

Appendix B: Weighted Average Cost of Capital (WACC) parameters

- 1.1 This appendix discusses in detail the revised WACC value that should be taken into account in addition to each of the scenarios being proposed by Optus.
- 1.2 In particular, Optus considers that there has been significant change in the setting of WACC parameters since previous regulatory proceedings. As a result, Optus submits that the current pre-tax WACC value applied equivocally throughout the Analysys model is likely to over compensate Telstra for the value attributed to its existing sunk network.
- 1.3 In addition there appears to be inconsistency between the WACC parameters considered in the Analysys model and the methodology cited for the WACC parameters in Analysys' model documentation. Notably, the model documentation only considers an adjustment for the risk free rate would be applied:

*“The default parameter values are based on the ACCC's Unconditioned Local Loop Service Pricing Principles and Indicative Prices – 2007-08 WACC parameters, June 2008, with an adjustment to the risk free rate to take account of changing economic conditions. These parameters however, do not necessarily reflect the ACCC's current views on these parameter values.”*¹
- 1.4 Therefore for the purposes of adjusting the scenario runs for each of Optus' proposals, Optus considers the general adjustment should reflect a deviation from the default parameters to adjust the WACC parameter to reflect a conservative 9.91 per cent pre-tax WACC value.
- 1.5 Optus' views on selected WACC parameters are set out below.

Risk free rate

- 1.6 The risk-free rate that has been used in the model is based on the 10 year government bond rate, averaged in the 10-day period leading up to the relevant observation date.
- 1.7 Using the aforementioned approach, Optus has calculated the risk-free rate to be 5.61 per cent (as at 30 June 2009), however this value is lower than the default risk-free rate considered in the Analysys model.
- 1.8 Optus believes that the ACCC should reconsider its use of a 10 year Government bond rate as the risk free rate for the purpose of estimating the cost of debt capital. Optus believes a reasonable alternative for the ACCC to consider is to match the maturity of the debt instrument with the regulatory period.

¹ Analysys, *Fixed LRIC model documentation – Version 2.0*, August 2009, p.127

- 1.9 If longer term rates are used to match the useful life of the asset (and there is an upward sloping yield curve) then the allowed cost of debt will compensate the access provider for risks that it is not taking. For example, the yield curve may be upward sloping because either the issuer may be expecting rates to rise, or it may simply be recognising the risk over the longer period. When regulation occurs in the next period, the access provider will be able to reset prices based on the new rates. If rates do actually rise during that first period then the provider will gain. Optus therefore considers that using a bond for a period longer than the regulatory period potentially allows the access providers to be over-compensated (or under-compensated if yield curves are downward sloping).
- 1.10 Optus considers that the ACCC should therefore consider estimating the risk-free rate using the 5 year government bond rate, given the recent extension of the declaration of fixed services for a five year period. A summary of the risk-free rate based on the 3, 5 and 10 year government bond rate, averaged in the 10-day period leading up the 30 June 2009 is outlined in the table below.²

	3 year	5 year	10 year
Risk-free rate at 30 June 09	4.62	5.24	5.61
Change from 10-year value	- 0.99	- 0.37	-

- 1.11 The impact of any change in the risk-free rate results in an equivalent movement in the overall pre-tax WACC estimate input into the Analysys model.

Debt risk premium

- 1.12 Optus questions the ACCC's proposal to more than double the debt risk premium applied in the estimation of WACC in the Analysys model.
- 1.13 First, it should be noted that there is an inconsistency in value stated by ACCC and the value applied in the model – that is, the ACCC has noted it has considered “that using Bloomberg’s A-Rated cost of debt benchmark to estimate the WACC, is appropriate. A rate of 2.6 per cent as of 30 June 2009 has been used.”³ However in the Analysys model, a risk premium of 2.4 per cent has been applied.⁴

² The risk-free value is based on the 10 day average leading up to observation point, 30 June 2009 for 3, 5 and 10 year government bond rates. RBA, *Capital market yields – Government bonds - Daily*, Financial markets (Table F), Available from <http://www.rba.gov.au/Statistics/Bulletin/F02Dhist.xls>

