3.5.1 Methodology for estimating weighted average cost of capital

(1) The **Commission** will determine a mid-point estimate of vanilla **WACC** for each **regulatory period**-

(a) as of the first **business day** of the month 7 months prior to the start of the **regulatory period**;

(b) in respect of a 5 year period;

(c) no later than 6 months prior to the start of the **regulatory period**; and

(d) in accordance with the formula-

$r_d L + r_e(1 - L)$.

(1) The **Commission** will determine a mid-point estimate of post-tax **WACC** for each **regulatory period**–

(a) as of the first **business day** of the month 7 months prior to the start of the **regulatory period**;

(b) in respect of a 5 year period;

(c) no later than 6 months prior to the start of the **regulatory period**; and

(d) in accordance with the formula-

$r_d (1 - T_c)L + r_e (1 - L)$.

(2) In this clause-

L is **leverage**;

r_d is the cost of debt and is estimated in accordance with the formula:

$r_f + p$;

r_e is the cost of equity and is estimated in accordance with the formula:

$r_f(1 - T_i) + \beta_e TAMRP$;

T_c is the average corporate tax rate;

r_f is the risk-free rate;

p is the **average debt premium**;

T_i is the average investor tax rate;

β_e is the equity beta; and

TAMRP is the tax-adjusted market risk premium.

(3) For the purpose of this clause-

(a) the average investor tax rate, equity beta, average corporate tax rate and tax-adjusted market risk premium are the values specified in or determined in accordance with clause 3.5.2; and

(b) the risk-free rate must be estimated in accordance with clause 3.5.3.

3.5.2 Fixed WACC parameters

(1) [Leverage is [XX]%.]

Comment [CB1]: For clarity and consistency with clause 2.4.1(1).

Deleted: each

Comment [CB2]: Subclause (3) deleted.

Comment [CB3]: Missing words.

Deleted: subject to subclause 3.5.1(3) ,

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Deleted: subject to subclause (3),

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Comment [CB4]: Redundant and inconsistent with clause 2.4.1(4).

Comment [CB5]: This is a relevant variable and needs to be referred to here and described in clause 3.5.2.

Deleted: fixed WACC parameters comprising

Comment [CB6]: Redundant.

Deleted: for the first **business day** of the month 7 months preceding the start of **RCP1** or any other **regulatory period**, as the

Deleted: case may be,

Deleted: ; and

Comment [CB7]: Redundant now that average debt premium is being used.

Deleted: <#>the amount of the debt premium must be estimated for the first **business day** of the month 7 months preceding the start of **RCP1** or any other **regulatory period**, as the case may be, in accordance with clause 3.5.4.

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(2) 'Average investor tax rate' is the average of the investor tax rates that, as at the date that the estimation is made, are expected to apply to the first **disclosure year** of the **regulatory period** in question and the four subsequent **disclosure years**.

(3) For the purpose of subclause (2), 'investor tax rate' is, for each **disclosure year**, the maximum **prescribed investor rate** applicable at the start of the **disclosure year** to an individual who is-

- (a) resident in New Zealand; and
- (b) an investor in a **multi-rate PIE**.

(4) 'Average corporate tax rate' is the average of the **corporate tax rates** that, as at the date that the estimation is made, are expected to apply to the first **disclosure year** of the **regulatory period** in question and the four subsequent **disclosure years**.

(5) ['Equity beta' is [XX].]

(6) ['Tax-adjusted market risk premium' is [XX]%.]

3.5.3 Methodology for estimating risk-free rate

The **Commission** will estimate a risk-free rate for each **regulatory period**-

- (a) as of the first **business day** of the month 7 months prior to the start of the **regulatory period**;
- (b) in respect of a 5 year period; and
- (c) no later than 6 months prior to the start of the **regulatory period**,

by-

- (d) obtaining, for notional benchmark New Zealand government New Zealand dollar denominated nominal bonds the wholesale market linearly-interpolated bid yield to maturity, for a residual period to maturity equal to 5 years on each **business day** in the 3 month period of 8 to 10 months prior to the start of each **regulatory period**;
- (e) calculating the annualised interpolated bid yield to maturity for each **business day**; and
- (f) calculating the unweighted arithmetic average of the daily annualised interpolated bid yields to maturity.

