Optus Submission to

Australian Competition and Consumer Commission

in response to draft determination on

Pricing Principles and Indicative Prices for Fixed Line Services

October 2009

Table of Contents

1. Executive Summary

1.1 The Australian Competition and Consumer Commission (ACCC) has released proposed pricing principles and indicative wholesale prices for the six declared fixed line services. These will apply until 30 June 2012. The indicative prices include an astonishing 65 per cent increase in the monthly price for the Unconditioned Local Loop (ULL) – the essential building block service for competitive fixed line services – to $23.60 in metropolitan areas.

1.2 The ACCC's proposal represents a dramatic shift in pricing that fails to adequately consider the broader implications for competition within the fixed line market. In particular, the proposed sharp increase in ULLS prices would instantly halt competition in the fixed line sector. Such an outcome would be wholly inconsistent with the ACCC's legislative obligations, which have the primary objective of promoting the long term interests of end users. In Chapter 3 of this submission, Optus will submit that these price proposals would actually undermine the ACCC's longstanding policy of protecting end users and will have an adverse impact on competitors' existing investment in ULLS and rule out any further DSLAM investment. This approach will only serve to deliver a windfall to Telstra that reinforces its privileged position in the market. In turn, this will undermine competition and reduce customer choice during an uncertain time for the industry.

1.3 A unique and challenging set of circumstances for the industry has come into alignment in 2009. Not only is the construction of a National Broadband Network imminent, but the Federal Government has also announced a highly significant reform of the sector which provides the opportunity to address longstanding obstacles to competition and make the existing regulatory regime more effective. These include the structural separation of Telstra and reforms that will remove the legal strait jacket which currently prevents the ACCC from effectively carrying out its role. In Chapter 2 Optus will argue that these matters are relevant considerations which represent a significant change to the regulatory environment, making it appropriate for the ACCC to review its historic approach to pricing and take a different course of action.

1.4 A central consideration in setting fixed line access prices is the continued relevance of TSLRIC+. The ACCC has recognised it is "highly likely" that the basic rationale for its TSLRIC+ pricing methodology – or more precisely the valuation of network assets at full replacement cost – no longer exists. Optus strongly agrees and this will form the central argument developed in this submission. In Chapter 4 Optus will contend that the current replacement cost approach overcompensates Telstra, stifles competition and distorts efficient investment incentives. This conclusion is only reinforced by recent announcements in relation to both the NBN and the Government's plans for the structural separation of Telstra.

1.5 Optus will strongly argue that any future pricing decision for fixed line access services should value Telstra's assets in a more realistic manner. Telstra's assets should be valued by taking into account the age of Telstra's assets and the fact that Telstra has already recovered much of the original construction cost, and in any case should be modelled on the cost of building a modern optical fibre network, not a more expensive and outdated copper network.

1.6 These approaches will result in significantly lower access prices which are consistent with competition and efficiency objectives. Optus has adjusted the Analysys model to take into account the fact that Telstra's network is depreciated by approximately 50% – which results in a Band 2 ULLS price of $11.98 (see Chapter 6 and Attachment 1). Further, CEG and Milner Consulting have adjusted the Analysys model to simulate a forward-looking optical fibre network – which results in a quality-adjusted Band 2 ULLS price of $11.86 (see Chapter 7 and Attachments 2A and 2B). Optus submits that the ACCC should set final prices consistent with these principles. To continue to model a copper network without taking any account of the age of the assets, or their condition, would only distort competition and continue to deliver a significant regulatory dividend to Telstra as the copper network is constantly revalued.

1.7 Clearly, there are important process and timing considerations in respect of the ACCC's decision. Optus recognises that on the one hand there is a need to provide industry certainty with respect to key access services and to settle long standing access disputes. On the other hand it is important to set prices that appropriately reflect the long term interests of end users and take proper account of the policy decisions being implemented by Government which will change the future direction of the fixed line services market.

1.8 Optus submits that to ignore each of these important policy developments and to lock in prices now for a three year period is not good policy. Such an approach would clearly run counter to the objective set out in the TPA and has the potential to undermine the competitive benefits that would otherwise be delivered by the Government's reform package. To put it more bluntly, the ACCC would be ill-advised to lock in prices using a method it knows to be unsuitable in the circumstances – particularly when to do so results in a sharp increase in the ULLS price for a lengthy period during what is a highly unusual transition period for the industry.

1.9 In Chapter 2 Optus states that rather than finalise its current determinations in a hasty manner, the ACCC should commence a comprehensive assessment of fixed line access prices, taking into consideration:

(1) The potential competition and consumer impacts of any proposed changes to ULL prices;

(2) The likely impact of different access price points on the current and future investment plans of access seekers;

(3) The impact of the recent Tribunal decision to rollback resale based regulation;

(4) Alternative approaches to valuing the Telstra local copper loop;

(5) The implications of the Government's regulatory reform package; and

(6) The implications of ULL competition for the longer-term success of the National Broadband Network.

1.10 Having completed this review the ACCC should then be in a position to set prices both for future periods and also retrospectively to close off the current access disputes. Whilst Optus recognises that it will inevitably take time for the ACCC to work through this process, the additional time is justified, as it will ensure the ACCC is able to make a fully informed decision that is consistent with the requirements of the legislation.

1.11 In the event that the ACCC decides it must determine prices at this time, then it should do so only until 30 June 2010 at the latest. In doing so, it should simply roll-over its previous pricing determination until that date. In the absence of a proper review of pricing in the manner described above, the approach taken by the ACCC to date, while imperfect, is preferable to a rushed and potentially ill-conceived decision with far reaching ramifications.

1.12 Further, Optus submits that both the existing Band 2 ULLS price as determined by the ACCC in its most recent determination ($14.30) and the existing indicative price for Band 2 ULLS ($16) are broadly consistent with the cost estimates for a depreciated network ($11.98) and a forward-looking optical fibre network ($11.86 quality-adjusted) noted above (see discussion in Chapters 6 and 7). Existing prices are also broadly consistent with international benchmark rates: comparable European rates are $13.22 to $16.89 according to Ovum and as discussed in Chapter 5).

1.13 The ACCC has asked for stakeholders' views on a number of specific matters. In response, Optus submits that:

- that instead of modelling replacement cost, the pricing approach should take account of the age of Telstra's network assets, and value the assets according to the "depreciated optimised replacement cost" methodology (Chapter 6);
- that the ACCC should cease to insist on modelling an outdated copper network, which overcompensates Telstra and fails to promote efficiency, and instead model the cost of a modern optical fibre network which provides higher quality service at a lower cost compared to copper and would realistically be the technology choice of a new entrant infrastructure competitor (Chapter 7);

- that if the ACCC continues to model a copper network then it must make significant adjustments to the assumptions used in the Analysys model in order to minimise the distortion to competition and windfall gains to Telstra that would otherwise ensue – including the correction of a number of issues and modelling errors which result in an over estimation of the ULLS cost by over 20 per cent (identified by consultants Network Strategies in a new report) (Chapter 8);
- that a glidepath will be unnecessary if the ACCC adopts Optus' approach, however if any services are subject to a significant upward price shock, then a glide path would be appropriate (Chapter 9);
- that the ACCC should change its plan to embrace averaged ULLS pricing (which it has rightly criticised for years) and instead continue to set prices for the ULLS according to cost-reflective geographic price bands (Chapter 10); and
- that the ACCC's proposal to replace the complex and distortionary rate-card for PSTN OTA calling with a transparent national rate is a sensible reform which should be supported (Chapter 11).

2. A Broader Policy Approach is Required Given Current Market Uncertainties

2.1 In this submission Optus will argue strongly that the ACCC's approach to pricing fixed line access services is fundamentally flawed both in terms of its theoretical justification and in terms of its outcomes for consumers. Optus will argue the case that there are very strong grounds for the ACCC to develop a new approach to setting fixed line access prices, which will materially impact its proposed indicative prices.

2.2 These arguments will not come as a surprise to the ACCC, since it has itself acknowledged the need to reconsider the the continued relevance of its TSLRIC pricing methodology (or more precisely the valuation of network assets at replacement cost). It recognised in its draft pricing principles paper that "one of the main rationales for continual re-valuation of the asset base (that of sending efficient build-or-buy signals) may no longer be appropriate".[1] Similarly, in a presentation in September 2009, ACCC Commissioner Ed Willet raised questions as to whether "TSLRIC with MEA approach" was still valid.[2]

2.3 However, before getting into the detailed examination of the competition and costing issues it is important to recognise that there are other significant policy developments that should cause the ACCC to pause for further thought. This includes; the imminent roll-out of the National Broadband Network (NBN); the potential structural separation of Telstra, and; the Government's proposed regulatory reform package.

2.4 All of these matters are relevant considerations for the ACCC's pricing principles. To fail to address them could result in inappropriate prices and compromise the competitive benefits that would otherwise be delivered by the Government's reform package.[3] Most importantly, having regard to the regulatory objectives to which the ACCC must have regard under the existing law, it would not be in the long term interests of end-users to ignore the imminent changes and tie the ACCC's hands by locking in prices for a three year period. The long term interests of end-users, properly understood by reference to the current regulatory regime, are and will be better served by an approach which gives the ACCC the flexibility to reassess these issues as and when the imminent developments in the market and the regulatory environment transpire.

[1] ACCC, *Draft pricing principles and indicative prices for LCS, WLR, PSTN OTA, ULLS, LSS*, August 2009, p.17

[2] Ed Willett, Commissioner, *ACCC Briefing to Telstra Public Policy & Communications Group offsite session, Sydney*, 1 September 2009

[3] The ACCC's pricing proposal was made before the Government's announcement, and so does not take into account its significant implications.

The National Broadband Network

2.5 On 7 April 2009, the Federal Government announced its intention to establish and operate a National Broadband Network (NBN) over the next eight years. The NBN is intended to deliver a wholesale-only, open access telecommunications market structure, transforming the competitive dynamics in the Australian telecommunications industry environment.

2.6 The deployment of an NBN is highly significant to the ACCC's pricing principles. It means that further network duplication (in addition to the NBN itself) is likely to be inefficient and serves to reinforce the conclusion that access prices derived using asset values as high as replacement cost are unnecessary to encourage efficient investment in infrastructure by access seekers (as discussed in Chapter 4).

2.7 Further, as a result of the Government's NBN project, Telstra's CAN is likely to be rendered redundant within 7 to 8 years.[4] This suggests that Telstra will not make further major capital investments in the CAN (as opposed to operating and maintaining the CAN), and replacement cost-based prices will not encourage efficient investment in infrastructure in these circumstances. To set prices on the basis of replacement cost will simply provide Telstra with a windfall gain.

2.8 The ACCC appears to have taken the view that it does not need to have regard to the NBN since it is still subject to considerable uncertainty. However, Optus notes that the NBN has progressed significantly in recent months and is now becoming a concrete reality. For example:

- The Government has created NBN Co and announced the appointment of numerous employees, including Mike Quigley as the Executive Chairman and CEO of the NBN Co and a Board of Directors.

[4] Given that the NBN – unlike the CAN – is best-in-use technology and that the NBN will be an open access wholesale network with very strong natural monopoly characteristics, it follows that the NBN will make the existing copper access network (CAN) redundant (throughout the entire length of the copper loop from exchange to customer premises). Optus submits that that the CAN will largely no longer be required after the NBN comes into operation and that any continuing use will be limited and temporary. Users will be able to achieve significantly faster speeds on the NBN compared to the CAN immediately it is constructed and in the foreseeable future. DBCDE in its NBN policy paper considers that "Fibre optic to the home and workplace technology (or FTTP) is the state of the art 'future proof' fixed broadband technology and is capable of providing customers with download speeds of 100 Mbps and upload speeds of 50 Mbps." (DBCDE, *21st Century Broadband*, Policy Brochure, April 2009, p.4) This is comparable to the current achievable access speeds of up to 20Mbps offered on Telstra's ADSL 2+ network. (In reality, actual speeds may vary due to technical factors. Therefore, as Telstra's disclaimer notes "About 70 per cent of members on the 8Mbps plan can access speeds around 6Mbps or more. About 50 per cent of members on the 20Mbps plan can access speeds around 10Mbps or more." Telstra, *ADSL Broadband*, Available from URL: http://www.telstra.com.au/bigpond_internet/adsl2.html (accessed 18/5/09))

- In the same announcement, the Government officially launched the new Tasmanian NBN Company Ltd, and announced that the Tasmanian rollout would commence in August 2009, targeting 5,000 initial premises in 3 towns for targeted turn on of services in July 2010. The first trench has already been dug and the first cable is expected to be delivered by the end of October 2009.
- On 5 August 2009, tenders were lodged by a range of parties including Optus for a $250 million government build of new regional backhaul fibre network, with the ambition to commence construction shortly.
- On 6 August 2009 the Government announced the appointment of a consortium of KPMG and McKinsey as the Lead Advisor to undertake its proposed NBN Implementation study, with a targeted completion in February 2010.

2.9 Optus notes that the NBN has ambitious targets and that much of the present uncertainty will be resolved in the near future. This is demonstrated by the following table on the NBNCo's planned activities for the next six months that was recently presented by its CEO, Mike Quigley[5]:

will be largely completed	**will be underway if not completed**	**will have started**
Building the organisation	Negotiation of initial understanding with ACCC	Planning roll-out schedule
Designing the office	Pricing architecture discussions with customers	Execution of acquisitions –where appropriate
Selecting technology	Conducting tender process	Designing BSS/OSS
Designing high level network architecture	Obtaining carrier licence	Designing processes
Negotiating with potential partners	Negotiation of necessary spectrum and satellite slots	
Establishing operational program management office		

[5] Mike Quigley, *NBN Co- Initial Steps*, Presentation, 23 September 2009

2.10 Optus submits that the NBN is highly relevant to the ACCC's pricing principles and the emerging information about the NBN represents a significant change to the regulatory environment which makes it appropriate for the ACCC to review its position and take a different course of action.

Structural Separation

2.11 On 15 September 2009, the Government announced its proposed *Telecommunications Legislation Amendment (Competition and Consumer Safeguards) Bill 2009*. This proposal introduces a package of legislative reforms aimed at enhancing competitive outcomes in the Australian telecommunications industry and strengthening consumer safeguards. [6]

2.12 One of the central elements of the package is the Government's policy to encourage Telstra to structurally separate. The Government has stated that structural separation may involve a number of options, including the progressive migration of Telstra's fixed line assets or traffic to the NBN over an agreed period of time. [7]

2.13 If Telstra chooses to migrate its traffic to the NBN this will have a direct impact on the ACCC's reasoning on the legislative criteria, because it puts a definite expiry date on the CAN. Under this approach Telstra will effectively "switch off" the CAN by 2017 (and large parts of the CAN will be switched off prior to that date as the NBN becomes active in the relevant geographical area). The prospect of a definite switch off date makes it highly unlikely that Telstra will make further significant investments in its CAN.

2.14 Optus considers that it is not necessary to set prices based on replacement cost in order to provide Telstra with efficient investment incentives, as discussed in Chapter 4.[8] However, the possibility that Telstra will cease to make further investments in the CAN means that the case for replacement cost pricing (such as it is) falls away, since it will not be necessary to set prices at replacement cost in order to encourage Telstra to make efficient investment in its own CAN infrastructure. Rather, all that will be necessary is that Telstra receives

[6] DBCDE, *Telecommunications Legislation Amendment (Competition and Consumer Safeguards) Bill 2009*, Explanatory Memorandum, 2009

[7] DBCDE, *Telecommunications Legislation Amendment (Competition and Consumer Safeguards) Bill 2009*, Second reading speech, Delivered by Minister for Infrastructure, Transport, Regional Development and Local Government, the Hon. Anthony Norman Albanese MP -15 September 2009

[8] Under replacement cost asset valuation Telstra's remuneration is divorced from its actual investment – so prices based on replacement cost do not send Telstra efficient investment signals. Even if Telstra did need to make further major capital investments in the CAN at some time in the future – even up to the replacement of the entire CAN (which is disputed), replacement cost asset valuation would nevertheless overcompensate Telstra for such expenditure because it brings forward to the present day all such future expenditure without discount and thereby neglects the time value of money. In any event, it would be inefficient for Telstra to invest further in the CAN and thereby duplicate the NBN. These points are discussed in Chapter 4.

sufficient income to cover the ongoing cost of operating and maintaining the CAN up until 2017.[9]

2.15 An alternate possibility is that Telstra will transfer its local loop assets into a new structurally separated company. This company may well itself seek to negotiate with NBNCo to vend its assets into the NBN as a means of ensuring its longer-term viability. This would require a value to be placed on the CAN, which is unlikely to be the ACCC's full replacement cost value.[10]

2.16 Most well informed commentators believe that Telstra's most likely course of action is indeed the "migrate traffic to NBN" option. For example:

> *"Citi analyst Phil Campbell said Telstra stood a good chance of increasing shareholder value if it could successfully execute a two-stage plan by co-operating with the government and selling its assets in return for a minority stake in the NBN company.*
>
> …
>
> *Analysts at JPMorgan agreed that the best way for Telstra to maximise value was to migrate its customer base to the NBN and let its copper network die a slow death."*[11]

2.17 For example, **CiC**

2.18 Telstra is reported to have been planning to communicate the thrust of its response to the Government's proposed legislation today (9 October 2009) in a submission to a Senate Select Committee.

2.19 Whichever course of action Telstra takes in response to the Government's structural separation initiative, there is likely to be some impact on the assessment of the proper asset valuation. It follows that to lock in prices for three years now would not be the correct response.

2.20 Whilst it might be difficult today for the ACCC to take a determinative view on which approach Telstra will take, Optus notes that significant clarity is likely to be available within the next 6 months. Assuming the Government's new legislation passes in December 2009, the Minister must provide a functional separation requirements determination within 90 days from December 2009, that is March 2010.[12] Assuming Telstra intends to take the structural separation path, it will wish to close off the functional separation route to avoid further uncertainty for its shareholders, and is therefore likely to decide whether to

[9] It should also recover any proportion of the original prudently incurred cost of investment which has not yet been recovered.

[10] For example, according to analysts at Morgan Stanley, Telstra's network is worth around $6 billion. Sydney Morning Herald, *NBN goes looking for staff*, 7 October 2009

[11] Mitchell Bingemann, "Rebound as Telstra fate reviewed", the Australian, 17 September 2009

[12] Part 9 s75 provides the date when the Minister must provide a functional separation requirements determination. Under s75(5), the Minister must provide a functional separation requirements determination within 90 days after the commencement of the Act.

structurally separate prior to March 2010 but not later than June 2010 when Telstra will be required to provide a draft Functional Separation Plan.[13]

2.21 Optus submits that the prospect of structural separation is highly relevant to the ACCC's pricing principles and represents a significant change to the regulatory environment which makes it appropriate for the ACCC to review its position and take a different course of action.

The Government's regulatory reform package

2.22 The legislative reform package also included measures to streamline the access and anti-competitive conduct regimes in the Trade Practices Act. With regard to the access regime, the Government has decided to replace the 'negotiate-arbitrate' model and endow the ACCC with the power to make up-front determinations on price and non-price terms of access.

2.23 The ACCC will have significant new powers including the power to set upfront price and non-price terms for declared services, set 'fixed principles' and make binding rules of conduct. Further, the ACCC will have greater freedom of action due to the elimination of merits review of its decisions and exemption applications.

Objectives of the Government's reforms

2.24 The regulatory reform package is intended to address longstanding obstacles to competition in the industry and make the existing regulatory regime more effective. It has been designed to promote an open, competitive telecommunications market to provide Australian consumers with choice and access to more innovative and affordable services.

2.25 The 'negotiate-arbitrate' model has traditionally described the practice of determining the terms and conditions of network access arrangements provided under Part XIC. At its inception, it was originally envisioned that

> "*as the access regime became well established, new entrants would compete successfully with the incumbent provider (Telstra) and gradually invest in their own infrastructure, perhaps eventually replicating Telstra's network thus eliminating the economic bottleneck comprising Telstra's fixed line customer access network While significant investment has taken place, this outcome is nowhere near being achieved*." [14]

[13] This timetable is combined effect of requirements in sections 75 & 78 of Schedule 1 Part 9 of the Trade Practice Act 1974 (Cth) as amended by the *Telecommunications Legislation Amendment (Competition and Consumer Safeguards) Bill 2009.*

[14] DBCDE, *Telecommunications Legislation Amendment (Competition and Consumer Safeguards) Bill 2009*, Explanatory Memorandum, 2009, p.48

2.26 However this process has since proven to be unnecessarily complex, beset by disputes and delays, as evidenced by the litigious nature of the telecommunications sector in recent years.

2.27 The Government now finally concedes that after more than a decade of since the introduction of competition, "Telstra remains dominant in almost all sectors of the telecommunications market, and it continues to be one of the most profitable operators in the world. The use of regulatory and legal processes appears to be one way in which Telstra maintains this dominance." [15]

2.28 The Government has therefore introduced legislation to reform the current provisions under Part XIC. Specifically it will replace negotiate-arbitrate model with a streamlined regulatory process. This will include a number of transitional arrangements for existing declared services. It is anticipated that the reforms to Part XIC will in effect "lead to greater certainty, less disputation and more timely and efficient outcomes," [16] including benefits to end-users. Following the enactment of these reforms, a review will be conducted three years after the implementation to assess the effectiveness of the new system.

Implications for the ACCC's pricing proposal

2.29 The changes set out in the draft legislation provide the ACCC with an unprecedented opportunity. The Government's package finally gives the ACCC the tools it needs to make pro-competitive decisions unimpeded by the risk of Telstra challenging each and every decision.

2.30 Optus submits that – once the new legislation is in force – the ACCC should take the opportunity afforded by the new legislation and move swiftly to introduce a new and more pro-competitive pricing regime for all fixed line services. Moreover, this regime should be implemented as quickly as possible, so that the competitive benefits of the Government's reform package can begin to flow through to end users.

Proposed way forward

2.31 Optus submits that to ignore each of these important policy developments and to lock in prices now for a three year period would be a poor policy decision. Such an approach would clearly run counter to the Government's objectives and has the potential to undermine the competitive benefits that would otherwise be delivered by the Government's reform package.

2.32 Rather than proceed with its current determination Optus submits that the ACCC should commence a broader assessment of fixed line access prices, taking into consideration:

[15] DBCDE, *Telecommunications Legislation Amendment (Competition and Consumer Safeguards) Bill 2009*, Explanatory Memorandum, 2009, p.49
[16] DBCDE, *Telecommunications Legislation Amendment (Competition and Consumer Safeguards) Bill 2009*, Explanatory Memorandum, 2009, p.55

- The potential competition and consumer impacts of any proposed changes to ULL prices;
- The likely impact of different access price points on the current and future investment plans of access seekers;
- The impact of the recent Tribunal decision to rollback resale based regulation;
- Alternative approaches to valuing the Telstra local copper loop (as set out in the following chapters of this paper);
- The implications of the Government's regulatory reform package; and
- The implications of ULL competition for the longer-term success of the National Broadband Network.

