to 144.

[3] This calculation is difficult to complete accurately from the CEPA report because there are inconsistencies between the reported values for the WACC at the 65th and 67th percentiles.



- Compared the estimates of optimal percentiles from the experts with both its own model and the Commission's estimate of the optimal percentile using the experts input assumptions.
- Acknowledged that the Commissions calculations differ from some of the experts and suggested that some of the difference was due to a different treatment of company tax by the Commission and experts.

The Commission also:

- Reiterated that its approach to the setting of the WACC percentile is based on judgement and that the loss analysis model is only a guide to how it exercises this judgement.
- Acknowledged the evidence provided by CEPA of the shift towards setting the WACC at the 50th percentile by regulators in the United Kingdom and Australia, and that the Commission has established service standard processes and investment incentives similar to the schemes in those countries However, it has also stated that it still believes the WACC should be set above the 50th percentile.

Overall, the Commission's comments seem to anticipate the arguments made in the expert reports. While the Commission acknowledges differences of opinion with the experts on some points, the expert reports do not seem to include new arguments that are not addressed by the Commission in the draft decision.

3 Submitter expert reports

The expert reports that accompany EDB submissions and comment on the WACC uplift are:

- Oxera comment on cost of capital[4]
- Competition Economists Group[5].
- Frontier Economics Response to CEPA WACC report[6].

3.1 Oxera

Oxera developed the loss analysis model that was used by the Commission in 2014 to estimate the optimal WACC uplift but the model was updated by CEPA for the draft decision.

3.1.1 Oxera core argument

The main arguments made by Oxera are:

- The Commission should continue to use the 67th percentile because the estimated costs of outages supported a WACC uplift anywhere between the 65th and 85th. (In the

[4] 'Response to the New Zealand Commerce Commission's draft decision for Part 4 Input Methodologies Review 2023 on the cost of capital — Prepared for the New Zealand electricity distribution businesses 19 July 2023' Oxera

[5] 'Response to 2023 IM draft decision on cost of capital, July 2023', Tom Hird, Ker Zhang and Samuel Lam, Competition Economists Group'

[6] 'Response to CEPA WACC report', Report for Transpower New Zealand, 1 February 2023, Frontier Economics

same section Oxera considered that the 80th to the 85th percentile may be unnecessary.)

- Underinvestment by EDBs could further delay the connection of low carbon technologies.
- The Commissions use of the 67th percentile had in the Commission's view ensured the networks were maintained to a standard that provided good reliability, EDB have not earned excessive returns and profitability was below its estimate of a reasonable return on investment.[7]
- The value of maintaining regulatory stability.

Oxera takes issue with the following aspects of the Commissions' approach:

- Dividing the RAB by (1 – company tax rate). Oxera identifies this as the only difference between its methodology and the Commission's approach. The Commission argues this modelling approach is necessary *because consumers pay pre-tax costs on the WACC percentile uplift, while businesses receive the after-tax benefits … This means that, in order to provide sufficient additional revenue to networks to prevent underinvestment, the regulator needs to charge consumers more than that additional revenue.*[8]. Oxera argues the company tax is distributed to the population and contributes to the net social welfare of the population[9] and that assuming government expenditure has social benefits in excess of costs, the RAB should not be divided by (1 – company tax rate).
- The Commissions use of $1 billion as the preferred loss estimate is too low and is not a complete representation of the evidence provided by Oxera[10]. *We do note however, that the mid-point of the Oxera cost estimates (i.e. NZ$1.45bn) results in an optimal WACC percentile of 61–78% even without removing the tax uplift applied by the NZCC. This gives a mid-point of 70%.*[11]

Oxera's argument about the benefits of corporate taxation is not relevant to the Commission's estimate of the impact of the uplift on the cost to consumers. The comment that *the proportion of energy bills that funds the networks' tax expenditure cannot be seen as benefits to the investors'* is factually correct but is not what the Commission is suggesting.

Oxera reworks the Commission's estimates of the WACC using the RAB rather than the Commission's RAB/(1 – company tax rate) and suggests an estimate of the 74th percentile of the WACC based on the average of the CEPA (cost assumption $1`.9 bn), Oxera (cost assumption $1bn), ASCE (cost assumption $1.1 bn) and CEG (cost assumption $1.25 bn)[12]. The recalculation indicates that each of the models is using a different loss distribution function as the change in percentile across models is not linearly related to the assumed cost of underinvestment. The difference in loss function and the average starting point

7 Oxera, page 53

8 Oxera page 55

9 Oxera paragraph 6.9 and 6.9, pages 55 to 56

10 Oxera, paragraph 6.10, page 56

11 Oxera, paragraph 6.11, page 57

12 Oxera, Table 6.2, page 58

makes it difficult to interpret what the average of the four estimates means – let alone why it should be used as an estimate of the uplift.