3.5.4 Methodology for estimating debt premium

(1) 'Average debt premium' means the simple arithmetic average of the five **debt premium** values for:

- (a) the current **disclosure year** for which the **WACC** is being determined; and
- (b) the four previous **disclosure years**.

(2) The **Commission** will determine an estimate of an amount for the **average debt premium**-

- (a) for each **regulatory period**; and
- (b) no later than 6 months prior to the start of the **regulatory period**.

(3) Debt premium means the spread between-

- (a) the bid yield to maturity on notional **vanilla NZ$ denominated bonds** that-

Comment [CB8]: The investor tax rates cannot be known with certainty for five years into the future.

Deleted: will

Deleted: each of

Deleted: s

Deleted: in the 5 year period commencing on the first day

Comment [CB9]: As currently drafted it is unclear which disclosure years these words are referring to because the start of a disclosure year does not align with the start of a regulatory period.

Comment [CB10]: For consistency with clause 2.4.2(3).

Comment [CB11]: This needs to refer to the disclosure year because otherwise there will only be one rate to take an average of (i.e. the rate at the start of the regulatory period).

Deleted: that, as at the date that the estimation is made, will apply

Deleted: regulatory period

Comment [CB12]: Redundant. The specified value will apply until it is changed.

Deleted: , for a 5 year period commencing on the first day of the regulatory period,

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Deleted: subject to clause 3.5.1(3),

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Comment [CB13]: Redundant. "Average debt premium" is defined in clause 1.1.4(2) by reference to this subclause.

Deleted: For the purpose of subclause (1), the

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Comment [CB14]: Redundant.

Deleted: estimated in accordanc

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Deleted: subject to clause

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Comment [CB15]: These bonds ar

(i) are issued by an **EDB** or a **GPB**;
(ii) are publicly traded;
(iii) have a **qualifying rating** of grade BBB+; and
(iv) have a remaining term to maturity of 5 years; and

(b) the contemporaneous interpolated bid yield to maturity of notional benchmark New Zealand government New Zealand dollar denominated nominal bonds having a remaining term to maturity of 5 years.

(4) The **Commission** will, in accordance with subclause (5), determine an estimate of an amount for the **debt premium**-

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Deleted: debt premium

(a) for each **regulatory period**; and
(b) no later than 6 months prior to the start of the **regulatory period**.

Deleted: subject to clause 3.5.1(3) ,

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(5) The amount of the **debt premium** will be estimated as of the first **business day** of the month 7 months prior to the start of each **regulatory period** by-

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(a) identifying publicly traded **vanilla NZ$ denominated bonds** that are-

(i) **investment grade credit rated**; and
(ii) of a type described in subclause (6);

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(b) in respect of each bond identified in accordance with paragraph (a)-

(i) obtaining its wholesale market annualised bid yield to maturity;
(ii) calculating by linear interpolation with respect to maturity, the contemporaneous wholesale market annualised bid yield to maturity for a notional benchmark New Zealand government New Zealand dollar denominated nominal bond with the same remaining term to maturity; and
(iii) calculating its contemporaneous interpolated bid to bid spread over notional benchmark New Zealand government New Zealand dollar denominated nominal bonds with the same remaining term to maturity, by deducting the yield calculated in accordance with sub-paragraph (ii) from the yield obtained in accordance with sub-paragraph (i),

for each **business day** in the 3 month period of 8 to 10 months prior to the start of the **regulatory period**;

(c) calculating, for each bond identified in accordance with paragraph (a), the unweighted arithmetic average of the daily spreads identified in accordance with paragraph (b)(iii); and
(d) subject to subclause (6), estimating, by taking account of the average spreads identified in accordance with paragraph (c) and having regard to the debt premium estimated from applying the **Nelson-Siegel-Svensson approach**, the average spread that would reasonably be expected to apply to a **vanilla NZ$ denominated bond** that-

Deleted: (6)(4)

(i) is issued by an **EDB** or a **GPB** that is neither 100% owned by the Crown nor a **local authority**;
(ii) is publicly traded;
(iii) has **a qualifying rating** of grade BBB+; and

(iv) has a remaining term to maturity of 5 years.