2.33 Having completed this review the ACCC should then be in a position to set prices both for future periods and also retrospectively to close off the current access disputes. It is also likely that by the time the ACCC is ready to conclude its assessment, it will be in a position to use its powers under the new legislative arrangements. Whilst Optus recognises that this approach may raise some administrative issues for the current disputes (such as the timeframe for interim determinations), none of these are insurmountable. It will inevitably take time for the ACCC to work through this process, but Optus suggests that the additional time is required to ensure that the ACCC is able to give proper attention to all relevant considerations and make a fully informed decision.

2.34 Optus submits that it would be appropriate for the ACCC to maintain a stable pricing structure whilst alternative pricing methods are assessed. Accordingly, in the event that the ACCC decides it must determine prices at this time, then it should do so only until 30 June 2010, and in doing so it should simply maintain existing prices whilst it undertakes a substantive consultation. That is it should roll-over the 2007-08 final determined ULLS price (eg, $14.30 for the ULLS in Band 2), adjusted only for appropriate changes in CPI and other relevant parameters, or alternatively maintain the indicative prices that applied for 2008-09 (eg, $16 for the ULLS in Band 2).

Existing prices are reasonable

2.35 The ACCC is under no obligation to determine final prices in the current ULLS access disputes at the current time. Nevertheless, Optus recognises that the ACCC may feel compelled to do so, at least in respect of the time period up until 2009-2010. If this is the case, then the ACCC must set a price consistent with the legislative criteria.

2.36 Optus submits that in doing so the ACCC should be informed by the following data points. The monthly cost of ULLS in Band 2 (including specific cost) as provided by:

i) a 50% depreciated network is $12 (adjusted Analysys model – see Chapter 6 and Attachment 1);

ii) an optical fibre network is $12 on a quality-adjusted basis (calculated by CEG and Milner – see Chapter 7, Attachment 2A and Attachment 2B);

iii) international benchmark operators was $13.22 to $16.89 (according to Ovum – see Chapter 5 and Attachment 4)); and

iv) Canadian operators is $14.36 to $19.77 (Canadian rate band B – see Chapter 5 and Attachment 4); and

v) the efficient range for investment incentives is $3 to $12 (as described in Chapter 4 and Attachment 5).

2.37 Optus submits that both the existing Band 2 ULLS price as determined by the ACCC in its most recent determination ($14.30) and the existing indicative price for Band 2 ULLS ($16) are broadly consistent with the above data points. This is clear evidence that existing prices are reasonable and consistent with the legislative criteria.

2.38 Further, the ACCC has recognised the need for stability of pricing through its proposal to implement a glidepath – an approach that is likely to be applied regardless of which approach the ACCC adopts. The use of existing prices is consistent with this approach.

2.39 Moreover, whilst the ACCC may feel it needs to have regard to the results of its Analysys model, there are strong arguments to suggest that the underlying assumptions in its approach and outputs are flawed (as set out in Chapter 4). The price output of the unadjusted Analysys model for Band 2 ULLS is significantly above the data points set out above.

3. The ACCC's Pricing Proposal Will Damage Competition

3.1 In presenting its draft pricing principles Optus contends that the ACCC has undertaken a dramatic shift in pricing that fails to adequately consider the broader implications for competition within the fixed line market. In particular, the proposed sharp increase in ULLS prices (65%) if implemented will apply a flash freeze to competition in the fixed line sector. In this section, Optus will argue that these prices;

- Undermine the ACCC's own policy of promoting ULLS competition;
- Will have an significantly adverse impact on competitors existing investment in ULLS and at a stroke rule out any further investment;
- Deliver a windfall gain to Telstra that will reinforce its privileged position in the market since it will face lower real costs than access seekers; and
- Rather than promote competition and the long term interests of end-users (as required by the Trade Practices Act s152CR(1)(a) and s 152AB(2)(c) will undermine competition and reduce customer choice

ACCC's policy

3.2 Optus submits that the opening of Telstra's local copper loop to competition through the regulation of ULL access has represented a stand out policy initiative by the ACCC in recent years. This policy has been aimed at deepening the level of infrastructure based competition in the fixed line market and reducing the industry's reliance on resale based access.

3.3 This policy has been based on the premise that if competitors invest they should have the confidence that they will be able to compete with Telstra on a level playing field. This includes the need for certainty that access prices will be based on a reasonable level of cost recovery. A key element of the ACCC's policy has been to set separate ULLS prices for each of four cost-reflective geographic bands. It has emphatically rejected previous attempts by Telstra to have prices set on a geographically averaged basis.

3.4 When Optus made its original commitment to invest in ULL based access in September 2005 it did so in part because it had confidence that the ACCC would deliver access prices that would render the investment case for ULLS sustainable. The ACCC duly delivered when it set Band 2 access prices from $12.30 to $14.30 per month for the period 2005 through to 2008. Optus notes that in delivering these price points the ACCC has indicated that it has effectively given

Telstra the benefit of the doubt on a number of issues and had been cautious in its approach;

> "*...in setting prices the ACCC must always have regard to the direct costs of providing access, and the legitimate business interests of the access provider. Furthermore, the ACCC has been conservative in its approach to pricing. The actual prices the ACCC has set for the ULLS in Band 2 areas started at $12.30 in 2005-06, and have risen to $14.30 in 2007-08 – a rise of over 16 percent, reflecting both an increase in Telstra's network costs over that period and a recovery of the service-specific IT costs. We have allowed the use of Telstra's own cost model, even one criticised by the Australian Competition Tribunal"*[17].

3.5 In parallel to the reduction in ULLS prices, the ACCC approved increases in prices for resale voice services and rejected proposals to declare resale broadband. The policy intent from the ACCC was quite clear in these related decisions.

3.6 Since 2005, the policy initiative has stimulated significant investment in fixed line voice and broadband services – particularly in Band 2 – by several carriers. As at 30 June 2009 Optus provided access to over 458,000 customers using ULLS, which accounts for close to 70% of ULLS take-up. There has been a corresponding reduction in the level of resale based access services as service providers have moved up the ladder of investment.

3.7 Consumers are now starting to see the fruits of this policy with increased competition in the market and real choice across large parts of metropolitan Australia. This development has driven important benefits to consumers – through lower prices, improved quality of service and greater innovation. Competitors are using their own infrastructure to deliver innovative services such as Optus' Fusion product (which provides customers with broadband plus unlimited telephony for a fixed monthly fee) and Naked DSL services offered by Optus, iiNet and other service providers (broadband – without the requirement to pay for line rental).

3.8 The clear competitive benefits of unbundling have been recognised by the Chairman of the ACCC, Graeme Samuel, in a speech to the Australian Telecommunications Users Group in March 2008:

> *"Increased competition in the provision of broadband services has seen progressively lower broadband prices, increased data caps, better speeds and new innovation and products (such as naked DSL). This increased competition in broadband by other ISPs and carriers owes a significant debt to being able to obtain access to Telstra's copper loop. Competitors have this access*

[17] ACCC, *ATUG 2008 Annual Conference, Sydney*, Presentation by Graeme Samuel, 13 March 2008

through the declaration of the unconditioned local loop service (ULLS) and the line sharing service (LSS)"[18].

3.9 The following charts are taken from a report for the Internet Industry Association by Venture Consulting. These illustrate the tangible benefits from increased broadband competition, with Venture Consulting concluding that *"The increase in availability of higher speed broadband services, coupled with the increases in data caps, means that across Australia more consumers are able to access high speed broadband and can use that broadband to access bandwidth intensive services more frequently without penalty."* [19]

Figure 8: Average data cap size for fixed standalone plans surveyed (Gb/Month)

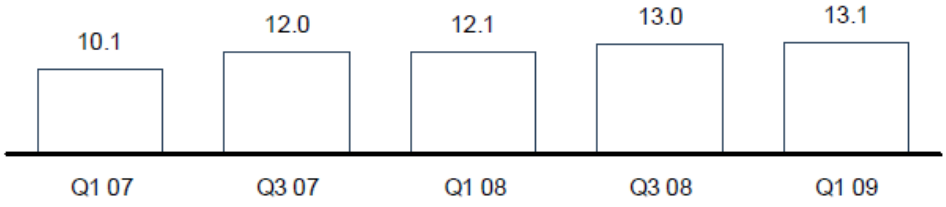
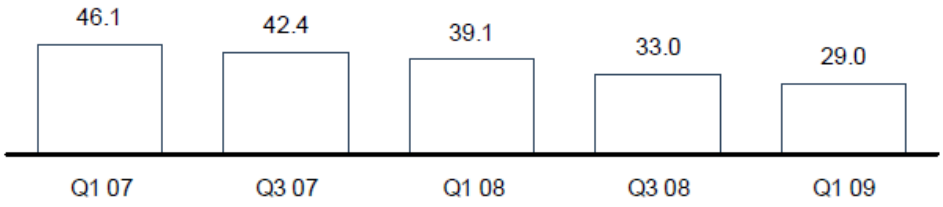


Figure 9: Implied average cost per Gigabyte of data for fixed standalone plans surveyed ($/Gb)



3.10 Optus submits that the ACCC draft pricing principles appear to undermine the ACCC's own policy. The pricing decisions of only eighteen months ago have been completely reversed with a dramatic increase in ULLS access prices in the significant metropolitan exchanges and a steep reduction in resale based prices. The ACCC also appears to have abandoned its longstanding commitment to cost-reflective pricing, and its opposition to averaging. Indeed, it appears that access seekers will be charged the same geographically averaged ULLS access price in respect of supply to all of the addresses in Australia to which it is feasible to supply broadband over the ULLS (ie, addresses in Zone A).

3.11 The pricing proposal is also at odds with the recent move by the Australian Competition Tribunal to deregulate wholesale voice services (the WLR and LCS and PSTN OA services) within identified metropolitan exchanges. The Tribunal's deregulation decision is explicitly designed to further the ACCC's own policy objective of

[18] ACCC, *ATUG 2008 Annual Conference, Sydney*, Presentation by Graeme Samuel, 13 March 2008
[19] Venture Consulting, *IIA Broadband Index – Eighth Edition (Q1 2009)*, March 2009

encouraging access seekers to move to serving customers via the ULLS rather than through resale voice services (in coming to its decision, the Tribunal stated that it was influenced by the ladder of investment hypothesis[20] and Professor Cave's idea that entrants should be encouraged to ascend the ladder of investment[21]). This is the very objective that has been comprehensively undermined in the current pricing proposal.

3.12 The deregulation decisions remove from access seekers the possibility of alternative sources of supply and as a result the impact on competition of the ACCC's proposed increase in the ULLS price will only be exacerbated.

3.13 If applied, these prices will put significant pressure on access seekers ULLS investment plans and is likely to lead to less competitive intensity and worse outcomes for consumers.

3.14 Optus also cautions the ACCC to carefully consider the signal its abrupt reverse in the direction of ULLS pricing sends to potential future investors in Australian telecommunications infrastructure. This is especially cogent given the Government's desire to attract private sector investment into the proposed National Broadband Network that will represent one of the biggest infrastructure investments in Australia's history. Such sudden shifts in pricing are hardly likely to "promote efficient investment in telecommunications infrastructure" as required by the Act.

ULLS investment

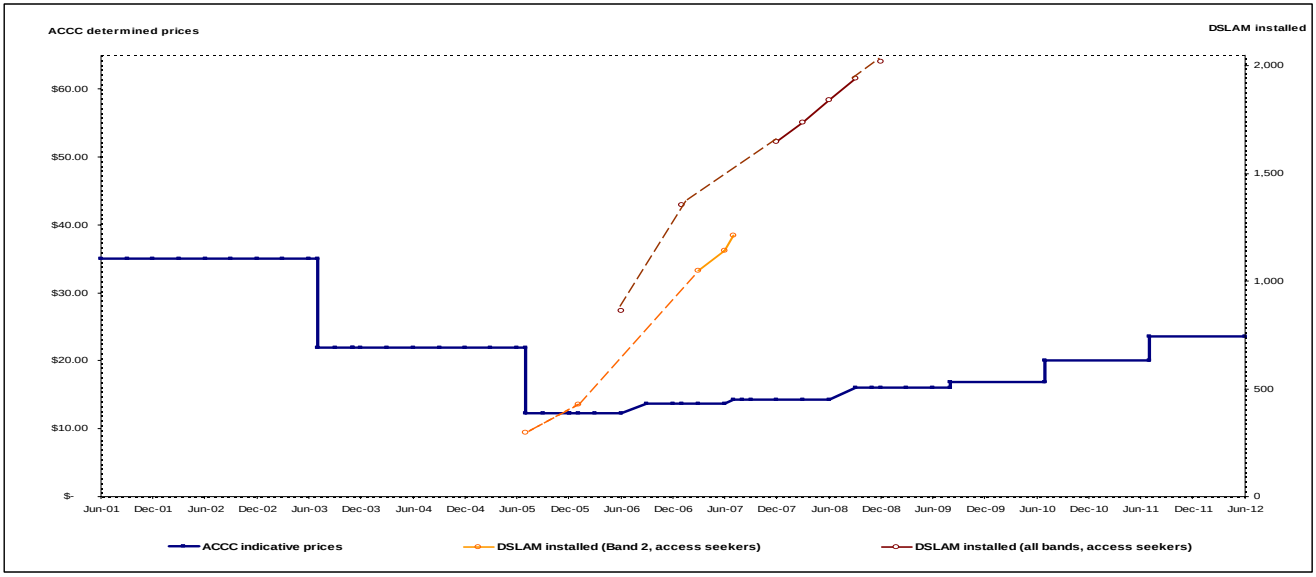
3.15 Whilst Optus contends that ULLS represents a policy success, as demonstrated by the significant take up of services, nevertheless the investment case remains highly sensitive to access prices.

3.16 Optus commenced the roll-out of its DSLAM's in September 2005, with the aim of providing ULLS based access to 340 exchanges covering 2.9 million households and businesses. The first services started to be connected from January 2006 and as at 30 June 2009 Optus served over 458,000 customers on ULLS. This roll-out involved a substantial investment in DLAM equipment and backhaul fibre to provide voice and broadband services and also back-end IT systems to enable services to be provisioned and managed. Optus spent **CiC** on its DSLAM rollout in the period 31 March 2009.

3.17 The graph below sets out access seeker DSLAM investment and the movement in the ACCC's indicative prices.

Exhibit: DSLAM investment and ACCC indicative prices for Band 2 [22]

[20] *Application by AAPT Limited* [2009] ACompT5 24 para 39
[21] *Application by Chime Communications Pty Ltd (No 2)* [2009] ACompT2 para 152
[22] The prices graphed include several assumptions: (i) During the period prior to March 2002, Telstra's proposed ULLS and the ACCC's indicative prices are representative of the



3.18 **CiC**

3.19 **CiC**

3.20 **CiC**

3.21 **CiC**

3.22 **CiC**

Implications of the ACCC's prices

3.23 As can be seen from the above analysis the ACCC's proposed access prices for ULLS will have a significant adverse impact on the economics of serving customers through ULLS based access.

3.24 This data demonstrates that, under the ACCC's proposed ULLS prices, **CiC**

3.25 Certainly the ACCC itself in the context of the WLR and PSTN OA exemptions proceeded upon the assumption that access seekers could get a return on their DSLAM investments within two years. [23]

3.26 Optus submits that the per-customer economics caused by the ACCC's proposed pricing are not sufficiently attractive for investors to commit

---

RSS/RSU prices indicated in the 2002 ULLS Pricing Principles; (ii) From August 2009, the ACCC has proposed to determine indicative prices using a new two-tiered zoning classification – the prices indicated are representative of Zone A prices from the 2009 draft pricing principles; (iii) All dashed lines are linear extrapolations where insufficient information has been found to provide a definitive trend between two defined points; and (iv) The values for DSLAM installations have been derived from several sources – total DSLAM installed by access seekers is derived from the total number of non-Telstra DSL-enabled exchanges ACMA, *Communications Infrastructure and Services Availability in Australia 2006-07*, 2007, p.5 and ACMA, *Communications Infrastructure and Services Availability in Australia 2008*, 2008, p.5; and total DSLAM installed in Band 2 is derived from values publicly provided by Telstra: Telstra, *Telstra's Local Carriage Service and Wholesale Line Rental Service Exemption Applications – Supporting Submission*, July 2007, p.22 and Telstra, *Supplementary material in support of Telstra's Local Carriage Service and Wholesale Line Rental Service Exemption Applications*, August 2007, p.2.

[23] ACCC, *Telstra's local carriage service and wholesale line rental exemption applications*, Final Decision, August 2008, p.74

investment funds. It follows that the investment would not have been made in the first place had these prices been known. The proposed prices will necessarily cause Optus to review its future plans for the fixed line market.

3.27 Optus submits that if these prices are confirmed then access seekers will cease to make additional new investments in DSLAMs and associated infrastructure and will not further expand their DSLAM footprint.

3.28 This is a radical break from the current environment, in which DSLAM investment has been strong and greatly encouraged by the ACCC. Notably, the decision by the ACCC (and subsequently the ACT) to exempt Telstra from providing fixed line resale services in metropolitan exchanges was based upon the presumption that access seekers would continue to make additional new DSLAM investments and expand their DSLAM footprint – since the ACCC's view was that "*more efficient and competitive outcomes for consumers would be achieved via ULLS based competition."*[24]

3.29 The investment case for ULLS was already under challenge from key policy decisions such as the NBN. In February 2009 the Government announced its proposals to build a Fibre to the Premise network over the next eight years to provide high-speed broadband connectivity to 90% of Australian households and businesses. This network is expected to progressively by-pass the copper network and will ultimately strand any investment in DSLAM based technology, since it will offer a far superior level of service capability. It is unlikely that an access seeker will have sufficient time to recoup any new capital investment in ULLS. Whilst the NBN is expected to take 8 years to complete, the roll-out will be progressive and is likely to be completed much earlier in those areas that would potentially have attracted ULLS investment.

3.30 **CiC**

3.31 The Government's more recent announcement on its proposed Regulatory Reform package has increased the level of uncertainty around ULLS based access. Under the reform package, Telstra has been encouraged to implement structural separation. It is contemplated that one of the ways in which it might achieve this is to commit to migrate its own traffic to the National Broadband Network over an 8 year period and effectively cease to support its legacy copper network.

3.32 The ACCC's proposed prices for ULLS will act as a further brake on ULLS based investment. As the ACCC itself has recently recognised, "a significant, unanticipated rate increase may also reduce the incentive for access seekers and potential new entrants to make

[24] ACCC, *Telstra's local carriage service and wholesale line rental exemption applications*, Final Decision, August 2008, p.104

infrastructure-based investment such as in DSLAMs".[25] It has also stated:

> *"If access seekers' investments are subject to sudden arbitrary stranding on unreasonable grounds, incentives for access seekers to compete, invest in facilities and create innovative new services for consumers and business users would likely be reduced. This would not be in the long-term interests of end-users."* [26]

3.33 Given its magnitude Optus and other service providers will be unlikely absorb the increase in access prices. Optus will inevitably have to revisit its business plans for the coming years. This is likely to include consideration of the following:

- Passing on the cost increase to consumers in the form of higher headline prices and/or a reduction in the value offered in current pricing packages;
- Scaling back the current capital expenditure plans to meet growth requirements; and
- Reviewing the rationale for retaining a presence in the fixed line market.

3.34 It appears that one of the ACCC's objectives in abandoning its policy of cost-reflective geographic price bands may have been its desire to encourage investment by access seekers in those Band 3 and 4 exchange areas which would fall into Zone A under the proposed new geographic approach.

3.35 If this is the case, then the objective is misguided. Increasing prices across all metropolitan areas will not entice access seekers to invest in former band 3 and 4 areas. Further, the business case for further Access Seeker investment in ULLS-based services is weak, particularly in those Band 3 and 4 exchange areas. Optus considers that the new geographical averaging policy will not encourage access seekers to invest in Band 3 and 4 areas.

3.36 Optus submits that the ACCC should not depart from the policy of cost-reflective geographic bands on which access seekers have relied in making their substantial investments in DSLAM infrastructure in Band 2. The ACCC is on record as noting the fallacy of using averaged prices to try to stimulate investment in rural areas. In a speech in March 2006, Graeme Samuel said:

> *"If costs in remote areas are much higher than in other bands, an averaged price will mask those costs and create inefficient investment signals. This might discourage investment in options*

[25] ACCC, *Assessment of Telstra's Unconditioned Local Loop Service Band 2 monthly charge undertaking*, Draft Decision, November 2008, p.51

[26] ACCC, *Assessment of FANOC's Special Access Undertaking in relation to the Broadband Access Service, Draft Decision*, December 2007, pp.15-16

that allow for more efficient supply of broadband in regional and rural areas, such as wireless and satellite. But an averaged price would not change the costs of supplying ULL in these remote areas. Instead, increased charges in metropolitan areas will increase the wholesale costs for competitors in those areas and reduce competition in the mass market." [27]

3.37 If the ACCC wishes to encourage investment by access seekers in those Band 3 and 4 exchange areas which would fall into Zone A, then, to the extent such investment may occur, it could be made more likely by introducing new geographically de-averaged cost-reflective "sub-bands" within Bands 3 and 4. This would cause the access price for those Band 3 and 4 exchanges to fall relative to the pricing which would apply to the remainder of Bands 3 and 4, without affecting the pricing of Band 2 exchanges. This issue is discussed further in Chapter 10.

Price changes will not promote competition

3.38 Optus submits that the proposed increase in ULLS prices will create a significant wedge in the market by giving Telstra a clear cost advantage.