³ ACCC, *Draft pricing principles and indicative prices for LCS, WLR, PSTN OTA, ULLS, LSS*, August 2009, p.72

⁴ Analysys, *Analysys model – Version 2.0*, WACC model output, 2009

- 1.14 The debt risk premium (DRP) is derived as the difference between the YTM on the chosen debt proxy and the YTM on the chosen risk-free proxy.⁵
- 1.15 The chosen debt proxy in telecommunications decisions currently applies the cost of debt value associated with A-rated firms. This is in contrast to the BBB credit rating applied in the recent AER WACC decisions. A key distinction between the two rating applied by the ACCC and AER can be highlighted through Standard & Poor's definitions for long-term issuer credit ratings, which considers the following for A and BBB-rated firms:

“A: An obligor rated 'A' has strong capacity to meet its financial commitments but is somewhat more susceptible to the adverse effects of changes in circumstances and economic conditions than obligors in higher-rated categories.

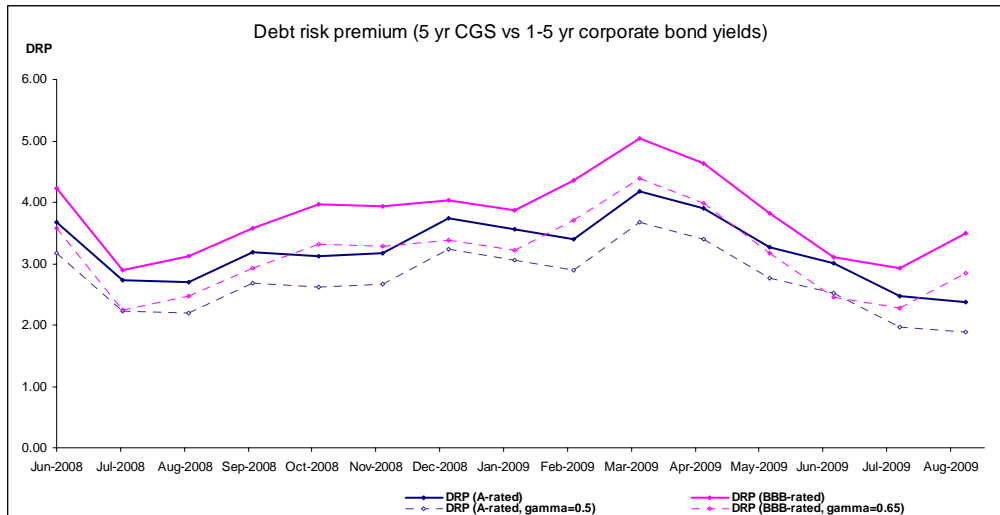
BBB: An obligor rated 'BBB' has adequate capacity to meet its financial commitments. However, adverse economic conditions or changing circumstances are more likely to lead to a weakened capacity of the obligor to meet its financial commitments.”⁶

- 1.16 This highlights that the resulting debt premium value is sensitive to the credit rating benchmark considered. It follows that since the credit ratings for BBB-rated cost of debt is generally higher than A-rated cost of debt, it would be expected that the AER credit rating would yield a higher debt premium than that proposed in the ACCC decision
- 1.17 Using the approached aforementioned and publicly available data, Optus has calculated the monthly debt risk premium values for the period 31 July 2008 to 31 August 2009. As such, a five year observation period has been considered because it is generally accepted that both proxy values should be considered using the same yield periods. In particular, this shows that the risk premium is currently following a downward trend. The figure below illustrates the debt premium approach using the five year observation points and the gamma parameters considered by both the ACCC and AER in their recent decisions on WACC parameters.⁷

⁵ The value for the chosen debt proxy is derived from a benchmark bond index obtained from a reputable financial market data source. ACCC, *Assessment of Telstra's Unconditioned Local Loop Service Band 2 monthly charge undertaking*, Final Decision, April 2009, p.204

⁶ Standard & Poor, *Ratings Direct – Understanding Standard & Poor's rating definitions*, Appendix III, 3 June 2009, p.10

⁷ The risk-free value is the five year government bond rate as at the observation data, while the corporate benchmark rate is the capital market yield for the associated credit rating as at the observation date. The risk premium is therefore calculated to be the difference between the two values. RBA, *Capital market yields – Government bonds - Daily*, Financial markets (Table F), Available from <http://www.rba.gov.au/Statistics/Bulletin/F02Dhist.xls>; RBA, *Capital market yields and spreads – Non-government instruments*, RBA Bulletin – Statistical tables, September 2009



1.18 Optus therefore considers that the debt risk premium should continue to be applied at a level that is below the debt risk premium applicable for a 10 year maturity bond yield. Hence, at this stage, should not deviate from the value previously applied and accepted in regulatory decisions.