3.1.2 Oxera additional arguments

Oxera also makes the following additional arguments:

- One reason that the Commission regards an uplift as a suboptimal incentive to improve reliability is that the Commission's definition of investments that improve reliability is too narrow.
- *We disagree that decarbonisation affects the choice of the WACC percentile only through the effect on the likelihood or cost of outages.*[13]. The argument is presented qualitatively that underinvestment in the network could impede connections without any analysis of whether capacity to connect is a binding constraint, what causes the constraint or how an uplift would resolve those constraints.
- *The NZCC says that it would prefer to rely on its existing loss analysis model in determining the optimal WACC percentile, and not to switch to the model from the Romeijnders and Mulder paper that we outlined in our previous reports.*[14]. CEPA reviewed the model and the Commission commented in its decision paper. The Oxera comments did not answer the Commission's points about the increased complexity of the Romeijnders and Mulder paper and its failure to address the uncertainty[15]
- *Other regulatory tools do not sufficiently prevent underinvestment. …We disagree that these are suitable alternatives to a WACC uplift because neither of these are designed to prevent the possibility of the true WACC rising above the regulated WACC.*[16] The Commission does not say they are alternatives.
- *Regulatory certainty*[17] *… Relatedly, we consider that the NZCC's decision to reduce the WACC percentile to the 65th percentile creates regulatory uncertainty.* Commission comments on changes to offset need for WACC uplift[18]

3.2 Competition Economists Group

The Competition Economists Group (CEG) critique of the Commission's draft decision is that the marginal benefit of a higher percentile has increased and the marginal cost of raising the percentile has fallen.[19] CEG argues that the increased demand for electricity and replacement of thermal with renewable generation will require EDBs to

> *form a "flexibility platform" with the potential for coordinating the "responsive assets" layer, such as storage solutions, to optimally match consumption/storage to the generation layer which is becoming increasingly intermittent due to the cost of generating from solar PV and wind*[20]

13 Oxera, paragraph 6.19, page 61

14 Oxera, paragraph

15 'Cost of capital topic paper, Part 4 Input Methodologies Review 2023 – Draft decision, 14 June 2023', paragraph 6.60 page 131

16 Oxera, paragraph 6.25, page 64

17 Oxera, paragraph 6.32, page 66

18 'Cost of capital topic paper, Part 4 Input Methodologies Review 2023 – Draft decision, 14 June 2023', paragraph 6.93 page 138

19 'Response to 2023 IM draft decision on cost of capital' CEG, paragraph 184, page 40.

20 'Response to 2023 IM draft decision on cost of capital' CEG, paragraph 193, page 44.

While it is true that the shift to intermittent generation and increased use of battery storage will require changes in transmission and EDB networks, it will also require structural changes in electricity retailing and consumer expectations/willingness to pay for the current reliability of electricity services. The direction and size of these changes is very difficult to predict, let alone their timing or the extent to which investment in DPP regulated assets will be necessary or sufficient to support these changes.

The massive uncertainty associated with this type of change is very hard to reconcile with the next step in the CEG argument[21] – modelling the marginal benefit curve of investment as a share of the RAB and combining this with the marginal cost of changing the WACC uplift to estimate optimal percentiles. Expressing the marginal benefit as a proportion of the value of the RAB implies:

- An unrealistically accurate estimate of the investment that would be made and the benefit it would deliver given the expectation of radical change in the role of EDBs.
- An assumption that the ratio of the value of that investment to the RAB will be stable enough to be useful for modelling over a default price path (DPP) period.

This approach differs from the Commission loss analysis model which estimates the cost of outages independently of the RAB and fixed WACC thresholds for underinvestment.