3.39 Telstra's dominant position in fixed line telecommunications has been well recognised, including by the Government in its regulatory reform package announcement and by the ACCC itself in its submission to the Government's regulatory reform consultation.[28] In recent years the market share of access seekers collectively has actually decreased. Similarly, the ACCC in its submission to the Government's regulatory reform submission stated that "*In the pre-rollout period, the incumbent operator will continue to possess significant market power.*"[29] Further, the ACCC in its Telecommunications competitive safeguard report confirmed that: "*the incumbent still retains enduring and substantial market power*".[30]

---

[27] ACCC, *ATUG 2008 Annual Conference, Sydney*, Presentation by Graeme Samuel, 13 March 2008

[28] The Explanatory Memorandum of the Telecommunication Legislation Amendment (Competition and Consumer Safeguards) Bill 2009 provides a number of important facts regarding Telstra's market power in the fixed line market: For retail PSTN service, Telstra retained a market share of 72% in 2007-08 whilst Optus had a market share of 11%, AAPT 3% and other smaller telcos accounted for 15%; For retail broadband services, Telstra grew its market share from 47% in 2005-06 to 58% in 2007-08 whilst Optus' market share felt from 20% in 2005-06 to 16% in 2007-08. The Parliament of the Commonwealth of Australia House of Representative, *Telecommunications Legislation Amendment (Competition and Consumer Safeguards) Bill 2009*, Explanatory Memorandum, 2008-09, pp.22-23

[29] ACCC, *Submission to the Department of Broadband, Communications and the Digital Economy, National Broadband Network: Regulatory Reform for 21st Century Broadband*, June 2009, p.6

[30] "While new entrants and investment have made some inroads, the incumbent still retains enduring and substantial market power, with shares of 72 per cent, 58 per cent and 42 per cent of retail PSTN [public switched telephone network] voice services, retail fixed broadband and retail mobile voice services in 2007-08…". ACCC, *Telecommunications competitive safeguards for 2007-2008*, 2009, pp.11-12

3.40 Optus has significant concerns with the ACCC's proposed methodology for setting ULLS which ultimately seeks to set prices based on the full replacement cost to Telstra. These concerns are dealt with in detail later in this submission. Regardless of these concerns, Optus submits that Telstra will never face these full replacement costs in practice.

3.41 The Government's announcement that it plans to roll-out a national broadband network based on a mixture of fibre to the premise, wireless and satellite technology makes it clear that Telstra will not seek to replace its copper network. Rather it will either seek to maximise the life of its existing copper based infrastructure until it migrates customers over to the NBN or it will seek to upgrade its network to fibre to compete with the NBN. In either case the costs it will face as a business will be substantially below the full replacement cost associated with its existing copper loop.

3.42 The ACCC's proposed access prices will, therefore, put access seekers at a significant competitive cost disadvantage to Telstra since they will face these higher costs through monthly access fees. As indicated, above access seekers are likely to have to seek to pass on the higher costs through effective increases to their current pricing packages.

3.43 It is not at all clear how this position will advance competition and therefore serve the long terms interests of end-users. Optus notes that in its rational for continuing the declaration of ULLS the ACCC has stated that the long terms interests of end-users will be served because:

> *"The continued declaration of the ULLS will also allow access seekers to receive the ULLS on competitive terms and therefore be able to compete more vigorously with Telstra in the retail markets. As such end-users would benefit from lower prices for and a greater range of better quality service offerings"*[31].

3.44 The draft pricing principles which will increase access prices are clearly in direct conflict to this statement.

End Users

3.45 The main impact of the ACCC's proposed prices – particularly the huge increase in the ULLS price – will be to raise end prices for consumers of fixed line services.

3.46 Lower prices for consumers are an important end result of a successful access pricing regime, and this is reflected in the ACCC's legislative objectives. The Tribunal discussed the legislative objective which lay behind the promotion of competition concept in its 2007 decision on Telstra's ULLS undertaking, where it stated:

[31] ACCC, *Fixed Services Review Declaration Inquiry for the ULLS, LSS, PSTN OA, PSTN TA, LCS and WLR* , Final Decision , July 2009

> *"…the Act aims to promote competition because of the benefits that result from the process of competition, such as lower prices for consumers and the displacement of inefficient suppliers by efficient suppliers of services."* [32]

3.47 Optus submits that the proposed increase in the ULLS charge would not result in lower prices for consumers and would not facilitate the displacement of inefficient suppliers by efficient suppliers. Rather, the converse would apply. Access seekers would be forced to pay the higher access charge to Telstra and this charge would largely be passed on to end users.

3.48 In conclusion, the proposed increase in the ULLS charge would have the effect of reducing competition and strengthening Telstra's monopoly position in fixed line telecommunications. The competitive gains brought about by the ULLS (noted in the previous section) would be reversed.

3.49 Further, the proposed price increase would expropriate the value of sunk investments by end use consumers and thereby cause a deterioration in consumer expectations about the stability of telecommunications service prices, which would not promote the efficient use of telecommunications infrastructure; and would cause a reduction in "overall welfare".

[32] *Telstra Corporation Ltd (No 3) [2007]* ACompT 3, para 99

4. The ACCC's Pricing Proposal is Based on a Flawed Methodology

4.1 The proposed indicative prices are based largely on the outputs of the Analysys fixed network cost model and to a lesser extent, the TEA model, both of which are intended to calculate prices according to the TSLRIC+ concept. These models value the copper access network (CAN) at replacement cost without any deduction for the age of the assets. The ACCC has adopted this approach notwithstanding its own misgivings about the continued relevance of its TSLRIC+ methodology.[33]

4.2 Optus agrees with the concerns the ACCC has expressed and submits that in setting prices the ACCC should not value the CAN at replacement cost. Prices set according to this idiosyncratic pricing concept will not meet the legislative criteria set out in the Act, for reasons which are developed further in this chapter. Rather such a valuation can only produce distorted investment signals, over-compensate Telstra and skew the playing field against Telstra's competitors.

Introduction

4.3 The ACCC has indicated that it intends to adopt a TSLRIC+ principle for the pricing for the six fixed network services and that in doing so it intends to re-value the existing sunk network at its optimised replacement cost. The main rationale for adopting this approach appears to be that "forward looking replacement costs reflect the ongoing efficient costs of providing a service, which is no more than a firm could expect to recover in a contestable market".[34]

4.4 There are a number of problems with this "contestable market" justification for replacement cost access pricing (which are discussed in more detail below under the heading of "legitimate business interests". However, the key issue is that there is no support for that type of "valuation" or entitlement in the Part XIC criteria.[35]

[33] It has recognised it is "highly likely" that the basic rationale for "TSLRIC" pricing – sending build buy signals to access seekers – no longer exists.

[34] The ACCC's 1997 pricing guide stated a broad preference for cost-based pricing. Optus accepts that the principle of cost-based pricing is central to the operation of Pt XIC, as construed by the ACCC and the Tribunal. The Tribunal has observed that an access charge (in that case for LSS) above the efficient costs of supply would be unlikely to be reasonable. In considering the principles of cost-based pricing – particularly in light of the qualification that efficient investment is only promoted by allowing a return on costs which are efficient or prudently incurred – it is important to bear in mind that "costs" in this context are not readily observable. There are various methods for measuring or estimating different costs concepts. These involve different methods of setting a value for Telstra's assets, including the CAN.

[35] The ACCC's task in the context of an access dispute is to set an access price that meets the legislative criteria set out in section 152CR of the Trade Practices Act 1974 (the TPA). In determining pricing principles for a declared service, the ACCC has noted its view that it should have regard to the object of Part XIC of the TPA, being the promotion of the long term interests of end-users (LTIE), notwithstanding the fact that it is not strictly bound to do so.

4.5 Optus considers that the ACCC must give genuine consideration to each of the key legislative criteria in order to arrive at the appropriate method for the valuation of network assets for the purposes of setting prices for fixed line services. The proposal to rely on TSLRIC and replacement cost valuation without undertaking such analysis is inappropriate and if the ACCC makes a decision in reliance on such a position it runs the risk of falling into reviewable error.

4.6 In the following sections Optus will make submissions on how each of the legislative criteria should be interpreted and what each criterion implies for the correct valuation of network assets. The results of this analysis are applied to the replacement cost method of asset valuation used in the Analysys model (and the TEA model). In summary Optus considers that prices set according to a cost calculation which assumes that assets are valued at replacement cost will not meet the legislative criteria.

Encouraging economically efficient use of, and investment in, telecommunications infrastructure

4.7 This criterion contains a number of objectives, and is best analysed by breaking it down into its constituent parts. Specifically, we will separately consider:

- encouraging economically efficient investment in telecommunications infrastructure (by access seekers);
- encouraging economically efficient use of telecommunications infrastructure; and
- encouraging economically efficient investment in telecommunications infrastructure (by the access provider).

Encouraging economically efficient investment in telecommunications infrastructure (by access seekers)

The meaning of this criterion: theoretical concerns

4.8 This aspect of the criterion is directed to the 'build or buy' signals sent to access seekers through access prices. Decisions of access seekers to build by-pass infrastructure will be based on the relative resource cost of doing so, as the ACCC has recognised.[36] In its draft pricing principles the ACCC refers to the "key rationale that TSLRIC+ pricing in telecommunications would better send 'build or buy' signals".[37]

4.9 This criterion recognises that in some circumstances it will be efficient for access seekers to build their own network infrastructure that will

[36] ACCC, *Access Pricing Principles: Telecommunication – a guide*, July 1997, p.29
[37] ACCC, *Draft pricing principles and indicative prices for LCS, WLR, PSTN OTA, ULLS, LSS*, August 2009, p.15, referring to ACCC, *Access Pricing Principles: Telecommunications — a guide*, July 1997.

bypass Telstra's network, rather than purchasing access to services on Telstra's network.

4.10 In considering a price which promotes efficient investment in infrastructure by access seekers, it is important to recognise that the price must achieve two related goals; that is it must:

- promote efficient infrastructure investment; and
- avoid promoting inefficient duplication of infrastructure.

4.11 That is, for the purposes of satisfying this criterion, it is critical to be clear about the circumstances in which the construction of new bypass infrastructure will be efficient and the circumstances in which it will not.

4.12 In its judgement on the HFC exemption appeal the Tribunal made the following comments regarding the meaning of efficient investment in Pt XIC, in the context of an argument about potential additional investments in the Optus HFC Network:

> *"commercial viability is not the same as efficient investment. As Optus submitted, to say that the Optus HFC Network is technically and commercially capable of delivering better services to more premises, and that Optus may plausibly be able to recover the costs of making the necessary infill investments, says little or nothing about the efficiency of making those investments, or indeed the likelihood of them being made. Relative to service provision over the existing infrastructure, the investments may not be efficient. The appropriate calculus is of social cost benefit, not the private cost benefit to Optus."* [38]

4.13 The use of a calculus of social cost benefit ensures that the total costs and benefits of developing a particular facility, relative to use of existing facilities, are brought to account.[39] An investment which is commercially viable or privately efficient may not be a socially efficient investment.[40]

4.14 The Tribunal noted that if alternative measures of provision are available at a cheaper cost then this will be relevant to the question of whether investment is efficient in social terms. It noted:

> *"As Optus submitted, even if in the future with the exemption Optus were to expand the reach of its HFC network and offer services via that network to end-users who it currently services through a Relevant Service, this might not represent socially efficient investment if alternative measures of provision were*

[38] *Application by Telstra Corporation Limited* [2009] ACompT 1 at [16]
[39] See *Re Sydney International Airport* [2000] ACompT 1 at [205]; quoted with approval in *Application by Telstra Corporation Limited* [2009] ACompT 1 at [17].
[40] See *Application by Telstra Corporation Limited* [2009] ACompT 1 at [129], [131].

available at a cheaper cost. This, Optus said, would plainly not be in the LTIE." [41]

4.15 In the context of such analysis of social welfare, the "cost" of access over the existing network does not include the costs which have already been sunk. Since sunk costs cannot be avoided, they are irrelevant to the question of which mode of service provision (ie, whether the access seeker chooses to build or buy) requires society to incur the least cost.[42] The correct comparison is between the avoidable costs of the access seeker providing services on:

- a bypass network (which includes the full construction cost of that network); and
- the existing network (which does not include the full construction cost of that network).

4.16 Given that the full construction cost of a new network is likely to outweigh the cost of operating the network, it will not be surprising that for fixed line networks generally the socially efficient outcome is that the network should not be duplicated. In rejecting Telstra's arguments in the HFC case, the Tribunal concluded that duplication of 'last half-mile' access infrastructure would be a socially wasteful investment.[43]

4.17 Nevertheless, bypass infrastructure will not necessarily be socially inefficient. In certain rare circumstances, eg, if the duplicate access infrastructure involves extremely low cost construction (lower than the avoidable costs of service provision on the existing network), or if there are external benefits of bypass which are considered extremely high, it may be judged socially efficient for a new access network to be constructed – and for access prices to be set so as not to encourage such investment.

Implications for the valuation of network assets

4.18 There are two key implications of this discussion for the valuation of network assets.

4.19 First, the access price must not be set too low. If it is set too low, then there is the possibility that it will fail to promote infrastructure investment by access seekers in the rare circumstances where bypass would be efficient. The 'efficient lower bound' for the asset value (and the associated access price) is given by the avoidable costs of providing the services on the existing network[44] (that is, the cost of operating and maintaining the existing network[45]) – a cost which is

[41] *Application by Telstra Corporation Ltd* [2009] ACompT 1 (22 May 2009), at [112]
[42] Note that whilst sunk costs are not relevant to the criterion under discussion, they are relevant to other criteria, eg efficient investment by the access provider and the legitimate business interests of the access provider.
[43] *Application by Telstra Corporation Ltd* [2009] ACompT 1 (22 May 2009), at [115-116]
[44] The costs avoided as a result of not providing those services on the existing network.
[45] Including the cost of new equipment, as required, and reflecting the scrap value of the asset

likely to be far less than the 'forward looking efficient cost' of building an optimised replacement network.[46]

4.20 Second, the access price must not be set too high. If it is set too high, then there is the possibility that it will encourage inefficient bypass. The 'efficient upper bound' for the asset value (and the associated access price) is given by the (quality-adjusted[47]) average cost of a new entrant.[48]

4.21 A critical point to note is that the 'build or buy' criterion does not lead to a single asset value or price point; rather, it defines an efficient range of asset values (and corresponding access prices). Any point within that range will avoid promoting inefficient duplication of infrastructure, and (to the extent this is possible) will promote efficient infrastructure investment by access seekers.

4.22 The need to value assets in a way that creates appropriate incentives for 'build/buy' decisions has long been recognised by the ACCC. In May 1999 the ACCC published its Draft Statement of Principles for the Regulation of Transmission Revenues. At page 40 of this document the ACCC explained the rationale for using depreciated optimised replacement cost as an asset valuation methodology.

> *'Another justification for DORC setting the upper limit to valuations comes from what a DORC valuation actually is attempting to measure. This is the maximum price that a firm would be prepared to pay for 'second-hand' assets with their remaining service potential, higher operating costs, and (old) technology – given the alternative of installing new assets which embody the latest technology, and which generally have lower operating costs, and which will have a greater remaining service potential. Therefore, if prices reflect a value that is in excess of DORC, then users would be better off if the existing system were scrapped and replaced by new assets. Similarly, if assets are sold for prices above the DORC valuation, then this implies that scarce investment funds are being inefficiently applied: in this case, it would have been a more efficient use of investment funds for the existing assets to be scrapped and a duplicate system installed.'*

4.23 This principle was also recognised by the Australian Competition Tribunal in *Re ElectraNet Pty Ltd (No. 3),*[49] where it stated (at [192]):

> *'DORC has become generally accepted as the most appropriate value to attach to assets when they are first bought into a RAB. Historic sunk assets are generally valued at DORC and new investments are allowed in at cost, as long as those investments*

[46] NERA, *Role of TSLRIC in telecommunications regulation,* July 2003 and 2009 CEG report
[47] For a discussion of the meaning of "quality-adjusted", see the CEG paper at Attachment 2A.
[48] NERA, *Role of TSLRIC in telecommunications regulation,* July 2003 and 2009 CEG report
[49] *Re ElectraNet Pty Ltd (No. 3)* [2008] ACompT 3

are considered to be 'prudent and efficient' (effectively optimised replacement cost). DORC is the value which would leave a potential investor indifferent between acquiring an old sub-optimal existing asset and a new optimised asset to deliver the service. It provides a valuation consistent with the long run marginal cost of service provision, supports the maintenance of the capital required to deliver the service looking forwards and prices and investor returns which would be expected to occur in a competitive market and hence prompts the efficient allocation of resources.'

4.24 However, this rationale only applies where optimised replacement cost is *depreciated* to arrive at DORC. Using optimised replacement cost alone will overvalue sunk assets, effectively requiring access seekers to pay 'as new' prices for second hand assets. Such an approach distorts efficient investment, as access seekers will be given incentives for uneconomic investment in new infrastructure to by-pass the existing, overpriced, network. The merits of a DORC approach to asset valuation are further explored in Chapter 6 below.

Application of the theory in the current circumstances to asset valuation at replacement cost in the Analysys model

4.25 The Analysys model (and the TEA model[50]) estimates an asset value based on the hypothetical replacement cost of a predominantly copper network (77 per cent of total cable length in Zone A is copper). By contrast, a new entrant would be unlikely to enter with a predominantly copper network – any new player would be far more likely to enter with a modern network based on optical fibre, a technology which is both lower cost and higher quality than copper (see Chapter 7 for further discussion of this point).

4.26 It follows that the asset value calculated by the Analysys model is practically certain to be higher than the (quality-adjusted) average cost of a new entrant, and that the access prices produced by the model will be above the 'efficient upper bound' and run the risk of encouraging inefficient investment.[51]

4.27 The deficiencies in relying on models which estimate the replacement cost of a copper network to send efficient build/buy signals are exposed in the expert report of Henry Ergas, which was commissioned by Telstra:

[50] The TEA model is not identical to the Analysys model in this respect. In fact the TEA model contains a greater proportion of copper than the Analysys model. Nevertheless, both models are predominantly copper-based, as opposed to being based on modern forward-looking technology such as fibre.

[51] Access prices derived using asset values as high as replacement cost are simply unnecessary to encourage efficient investment in infrastructure by access seekers, since such investment will only be socially efficient if the average cost of bypass is far below the replacement cost-based level.

> *"From society's perspective, entry is efficient if it leads to lower costs than would otherwise be incurred. In my opinion, this does not depend on the costs that would be incurred in a hypothetical replication of the existing network on a fully efficient basis, but on the costs that are actually going to be incurred. As a result, in my opinion, purely hypothetical costs (such as those generated by a TSLRIC model), regardless of the depreciation profile adopted, will not provide the socially correct signal for competing entry to the extent that they do not reflect the costs society actually incurs when service is provided by the access provider rather than by the access seeker. Even setting that aside, from an analytical perspective, it is contentious whether the choice of cost standard has an effect on entry decisions. Finally, it seems highly unlikely than any actual entry would take the form of replicating Telstra's copper pair network, regardless of how depreciation for that network was calculated."*[52]
> *(references and footnotes omitted)*

4.28 Optus submits that the replacement cost concept adopted in the Analysys model fails to satisfy the criterion of encouraging efficient investment by access seekers.

4.29 Further, in the current circumstances faced by the Australian telecommunications industry, it is highly unlikely that an access price could be set "too low" (so that it might fail to promote infrastructure investment by access seekers where bypass would be efficient). This is because the deployment of the NBN means that further network duplication (in addition to the NBN itself) is likely to be inefficient. Even if there would ordinarily be a need to ensure that access seekers have an incentive to make further investments to duplicate the CAN (which is not accepted), this imperative would be significantly alleviated by the Government's NBN plans. It is even less likely that it would be efficient for access seekers to build new fixed line access infrastructure which would bypass not only the CAN, but also the NBN, and would represent further inefficient duplication of infrastructure.[53] So the deployment of the NBN only serves to reinforce the conclusion that access prices derived using asset values as high as replacement cost are unnecessary to encourage efficient investment in infrastructure by access seekers.

4.30 Europe Economics has noted the deficiencies of typical LRIC-based costing in providing appropriate incentives for efficient investment in fixed line telecommunications infrastructure in the current circumstances:

> *"LRIC models have been developed partly in order to provide an efficient "build/buy signal", i.e., to calculate a level of charges*

[52] Concept Economics, *Depreciation* – Prepared for Mallesons Stephen Jacques, August 2008, pp 51-52

[53] In particular, it would not be productively efficient, because industry demand can be satisfied by building a single network (the NBN) at lower cost than investing in both the NBN and in alternative bypass infrastructure.

under which a new entrant operator would build its own core network if, and only if, it is more efficient to do so than to pay for the use of the incumbent operator's network.

However, in a situation where it is highly unlikely that an operator would build a new access network the necessity to provide a build/buy signal is not clear, and in these circumstances it would be more appropriate to set the lowest price levels for access that would cover forward – looking costs and provide a reasonable return on existing assets." [54]

4.31 It follows that access prices calculated via an implementation of TSLRIC+ reflecting the replacement cost of the CAN would not encourage efficient investment in infrastructure, but rather have the potential to encourage excessive and inefficient levels of investment in infrastructure.

4.32 The ACCC has recognised in its draft pricing principles paper that "one of the main rationales for continual re-valuation of the asset base (that of sending efficient build-or-buy signals) may no longer be appropriate".[55] Similarly, in a presentation in September 2009, ACCC Commissioner Willett raised questions as to whether "TSLRIC with MEA approach" was still valid.[56]

4.33 While Optus shares many of the ACCC's concerns in relation to the continued use of a TSLRIC approach, the ACCC's observations on the rationale for continual re-valuation of the asset base do not (and cannot) justify the use of an optimised replacement cost approach to asset valuation. The fact that the CAN may be an enduring bottleneck (which would be uneconomic to duplicate) does not mean that duplication has not and will not continue to occur. It simply highlights the importance of valuing the CAN in a manner that does not distort incentives for efficient investment by encouraging uneconomic duplication of the CAN.

Having regard to the risks of investment

4.34 In determining the risks of investment, the ACCC must have regard to the risks associated with the investment.[57]

4.35 In paragraph 3.26 above, Optus pointed out that it is unlikely its investment in ULLS infrastructure would have been made had it known of the ACCC's proposed prices for ULLS access. This highlights the importance, in setting access charges, of having regard to the risks associated with investment and the impact of risk on incentives for efficient investment. A pricing approach which

[54] Europe Economics, 2009, *Pricing Principles for the Unconditioned Local Loop Service (ULLS) in Australia, The Conceptual Framework*, p.21
[55] ACCC, *Draft pricing principles and indicative prices for LCS, WLR, PSTN OTA, ULLS, LSS*, August 2009, p.17
[56] Ed Willett, Commissioner, *ACCC Briefing to Telstra Public Policy & Communications Group offsite session, Sydney*, 1 September 2009
[57] section 152AB(7A)

increases risk will undermine incentives for efficient investment and will therefore be contrary to the objective laid down by section 152AB(2)(e).