Market risk premium

- 1.19 Optus questions the ACCC’s proposal to increase the market risk premium from 6 per cent to 6.5 per cent.
- 1.20 The ACCC has noted that its proposed increase in the market risk premium is based on the “*up-to-date historical estimates with an imputation credit factor of 0.5 estimated over the long-term estimation periods of 1883-2008 and 1958-2008 falls slightly above 6 per cent,*”⁸ however the ACCC has provided no further quantification for the extent of this change.
- 1.21 This information to some extent conflicts with the recent decision on WACC parameters conducted by the AER. In regard to the MRP, the AER notes that:
- Long term historical estimates (1883-2008, 1937-2008, 1958-2008), ‘grossed up’ for a 0.65 value of imputation credits, produce a range of 5.7 to 6.2 per cent.⁹ Similarly, when these historical estimates are ‘grossed up’ for a 0.5 value of imputation credits, this produces a MRP within the range of 5.6 to 6.1 per cent;¹⁰

⁸ ACCC, *Draft pricing principles and indicative prices for LCS, WLR, PSTN OTA, ULLS, LSS*, August 2009, p.72

⁹ AER, *Electricity transmission and distribution network service providers – Review of the weighted average cost of capital (WACC) parameters*, Final Decision, May 2009, p.237

¹⁰ AER, *Electricity transmission and distribution network service providers – Review of the weighted average cost of capital (WACC) parameters*, Final Decision, May 2009, p.215

- Survey measures strongly indicate that a MRP of 6 per cent is by far the most commonly adopted value by market practitioners, though these surveys were primarily conducted prior to the onset of the global financial crisis; ¹¹ and
 - Cash flow based measures currently indicate a forward looking MRP well above 6 per cent, however up until 2008 these measures consistently indicated a forward looking MRP well below 6 per cent ¹²
- 1.22 The AER subsequently concludes that “having regard to the desirability of regulatory certainty and stability, the AER does not consider that the weight of the evidence suggests a MRP significantly above 6 per cent should be set.” ¹³ Despite this conclusion, the AER has chosen to support a MRP of 6.5 per cent for electricity transmission and distribution network service providers.
- 1.23 In regard to the AER’s decision, there is no persuasive evidence to support any departure from the standard approach taken by the ACCC in past regulatory decisions in the current pricing principles for a telecommunications network service provider. In allowing for this increase, the ACCC has effectively reneged on its own advice that, the 6 per cent value for market risk premium is:

“based on consultancy advice that this value is an appropriate balance of the available evidence; historical premiums typically suggest a higher market risk premium than 6 per cent, whilst estimates of the market risk premium over more recent periods and forward looking estimates typically suggest a lower market risk premium than 6 per cent.” ¹⁴ [emphasis added]

- 1.24 Optus therefore considers that the market risk premium should continue to be applied with the 6 per cent value set as the upper limit.

Asset and Equity beta

- 1.25 The equity beta is driven by estimates of the asset beta and gearing ratio, and to a much lesser extent the debt beta. The Analysys model currently applies an asset beta of 0.5, which is leveraged to provide an equity beta of 0.83.
- 1.26 In the 2008 Pricing Principles the ACCC took the view that the appropriate WACC for the ULLS is “one based on a business

¹¹ AER, *Electricity transmission and distribution network service providers – Review of the weighted average cost of capital (WACC) parameters*, Final Decision, May 2009, p.237

¹² AER, *Electricity transmission and distribution network service providers – Review of the weighted average cost of capital (WACC) parameters*, Final Decision, May 2009, p.237

¹³ AER, *Electricity transmission and distribution network service providers – Review of the weighted average cost of capital (WACC) parameters*, Final Decision, May 2009, p.238