(6) For the purpose of subclause (5)(d), the **Commission** will have regard, subject to subclause (7), to the spreads observed on the following types of **vanilla NZ$ denominated bonds** issued by a **qualifying issuer**:

Deleted: (5)(d)(3)(d)

Deleted: (7)(5)

(a) those that-

(i) have a **qualifying rating** of grade BBB+; and

(ii) are issued by an **EDB** or a **GPB** that is neither 100% owned by the Crown nor a **local authority**;

(b) those that-

(i) have a **qualifying rating** of grade BBB+; and

(ii) are issued by an entity other than an **EDB** or a **GPB** that is neither 100% owned by the Crown nor a **local authority**;

(c) those that-

(i) have a **qualifying rating** of a grade different to BBB+; and

(ii) are issued by an **EDB** or a **GPB** that is neither 100% owned by the Crown nor a **local authority**;

(d) those that-

(i) have a **qualifying rating** of a grade different to BBB+; and

(ii) are issued by an entity, other than an **EDB** or a **GPB** that is neither 100% owned by the Crown nor a **local authority**; and

(e) those that are-

(i) **investment grade credit rated**; and

(ii) issued by an entity that is 100% owned by the Crown or a **local authority**.

(7) For the purpose of subclause (6)-

Deleted: (6)(4)

(a) progressively lesser regard will ordinarily be given to the spreads observed on the bond types in accordance with the order in which the bond types are described in subclause (6);

(b) the spread on any bond of the type described in subclause (6) that has a remaining term to maturity of less than 5 years will ordinarily be considered to be the minimum spread that would reasonably be expected to apply on an equivalently credit-rated bond issued by the same entity with a remaining term to maturity of 5 years; and

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(c) the **Commission** will adjust spreads observed on bonds described under subclauses (6)(b) to (6)(e) to approximate the spread that is likely to have been observed had the bonds in question been of the type described in subclause (6)(a).

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Deleted: (6)(a)(4)(a)

3.5.5 Methodology for estimating 67th percentile of vanilla WACC

(1) The **Commission** will determine a 67th percentile estimate of vanilla **WACC** and post-tax **WACC**-

(a) for each **regulatory period**; and

(b) no later than 6 months prior to the start of the **regulatory period**.

(2) For the purpose of subclause (1), the 67th percentile must be determined in accordance with the formula-

mid-point estimate of WACC + 0.440 × *standard error*,

where the 'standard error' of the relevant **mid-point estimate of WACC** is 0.0113.

3.5.6 Publication of estimates

The **Commission** will publish all determinations and estimates that it is required to make by this Subpart-

(a) on its website; and
(b) no later than 1 month after having made them.

3.5.7 Use of published estimates of WACC

For the purpose of setting a price path in an **IPP determination**, the 67th percentile estimates of **WACC** published in accordance with clause 3.5.6 most recently prior to the start of the **regulatory period** in question must be applied in respect of each **disclosure year** of the **regulatory period**.

3.5.8 Methodology for estimating term credit spread differential

(1) This clause applies to the determination of the amount of any **term credit spread differential** in respect of a **qualifying debt** for the purpose of determining a **term credit spread differential allowance** in an **IPP determination.**

(2) The **Commission** will only determine a **term credit spread differential allowance** if **Transpower's** debt portfolio, as at the date of its most recently published audited financial statements, has a weighted average original tenor greater than 5 years.

(3) Term credit spread differential is the amount determined in accordance with the formula-

$$(A \div B) \times C \times D,$$

where-

(a) 'A' is the sum of the **term credit spread difference**;
(b) 'B' is the book value of **Transpower's** total interest-bearing debt as at the balance date of **Transpower's** financial statements audited and published most recently before the **IPP determination** is made;
(c) 'C' is **leverage**; and
(d) 'D' is the average of-

(i) the sum of **opening RAB values**; and
(ii) the sum of **closing RAB values**.

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Comment [CB16]: Redundant. Covered in subclause (1).

Deleted: <#>The Commission will estimate a 67th percentile estimate of post-tax **WACC**-¶
<#>for each **regulatory period**; and ¶
<#>no later than 6 months prior to the start of each **regulatory period**.

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Deleted: or (2)

Comment [CB17]: Not a defined term.

Comment [CB18]: This applies to both vanilla and post-tax WACC.

Deleted: standard error

Comment [CB19]: Query why this is quantified in Part 3 when it is not yet quantified in Part 2.

Deleted: s

Comment [CB20]: It is necessary to be precise about which percentile measure of WACC needs to be used. This is a significant omission from the determination currently.

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