4.36 Similar objectives were identified by the High Court in its decision on the access arrangement for the Moomba to Sydney Gas Pipeline.[58] At paragraph [50] of its judgment, the Court stated:

> *'The greater the degree of uncertainty and unpredictability in the regulatory process, the greater will be the perceived risk of investment. The greater the perceived risk of investment, the higher will be the returns sought. Various methodologies referred to in the Code must at least not be inconsistent with the principles stated by the legislature, which are directed to economic efficiency.'*

4.37 The Court went on to state (at paragraph [51]):

> '*It is clear that a range of well recognised asset valuation methodologies can be considered and within that range a choice of value may be made. The discretion permitted is wide but limited. The reference to well recognised asset valuation methodologies emphasises that valuation, in this context, is a practical exercise. Idiosyncrasy in valuing an initial capital base is capable of distorting the proper calculation of a rate of return "commensurate with prevailing conditions in the market" for funds and the risk involved'.*

4.38 The High Court affirmed a decision of the Australian Competition Tribunal, which set aside the ACCC's decision to set the capital base for the pipeline by determining an optimised replacement cost valuation, but adjusting that value in a manner the Tribunal described as 'novel' and 'idiosyncratic'. In arriving at this conclusion, the Tribunal found that optimised replacement cost, by itself, was not a well recognised asset valuation methodology. It was only a starting point for the purposes of producing a DORC valuation. The ACCC's failure to recognise this resulted in the use of an asset valuation methodology not permitted by the Gas Code.

4.39 In contemplating an optimised replacement cost approach to the valuation of Telstra's CAN, the ACCC risks falling into the same error it made in the Moomba to Sydney Pipeline decision. Just as the ACCC's decision to adjust optimised replacement cost by reference to past accounting depreciation was described in that case as idiosyncratic, so to does the ACCC risk being accused of adopting an idiosyncratic approach to the valuation of the CAN by failing to depreciate optimised replacement cost at all.

4.40 The rationale for depreciating optimised replacement cost to arrive at DORC is explained in paragraphs 4.22 and 4.23 above and in Chapter 6 of this submission. A DORC approach should leave a potential

[58] *East Australian Pipeline Pty Ltd v ACCC* [2007] HCA 44

investor indifferent between acquiring an old sub-optimal existing asset and a new optimised asset to deliver the service.

4.41 By contrast, there is no logical rationale for the use of optimised replacement cost by itself. The use of an asset valuation methodology which significantly overvalues sunk assets and which has previously been rejected by the Tribunal increases uncertainty and unpredictability, thereby increasing the risk of investment and undermining incentives for efficient investment. The ACCC, having proper regard to sections 152AB(6) and (7A) of the TPA, should not take such an approach to the valuation of the CAN.

Encouraging economically efficient use of telecommunications infrastructure

The meaning of this criterion: theoretical concerns

4.42 This aspect of the criterion is directed to the use of existing infrastructure (that is, Telstra's CAN) in such a way that provides greatest utility at lowest cost. In the 'HFC exemption' judgement the Tribunal provided guidance on the socially optimal use of infrastructure, stating:

> *"…by using what might otherwise be excess capacity in the CAN, use of the Relevant Services* [which include the ULLS] *may be likely to lead to more efficient use of the CAN as well."*[59] [explanation added]

4.43 Given that in network industries the full construction cost of a new network is likely to outweigh the cost of operating the network, it will not be surprising if in most cases the socially efficient outcome is that the network should not be duplicated. This is a necessary aspect of the statutory imperative to further the objective of encouraging the efficient use of infrastructure. In rejecting Telstra's arguments in the HFC case, the Tribunal concluded that duplication of 'last half-mile' access infrastructure would be a socially wasteful investment. The Tribunal clearly had in mind the efficient use of Telstra's existing network, as is clear from the following quotation:

> *"There is no suggestion in Telstra's submissions or the s 152AW(4) material to which the Tribunal was directed that Telstra's CAN or its HFC network lack capacity. The infill investment Telstra submits would flow from the exemption would, in effect, be but a duplication of Telstra's CAN and its HFC network. Such duplication of this 'last half-mile' infrastructure, if it were to occur, would, on the face of it, be a socially wasteful investment.*

[59] *Application by Telstra Corporation Ltd* [2009] ACompT 1 (22 May 2009), at [114]

Nothing put to the Tribunal convinced it otherwise." [60]

4.44 The implication for asset valuation and access pricing that follows from this discussion is that the access price must not be set too high. If it is set too high, then there is the possibility that it will fail to promote the efficient use of Telstra's CAN. That is, it will encourage infrastructure investment by access seekers in the highly likely circumstances where to "buy" would be a more efficient use of society's resources. The 'efficient upper bound' for the asset value (and thereby the access price) is given by the (quality-adjusted) average cost of a new entrant. [61]

4.45 This is the same upper bound on price that is given by the aspect of the criterion discussed above which relates to investment by access seekers (and the build or buy decision). If follows that any point within the range defined above will also promote the efficient use of infrastructure.

Application of the theory in the current circumstances to asset valuation at replacement cost in the Analysys model

4.46 Any argument that prices based on replacement cost / TSLRIC+ will encourage efficient use of the ULLS because business decisions will be based on the long-run economic costs of the resources used to provide the service should be rejected. This is because prices based on an implementation of TSLRIC+ which involves continual revaluation of network assets at replacement cost, which are higher than avoidable cost (ie, the cost of operating and maintaining the CAN) will discourage use of what would otherwise be excess capacity in the CAN.

4.47 With regard to the efficient use of infrastructure, the ACCC has previously outlined that:

> *"in the long term TSLRIC provides for the efficient use of existing infrastructure. An access price based on TSLRIC signals the long-term value of the resources embodied in that service. As such access seekers will not purchase the service unless they value that service at greater than the long-run cost. This promotes the allocatively efficient use of infrastructure."*[62]

4.48 However, as noted above, due to the imminent construction of the NBN, the CAN will not be required in the long run. It follows that it would not be efficient to set prices as if it would be.

4.49 Given that substantial use of the CAN will occur only over a limited time span, efficient use of the CAN would be encouraged if access seekers purchased the ULLS whenever they value the service at greater than the true underlying cost of providing the service over that

[60] *Application by Telstra Corporation Ltd* [2009] ACompT 1 (22 May 2009), at [115-116]
[61] NERA, *Role of TSLRIC in telecommunications regulation*, July 2003
[62] ACCC, *Access Pricing Principles— Telecommunications, a guide*, July 1997, pp.29-30

limited time span; that is, the cost of operating and maintaining the CAN in use (a cost significantly lower than the replacement cost of the CAN).

4.50 It follows that access prices calculated via an implementation of TSLRIC+ reflecting the replacement cost of the CAN would not encourage the efficient use of infrastructure, but rather have the potential to lead to inefficiently low levels of use of the CAN.

4.51 According to economic theory, replacement cost-based prices create a significant risk of encouraging socially inefficient bypass and discouraging the efficient use of existing infrastructure. Moreover, replacement cost-based prices lead, in practice, to market exit by access seekers and the cessation of further investment in infrastructure.

Encouraging economically efficient investment in telecommunications infrastructure (by the access provider)

The meaning of this criterion: theoretical concerns

4.52 This aspect of the criterion is directed to ensuring the access provider has appropriate incentives to carry out future investment in its own network. The ACCC has taken the view that an access provider will be provided with the appropriate incentives for future investment if it is able to earn a normal commercial return on efficient investments in infrastructure (in the long term).[63]

4.53 At a minimum, access prices must provide compensation sufficient for the access provider to recover prudent network-related costs that have been incurred historically and have not yet been recovered. Investment incentives would be harmed if this level of cost recovery was not assured.

4.54 Further, Optus accepts that, at least in ordinary circumstances, an access price which does not provide sufficient incentives to the access provider (and other, potential network operators) to maintain existing infrastructure and make necessary and efficient new investments in infrastructure is not in the LTIE.[64] For example, an access price based only on short-run marginal cost, while serving some objectives such as allocative efficiency, may remove the incentive for investment in new and existing infrastructure.[65]

4.55 In Optus' view this aspect of the criterion requires the ACCC to take into account the extent to which future investment in the access provider's network would be efficient and is likely to take place. That is, if circumstances arise such that it would no longer be efficient for the access provider to rebuild or renew the CAN, then it would be unnecessary to design access prices with the objective of seeking to encourage such investment. The asset value should be set on the basis

[63] ACCC, *Access Pricing Principles – Telecommunications – a guide*, July 1997, p.29
[64] ACCC, *Access Pricing Principles – Telecommunications – a guide*, July 1997, p 7
[65] *Seven Network (No 4)* [2004] A Comp T 11 at [136].

of *depreciated* optimised replacement cost, and be sufficient only to allow the access provider to recover the costs of its actual past investment (over the economic life of the infrastructure) and its operating costs, together with a normal return on its capital. The ACCC should discount any suggestion that a higher asset valuation is required to encourage future investment in the network.

4.56 In any event, even if the access provider did need to make further major capital investments in the CAN at some time in the future – even up to the replacement of the entire CAN (which is disputed), replacement cost asset valuation would nevertheless overcompensate it for such expenditure because it brings forward to the present day all such future expenditure without discount.[66] Replacement cost pricing cannot be justified on efficient investment grounds.

Application of the theory in the current circumstances to asset valuation at replacement cost in the Analysys model

4.57 First, Optus notes that the fact that the proposed prices are calculated by reference to a hypothetical CAN, without reference to the costs actually incurred by Telstra in relation to its CAN, means that the proposed prices will in fact diminish the incentive for Telstra to adopt efficient, lower cost alternatives to copper in the long run.[67] This is because the hypothetical nature of the replacement cost methodology decouples Telstra's return from the actual investments made by Telstra in the CAN. That is, Telstra gets a return on the investments an efficient operator would hypothetically make, regardless of whether it actually invests or not. As a monopolist Telstra faces no real incentive to invest to bring new services online – which explains its tardy introduction of new services in the past (eg ADSL2+ was introduced only after competitors had commenced providing this superior technology) and its lack of any real investment to modernise its network (eg, the lack of action on introducing fibre or installing VDSL technology).

4.58 However, Optus submits that it would not in fact be efficient for Telstra to replace its network in the future, because the NBN, an open access wholesale-only network with very strong natural monopoly characteristics, will efficiently serve the needs of all access seekers.[68] It would be inefficient to have duplicate networks.

---

[66] And thereby neglects the time value of money.

[67] See, in a different context, NERA, *Role of TSLRIC in Telecommunications Regulation*, July 2003, p 16

[68] On 7 April the Government announced its preferred approach to implementing its commitment to a National Broadband Network (NBN), including that a new Government-majority-owned company will deploy a Fibre to the Premises (FTTP) high capacity broadband network to 90% population coverage and fixed wireless network and satellite coverage to the remaining 10% of the population. DBCDE, "New National Broadband Network," Joint Media Release, 7 April 2009, http://www.minister.dbcde.gov.au/media/media_releases/2009/022

4.59 Moreover, it is highly unlikely that Telstra will undertake large scale replacement of its network (regardless of the level of access prices). Telstra has not provided the ACCC with evidence that it has undertaken such investment recently, nor has it provided the ACCC with any firm plans to do so. This is unsurprising, since it has now become clear that Telstra will not be the access provider in the future. As a result of the Government's NBN plan, Telstra's CAN is likely to be rendered redundant within 7 to 8 years.[69] If the ACCC has any doubt about this point, it should request Telstra to provide detailed plans demonstrating the investment it is planning to make in the CAN over the next 7-8 years. Telstra has recently announced plans to make significant investments in its HFC network and its mobile network, but has been conspicuously silent with regard to investing in the CAN.

4.60 Further, the Government's structural separation policy is clearly designed to encourage Telstra to migrate its traffic onto the NBN and achieve the socially efficient objective of having one national access network.

4.61 As a result of these matters, the need to ensure that Telstra has an incentive to make further major capital investments in the CAN (as opposed to operating and maintaining the CAN), is significantly muted.[70] Replacement cost-based prices will not encourage efficient investment in infrastructure in these circumstances because they will provide compensation that exceeds costs likely to be incurred by

[69] Given that the NBN – unlike the CAN – is best-in-use technology and that the NBN will be an open access wholesale network with very strong natural monopoly characteristics, it follows that the NBN will make the existing copper access network (CAN) redundant (throughout the entire length of the copper loop from exchange to customer premises). Optus submits that that the CAN will largely no longer be required after the NBN comes into operation and that any continuing use will be limited and temporary. Users will be able to achieve significantly faster speeds on the NBN compared to the CAN immediately it is constructed and in the foreseeable future. DBCDE in its NBN policy paper considers that "Fibre optic to the home and workplace technology (or FTTP) is the state of the art 'future proof' fixed broadband technology and is capable of providing customers with download speeds of 100 Mbps and upload speeds of 50 Mbps." (DBCDE, *21st Century Broadband*, Policy Brochure, April 2009, page 4) This is comparable to the current achievable access speeds of up to 20Mbps offered on Telstra's ADSL 2+ network. (In reality, actual speeds may vary due to technical factors. Therefore, as Telstra's disclaimer notes "About 70 per cent of members on the 8Mbps plan can access speeds around 6Mbps or more. About 50 per cent of members on the 20Mbps plan can access speeds around 10Mbps or more." Telstra, *ADSL Broadband*, Available from URL: http://www.telstra.com.au/bigpond_internet/adsl2.html (accessed 18/5/09))

[70] The fact the CAN will largely no longer be required after the NBN comes into operation has implications for the efficiency of investment in fixed line telecommunications infrastructure. Given that construction of the NBN will begin very soon (the Government has announced that construction of the first phase of the NBN in Tasmania will begin by July 2009), Optus submits that it is no longer efficient for Telstra to make further significant infrastructure investments in the CAN. In particular, it would not be productively efficient, because industry demand can be satisfied by building a single network (the NBN) at lower cost than investing in both the NBN and in further copper network infrastructure. Further, it would not encourage dynamic efficiency because copper is now legacy technology and once the NBN is in operation the industry will be able to make timely changes to products in response to changes in consumer tastes and in productive opportunities via best-in-use FTTP technology.

Telstra in the future. That is, replacement-cost based prices will simply provide Telstra with a windfall. Optus submits that the modelled asset value in the Analysys model should be set at a level lower than the full replacement cost.

4.62 In these circumstances Optus submits that an access price which allowed Telstra to recover only the capital costs of its prudent investment in the CAN which it had not yet recovered (plus a normal return on that investment), together with an allowance for any operating and maintenance costs and any additional, prudent capital expenditure required to maintain the service potential of the CAN would be sufficient to provide Telstra with the necessary incentives to efficiently maintain its existing infrastructure and make efficient investments in additional infrastructure.

4.63 Optus submits that it is highly likely that prevailing access prices are quite sufficient to provide Telstra with incentive to continue to maintain its network and incur any required capital expenditure. There is no evidence to suggest that Telstra has been allowing its network to run down, and there is nothing to suggest a need to increase the price in order to give Telstra the incentive to invest efficiently. Telstra does not need the incentive of an inflated price – calculated by reference to a hypothetical CAN and in a way which bears no relation to Telstra's actual costs – in order to make efficient investments in its infrastructure.

Legitimate business interests of the access provider

The meaning of this criterion: theoretical concerns

4.64 The ACCC is required to have regard to the access provider's "legitimate business interests". In the context of an access price determination, the reference to the carrier's "legitimate business interests" in the Act is to be understood as a reference to "the interest of a carrier in recovering the costs of its infrastructure and its operating costs and obtaining a normal return on its capital".[71] A carrier's legitimate business interest refers to recovering its actual investment; this does not extend to the recovery of costs which were never actually incurred.

4.65 Clearly, provided the access provider is efficient, it would not be in its legitimate business interests if the level of access prices required its shareholders to make a sub-normal return on the investment in the network. However, it is also necessary to consider whether the ULLS access price might permit the access provider to make an above-normal return. The access provider's "legitimate business interests" do not extend to extracting monopoly rent for the CAN or receiving a price that reflects the value of the CAN derived from its natural monopoly characteristics.

[71] *Telstra Corporation Limited* [2006] ACompT 4 at [89] (referred to with approval in Re *Telstra Corporation Ltd (No 3)* [2007] ACompT 3 at [180].

4.66 Part of the ACCC's reasoning for adopting replacement cost appears to be that "forward looking replacement costs reflect the ongoing efficient costs of providing a service, which is no more than a firm could expect to recover in a contestable market." Telstra in the past has made similar arguments, seeking to justify replacement cost pricing by asserting an entitlement to recover the "value" of its network, measured by reference to the "competitive price" of ULLS.

4.67 Optus submits that this "contestable market" defence of replacement cost pricing is unsupportable. An access price which compensates Telstra for the very characteristics of the CAN which make it a natural monopoly and which necessitated the declaration of ULLS does not serve to further any legitimate statutory objective. The very basis for the declaration of a service is that it inherently lacks the discipline of competitive forces.[72] There is no support for that type of "valuation" or entitlement in the Part XIC criteria. Nor should Telstra be compensated for an increase in the "value" of the CAN which has arisen because of an increase in the barriers to entry since Telstra's CAN was constructed, such as the creation of new surface barriers and changes in planning laws which have affected aerial cabling.

4.68 It may be queried whether "competitive price" is a meaningful concept in a regulated services environment. As the Tribunal has observed:

> *"[T]ypically for a regulated service ... a competitive market in mobile termination services can only be hypothesised. That market lacks competition because it has structural, and perhaps institutional and regulatory, features that preclude effective competition. The lack of competition is not necessarily a temporary phenomenon, nor one that will be cured by any foreseeable changes in the market itself."*[73]

4.69 Moreover, the notion of a "competitive price" is premised on a theory of contestable markets under which "the threat of being displaced as a supplier by the possibility of bypass" is equated with "a hypothetically fully competitive market". The theory of contestable markets has been the subject of recent criticism by the Tribunal.[74]

4.70 In summary Optus submits that an access price which allowed the access provider to recover the unrecovered capital costs of its prudent investment in the CAN (plus a normal return on that investment), together with an allowance for any operating and maintenance costs and any additional, prudent capital expenditure to maintain the service potential of the CAN would be consistent with the access provider's legitimate business interests.[75]

---

[72] *Re Vodafone Network Pty Ltd & Vodafone Australia Limited* [2007] ACompT 1 at [68].
[73] *Re Vodafone Network Pty Ltd & Vodafone Australia Limited* [2007] ACompT 1 at [74]
[74] *Application by Chime Communications Pty Ltd (No 2)* [2009] ACompT 2 at [41]-[48].
[75] Note that this is the same level of recovery as that which would be consistent with encouraging efficient investment in infrastructure by the access provider.

Application of the theory in the current circumstances to asset valuation at replacement cost in the Analysys model

4.71 Optus submits that replacement cost-based prices are inconsistent with Telstra's *legitimate* business interests because they provide compensation that exceeds costs actually incurred by the access provider in the past.

4.72 The approach in the Analysys model leads to over recovery of Telstra's costs because it does not allow for the depreciation of Telstra's CAN (or, alternatively, the recovery of the cost of the network) over the time which has elapsed since its construction (and before the beginning of TSLRIC+ based pricing). A significant period of time has elapsed since the construction of much of the CAN, and most of the relevant network assets have been written down significantly over that period. Whilst a proportion of the CAN was constructed inside the last two decades, it is clear from historical records that a very high proportion of the CAN is much older. This is supported by public statements from Telstra. For example, in 2001 Telstra reported the following information on the age of the CAN:

> *"…more than 50 per cent of the copper pairs in the Australian CAN are over 20 years old, more than 30 per cent are over 30 years old and nearly 10 per cent predate 1950".*[76]

4.73 It follows that Telstra is likely to have recovered much of the cost of the network over that period through its retail and wholesale revenues.[77]

4.74 A measure of costs based on replacement cost, which leads to the continual revaluation of Telstra's assets at replacement cost, ignores the previous recovery of Telstra's investment. Such a measure compensates Telstra as if it is constructing a "brand new" network, today. This allows Telstra to recover a level of costs that must exceed costs it actually incurred historically, given the age and economic lifetimes of the relevant CAN assets.

4.75 The ACCC has recognised the problem of double recovery arising where no discount is allowed for past depreciation of existing assets.[78] The double recovery issue which arises with TSLRIC+ and with similar pricing approaches (also termed LRAIC) has been recognised in other jurisdictions.[79]

---

[76] Telstra, *Productivity Commission's draft report on Telecommunications Competition Regulation – Final Submission*, July 2001, p.21

[77] The ACCC has noted that a proposed charge of $30 would allow Telstra to over recover its costs. Considering 50% of Telstra's network has already been depreciated, Optus has a strong belief that an access charge of $23.60 would also allow Telstra to over recover its costs of providing the regulated service.

[78] ACCC, Assessment of Telstra's ULLS Band 2 monthly charge undertaking,, Final Decision, April 2009, pp.54-55

[79] Europe Economics, *Pricing Methodologies for Unbundled Access to the Local Loop, Final Report*, May 2004, p 48

4.76 A potential argument against Optus' position is that the relevant value of the network for the purposes of Telstra's legitimate business interests should be determined based upon the value ascribed to it by shareholders. However, the evidence suggests that the value placed upon the CAN by shareholders is significantly lower than that calculated by the Analysys model. The network asset valuation produced by the Analysys model for 2009 is $35.1 billion. By contrast, the book value of Telstra's network is around $20 billion. Most analysts believe the network is valued at significantly by shareholders at less than book value; for example, according to analysts at Morgan Stanley, Telstra's network is worth around $6 billion.[80]

4.77 Optus submits that access prices calculated via an implementation of TSLRIC+ reflecting the replacement cost of the CAN would systematically over-compensate Telstra and would result in an above-normal return on investment and are therefore not consistent with Telstra's legitimate business interests.