¹⁴ ACCC, *Assessment of proposals – National Broadband Network*, Report to the Expert Panel – Appendices, January 2009, Appendix C, p.74

providing access to a fixed-line customer access network either to itself or other providers.”¹⁵

1.27 The ACCC in its recent decision on Telstra’s ULLS Band 2 Undertaking has taken into account benchmarking of beta using five years of monthly and weekly data for both the equity and asset betas across a number fixed line operators in selected countries.¹⁶

1.28 The international benchmarking suggested that:

*“a benchmark asset beta of around 0.47 appears appropriate for the total assets of a large telecommunications company such as Telstra ... [however] the ACCC notes that 0.47 is likely to be higher than the asset beta of the Telstra’s CAN alone. This is because the Telstra’s CAN business is likely to bear lower systematic risk than Telstra’s average business due to higher systematic risk businesses Telstra operates such as mobile communications.”*¹⁷

1.29 Optus contends that the ACCC’s asset beta should be adjusted to reflect the fact that operator of a CAN is lower than that of a large operator with both fixed and mobile networks. The risks involved in operating the local CAN are more in the nature of utility businesses (such as electricity and gas transmission assets) and lower than the risks faced in operating the PSTN.

1.30 Using the asset beta value from the ACCC’s international benchmarking, Optus has applied the revised asset beta value of 0.47, which is leveraged to provide an equity beta of 0.78.

Tax rate

1.31 The tax rate parameter considered in the Analysys model uses the ACCC’s preferred approach to adopt the effective tax rate. It has been noted that:

*“In telecommunications, the ACCC historically preferred the application of an effective tax rate of 20 per cent (as opposed to the statutory tax rate of 30 per cent), as it was considered consistent with the average effective tax rate of companies in Australia and should be a reasonable estimate of an efficient effective tax rate.”*¹⁸

1.32 The ACCC also considers that this shift from the statutory tax rate of 30 per cent is justified since “the use of the higher tax rate will over

¹⁵ ACCC, *Unconditioned local loop service – Pricing principles and indicative prices*, June 2008, p.17

¹⁶ ACCC, *Assessment of Telstra’s Unconditioned Local Loop Service Band 2 monthly charge undertaking*, Final Decision, April 2009, p.223

¹⁷ ACCC, *Assessment of Telstra’s Unconditioned Local Loop Service Band 2 monthly charge undertaking*, Final Decision, April 2009, p.224

¹⁸ ACCC, *Assessment of proposals – National Broadband Network*, Report to the Expert Panel – Appendices, January 2009, Appendix C, p.77

compensate first for present value of their expected future tax liabilities.”¹⁹ As a result, the ACCC has adopted an effective tax rate of 24 per cent.

- 1.33 Optus supports the ACCC’s reasoning to adopt the use of the effective tax rate in the estimation of WACC. However, Optus believes that the effective tax rate applicable to Telstra would be in the order of 20 per cent.²⁰

Resulting WACC estimates

- 1.34 Optus submits that the pre-tax WACC value applied equivocally throughout the Analysys model is likely to over compensate Telstra for the value attributed to its existing sunk network. Similarly, the sensitivity of small changes in WACC values is also recognised by the ACCC:

“In capital intensive industries such as telecommunications, the regulated cost of capital is an important component of access prices. Small changes to the cost of capital can have a significant impact on the total revenue requirement, and ultimately end user prices and level of investment.”²¹

- 1.35 A comparison of the alternative WACC values, discussed above, is summarised in the table below.

	Analysys model – version 2.0 ²²	ACCC – WACC parameters to apply in Analysys model as stated in the draft pricing principles ²³	Analysys model – as stated in model documentation ²⁴ based on ACCC (2007-08 WACC parameters) ²⁵	Preferred WACC parameters – as discussed above
D/V ratio	40 %	40 %	40 %	40%

¹⁹ ACCC, *Draft pricing principles and indicative prices for LCS, WLR, PSTN OTA, ULLS, LSS*, August 2009, p.72

²⁰ ACCC, *Assessment of Telstra’s Unconditioned Local Loop Service Band 2 monthly charge undertaking*, Final Decision, April 2009, p.235