3.3 Frontier Economics Response to CEPA

The Frontier Economics response to the CEPA report predates the Commission's draft decision on the WACC uplift. Frontier Economics makes three points about the CEPA report:

- Based on the estimated net benefit of the avoided under investment for a given WACC underinvestment threshold (calculated from the CEPA report, Frontier Economics) the optimal uplift is the: 95th percentile (0 percent underinvestment threshold), 90th percentile (0.5 percent underinvestment threshold) and 80th percentile (1.0 percent underinvestment threshold). The report does not explain the reason for the difference between the CEPA and the Frontier Economics estimates.[22]
- The CEPA observations[23] about the change in international regulatory practice from setting WACC above the midpoint (an uplift) to setting WACC at the midpoint in the United Kingdom and Australia are not applicable to the Commissions decisions because:
  - In the United Kingdom, the Competition Markets Authority (CMA) has required regulators to set a WACC uplift where it had jurisdiction and stated a rationale for regulators to set a WACC above the midpoint to ensure capital availability for future investment.
  - The Australian Energy Regulator (AER) has historically set the WACC at the midpoint and this does not represent a change in regulatory practice. In addition, the AER assumes that its estimation of the WACC is unbiased, and that the underinvestment risk does not arise. Finally the AER approach produces returns that are below other regulators. The report does not go on to comment on

21 'Response to 2023 IM draft decision on cost of capital' CEG, paragraph 196, page 45 and Figure 5.5, page 46

22 'Response to CEPA WACC report, Report for Transpower New Zealand', Frontier Economics, page 9

23 'Response to CEPA WACC report, Report for Transpower New Zealand', Frontier Economics, pages 14 to 16

whether there is evidence of under investment in Australian networks or consequent consumer losses driven by reduced network reliability.

- A substantial investment will be required in the transmissions and distribution networks to accommodate the increased use of electricity required for decarbonisation.[24] Unlike the other two expert reports, this section of the report does not comment on the implications of the increase in network investment on the WACC uplift.

3.4 Conclusion

In summary the expert reports argue that:

- The WACC uplift should be higher than the current 67th percentile by using the same calculation methodology as the Commission but with different input assumptions.
- Investment in the networks to support electrification will increase the potential cost of outages suggesting the WACC uplift should be higher for the next DPP period than the current period.
- Decisions by UK regulators and the AER to set WACC at the midpoint do not represent a change in international regulatory practice and are not applicable to New Zealand.

4 Suggested next steps

The framework used in the Commission's decision paper and the arguments in the expert reports both suggest that further reductions in the WACC uplift percentile are unlikely. The main factors supporting the Commission's decision to lower the uplift from the 67th to 65th percentile are exercise of judgement by the Commission rather than from the calculation methodology:

- The Commissions acceptance of *'MEUG's concern that our estimate of the cost of outages is too high … use the lower bound estimate in the empirical analysis.'*[25]
- The difference in the treatment of company tax by the Commission and the expert reports reviewed in this report – *'We are uncertain on why there are differences between the percentiles that the experts argue for in their reports and the optimal percentiles reported in this memo which we have calculated from their estimates of outage costs. We suspect it may be due to the treatment of taxation. Because the uplift is calculated to give businesses an after-tax return, while consumers pay pre-tax revenue, the uplift is less effective than it would be if there were no corporate taxes.'*[26]

The suggested key areas for review of the WACC uplift framework for the next DPP period after this decision are:

- The definition and measurement of under investment in networks and the potential cost of underinvestment to consumers. As the proportion of intermittent generation increases (in response to decarbonisation policies), the availability of generation

[24] Response to CEPA WACC report, Report for Transpower New Zealand, Frontier Economics, pages 17 to 19

[25] 'Cost of capital topic paper, Part 4 Input Methodologies Review 2023 – Draft decision, 14 June 2023', paragraph 6.68, page 133

[26] 'Cost of capital topic paper, Part 4 Input Methodologies Review 2023 – Draft decision, 14 June 2023', Note 292, page 134

capacity or affordable generation will become a more important driver of the pattern of load during peak and shoulder periods. Electricity retailers and third-party demand management service providers along with network owners are all likely to be offering alternative solutions to this problem. This will make the assessment of the effectiveness and efficiency of additional network assessment in meeting consumer expectations for access to electricity more complicated than assessing the consumer cost (probability of a network outage and value of lost load) attributable to network underinvestment.

- Closer analysis of the rationale for and results of the mid-point setting of WACC by regulators in the UK and the AER. These decisions provide a live experiment of both the success of measures other than WACC uplift to ensure optimal network investment and the effects of setting WACC at the midpoint on network investment decisions.