Promotion of competition

The meaning of this criterion: theoretical concerns

4.78 The promotion of competition involves creating appropriate conditions or an environment for improving competition from what it would otherwise be.[81] Part XIC is intended to provide "equality of opportunity for all downstream rivals to compete on the same terms as the vertically integrated infrastructure owner in relation to the costs of supply and access to the infrastructure needed to supply telephony and broadband services".[82]

4.79 There is a connection between the objective of promoting competition and the interests of persons who have rights to use the ULLS (s. 152AH(1)(c)). The interests of access seekers (ie persons who have a right to use a declared service) are "served by an access price that enables them to compete on their merits (that is, on the basis of their own efficiency) in downstream markets".[83]

4.80 The Tribunal has made the following observations about the promotion of competition (in the context of considering the effect of a proposed averaged charge which, in its application to urban areas, exceeded the estimate of Telstra's costs of supply):

> "*In order for access seekers to compete with Telstra using the ULLS, they will need to be able to set retail prices that enable*

[80] Sydney Morning Herald, *NBN goes looking for staff*, 7 October 2009
[81] *Telstra Corporation Limited v Australian Competition Tribunal* [2009] FCAFC 23 at [224]; quoted with approval in *Application by Telstra Corporation Limited* [2009] ACompT 1 at [10]
[82] *Application by Telstra Corporation Limited* [2009] ACompT 1 at [44]
[83] *Telstra Corporation Limited* [2006] ACompT 4 at [138]; cited with approval in *Re Telstra Corporation Ltd* (No 3) [2007] ACompT 3 at [262]

them to recover the cost of the ULLS and any additional costs they incur when providing retail services to end-users. In normal circumstances, one would expect an access seeker could only compete if Telstra's ULLS charges reflected its costs of providing the service and if the access seeker were at least as efficient as Telstra in performing the other stages of the production process necessary to provide services to end-users. If (as would be the case in urban areas were Telstra to average its ULLS charges) the ULLS charges were above Telstra's costs of providing the service, then Telstra would be able to reduce the price of retail line rental services to end-users below the price an access seeker could offer on account of it facing a lower cost than the access seeker pays for the ULLS."[84]

4.81 In the context of access pricing, the Commission considers that competition is promoted where service providers face equivalent costs for access to the declared service. With regard to the promotion of competition, the ACCC has previously outlined that:

> *"TSLRIC encourages competition in telecommunications markets by promoting efficient entry and exit in dependent markets. TSLRIC is the long-term cost a vertically integrated access provider would need to recover from supplying services to its own downstream operations to remain viable. As such, access prices based on TSLRIC will encourage the entry and long-term viability of the most cost-efficient firms in dependent markets and allow product differentiation and greater choice. Higher cost firms will not remain viable."* [85]

4.82 The implications of this discussion are that setting an access price which is higher than the access provider's actual (long run) costs (including capital costs that have not already been recovered) would give the access provider a competitive advantage over the access seekers and stifle competition in the provision of listed services to end-users.[86] In such circumstances the access provider could price its retail services at a level at or below the access price without jeopardising its own capacity to make a profit.

4.83 Consequently, in order to promote competition, asset values (and thereby access prices) should be set at a level lower than the full replacement cost, and sufficient only to allow the access provider to

---

[84] In *Telstra Corporation Limited* [2006] ACompT 4 at [110]

[85] ACCC, *Access Pricing Principles— Telecommunications, a guide*, July 1997, p.29-30

[86] This assumes that the reference to costs that an access provider "would need to recover… to remain viable" is a reference to costs *actually incurred* by the access provider (as opposed to costs determined by reference to 'market prices' for the assets involved). This assumption is reasonable, given the reference to viability. It is also reasonable since there is no functioning market for the natural monopoly access network assets involved (indeed this is the very reason the services produced by the CAN are regulated). Further, any attempt to derive a 'market price' for the CAN based on the income stream able to be generated falls foul of circularity – since that income stream depends on the prices set in these very regulatory proceedings (a point recognised by the ACCC in its 1999 Draft Statement of Principles for the Regulation of Transmission Revenues (page 39)).

recover the costs of its actual past investment infrastructure and its operating costs and obtain a normal return on its capital.

4.84 Optus submits that an access price which allowed the access provider to recover the unrecovered capital costs of its prudent investment in the CAN (plus a normal return on that investment), together with an allowance for any operating and maintenance costs and any additional, prudent capital expenditure to maintain the service potential of the CAN would promote competition.[87]

Application of the theory in the current circumstances to asset valuation at replacement cost in the Analysys model

4.85 As noted above, competition will be promoted if access prices are set such that the access provider will recover its efficient costs and no more. This will allow access seekers to compete on a level playing field with the access provider.

4.86 However, as noted above, due to the imminent construction of the NBN, the CAN will not be required in the long run and it will not be efficient for Telstra to make further significant infrastructure investments in the CAN (and nor is it at all likely that it will do so). Moreover, Telstra need not charge access prices based on replacement cost to end-users in order to make a return on its actual investment in the CAN. Telstra's financial reports indicate that Telstra has healthy profit margins in its fixed line services.

4.87 It follows that Telstra will not need to recover revenue reflecting the replacement cost of the CAN from supplying services to its own downstream operations in order to remain viable. Indeed, access prices calculated via an implementation of TSLRIC+ reflecting the replacement cost of the CAN would provide Telstra with a significant revenue source surplus to its requirements and force access seekers to face an access cost significantly higher than the costs faced by Telstra's retail operation (that is, the cost Telstra would require from its own downstream operations in order to remain viable).

4.88 Consequently, access prices reflecting the replacement cost of the CAN would not permit access seekers to bring their relative efficiencies to bear upon the retailing and other remaining stages of the production process and would undermine competitive neutrality.

4.89 A number of further reasons why the replacement cost-based price proposed by the ACCC will not promote competition were noted in Chapter 3. Replacement cost-based prices, being higher than the alternatives (such as DORC), will lower competitors' profits and thereby reduce the incentive of competitors to compete vigorously at the margin for customers and will ultimately lead to market exit. Further, a replacement cost-based price can only promote competition relative to the alternatives if it causes efficiency-enhancing investment

[87] Note that this is the same level of recovery as that which would be consistent with encouraging efficient investment in infrastructure by the access provider.

– which for the reasons discussed above it will not do. In summary the prices calculated by the Analysys model will therefore not only fail to promote competition in the markets for listed services, they will stifle such competition.

Summary of the implications for asset valuation

4.90 In the discussion above, Optus has submitted that an access price which allowed the access provider to recover the unrecovered capital costs of its prudent investment in the CAN (plus a normal return on that investment), together with an allowance for any operating and maintenance costs and any additional, prudent capital expenditure to maintain the service potential of the CAN would be consistent with three of the criteria, namely:

- encouraging efficient investment in infrastructure by the access provider;
- the legitimate business interests of the access provider; and
- the promotion of competition.

4.91 Optus does not have the means at its disposal to estimate such a price with precision. Nevertheless, Optus considers that a close approximation to this level of recovery could be achieved if the ACCC adopts an alternative method of asset valuation, namely "depreciated optimised replacement cost" (DORC) – a methodology which is discussed in greater detail in Chapter 6 and Attachment 1.[88]

4.92 Optus also submitted above that in order to satisfy some of the other legislative criteria (encouraging efficient investment in infrastructure by access seekers and efficient use of infrastructure), asset values (and thereby access prices) should fall within an efficient range for which:

- the 'efficient lower bound' for the asset value (and the associated access price) is given by the avoidable costs of providing the services on the existing network[89] (that is, the cost of operating and maintaining the existing network[90]) – a cost which is likely to be far less than the 'forward looking efficient cost' of building an optimised replacement network;[91] and
- the 'efficient upper bound' for the asset value (and the associated access price) is given by the (quality-adjusted[92]) average cost of a new entrant.[93]

[88] In this regard Optus notes that it is neither efficient nor likely for Telstra to make a significant level of additional, prudent capital expenditure in its CAN, given the very likely roll-out of the NBN.
[89] The costs avoided as a result of not providing those services on the existing network.
[90] Including the cost of new equipment, as required, and reflecting the scrap value of the asset
[91] NERA, *Role of TSLRIC in telecommunications regulation*, July 2003
[92] For a discussion of the meaning of "quality-adjusted", see the CEG paper at Attachment 2A.

4.93 Optus estimates that the 'efficient lower bound' for the monthly access price is likely to be around $3,[94] and the 'efficient upper bound' for the access price is likely to be around $12.[95]

4.94 In order for the ACCC to set an access price consistent with all of the legislative criteria, the above results must be reconciled. This is unlikely to pose a significant problem, because it will often be the case that an access price based upon DORC lies within or close to the efficient range noted above.[96] It follows that an access price based on DORC is likely (in general) to be consistent with all of the legislative criteria.

4.95 In summary, Optus submits that:

- access prices based on replacement cost are inconsistent with the legislative criteria; and
- an access price based on DORC would be consistent with all of the legislative criteria.

4.96 Indeed, for the reasons set out in paragraphs 4.34 to 4.41 above, Optus submit that the ACCC would fall into error if it determined access prices based upon optimised replacement cost alone, without depreciating this value to arrive at DORC.

4.97 It follows that the Analysys cost model should not be used directly to determine access prices for wholesale services in Australia. The modelling exercise has likely been valuable in that it has produced information about TSLRIC modelling that would not otherwise have emerged. Moreover, to the extent that the output of the model represents the TSLRIC of an efficient operator providing the ULLS over a predominantly copper network, it may have limited utility as one data point amongst many to inform decisions about access pricing. The access price might be determined using a range of data points including more relevant data points including costings derived using depreciated network asset values and optical fibre network asset values, as well as international benchmarks. Optus submits, however, that neither the Analysys cost model nor the TEA model should be used as the chief determinants of access prices for wholesale services in the Australian context.

---

[93] NERA, *Role of TSLRIC in telecommunications regulation*, July 2003

[94] O&M in the default Analysys scenario is worth around $600 million per year, which equates to around 10-14% of the monthly ULLS charge for Band 2. For example, using an adjusted version of the model, Optus has calculated the cost for ULLS in Band 2 and Zone A areas, assuming only the 'opex' component of cost in the default scenario is taken into account. In each of the respective bands, this results in a ULLS value of $1.98 and $2.17 excluding the specific cost component.

[95] See the CEG paper at Attachment 2A.

[96] Note that in this particular instance the quality-adjusted fibre-based ULLS price for Band 2 estimated by CEG ($11.86 including specific cost) is similar to (but slightly lower than) the equivalent price estimated using the Analysys model adjusted for depreciation ($11.98). If the ACCC wished to rely on these estimates, it would need to set a price equal to 11.98 in order to ensure cost recovery.

5. The ACCC's Pricing Proposal Exceeds International Benchmarks

5.1 In this chapter the ACCC's pricing proposal is compared against relevant international benchmarks. The indicative prices represent a major shift in pricing, including a substantial rise in the key local loop price by 65 per cent (from $14.30 to $23.60). [97]

5.2 This proposed ULLS pricing is well in excess of comparable international benchmark rates, according to the report of the ACCC's own consultant, Ovum, which suggests that a range of $13.22 to $16.89 per month would be appropriate for Band 2.

5.3 According to a new expert report from Network Strategies (Attachment 4), there is firm evidence that the results from the Analysys fixed network cost model are high in comparison with European and Canadian cost-based unbundled local loop prices.

5.4 Optus submits that the ACCC should take these studies into account, and accordingly bring its final ULLS price into line with the international benchmarks reported on.

Comparison with international benchmark rates

Relevance of international benchmarking

5.5 The ACCC stated in its draft determination that international benchmarking is a useful comparative tool when appropriate regard is had to country specific characteristics.[98] The ACCC further stated that international benchmarking provides an indication as to whether the prices being proposed in Australia are within reasonable bounds set by international experience and practice[99].

5.6 Optus agrees with the ACCC that international benchmarking is a useful input in assessing whether the ACCC draft indicative prices fall within the reasonable bounds set by international practice. International benchmarking can be used as point of reference in assessing the appropriateness of the model's estimates.

[97] The ACCC's preliminary view on ULLS monthly charges was to charge access seekers a price of $16.90 in 1 August 2009 – 30 June 2010, $20 in 2010-11 and $23.60 in 2011-12 for Zone A; and $61.50 in 1 August 2009-30 June 2010, $62.30 in 2011-12 and $62.70 in 2011-12 for Zone B. ACCC, *Draft Pricing Principles and indicative prices for LCS, WLR, PSTN OA, ULLS LSS*, August 2009 Determination, p.40

[98] ACCC, *Draft Pricing Principles and indicative prices for LCS, WLR, PSTN OA, ULLS, LSS*, August 2009 Determination p.11

[99] ACCC, *Draft Pricing Principles and indicative prices for LCS, WLR, PSTN OA, ULLS, LSS*, August 2009 Determination p.12

Legislative guidance on the use of benchmark evidence

5.7 The Australian Competition Tribunal (Tribunal) has in the past discussed the use of international benchmarking evidence. The Tribunal sets a high standard for benchmarking evidence:

> *"In order to place any reliance upon the international benchmarking analysis it would be necessary to know much more about the regulatory environment within which they were determined, the state of the relevant markets and the socio-economic environment in which the mobile services were operative."*[100]

5.8 Historically, the ACCC has put less weight on international benchmarking relative to other information before it, due to difficulties in finding appropriate comparators for areas with a low population density.[101] International benchmarking evidence therefore will only be useful if appropriate adjustments are made. As the ACCC stated,

> "*…international benchmarking is a useful comparative tool when appropriate regard is had to country specific characteristics.*" [102]

Ovum's report supports a lower ULLS monthly access charge

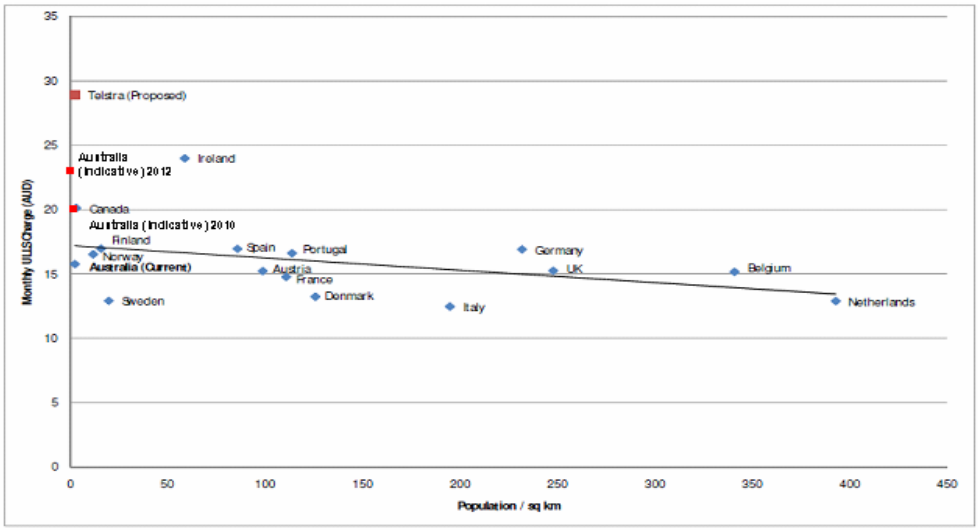
5.9 The ACCC in the February 2009 commissioned Ovum to conduct an international benchmarking analysis which assesses the reasonableness of Telstra's Band 2 ULLS undertaking.

5.10 Ovum took into account a number of factors which could be responsible for differences in the cost of providing the ULLS in Australia compared to benchmark countries, including the general regulatory framework, population density, land use (housing mix), copper prices, loop length and pricing structure. Optus submits that since these factors have been taken into account in Ovum's analysis, that analysis may legitimately be used to determine ULLS charges in Australia.[103]

5.11 The proposed prices are out of line with international benchmarks even when factors like population density are taken into account – see figure 2.4 below.

[100] *Re Optus Mobile Pty Ltd v Optus Networks Pty Ltd* [2006] ACompT8, para 297
[101] ACCC, *Draft Pricing Principles and indicative prices for LCS, WLR, PSTN OA, ULLS LSS*, August 2009 Determination pp.11-12
[102] ACCC, *Draft Pricing Principles and indicative prices for LCS, WLR, PSTN OA, ULLS LSS*, August 2009 Determination pp.11-12
[103] These factors were raised in Ingenious Consulting Network (ICN)'s report. ICN considered that these are the relevant factors which limit the weight that could be placed on international benchmarking evidence.

Figure 2.4: Monthly ULLS Charge vs Population Density (June 2008)



Source: Ovum

5.12 The ACCC stated in its draft pricing principles that in setting indicative ULLS monthly access, it has had regard to a number of sources and one of which is the international benchmarking undertaken by Ovum[104].

5.13 Optus however submits that the international benchmarking undertaken by Ovum suggests that the ULLS monthly access charge should be lower than the value set out in the ACCC's draft indicative prices.

5.14 As the ACCC noted in its Draft Pricing Principles, Ovum found that the range of regulated ULLS monthly charges for countries where LRIC is the basis for regulatory cost calculation is between $13.22 to $16.89[105]. International benchmarking therefore supports a lower ULLS monthly access charge.

5.15 Using Ovum's report, Optus has undertaken an international benchmarking analysis taking into account the various factors mentioned in the ICN's report. The analysis is contained in Appendix A. It shows that with adjustments to purchasing power parity (PPP), regulatory framework, population density, land use (housing mix), copper prices, loop length and pricing structure, the ACCC's draft indicative price is not in line with LRIC-based determinations in other countries.

[104] ACCC, *Draft Pricing Principles and indicative prices for LCS, WLR, PSTN OA, ULLS, LSS*, August 2009 p.39

[105] ACCC, *Draft Pricing Principles and indicative prices for LCS, WLR, PSTN OA, ULLS, LSS*, August 2009 p.39

Network Strategies study supports a lower ULLS monthly access charge

5.16 According to a new expert report from Network Strategies (Attachment 4), "there is firm evidence that the results from the Analysys fixed network cost model are high in comparison with European and Canadian cost-based unbundled local loop prices".[106]

5.17 Network Strategies performed a benchmark analysis of unbundled local loop rates, with the objective of comparing the benchmark rates with the indicative prices released by the ACCC and with the results from the Analysys fixed network cost model. The approach had two main components:

- a comparison of geographically de-averaged unbundled local loop prices in Canada with the geotype-level results of the Analysys model; and
- development of a statistical model of national unbundled local loop prices which adjusts for key factors that are found to have an influence on cost-based rates.

5.18 The report found that in comparison with European rates, the Analysys model results were high, and that the Analysys model results were much higher than rates in Canada – a very similar country geographically. The modelled Australian Band 2 rate (comprising geotypes 3–6) is up to 40% higher than equivalent Canadian rates.[107]

[106] Network Strategies, *ULLS: benchmarking study*, October 2009, p.ii
[107] Network Strategies, *ULLS: benchmarking study*, October 2009, p.24

6. DORC Asset Valuation

6.1 As noted above in Chapter 4, the Analysys model is incapable of meeting the ACCC's legislative objectives because of its inappropriate overvaluation of Telstra's network assets at replacement cost.

6.2 Optus submits that the ACCC should adopt an alternative method to value the CAN, namely "depreciated optimised replacement cost" (DORC).[108] Optus has estimated the network costs and access prices that would result from this approach, using high level adjustments to the Analysys model. These prices, which are set out in this chapter, would be consistent with the objectives of efficient investment and promoting competition whilst providing Telstra with fair compensation for its investment in network assets.

6.3 Optus submits that a DORC asset valuation approach could be approximated by making adjustments to the Analysys model in order to estimate the cost of a copper network in a way that takes into account the age of Telstra's assets (ie Telstra's network assets are to some extent "worn out") and the fact that Telstra has already recovered much of the original construction cost.

6.4 In summary the price produced by the Analysys model is inflated because some input parameters are inappropriate (and other modelling issues). Optus has estimated the impact of the above adjustments and adjusted the Analysys model to produce a CAN asset value of $17.6 billion and a monthly ULLS access price of $13.08 for Band 2 ($14.01 for Zone A) in 2009.[109] When further adjustments are made to take account of other recommended modifications by Optus and Network Strategies, the Band 2 access price is $11.98 in 2009.

The concept of DORC asset valuation

6.5 An alternative approach to valuing network assets is the Depreciated Optimised Replacement Cost (DORC) method. The DORC valuation process is aimed at establishing a current value for the infrastructure assets of a business that represent the cost of replicating the assets in the most efficient way possible, from an engineering perspective, given the service capability, or requirement, and the age of the existing

[108] Whilst Optus considers an access price which allowed the access provider to recover the unrecovered capital costs of its prudent investment in the CAN (plus a normal return on that investment), together with an allowance for any operating and maintenance costs and any additional, prudent capital expenditure to maintain the service potential of the CAN would be consistent with all of the legislative criteria, Optus does not have the means at its disposal to estimate such a price with precision. Nevertheless, Optus considers that a close approximation to this level of recovery could be achieved if the ACCC adopts an alternative method of asset valuation, namely "depreciated optimised replacement cost" (DORC). DORC is likely to be a good approximation because it is neither efficient nor likely for Telstra to make a significant level of additional, prudent capital expenditure in its CAN, for reasons related to the coming NBN, as discussed in Chapter 4.

[109] All quoted prices in this paper are inclusive of specific cost (unless stated otherwise).

assets. In the report attached as Attachment 1, CEG describe the calculation of a DORC value as follows.

> *"DORC is calculated as the cost of replacing the existing network with one that is optimally configured at current day prices less an assessment of depreciation. The level of depreciation depends on the remaining life of existing assets and differences in service quality."* [110]

6.6 The ACCC has described the DORC of an asset in the following terms:

> *"Another justification for DORC setting the upper limit to valuations comes from what a DORC valuation actually is attempting to measure. This is the maximum price that a firm would be prepared to pay for 'second hand' assets with their remaining service potential, higher operating costs, and (old) technology given the alternative of installing new assets which embody the latest technology, generally have lower operating costs, and which will have a greater remaining service potential."* [111]

6.7 As CEG state in the paper attached as Attachment 1, DORC "*…has strong economic foundations and regulatory precedent as a basis for determining the value of regulatory assets and is consistent with the economic principles which underpin Part XIC"*. [112]

Application of the legislative criteria

6.8 Optus considers that prices set according to a cost calculation which assumes that assets are valued at DORC will meet the legislative criteria, for the reasons set out below.

6.9 Consequently, Optus submits that the ACCC should adjust the Analysys model to reflect valuation of network assets at DORC, and should set wholesale charges for fixed line services on this basis.

Encouraging efficient investment in infrastructure by access seekers and efficient use of infrastructure

6.10 Earlier in this submission, Optus submitted that in order to satisfy the legislative criteria of "encouraging efficient investment in infrastructure by access seekers" and "efficient use of infrastructure", asset values (and thereby access prices) should fall within an efficient range for which:

---

[110] CEG, *Reform of Part XIC: Regulatory Certainty,* June 2009, p.11

[111] ACCC, *Final Decision Access Arrangement by Transmission Pipelines Australia Pty Ltd and Transmission Pipelines Australia (Assets) Pty Ltd for the Principal Transmission System (and related pipelines),* 6 October 1998, CR97/159 (also see paragraphs 4.22 and 4.23 of this submission)

[112] CEG, *Reform of Part XIC: Regulatory Certainty,* June 2009, p.3

- the 'efficient lower bound' for the asset value (and the associated access price) is given by the avoidable costs of providing the services on the existing network[113] (that is, the cost of operating and maintaining the existing network[114]) – a cost which is likely to be far less than the 'forward looking efficient cost' of building an optimised replacement network;[115] and

- the 'efficient upper bound' for the asset value (and the associated access price) is given by the (quality-adjusted[116]) average cost of a new entrant.[117]

6.11 Optus notes CEG's view that a "DORC estimate will fall within [the efficient] range being above scrap value but below the full replacement cost (assuming assets have some remaining life)."[118]

6.12 This view is supported by cost modelling reported in this paper. Optus has estimated a monthly Band 2 ULLS access price based upon DORC at 12 (as discussed in this chapter), which is within the efficient range of $3-12 per month per SIO (as noted above at paragraph 4.92 - 4.93).