²¹ ACCC, *Assessment of proposals – National Broadband Network*, Report to the Expert Panel – Appendices, January 2009, Appendix C, p.69

²² Analysys, *Analysys model – Version 2.0*, WACC model output, 2009

²³ ACCC, *Draft pricing principles and indicative prices for LCS, WLR, PSTN OTA, ULLS, LSS*, August 2009, pp.71-72

²⁴ Analysys, *Fixed LRIC model documentation – Version 2.0*, August 2009, p.127; ACCC, *Unconditioned local loop service – Pricing principles and indicative prices*, June 2008, p.18; RBA, *Capital market yields – Government bonds - Daily*, Financial markets (Table F), Available from <http://www.rba.gov.au/Statistics/Bulletin/F02Dhist.xls>

²⁵ ACCC, *Unconditioned local loop service – Pricing principles and indicative prices*, June 2008, p.18

	Analysys model – version 2.0 ²²	ACCC – WACC parameters to apply in Analysys model as stated in the draft pricing principles ²³	Analysys model – as stated in model documentation ²⁴ based on ACCC (2007-08 WACC parameters) ²⁵	Preferred WACC parameters – as discussed above
E/V ratio	60 %	60 %	60 %	60%
Risk-free rate (rf)	5.64 %	rf value at 30 June 09	5.82 % 5.61 % (at 30 June 09) ²⁶	5.61 %
Risk premium	6.5 %	6.5 %	6 %	6 %
Asset beta	0.5	0.5	0.5	0.47
Equity beta	0.83	0.83	0.83	0.78
Tax rate (e)	24 %	24 %	30 %	20 %
Debt premium	2.4 %	2.6 %	1.02 %	1.02 %
Issuance cost	0.083 %	0.083 %	0.083 %	0.083 %
Gamma	0.5	0.5	0.5	0.5
Return on equity	11.04 %	11.01 %	10.80 % 10.59 %	11.61 %
Return on debt	8.12 %	8.29 %	6.92 % 6.71 %	6.71 %
Vanilla WACC	9.87 %	9.87 % 9.92 %	9.25 % 9.04 %	8.86 %
Pre-tax WACC	10.77 %	10.77 % 10.82 %	10.39 % 10.16 %	9.55 %
<u>Corrected according to parameters in model documentation:</u> Scenario 1 – statutory tax rate (30%) applied Scenario 2 – ACCC effective tax rate (24%) applied			Pre-tax WACC: s1 = 10.16 % s2 = 9.91 %	<u>Default scenario</u> pre-tax WACC = 10.77 %

1.36 The default WACC estimate applied in the Analysys model (version 2.0) provides a post-tax vanilla WACC of 9.87 per cent, while the pre-tax WACC is 10.77 per cent.²⁷

1.37 It follows that if the WACC estimate was to be corrected according to the parameters noted in the model documentation then the applicable pre-tax WACC estimate would result in a value of 10.16 per cent (or 9.91 per cent if the effective tax rate of 24 per cent were to apply).

²⁶ The risk-free value is based on the 10 day average leading up to observation point, 30 June 2009 for 10 year government bond rates. RBA, *Capital market yields – Government bonds - Daily*, Financial markets (Table F), Available from <http://www.rba.gov.au/Statistics/Bulletin/F02Dhist.xls>

²⁷ Note that this WACC estimate higher than the WACC estimate derived according to the methodology stated in the model documentation.

- 1.38 The impact of applying the corrected WACC estimates would reduce the monthly ULLS charges per line by approximately: ²⁸
- Scenario 1: \$1.00 (in Zone A) to \$2.71 (in Zone B)
 - Scenario 2: \$1.40 (in Zone A) to \$3.80 (in Zone B)
- 1.39 Optus therefore proposes to apply a pre-tax WACC value of 9.91 per cent in its general modelling assumption.

²⁸ These values are based on results from the model output for the 2009 period. The only assumptions that has been considered in the scenario run is the WACC input to reflect the approach described in the Analysys model documentation – where Scenario 1 applies a statutory tax rate as indicated, and Scenario 2 adopts the use of the 24 per cent effective tax rate as suggested by the ACCC