6.13 Consequently, Optus submits that the use of DORC to value Telstra's assets for the purpose of setting ULLS access prices would be consistent with the efficient use of and investment in infrastructure (by access seekers).

Encouraging efficient investment in infrastructure by the access provider and the legitimate business interests of the access provider

6.14 Earlier in this submission, Optus submitted that in order to satisfy the legislative criteria of "Encouraging efficient investment in infrastructure by the access provider" and "the legitimate business interests of the access provider", asset values (and thereby access prices) should be set at a level lower than the full replacement cost, and sufficient only to allow the access provider to recover the costs of its actual past investment infrastructure and its operating costs and obtain a normal return on its capital.

6.15 Optus notes CEG's view that by "putting a 'fair' value on the asset given its remaining life and service potential relative to a replacement network it serves to protect the legitimate business interests of the monopoly"[119] access provider (by providing a fair market value) and that a "A DORC initial asset valuation and a regulatory commitment to roll that value forward adding prudent future expenditures will

[113] The costs avoided as a result of not providing those services on the existing network.
[114] Including the cost of new equipment, as required, and reflecting the scrap value of the asset
[115] NERA, *Role of TSLRIC in telecommunications regulation*, July 2003
[116] For a discussion of the meaning of "quality-adjusted", see the CEG paper at Attachment 2A.
[117] NERA, *Role of TSLRIC in telecommunications regulation*, July 2003
[118] CEG, *Reform of Part XIC: Regulatory Certainty*, June 2009, p.39 (Attachment 1)
[119] CEG, *Reform of Part XIC: Regulatory Certainty*, June 2009, p.39

promote efficient investment, sending a signal to investors that they should expect a normal return."[120]

6.16 Consequently, Optus submits that the use of DORC to value Telstra's assets for the purpose of setting ULLS access prices would be consistent with the efficient use of and investment in infrastructure (by the access provider) and with the legitimate business interests of the access provider.

Promotion of competition

6.17 Earlier in this submission, Optus submitted that in order to promote competition, asset values (and thereby access prices) should be set to avoid giving Telstra a windfall in excess of required cost recovery, at a level sufficient only to allow the access provider to recover the costs of its actual past investment infrastructure and its operating costs and obtain a normal return on its capital.

6.18 Optus notes CEG's view that by putting a 'fair' value on the asset given its remaining life and service potential relative to a replacement network the use of DORC serves to promote competitive neutrality, and it "will also promote entry by access seekers (reducing the risk of sunk cost expropriation) thereby promoting competition" [121] and that by "putting a 'fair' value on the asset given its remaining life and service potential relative to a replacement network it serves to protect […] the interest of access seekers (in not overpaying for an old asset)."[122]

6.19 Consequently Optus submits that the use of DORC to value Telstra's assets for the purpose of setting ULLS access prices would be consistent with the Promotion of Competition and consistent with the interests of access seekers.

Implementation of a DORC asset valuation

6.20 Two separate adjustments would be required in order to change the asset valuation methodology in the Analysys model from optimised replacement cost to DORC. These which would take account of the following differences between Telstra's network assets and an optimal replacement network:

- Telstra's network assets to some extent "worn out" and will thus need replacing earlier than the assets of an optimal replacement network ("the wear-and-tear adjustment"); and
- Telstra's network assets are to some extent "old fashioned" and thus provide a lower service quality compared to the assets of an optimal replacement network ("the quality of service adjustment").

[120] CEG, *Reform of Part XIC: Regulatory Certainty*, June 2009, p.39
[121] CEG, *Reform of Part XIC: Regulatory Certainty*, June 2009, p.39
[122] CEG, *Reform of Part XIC: Regulatory Certainty*, June 2009, p.39

6.21 A fully robust DORC calculation would require a number of complex calculations and much information. If the ACCC adopts DORC (and it should), it should commission studies to determine the proper asset valuation, and / or consult Telstra's RAF records. The ACCC has access to Telstra's records of the written down value of the CAN copper cables and CAN ducts and pipes through Telstra's RAF reporting.

6.22 Optus does not have access to this confidential RAF information so it is difficult for us to carry out a fully robust DORC calculation. Nevertheless we have attempted a high level estimate. Our approach is that the ACCC should carry out its own analysis to determine a DORC value or failing that, adopt Optus' high level estimate as the best available.

6.23 Optus has made its high level estimate by making require adjustments to the Analysys model to take account of the fact that Telstra's network assets are to some extent "worn out". We have not adjusted for the fact that they would provide a lower service quality compared to an optimal replacement network, so our figures should be considered a conservative estimate of a DORC valuation.

6.24 Optus has carried out high level estimates of the quantum of the adjustments required. To this extent, Optus submits that a reasonable DORC adjustment value for the CAN network will be in the order for 50 per cent. The basis for this assumption follows Telstra's statement in open court that:

> "*In fact, Telstra's accounts show that* ***Telstra's capital has depreciated by approximately 50 per cent indicating, broadly speaking, that they are halfway through their lives as one would expect for an organisation of this size***." [123] [emphasis added]

6.25 A summary of the adjusted results are set out below.[124]

AUD[125]	2009	2010	2011	2012
CAN network	$17,566 m	$17,660 m	$17,758 m	$17,859 m
CORE network	$10,853 m	$10,838 m	$10,846 m	$10,883 m

AUD/month [126]	2009	2010	2011	2012

[123] *Application by Telstra Corporation Limited* [2009] ACompT 1 (25 August 2009), Transcript of Proceedings, P-91 at 5ff

[124] In deriving these values, Optus has only depreciated the unit costs as identified in the 'UnitCost.Access' worksheet in the Cost module. In this scenario a constant 50 per cent depreciated value has been applied to all unit costs identified, all other model inputs are unadjusted from their default values.

[125] The network costs reported currently do not take into account business overheads. This is the same approach taken by Analysys.

ULLS (Zone A)	$12.09	$12.28	$12.45	$12.53
ULLS (Band 2)	$11.30	$11.48	$11.64	$11.72
WLR (Zone A)	$11.99	$12.18	$12.36	$12.44
WLR (Band 2)	$10.95	$11.13	$11.29	$11.36
LCS	5.86 cents/call	6.38 cents/call	6.70 cents/call	6.84 cents/call
PSTN OTA	0.60 cents/min	0.65 cents/min	0.68 cents/min	0.70 cents/min

6.26 The total network asset valuation produced by the Analysys model in the default scenario for 2009 is $35.1 billion. According to Optus' estimates, the adjustment noted above results in a reduction to this figure of $17.6 billion due to the shift to a DORC valuation.

6.27 Optus also notes that these adjustments result in a reduction in the price of fixed line services produced by the Analysys model. For example, the monthly ULLS charge[127] produced by the adjusted model for Zone A in 2009 is $12.09 (compared to the $22.62 from the default parameters) due to the shift to a DORC asset valuation.

6.28 In addition, Optus has allowed for an adjustment to ensure that Telstra is not under compensated with respect to ongoing operational costs. The assumption made here is that ongoing operations and maintenance costs are the same as the corresponding costs applying to the pre-depreciated capital cost value (and are thus unaffected by the adjustment to asset value made by Optus).

6.29 The results for access prices, taking account of this O&M allowance, are summarised in the table below.[128]

AUD/month [129]	2009	2010	2011	2012
ULLS (Zone A)	$14.01	$14.23	$14.43	$14.52
ULLS (Band 2)	$13.08	$13.28	$13.47	$13.55
WLR (Zone A)	$13.99	$14.21	$14.41	$14.50
WLR (Band 2)	$12.75	$12.96	$13.14	$13.22

[126] Monthly charges for ULLS include the specific cost component, while the monthly charges for WLR include the marked up cost.
[127] The reported ULLS costs are inclusive of the specific cost component.
[128] In deriving these values, Optus has both depreciated the unit costs as identified in the 'UnitCost.Access' worksheet in the Cost module and allowed for the business overhead value to remain at the same level as though the unit costs have not been depreciated. In this scenario a constant 50 per cent depreciated value has been applied to all unit costs identified and the business overhead (and opex) taken to be value if no change to the unit costs have been allowed, all other model inputs are unadjusted from their default values.
[129] Monthly charges for ULLS includes the specific cost component, while the monthly charges for WLR include the marked up cost.

LCS	5.86 cents/call	6.39 cents/call	6.70 cents/call	6.84 cents/call
PSTN OTA	0.60 cents/min	0.65 cents/min	0.68 cents/min	0.70 cents/min

6.30 It follows that a reasonable monthly ULLS charge[130] produced by the adjusted model for Zone A in 2009 is $14.01 (compared to the $22.62 from the default parameters) due to the shift to a DORC asset valuation with an allowance for ongoing operational costs.

6.31 Optus submits that such an adjustment would be consistent with efficient investment and would stimulate competition whilst providing Telstra with fair compensation for its investment in network assets.

Other recommended adjustments to modelling parameters

6.32 Optus notes that the above calculation is conservative, since it is based on assumptions and parameters used by the ACCC and Analysys – with the exception of the DORC modification to asset values.

6.33 However, Network Strategies has reviewed the Analysys model and identified a number of issues which result in overcompensating Telstra, including in the areas of trenching costs, trench sharing, asset lives and a significant error in modelling the cost of cable. These are set out in the report at Attachment 3.

6.34 Further, Optus has identified modifications that should be made to the WACC and tilted annuity adjustment used in the model. These are discussed below. These adjustments are discussed in more detail in Appendices B and D.

Trench sharing

6.35 The ACCC has concluded in the past that it believes trench sharing in new estates should be of the order of 13 per cent as it reflects historical trench sharing measures.[131] The ACCC has stated: "the 13% figure reflects the amount of trench sharing available to Telstra historically and the level of sharing available to a future provider of the ULLS".[132]

6.36 Further, in relation to Band 2 specifically, the ACCC has stated that a trench sharing value of up to **CiC** approximates trench sharing potential from new estates. [133] The lower value of the range, the 13 per cent, was derived from actual data based on estimates of the accumulative stock of new estates over a period of 10 years from 1992/93 to 2000/01. The upper value of the estimated trench sharing

[130] The reported ULLS costs are inclusive of the specific cost component.
[131] ACCC, *Assessment of Telstra's Unconditioned Local Loop Service Band 2 monthly charge undertaking, Final Decision*, Confidential Version, April 2009, p. 180.
[132] ACCC, *Unconditioned Local Loop Service Access Dispute Between Telstra Corporation Limited (access provider) and Optus Networks Pty Limited (access seeker), Statement of Reasons for Final Determination*, March 2008, para 464, page 95.
[133] ACCC, *Assessment of Telstra's Unconditioned Local Loop Service Band 2 monthly charge undertaking, Final Decision*, Confidential Version, April 2009, p. 180.

range was derived by extending the previous methodology to include 2006-07 data.

6.37 Further, Network Strategies has undertaken a comparison of the level of trench sharing in the Analysys cost model with other cost models used by regulators in Europe. They found that the Analysys cost model allowed a level of sharing that was too low, noting that:

> *"The Swedish and Danish models both include higher levels of access/core network sharing than in the ACCC model…"*[134]

6.38 Network Strategies recommended that *"…in line with accepted main/distribution copper line lengths, the buffer size is increased to at least 5km"*[135] and that the ACCC adjust the model to allow for sharing with other services and utilities in the access network.

6.39 Optus submits that the ACCC should consider its previous comments and the issues identified by Network Strategies and make the appropriate adjustments to the cost model.

Asset lives for copper

6.40 In its review of the Analysys model, Network Strategies found the asset lives for copper cable and duct in the access model "may be too short". This issue is discussed further at Attachment 3. Network Strategies recommended various adjustments to the asset lives of duct and access copper.[136] Optus submits that the ACCC should take account of the issue raised by Network Strategies and implement the recommendation.

WACC

6.41 Optus considers that there has been significant change in the setting of WACC parameters since previous regulatory proceedings. As a result, Optus proposes to adopt the WACC methodology and parameters as set out in the Analysys model documentation,[137] with an adjustment to be applied for both the risk-free rate and effective tax rate.

6.42 Optus therefore submits that the WACC parameter in the Analysys cost model should be adjusted to reflect a conservative 9.91 per cent pre-tax WACC value, for the reasons set out in Appendix B.

Other issues

6.43 In its review of the Analysys model, Network Strategies identified an error in the Visual Basic code that dimensions main cable sizes. In particular, they found that to cost the main cables the model incorrectly uses 400 pair cables (resulting in a significant overestimate

[134] Network Strategies, *ULLS: review of the ACCC draft decision*, October 2009, p.29
[135] Network Strategies, *ULLS: review of the ACCC draft decision*, October 2009, p.29
[136] Network Strategies, *ULLS: review of the ACCC draft decision*, October 2009, p.32-33
[137] Analysys, *Fixed LRIC model documentation – Version 2.0,* August 2009, p.127

of the cost of the modelled network and of the ULLS price). This issue is discussed further at Attachment 3.

6.44 Network Strategies also considered the model's treatment of tilted annuity. In particular, they found a number of issues related to the asset lives applied to copper and duct assets in the access network and the price tilt that should be applied to copper assets. This issue is further discussed at Attachment 3.

6.45 Network Strategies also identified that the model overestimates the cost of jointing, due to the incorrect assumption that a cable is cut completely at each joint.[138]

6.46 Optus submits that the ACCC should take account of the issues raised by Network Strategies and adjust the model accordingly.

Results

6.47 Optus acknowledges that these values have been quantified as a result of adjustments to the model, however there remain are a number of interactions within the model that need to be qualified. As a result, the prices indicated above should only be taken as a guide and highlights that a number of issues within the model need to be addressed.

6.48 The model's parameters have been adjusted for each of the parameters discussed above, with a summary of these results set out below.[139]

	2009	2010	2011	2012
CAN network	$17,566 m	$17,660 m	$17,758 m	$17,859 m
CORE network	$10,723 m	$10,706 m	$10,712 m	$10,747 m

AUD/month [140]	2009	2010	2011	2012
ULLS (Zone A)	$12.82	$13.02	$13.20	$13.28
ULLS (Band 2)	$11.98	$12.17	$12.33	$12.41
WLR (Zone A)	$12.77	$12.97	$13.15	$13.23

[138] Network Strategies, *ULLS: review of the ACCC draft decision*, October 2009, p.37

[139] In deriving these values, Optus has only adjusted for the parameters within the Cost module. In this scenario adjustments have only been made to the parameters identified (excluding those listed under 'other issues'), all other model inputs are unadjusted from their default values.

[140] Monthly charges for ULLS includes the specific cost component, while the monthly charges for WLR include the marked up cost.

WLR (Band 2)	$11.65	$11.83	$12.00	$12.07
LCS	5.65 cents/call	6.16 cents/call	6.47 cents/call	6.61 cents/call
PSTN OTA	0.58 cents/min	0.63 cents/min	0.66 cents/min	0.67 cents/min

6.49 The overall effect of those adjustments we have been able to quantify is to further reduce the access prices calculated by the model. For example, the resulting Zone A ULLS price in 2009 is $12.82.

7. Modelling a Forward-Looking Technology

7.1 In its Draft Pricing Principles the ACCC states, at page 19, that an efficient, forward looking implementation of TSLRIC+ requires the modelled access network to use best-in-use forward looking technology or modern equivalent assets (MEA). Optus strongly agrees. It has long been a feature of both the TSLRIC and the DORC approaches to asset valuation that the optimised replacement cost of an asset is determined on this basis.[141]

7.2 It follows from this that the ACCC should cease to model an outdated copper network, which over-compensates Telstra and fails to promote efficiency. It should instead model the cost of a modern optical fibre network that would realistically be the technology choice of a new entrant infrastructure competitor. Optus considers that such an approach would promote competition and infrastructure investment whilst also allowing Telstra to earn a fair return on capital invested. As CEG conclude in a new paper (Attachment 2A):

> *if one adopts a purely forward-looking hypothetical new entrant test then a quid pro quo of assuming the network is built in the current context (which may mean higher costs for less accessible 'rights of way') is that the new entrant can fully optimised for new technology, network design, service quality, and capacity…*[142]

7.3 Whether or not the ACCC recognises the need to depreciate replacement cost in order to arrive at a proper valuation of Telstra's CAN, it is imperative that that ACCC adhere to its proposed approach to asset valuation and determine an optimised replacement cost *on the basis of a fibre network*.

7.4 In this section Optus will submit that:

i) the Analysys model assumes a predominantly copper network;

ii) a TSLRIC model should assume "best in use" technology;

iii) the "best in use" technology for fixed line networks in Australia today is a network based on deploying optical fibre to the premises (FTTP) or FTTN, not a predominantly copper network;

iv) modelling an optical fibre network would be consistent with the legislative criteria; and

[141] For example, see Draft Statement of Principles for the Regulation of Transmission Revenues, ACCC (1999) pages 42-44; Telecommunications Access Pricing Principles, ACCC (1997), page 43.

[142] CEG, *Contestable market asset valuation for the unbundled local loop – a report for Optus*, October 2009, p.1

v) there is no requirement that the modelled network be capable of providing the ULLS.

7.5 CEG and Milner Consulting have estimated the network costs and access prices that would result from modelling the cost of a forward-looking optical fibre network by making adjustments to the Analysys model. According to CEG's report (at Attachment 2A) the quality-adjusted cost of providing ULLS via a FTTP network in Band 2 (including specific cost) is $11.86/month. CEG's report is attached at Attachment 2A and Milner's report is attached at Attachment 2B.

The technology choice adopted in the Analysys model

7.6 The Analysys model applies modelling criteria which do not permit consideration of all available technology options for a network. The access network deployment algorithms used in the model means that in urban areas, only copper or FTTN technologies can be deployed. The choice between these technologies is determined through engineering constraints, and in which scenario the model is run. Under a copper build scenario the CAN is constructed largely of copper apart from certain situations (e.g. fibre whether a copper tail is over 4km long).

7.7 Whilst the Zone A pricing for the ULLS and other access services has been calculated using the default copper scenario, the model can as an alternative be set to deploy an NGN architecture which results in a FTTN build combining both fibre and copper.[143] This is described as the "MSAN scenario" as pillars in the copper network are replaced with MSANs that are backhauled to fibre links.[144] This scenario results in costings that are far below the cost of the standard copper scenario, but which exceed the cost of a full FTTP deployment, as discussed in the section on implementation later in this chapter.

7.8 In rural areas an initial choice is made between adopting copper or wireless technology based on deployment costs, and if a wireless deployment is chosen then mobile-based wireless (i.e. GSM 900MHz spectrum) is then compared to satellite. [145]

7.9 The architecture for the access network modelled by Analysys is predominantly copper-based. This is the result of the algorithms Analysys has encoded in its network modelling decision making processes. The proportion of copper cable deployed by the Analysys model in its default scenario for Zone A is 77 percent. The Analysys model deploys 317,500 kilometres of copper cable (or 77 percent of the total cable length) in Zone A, compared to only 95,000 kilometres of fibre cable. [146]

[143] Analysys, *Fixed LRIC model documentation – Version 2.0*, August 2009, p.7
[144] Analysys, *Fixed LRIC model documentation – Version 2.0*, August 2009, p.79
[145] Analysys, *Fixed LRIC model documentation – Version 2.0*, August 2009, p.7
[146] Analysys, CAN.xls worksheet – model output, version 2.0

The requirement for "best in use" technology

7.10 To the extent that it is useful to engage in the thought experiment of estimating the competitive pressures which would be brought to bear by a hypothetical, efficient new entrant in the market, it must be on the basis that a competitor in the market for the provision of listed services to end-users would build a network using the most efficient technology available for delivering services to end-users. This may include using substitutable services and alternative infrastructure capable of offering a competitive quality of service.

7.11 The ACCC's approach of estimating the replacement cost of a predominantly copper network, without considering more efficient technological alternatives for delivering substitutable services (that is, a FTTP network – as discussed below), is inconsistent with an essential element of a TSLRIC+ measure of costs, namely that it is forward looking. This concept was considered by the Tribunal in the *Seven* case:

> *"Forward-looking means prospective costs using best-in-use technology. The access provider should only be compensated for the costs it would incur if it were using this technology, not what it actually incurs, for example in using out-of-date technology which is more costly. Of course, a firm may be using older technology because it was the best available at the time the investment was made and replacing it cannot be justified commercially. In a competitive market, however, that firm would only be able to charge on the basis of using the most up-to-date technology because, if it did not (in this hypothetical competitive market) access seekers would simply take the service from an alternative service provider."*[147]

7.12 The measurement of forward looking costs involves the use of modern equivalent assets ('MEAs') in the hypothesised network. MEAs are the lowest cost assets providing at least equivalent functionality to the existing assets. In the draft Pricing Principles the ACCC was of the view that an efficient, forward looking implementation of TSLRIC+ in estimating network costs would require a number of considerations. In particular the Commission stated that "the costing exercise to be undertaken on a forward-looking and efficient basis"[148] and "the modelled access network to use best-in-use forward looking technology or modern equivalent assets (MEA)".[149]

7.13 Optus submits that modelling a predominantly copper network, without any consideration of more efficient alternative technologies, is fundamentally inconsistent with the concept of measuring the forward-looking costs of building a new CAN. If a telecommunications carrier were to build a CAN today, it would not use copper as the

[147] *Seven Network (No 4)* [2004] A Comp T 11 at [135]
[148] ACCC, *Draft pricing principles and indicative prices for LCS, WLR, PSTN OTA, ULLS, LSS*, August 2009, p.19
[149] ACCC, Draft *pricing principles and indicative prices for LCS, WLR, PSTN OTA, ULLS, LSS*, August 2009, p.19

transmission medium. Instead, the carrier would start afresh and take into account the range of customer demands and engineer a solution that met the requirements effectively and efficiently. In doing so, it is almost certain that optical fibre cable technologies would be used (as discussed in the next section).

FTTP is the "best in use" technology

The Government's NBN policy demonstrates that FTTP is the "best in use" technology

7.14 The Panel of Experts which assessed tenders for the Government's original NBN policy came to the conclusion that a FTTP network was the most appropriate, cost effective and efficient technology choice for a national broadband network for Australia (although there is also the strong likelihood that a mix of wireless solutions will be used in combination with fibre, particularly in rural areas[150]).

7.15 The technology choice which had formerly been under consideration, FTTN, was dismissed by the panel as inappropriate.[151] The Government has accepted the advice of the NBN Expert Panel and decided to pursue a FTTP network.[152] The most recent policy document produced by the Government provides the following guidance:

"The Government will build and operate a new network to deliver superfast broadband. The network will:

- *be built on fibre; supplemented by next generation wireless and satellite technology; and*
- *provide future-proofed technology for decades to come."* [153]

[150] This would likely occur in rural and regional area in particular and utilise technologies such as WiMax, high-speed mobile (e.g. HSPA systems) and satellite transmission.
[151] The Evaluation Report For The Request For Proposals To Roll-Out And Operate A National Broadband Network For Australia, 20 January 2009: "The Proposals have also demonstrated that rolling out a single fibre-to-the-node (FTTN) network is: unlikely to provide an efficient upgrade path to fibre-to-the-premises (FTTP), because of the high costs of equipment associated with rolling out a FTTN network that would not be required for a FTTP network (i.e. FTTN is not a pre-requisite for the provision of FTTP); and likely to require exclusive or near-exclusive access to Telstra's existing copper sub-loop customer access network (CAN), the so called 'last mile', thereby confirming that strong equivalence of access arrangements would be essential. As well, providing such access to a party other than Telstra runs a risk of liability to pay compensation to Telstra. The Proposals have this risk remaining with the Commonwealth but they have not addressed the potential cost to the Commonwealth of any such compensation. In any event, the Panel considers that no Proponent could accept the cost risk and continue to have a viable business case."
[152] Although it is clear that fibre would be the dominant technology of a NBN, it is likely that other technologies would also complement the build. As described in the Government NBN document: "Experts also agree that wireless broadband technologies have an important role to play in delivering broadband services to parts of Australia, and for delivering connectivity while people are on the move." DBCDE, *21st Century Broadband*,Policy Brochure, April 2009, p.4
[153] DBCDE, *21st Century Broadband*, Policy Brochure, April 2009, p.3

7.16 The Government's position continues to be that copper is an outdated technology which should play no role in a modern best-in-use network. For example, in his speech on the announcement of the FTTP network in September 2009, Stephen Conroy made the following remarks in relation to the copper network:

> *"…the end of the copper era" "We are trying to modernise the telco industry, moving from the dying days of copper to the new era of fibre. "[Telstra's] copper access network is literally collapsing in the ground. Every time there is a flood, every time that there is heavy rain in New South Wales, Northern New South Wales, Queensland, there is a further degradation of some part of Telstra's copper network." "It's like trying to pretend that the copper's not crumbling, literally." "But there is an inherent end to the copper era coming we need to move from the end of the copper era to the fibre future""*

Telstra believes that fibre is the "best in use" technology

7.17 The view of Telstra's own expert engineers is that if the CAN were to be rebuilt today it would be based on a fibre network. For example, in the recent hearing on its ULLS undertaking, Telstra filed an expert witness statement by one of its internal engineers. In this statement Telstra's expert stated:

> *"If a telecommunications carrier were to build a CAN today, they would take into account the range of customer demands and engineer a solution that met the requirements effectively and efficiently. In doing so, it is more likely that optical fibre cable technologies would be used."* [154]

7.18 According to Hugh Bradlow, Telstra's Chief Technology Officer, fibre is the "end game". [155]

The "best in use" technology issue emerged in recent Tribunal proceedings

7.19 In the recent Tribunal hearing on Telstra's ULLS undertaking, serious consideration was given to the issue of whether copper or fibre is the "best in use" technology choice choice for a TSLRIC cost model. For example, the ACCC's representative discussed the potential for efficiency gains, superior functionality and cost reduction to be delivered through technologies alternative to copper, stating:

> *"You've got to create an incentive to put in something like fibre if it would deliver efficiency gains, benefits in terms of superior functionality. You only duplicate where it delivers a cost reduction going forward."*[156]

---

[154] This statement was read out in open Tribunal proceedings. ACT, No. 1 of 2009, *Application By Telstra Corporation Limited*, Transcript of hearing, 26 August 2009, P- 137

[155] DBCDE, *21st Century Broadband*, Policy Brochure, April 2009, p.4

[156] ACT, No. 1 of 2009, *Application By Telstra Corporation Limited*, Transcript of hearing, 27 August 2009, p.224

"So we say, consistent with our view, forward-looking networks should be considered in estimating a forward-looking cost and network technologies other than copper should be considered."[157]

7.20 The network model under discussion in the hearing was Telstra's TEA model, which deploys an all-copper network, as opposed to the Analysys model, which deploys a predominantly copper network. Nevertheless, the points made in the hearing highlight the significance of the issue and suggest that it should be given serious consideration by the ACCC in the current proceedings.

International evidence suggests FTTP is the "best in use" technology

7.21 Around the world, a number of countries are deploying FTTP networks, and there is an increasing trend towards FTTP deployments. FTTP is being widely deployed into business premises in high density areas such as the CBDs of cities and is *"progressively moving out into the suburbs to provide services to business premises in less densely populated areas."*[158] Every six months, the three FTTH Councils[159] release global rankings on the number of economies where more than one percent of households have a FTTH[160] connection. The most recent global ranking indicates that: *"At the end of June 2009, 21 economies met this threshold. Indeed, all of the top 10 ranked economies in the global ranking have more than 5 percent of their households connected with FTTH/B."*[161] This indicates a positive increase since the first global ranking was released in July 2007, where only 11 economies met the required threshold with only the top four ranked economies above the five percent threshold.[162] [163]

7.22 Optus submits that this is evidence that, far from being a future speculative technology, FTTP is in fact the international "best in use" technology at the present time.

---

[157] ACT, No. 1 of 2009, *Application By Telstra Corporation Limited*, Transcript of hearing, 27 August 2009, p.226

[158] Milner, *Fibre-to-the-premise cost study*, February 2009, p.11

[159] The FTTH Council is a non-profit organisation recognised by the industry as a valuable resource for all fibre-to-the-home issues. A separate branch operates in each of the three geographic regions where FTTx is progressively being deployed – that is, Asia-Pacific, Europe and North America.

[160] FTTH belongs within the family of FTTx deployments, where FTTH is often synonymous with FTTP and FTTB deployments.

[161] FTTH Council, "Global fiber to the home expansion defies the economic downturn," Press Release, 30 September 2009, Available from URL: http://www.ftthcouncil.org/en/newsroom/2009/09/30/global-fiber-to-the-home-expansion-defies-the-economic-downturn [accessed 2/10/09]

[162] FTTH Council, "Asia leads the world in fiber-to-the-home penetration," Press Release, 18 July 2007, Available from URL: http://www.europeftthcouncil.com/documents/press_release/2007_Global_FTTH_Penetration_Ranking_PR_-_Final.pdf [accessed 2/10/09]

[163] FTTH Council, "Global fiber to the home expansion defies the economic downturn," Press Release, 30 September 2009, Available from URL: http://www.ftthcouncil.org/en/newsroom/2009/09/30/global-fiber-to-the-home-expansion-defies-the-economic-downturn [accessed 2/10/09]

7.23 FTTN is an alternative fibre-based architecture that is being widely deployed around the world, where it can be considered as a *"progressive architecture towards FTTP, by an incumbent service provider who has a widely deployed copper cable network already established, and where demand for widespread take-up of high capacity broadband service is uncertain."* [164]

7.24 FTTN emerges as a clear a 'second-best' to FTTP. The distinction between FTTP[165] and FTTN is largely attributable to their delivery of service benefits, for example bandwidth and maximum reach from the service provider to end users. Fiopt Communication Services (2005) summarises these benefits in the table set out below.[166]

Table 2: Available Broadband Access Transport Technologies

Transport			**FTTN - Fiber & Copper**									**FTTH - Fiber**		
			ADSL				**VDSL**					**PON**		
			Basic			**+**	**2**	**2+**	**Basic**	**2**		**BPON[a]**	**GPON[b]**	**EPON[c]**
Bandwidth (Mb/s)	**Max**	Down	3	8	15	20	13	26	52	30	100	622	2488	1000
		Up	0.5	1	1	2	Symmetric					155	1244	1000
	Shared (down)	1x16												~80
		1x32										~20	~80	~40
Max Reach (km)			3	3	6	1.5	1.5	1	0.3	1	0.3	20		10/20[d]

[a] Standard ITU G.983; [b] Standard ITU G.984; [c] IEEE 802.3; [d] With Forward Error Correction (FEC)

7.25 As a result an operator would only deploy a FTTN network as a "progressive architecture" towards a FTTP architecture. [167] For example in the circumstance that an incumbent service provider that has a widely deployed copper cable network already established and therefore is seeking to upgrade the network on an incremental basis.

Fibre is more cost-effective than copper

7.26 The cost efficiencies offered by a fibre build (particularly FTTP[168]) mean that deployment cost will be much lower than for an equivalent copper network. Some of the key efficiency benefits offered by a fibre deployment include lower equipment costs (eg the ability to deploy smaller pits), very low O&M costs, greater capacity and scalability, self-diagnosis of faults and an overall deployment cost cheaper than copper.[169]

[164] Milner, *Fibre-to-the-premise cost study*, February 2009, p.11
[165] FTTH belongs within the family of FTTx deployments, where FTTH is often synonymous with FTTP and FTTB deployments.
[166] Fiopt Communication Services, *FTTx Primer*, 2005, Available from URL: http://www.fiopt.com/primer.php [accessed 2/10/09]
[167] Milner Consulting, *Using the ACCC Analysys Network Model for Modeling Fibre to the Premise*, October 2009, p.6.
[168] Given the relative efficiency of constructing a fibre-to-the-home (FTTP) network over a fibre-to-the-node (FTTN) build, it is more likely that a FTTP deployment would occur.
[169] The key benefits of fibre over copper technologies are broadly discussed in the '3M Violation Network Solutions White Paper'.

7.27 The difference is capacity and scalability between copper and fibre networks is significant. Fibre optic cable has an almost unlimited ability to deliver broadband data capacity over very long distances. In comparison copper cable has a limited bandwidth, which can only be enhanced through the reduction of the copper cable length. For example, short lengths of copper cable can support 100Mbps downstream over lengths of cable less than 300m whereas fibre optic cable can support multi Gbps services over several 10s of kilometres.[170]

7.28 It is well recognised that fibre is more cost-effective than copper. The Milner Consulting study (Attachment 2B) found that the main benefits of a fibre build were "capital expenditure savings of several billion dollars over that for the equivalent copper implementation, and the service delivery capability will be greatly enhanced". [171]

7.29 Based on fibre architectures suggested by Milner, CEG estimated the cost of providing the ULLS over a FTTP network and this analysis is discussed in the last section of this chapter.

7.30 It is therefore clear that a network deploying modern optical fibre technology would be less costly than the predominantly copper network modelled by Analysys – and therefore more likely to be adopted by an operator deploying a new fixed line network.

Conclusion: optical fibre is the "best in use" technology

7.31 There can be no serious dispute that optical fibre, not a predominantly copper network, is "best in use" technology. In respect of different fibre solutions, it would be reasonable to say that FTTP, rather than FTTN, should be considered the true forward-looking technology. FTTN is inferior to FTTP and widely regarded as a compromise or stepping stone on the way to full FTTP. Optus submits that the architecture of a forward looking network modelled by the ACCC's TSLRIC cost model should be based on FTTP (or FTTN) technology.[172] It follows that the decision rule used by the Analysys model for determining the proportion of fibre and copper in the network is wrong: the appropriate proportion of copper in a forward-looking access network is zero.

Modelling a fibre network satisfies the legislative criteria

7.32 In the discussion in Chapter 4, Optus submitted that in order to encourage efficient investment in infrastructure by access seekers and efficient use of infrastructure, asset values (and thereby access prices) should fall within an efficient range for which:

[170] Milner Consulting, *Using the ACCC Analysys Network Model for Modeling Fibre to the Premise*, October 2009, p.10
[171] Milner Consulting, *Using the ACCC Analysys Network Model for Modeling Fibre to the Premise*, October 2009, p.2
[172] Except potentially in remote rural areas where wireless or satellite would be more appropriate.

- the 'efficient lower bound' for the asset value (and the associated access price) is given by the avoidable costs of providing the services on the existing network[173] (that is, the cost of operating and maintaining the existing network[174]) – a cost which is likely to be far less than the 'forward looking efficient cost' of building an optimised replacement network;[175] and

- the 'efficient upper bound' for the asset value (and the associated access price) is given by the (quality-adjusted) average cost of a new entrant.[176]

7.33 Asset values (and thereby access prices) calculated assuming a network deploying modern optical fibre technology would clearly lie at the upper bound of the efficient range and thus would encourage efficient investment in infrastructure by access seekers and efficient use of infrastructure. By contrast, asset values (and access prices) calculated assuming the predominantly copper network modelled by Analysys would lie above the efficient upper bound and thus would not encourage efficient investment in infrastructure by access seekers and efficient use of infrastructure, since there would be a risk of encouraging inefficient duplication of infrastructure.

7.34 However, simply using MEA technology is not enough. A new entrant costing must be quality adjusted since using optimised replacement cost alone will overvalue sunk assets, effectively requiring access seekers to pay 'as new' prices for second hand assets. Such an approach distorts efficient investment, as access seekers will be given incentives for uneconomic investment in new infrastructure to by-pass the existing, overpriced, network. In their new paper CEG advise that:

> *… the contestable market paradigm requires the estimated value of the existing network to be adjusted downwards (upwards) for the value of any greater (lesser) service quality that would be offered by the new entrant's optimised network…*[177]

7.35 In the discussion in Chapter 4, Optus also submitted that an access price which allowed the access provider to recover the unrecovered capital costs of its prudent investment in the CAN (plus a normal return on that investment), together with an allowance for any operating and maintenance costs and any additional, prudent capital expenditure to maintain the service potential of the CAN would be consistent with three of the criteria, namely encouraging efficient investment in infrastructure by the access provider; the legitimate

[173] The costs avoided as a result of not providing those services on the existing network.
[174] Including the cost of new equipment, as required, and reflecting the scrap value of the asset
[175] NERA, *Role of TSLRIC in telecommunications regulation*, July 2003
[176] NERA, *Role of TSLRIC in telecommunications regulation*, July 2003
[177] CEG, *Contestable market asset valuation for the unbundled local loop – a report for Optus*, October 2009, p.1 (Attachment 2A)

business interests of the access provider; and the promotion of competition. Optus also submitted that it will often be the case that this level of cost recovery lies within or close to the efficient range noted above.

7.36 That is, an access price calculated via TSLRIC assuming the replacement cost of a network deploying modern optical fibre technology is likely (in general) to allow the access provider to recover the unrecovered capital costs of its prudent investment in the CAN (plus a normal return on that investment), together with an allowance for any operating and maintenance costs and any additional, prudent capital expenditure to maintain the service potential of the CAN (however this will depend on the particular circumstances).

7.37 Optus submits that in general the assumption of modern optical fibre technology, rather than the predominantly copper network modelled by Analysys, is likely to be consistent with the legislative criteria. Note that in this particular instance the quality-adjusted fibre-based ULLS price for Band 2 estimated by CEG ($11.86 including specific cost) is similar to (but slightly lower than) the equivalent price estimated using the Analysys model adjusted for depreciation ($11.98). If the ACCC wished to rely on these estimates, it would need to set a price equal to 11.98 in order to ensure cost recovery.

The modelled network need not be capable of providing the ULLS

7.38 It may be argued that the architecture of the CAN that is modelled for the purpose of pricing the ULLS must be an architecture that is based on copper. For example, Telstra argued in support of its Band 2 undertaking that the TEA model must be copper based as it would otherwise not satisfy the service description of the ULLS, eg:

> *"First, a network constructed with anything other than copper will not use a "communications wire" and will not satisfy the ULLS service description. Optical fibre is not copper based. Nor is a wireless network.*
>
> *Further, the service definition requires that the communications wire be "unconditioned". An optical fibre service is conditioned, not unconditioned, as is any wireless element of a network."* [178]

7.39 Optus submits, however, that the TSLRIC modelling that is used to price the ULLS is not bound by such a legacy technology choice. In fact, the technology specific nature of the ULLS is irrelevant to the hypothetical network design of the network cost model that is used to price the service. The estimation of TSLRIC+ costs using a cost model is purely a thought experiment. Its sole purpose is to help the

[178] Telstra, written outline of submission re application for review of the Final Decision of the Australian Competition and Consumer Commission under section 152BU of the Trade Practices Act 1974 in relation to the ordinary access undertaking submitted by Telstra Corporation Ltd for the Unconditioned Local Loop Service for Band 2 Areas, July 2009

regulator determine a price that will fit the statutory criteria set out in Part XIC.

7.40 The legislative criteria are technology neutral and only reference the market for "listed"or "carriage" services.[179] There is no direction in the legislation that the pricing regulation must mirror the mechanism used to supply such listed services. That means the Act is concerned with correctly pricing the listed services on the CAN (i.e. voice and data services), not costing the provision of the ULLS or any particular network configuration.

7.41 The legislation directs the Commission to ensure that listed services are supplied but it does not list a particular technology to achieve that goal. As the Tribunal observed in Application by Telstra Corporation Limited [2009] ACompT 1 at [125]:

> *"[T]he focus of Part XIC of the telecommunications access regime is on services. This focus reflects a fundamental tenet of good telecommunications regulation that it should, to the greatest possible extent, be technology- neutral, else the specification of one technology restrict the development of alternative technologies."*

7.42 The conceptual justification for TSLRIC+ is that, in certain circumstances, it may be appropriate to set an access price by reference to the price which the incumbent would be able to charge in a competitive environment by mimicking the threat of entry by a competing network operator.

7.43 On this approach, one is concerned with the hypothetical network operator seeking to compete with Telstra in the provision of listed services to end-users. As per the discussion above, one is not concerned with the hypothetical network operator seeking to compete with Telstra in the provision of declared services to access seekers via a ULLS network. It is absurd and unhelpful to hypothesise a competitive market in declared services, which are themselves a construct of a regulated access regime created only to ameliorate the lack of any competitors to the incumbent network operator.

7.44 The ACCC has indicated that it agrees with this approach. In the recent Tribunal hearing regarding Telstra's ULLS Band 2 Undertaking the ACCC made it clear that TSLRIC modelling was not constrained to the present configuration of the CAN:

> *"Service potential does not confine you to the copper wire. What you look to is what services are provided to end users by means of the use of the copper wire…The pricing principles do not confine it in that way. They do not mandate the technology that the technology that it needs to be the same technology as the one in use, that's the declared service, and an efficient network is not confined to unconditioned copper lines. Rather, it has to be the provision of a network that has the same service potential that*

[179] TPA 1974, 152AB(1) and 152AB (2).

regard must be had. When you re looking at efficient build-buy decisions, where we have a new entrant and the prospect of bypass, there is nothing in part XIC or the pricing principles that requires the hypothetical efficient forward-looking network that is to be priced to be one that deploys copper. That is a fundamental point in the case."[180]

7.45 By definition, a "forward-looking" model should be based on forward-looking technologies and the aim of TSLRIC modelling is to model a network that would be produced by a new entrant into the market. The ACCC continued, stating:

> *"We say that in modelling – using – TSLRIC, you have to have regard to best in use, forward-looking technology and that requires you to look at the alternative technologies and it's nonsensical to say that you'd go and break out concrete and reinstate concrete to lay a copper cable when you could deploy a network by other means, such as aerial cabling or using wireless of satellite technology to give the same end user service. It's the service potential of ULLS that you have to look to, not to the mere fact that the declaration is in respect of a copper wire. So that's why we say that you can't go down the route that our learned friends suggest. Their model is an all copper network and we say that is not efficient and forward looking and we say, therefore, you can't just say because it's constructed in accordance with TSLRIC principles, it generates a reasonable estimate..."* [181]

Implementation of a modelled fibre network

7.46 CEG and Milner Consulting have estimated the network costs and access prices that would result from modelling the cost of a forward-looking optical fibre network by making adjustments to the Analysys model. Optus refers the ACCC to the CEG report "Contestable market asset valuation for the unbundled local loop", a report commissioned by Optus and the Milner Consulting report "Using the ACCC Analysys Network Model for Modeling Fibre to the Premise". CEG's report is attached at Attachment 2A and Milner's report is attached at Attachment 2B.

7.47 According to CEG the cost of providing ULLS via a FTTP network in Band 2 – before quality adjustment – is approximately $16.05 (or $17.05 if specific cost is included) per month.[182]

7.48 However, an optical fibre network would offer services of a higher quality compared to the current CAN. Most significantly, the speed or capacity of fibre optic is orders of magnitude greater than copper

[180] ACT, No. 1 of 2009, *Application By Telstra Corporation Limited*, Transcript of hearing, 27 August 2009, p.220.
[181] ACT, No. 1 of 2009, *Application By Telstra Corporation Limited*, Transcript of hearing, 27 August 2009, p.220
[182] Refer to CEG report in Attachment 2A

cable. CEG draw a distinction between 'high-speed' broadband and 'super-fast' broadband and note that the latter is important to end-users to the extent it allows incremental services and applications can be offered.

7.49 Further, consider the following five indirect benefits why fibre optic is preferable to copper cabling:

> *1. Fibre optic is more efficient and secure* than copper cabling, transmitting information with greater fidelity. Fibre links offer more than 1,000 times as much bandwidth over distances more than 100 times farther than copper, and extra data security is provided since it is more difficult to tap than copper cable.
>
> *2. Fibre optic cable can carry more data* than copper and for longer distances. It can transmit a signal as far as 80 km or beyond without need for amplification.
>
> *3. The glass-based cables don't conduct electricity*, which eliminates the need for grounding and makes them immune to electrical interference and lightning. They can be used outdoors and in proximity to electrical cables.
>
> *4. Glass fibres are virtually free from corrosion.* While copper is sensitive to water and chemicals, fibre optic runs almost no risk of being damaged by harsh elements, and can endure "living conditions" that coaxial cable cannot, such as direct contact with soil.
>
> *5. Fibre-optic cabling poses no threat* of physical injury if it breaks. Since it transmits light, not electricity, handlers run no risk of injury from fire, sparking, or electrocution.

7.50 The quality differential has significant implications for customers' willingness-to-pay for the services of the existing network. This issue is explored by CEG in its new paper (Attachment 2A). An adjustment to the modelled network asset valuation and resulting access pricing should be made to take account of this quality differential. As CEG states in its report (Attachment 2A):

> *If the incumbent is to receive a higher asset valuation because a new entrant incurs costs that the incumbent did not (eg, digging through driveways that weren't there when the incumbent laid its network) then the quid pro quo must also be that the incumbent receives a lower valuation if the new entrant would supply higher quality services using technology (eg, fibre in trenches) that the incumbent did not have access to at the time it laid its network.* [183]

7.51 CEG has estimated the value of additional service quality from an FTTP network in Australia (compared to Telstra's existing CAN) at

[183] CEG, *Contestable market asset valuation for the unbundled local loop – a report for Optus*, October 2009, p.10

$10 to $15 billion.[184] This has significant implications for the access price. CEG's modelled Band 2 ULLS access price after quality adjustment is $11.86 per month.

7.52 There are two further issues that may require consideration. First, alternative technologies might be considered. For example, the Analysys model can also be set to deploy an NGN architecture which results in a FTTN build combining both fibre and copper.[185] This is described as the "MSAN scenario" as pillars in the copper network are replaced with MSANs that are backhauled to fibre links.[186] The monthly cost output of the model for Zone A in 2009 in the MSAN scenario is $13.90 ($14.90 including $1 specific cost). However as noted above FTTN is inferior to FTTP and unlikely to be considered best-in-use technology. Further, wireless systems are likely to be even lower cost than fibre and are likely to be the most appropriate deployment option in some geographical areas. Fixed wireless deployment is occurring now, for example WiMAX deployment in Perth.[187] Wireless systems are not necessarily capable of providing a complete substitute for fixed line technologies and as a result have not been considered further.[188] However, to the extent that wireless could be a partial substitute, the outputs of a fibre costing should be considered conservative.

7.53 Second, there are a number of deployment methods which can be used as an alternative to traditional trenching, which would result in significantly reduced deployment costs (and would thus very likely be adopted by an operator deploying such technology). For example,

---

[184] CEG, *Contestable market asset valuation for the unbundled local loop – a report for Optus*, October 2009, p.26

[185] Analysys, *Fixed LRIC model documentation – Version 2.0*, August 2009, p.7

[186] Analysys, *Fixed LRIC model documentation – Version 2.0*, August 2009, p.79

[187] Unwired made an announcement in September 2009 that Vivid Wireless is planning to deploy WiMAX networks nationwide in the following two years. Comms Day, 29 September 2009. The first stage of the rollout would be in Perth and that it is expected to offer 4G wireless broadband service in March 2010.. Seven, Media Release, VIVIDWIRELESS announces Australia's first 4G wireless broadband network will launch in Perth early next year, 2 September 2009. Seven further stated that it has committed approximately $50 million in funding to Vivd Wireless WiMAX rollout across the city of Perth. Seven, Media Release, VIVIDWIRELESS announces Australia's first 4G wireless broadband network will launch in Perth early next year, 2 September 2009

[188] Wireless systems are able to overcome the difficulties that certain deployment conditions pose for fixed networks. For example, in low population density areas it is not likely to be economic to provide a fixed line technology solution and so mobile wireless (3G) and/or fixed wireless (WiMax, satellite) technologies will be required to fill in the gaps. A report by Analysys compared the relative costs of servicing the CAN with alternative technologies and concluded that wireless options may be cost-effective. [Analysys, Comparative Costing of Wireless Access Technologies in Australia, Final Report for the ACCC, 5 May 2006, page 40] In theses areas, WiMax and satellite services were shown to provide a lower-cost alternative to wire line access solutions for voice and data services: "Where fibre build is viable (i.e. in urban centres) we expect this to continue to offer vastly superior potential for very high-speed broadband access than can be achieved by wireless substitutes. Of the wireless technologies studies, WiMax appears to be the most suitable alternative to wire line solutions in terms of cost and ability to deliver reasonably high-speed services. For rural greenfield sites, WiMax may be a better option than wire line."

cable can be deployed aerially. These alternative deployment methods are considered in more detail in Appendix B.

7.54 In this regard, Optus notes that the fibre costing modelled by CEG and Milner and discussed in this chapter is based on the trenching assumptions adopted by Analysys. Consequently, their model does not deploy cable aerially and does not use alternative low cost network construction techniques such as those noted in the attached Appendix C. However if an actual new entrant were to deploy a efficient new fixed line network it would be likely to consider deployment methods such as aerial cabling, trenching methods that create minimal surface disruption or potentially utilising space in existing ducts. As a result, the CEG / Milner results should be considered highly conservative and an overestimate of the actual cost of a new entrant fibre optic FTTP network.

Other recommended adjustments to modelling parameters

7.55 Optus notes that the above calculation is conservative, since it is based on assumptions and parameters used by the ACCC and Analysys – with the exception of the fibre modification.

7.56 However, Network Strategies has reviewed the Analysys model and identified a number of issues which result in overcompensating Telstra, including in trench sharing and a significant error in modelling the cost of cable.

7.57 Further, Optus has identified modifications that should be made to the WACC and tilted annuity adjustment used in the model. These are discussed below. These adjustments are discussed in more detail in Appendices B and D.

Tilted annuity

7.58 Optus considers the forecast prices for fibre cable for future years (which are used to calculate the tilted annuity in the Analysys cost model) are lower than would be realistic (that is, the price trend for fibre cable is overly negative). Optus submits that the forward-looking price trend should be -5 per cent, based on a review of fibre prices quoted to Optus by its vendors (for contracts in which Optus purchased fibre for its own network). This is discussed further in Appendix D.

Other issues

7.59 Optus considers that there has been significant change in the setting of WACC parameters since previous regulatory proceedings. Optus therefore submits that the WACC parameter in the Analysys cost model should be adjusted to reflect a more conservative pre-tax WACC value, for the reasons set out in Appendix B.

7.60 Network Strategies has undertaken a comparison of the level of trench sharing in the Analysys cost model with other cost models used by

regulators in Europe. They found that the Analysys cost model allowed a level of sharing that was too low, noting that:

> *"The Swedish and Danish models both include higher levels of access/core network sharing than in the ACCC model…"*[189]

7.61 Network Strategies recommended that *"…in line with accepted main/distribution copper line lengths, the buffer size is increased to at least 5km"*[190] and that the ACCC adjust the model to allow for sharing with other services and utilities in the access network. Optus submits that the ACCC should take into account the issues identified by Network Strategies with regard to trench sharing and make the appropriate adjustments to the cost model.

Results

7.62 Optus acknowledges that these values have been quantified as a result of adjustments to the model, however there remain are a number of interactions within the model that need to be qualified. As a result, the prices indicated above should only be taken as a guide and highlights that a number of issues within the model need to be addressed.

7.63 The model's parameters have been adjusted for each of the parameters discussed above, with a summary of these results set out below.[191]

	2009	2010	2011	2012
CAN network	$32,551 m	$32,536 m	$32,536 m	$32,550 m
CORE network	$15,369 m	$15,429 m	$15,514 m	$15,629 m

AUD/month [192]	2009	2010	2011	2012
ULLS (Zone A)	$17.53	$17.64	$17.73	$17.70
ULLS (Band 2)	$16.54	$16.65	$16.74	$16.71
WLR (Zone A)	$22.86	$23.08	$23.22	$23.18

[189] Network Strategies, October 2009, *ULLS: review of the ACCC draft decision*, p.29
[190] Network Strategies, *ULLS: review of the ACCC draft decision*, October 2009, p.29
[191] In deriving these values, CEG have applied the scenario adjustments to the parameters identified (excluding those listed under 'other issues'), all other model inputs are unadjusted from their default values. In addition, Optus has included the specific cost component to arrive at the final values reported in the table.
[192] Monthly charges for ULLS includes the specific cost component, while the monthly charges for WLR in this exclude the marked up cost.

WLR (Band 2)	$21.35	$21.58	$21.72	$21.68

7.64 The overall effect of those adjustments we have been able to quantify is to further reduce the access prices calculated by the model. For example, the resulting Zone A ULLS price in 2009 is $17.53.

Aerial cabling and alternative technologies

7.65 CEG's modelled optical fibre network – in common with the default Analysys model – is based on a network deployment that involves a significant amount of underground cabling. Optus considers that the key problem with this approach is that this is not the deployment decision that would be made by an efficient new entrant.

7.66 Trenching costs have the potential to be a large contributor to the total build cost, at the very least an efficient new entrant would seek to minimise this cost as much as possible.. For example, the Analysys model considers that trenching in urban areas costs up to $240 per metre and in aggregate, approximately 71 per cent of the access network's total build cost is due to the cost of trenching.

7.67 Given that trenching costs have the potential to be a large contributor to the total build cost, at the very least an efficient new entrant would seek to minimise this cost as much as possible.

7.68 Optus submits that if a new entrant were to deploy a efficient new fixed line network it would be likely to consider the following deployment methods:

- Aerial cabling;
- Trenching methods that create minimal surface disruption; and
- Utilising space in existing ducts.

7.69 Network deployment methods are discussed further in Appendix C, however the relative costs of each are shown in the summary table below:

Deployment method	**Approximate Cost**
Aerial cabling	$15 per meter to $50 per meter
Underground trenching	$15 per meter to $240 per meter
Shallow trenching	$70 per meter to $90 per metre
Micro trenching	$30 per meter to $70 per metre
Mole plough trenching	$20 per meter to $40 per metre

Deployment method	Approximate Cost
Directional drilling	$50 per meter to $70 per metre

7.70 These deployment methods are discussed further in Appendix C.

7.71 The degree to which of each of these methods would be deployed would depend upon both the relative costs, and any practical constraints that may arise – for example, space in existing ducts.

7.72 Optus submits that the ACCC should take these matters into account in setting prices, and that the results in this chapter are conservative to the extent that CEG and Milner do not assume aerial cabling or the most cost-effective trenching technologies.

8. Adjustments to Modelling Assumptions for a Copper Network

8.1 Optus submits that if the ACCC insists on modelling a predominantly copper technology without taking any account of the age of Telstra's assets, it must nevertheless make significant adjustments to the assumptions used in the Analysys model in order to minimise the distortion to competition and windfall gains to Telstra that would otherwise ensue. This is discussed in the introduction section below.

8.2 Further, Network Strategies has reviewed the Analysys model and identified a number of issues and errors which result in an over estimation of the ULLS cost by over 20%, including in the areas of trenching costs, trench sharing, asset lives and a significant error in modelling the cost of cable. These are set out in the report at Attachment 3.

8.3 Finally, Optus has identified modifications that should be made to the WACC and tilted annuity adjustment used in the model. These are discussed below and in Appendices B and D.

8.4 In summary the price produced by the Analysys model is inflated because some input parameters are inappropriate (and other modelling issues). Optus has estimated the impact of the above adjustments and adjusted the Analysys model to produce an asset value of $31.7 billion and a monthly ULLS access price of $17.58 in Band 2 (or $18.74 in Zone A) in 2009. Optus submits that if the ACCC insists on modelling a predominantly copper technology without taking any account of the age of Telstra's assets, it must take these adjustments into account in setting their ULLS price.

Introduction

8.5 The reason that significant adjustments would be required is a modelled network based on the as-new replacement cost of expensive and outdated copper technology will result in prices which are higher than the cost of a new entrant technology (and above the 'efficient range' discussed in Chapter 4). The ACCC must recognise that if it goes down this route, the resulting prices are too high to be justified on the grounds of sending efficient build-buy signals – rather, such high prices can only be justified as a concession to Telstra's legitimate interest in cost recovery. According to NERA:

> *"…the appropriate interpretation of TSLRIC is driven primarily by what one considers a reasonable reflection [of] the incumbent's legitimate business interests."* [193]

8.6 This is consistent with the observation made previously by the ACCC that it considers that the ULLS network costs should only include

[193] NERA, *Role of TSLRIC of Telecommunication Regulation*, July 2003, p.10

those costs that Telstra legitimately incurs in the provision of the service. [194]

8.7 However, there is a real risk that this approach will cause Telstra to over-recover. If the ACCC insists on taking this deeply compromised approach, then it must be vigilant to ensure that Telstra recovers its actually incurred costs and no more. The over-riding objective should be to minimise over-recovery – and modelling issues in this scenario must be analysed by reference to the extent to which they will advance this objective. In such circumstances the ACCC should not be constrained to adhere consistently to a new entrant paradigm, particularly where to do so would result in Telstra recovering more costs than it actually incurred historically.[195]

8.8 Consequently Optus submits that if the ACCC insists on modelling a predominantly copper technology without taking account of the age of Telstra's assets, then pragmatic adjustments to the Analysys model should be made in order to reduce the extent of over-recovery by Telstra and reduce the resulting distortion to competition. One clear example of this approach is in trenching costs.

Trenching costs

8.9 As noted above, prices based on the replacement cost of copper can only be justified as a concession to Telstra's legitimate interest in cost recovery. Aspects of network design in the TEA model (e.g. the choice of copper technology) are protected from optimisation, with the intention of protecting Telstra's legitimate business interests. Optus submits that given this protection afforded to Telstra, it would be unreasonable to allow Telstra a level of cost recovery greater than is required to serve Telstra's legitimate business interests. Forward looking cost estimates that are above historic cost cannot be regarded as reasonable. Such prices would not provide incentives for Telstra to operate efficiently and invest prudently, would not promote competition, and would distort end user retail prices in downstream markets. As NERA has noted:

> *"The decision to adopt a 'scorched node' approach effectively protects some of the incumbent's network from optimisation. However, there is a quid pro quo for customers in this in that elements so protected from optimisation should not be subject to the possibility that forward-looking costs actually exceed historic costs."*[196]

[194] ACCC, *Telstra's Access Undertaking for the Unconditioned Local Loop Service*, Discussion Paper, p.26

[195] Conversely, if one adopts a purely forward-looking hypothetical new entrant test then a quid pro quo of assuming the network is built in the current context (which may mean higher costs for less accessible 'rights of way') is that the new entrant can fully optimised for new technology, network design, service quality, and capacity: CEG, Contestable market asset valuation for the unbundled local loop – a report for Optus, October 2009, p.1 (Attachment 2A)

[196] NERA, *Role of TSLRIC of Telecommunication Regulation*, July 2003, p.10

8.10 Accordingly, Optus supports the ACCC's position that Telstra should not be compensated for the cost of breaking and reinstating surface barriers. Optus submits that in estimating the cost of the ULLS, assumptions about surface barriers (and indeed assumptions about any relevant factor) should be made with the objective of putting a ceiling on cost recovery: such that Telstra cannot recover costs that exceed its historical prudently incurred costs. The model's assumptions about surface barriers should be based upon the surface barriers faced by Telstra historically in building its copper access network.

8.11 Optus considers that the ACCC should take this approach not for reasons of consistency with a hypothetical new entrant paradigm, but rather, because full replacement cost pricing for copper would not encourage efficient investment or competition (for the reasons noted above in chapter 5) and for the highly pragmatic reason that it would prevent Telstra from recovering costs that are significantly higher than those it actually spent historically.

8.12 Nevertheless, even if a "new entrant" approach was taken to trenching costs, Telstra should still not be compensated for the cost of breaking and reinstating surface barriers. This is because a network deployment that involves a significant amount of underground cabling is not the deployment decision that would be made by an efficient new entrant. Given that trenching costs have the potential to be a large contributor to the total build cost, at the very least an efficient new entrant would seek to minimise this cost as much as possible.

8.13 Optus submits that if a new entrant were to deploy a efficient new fixed line network it would be likely to consider the following deployment methods:

- Aerial cabling;
- Trenching methods that create minimal surface disruption; and
- Utilising space in existing ducts.

8.14 The degree to which of each of these methods would be deployed would depend upon both the relative costs, and any practical constraints that may arise – for example, space in existing ducts.

8.15 Further, Optus submits that it is questionable whether the Analysys model is optimised sufficiently to estimate TSLRIC even for a copper deployment. The reason for this doubt is that the length of copper cable deployed by the Analysys model in Band 2 is greater than the length of copper deployed by the TEA model in Band 2 – a model which the ACCC has found to be insufficiently optimised.

8.16 The Analysys model deploys 210 618 kilometres of copper cable in total [197] as compared to the TEA which deployed only 162 276

[197] It should be noted that they are lower than the reported figures presented in the original table in Telstra's report. Optus has sourced these figures from the access network dimensioning worksheet in the model; however it does not understand the reason for the

kilometres [198]. Optus is therefore concerned that the deployment algorithms used in the model may not be capturing all possible efficiencies in the network's design.

8.17 Optus notes that the deployment architecture of the TEA model was heavily criticised by the Commission (and the rest of the industry) for being highly inefficient as it was not optimised and was based on Telstra's existing (legacy) architecture. Further, the ACCC has acknowledged the inefficiency of the TEA design in its final decision on Telstra's ULLS Band 2 Undertaking, noting that "the network design is not optimal and that it is unlikely to be efficient as it is heavily influenced by historical inefficiencies."[199] An efficient new entrant with perfect foresight (i.e. able to align the network architecture with the location of existing demand) should be able to build a much more efficient network than that produced by TEA.

Network Strategies review

8.18 Network Strategies has carried out a study of modelled capital costs in the Analysys model which indicated that costs in the key 'duct' cost category were overstated. This was caused by "…the actual equipment costs being higher than we expect and partly due to the methodology used to construct the duct plus trench cost being in error." [200]

8.19 Network Strategies also found that ploughed trenching costs were in error, and that there was a "probable error in the modelling" in this part of the model. Network Strategies' view was that these errors most likely lead to an overestimation of the ULLS cost calculated by the model.[201]

8.20 Optus submits that the ACCC should take into account the trenching cost issues identified by Network Strategies and make the appropriate adjustments to the cost model.

Trench sharing

8.21 The ACCC has concluded in the past that it believes trench sharing in new estates should be of the order of 13 per cent as it reflects historical trench sharing measures.[202] The ACCC has stated: "the 13% figure

variation from the figures reported by Telstra. Analysys, Model output, Version 1.2, 19 February 2009

[198] Telstra, *Measure of TEA efficiency*, 9 March 2009

[199] ACCC, *Assessment of Telstra's Unconditioned Local Loop Service Band 2 monthly charge*, Final Decision, April 2009, p.142.

[200] Network Strategies, October 2009, *ULLS: review of the ACCC draft decision*, p.11

[201] Network Strategies, October 2009, *ULLS: review of the ACCC draft decision*, p.11

[202] ACCC, *Assessment of Telstra's Unconditioned Local Loop Service Band 2 monthly charge undertaking, Final Decision*, Confidential Version, April 2009, p. 180.

reflects the amount of trench sharing available to Telstra historically and the level of sharing available to a future provider of the ULLS".[203]

8.22 Further, in relation to Band 2 specifically, the ACCC has stated that a trench sharing value of up to **CiC** approximates trench sharing potential from new estates. [204] The lower value of the range, the 13 per cent, was derived from actual data based on estimates of the accumulative stock of new estates over a period of 10 years from 1992/93 to 2000/01. The upper value of the estimated trench sharing range was derived by extending the previous methodology to include 2006-07 data.

8.23 Optus submits that the ACCC should increase the level of trench sharing in the Analysys model. In doing so, it should not be swayed by any argument from Telstra about the practicalities of sharing by a hypothetical new entrant. As noted above, if the ACCC chooses to model the replacement cost of a predominantly copper network, the resulting prices are too high to be justified on the grounds of sending efficient build-buy signals. Any such arguments should be rejected.

8.24 The ACCC should take the approach recommended by Optus not for reasons of consistency with a hypothetical new entrant paradigm, but rather, because full replacement cost pricing for copper would not encourage efficient investment or competition (for the reasons noted above in chapter 5) and for the highly pragmatic reason that it would prevent Telstra from recovering costs that are significantly higher than those it actually spent historically.

8.25 Network Strategies has undertaken a comparison of the level of trench sharing in the Analysys cost model with other cost models used by regulators in Europe. They found that the Analysys cost model allowed a level of sharing that was too low, noting that:

> *"The Swedish and Danish models both include higher levels of access/core network sharing than in the ACCC model…"*[205]

8.26 Network Strategies recommended that *"…in line with accepted main/distribution copper line lengths, the buffer size is increased to at least 5km"*[206] and that the ACCC adjust the model to allow for sharing with other services and utilities in the access network. Optus submits that the ACCC should take into account the issues identified by Network Strategies with regard to trench sharing and make the appropriate adjustments to the cost model.

---

[203] ACCC, *Unconditioned Local Loop Service Access Dispute Between Telstra Corporation Limited (access provider) and Optus Networks Pty Limited (access seeker),* Statement of Reasons for Final Determination, March 2008, para 464, page 95.
[204] ACCC, *Assessment of Telstra's Unconditioned Local Loop Service Band 2 monthly charge undertaking, Final Decision*, Confidential Version, April 2009, p. 180.
[205] Network Strategies, *ULLS: review of the ACCC draft decision*, October 2009, p.29
[206] Network Strategies, *ULLS: review of the ACCC draft decision*, October 2009, p.29

Asset lives for copper

8.27 In its review of the Analysys model, Network Strategies found the asset lives for copper cable and duct in the access model "may be too short". This issue is discussed further at Attachment 3. Network Strategies recommended various adjustments to the asset lives of duct and access copper.[207] Optus submits that the ACCC should take account of the issue raised by Network Strategies and implement the recommendation.

WACC

8.28 Optus considers that there has been significant change in the setting of WACC parameters since previous regulatory proceedings. As a result, Optus proposes to adopt the WACC methodology and parameters as set out in the Analysys model documentation,[208] with an adjustment to be applied for both the risk-free rate and effective tax rate.

8.29 Optus therefore submits that the WACC parameter in the Analysys cost model should be adjusted to reflect a conservative 9.91 per cent pre-tax WACC value, for the reasons set out in Appendix B.

Tilted annuity

8.30 In its review of the Analysys model, Network Strategies considered the model's treatment of the tilted annuity. This issue is discussed further at Attachment 3.

8.31 Network Strategies recommended "a more realistic price tilt of +2% for copper cable" [209] and various adjustments which would result in "a more appropriate implementation of the tilt adjustment". [210] Optus submits that the ACCC should take account of the issues raised by Network Strategies and implement the recommendations.

8.32 Further, Optus considers the forecast prices for fibre cable for future years (which are used to calculate the tilted annuity in the Analysys cost model) are lower than would be realistic (that is, the price trend for fibre cable is overly negative). Optus submits that the forward-looking price trend should be -5 per cent, based on a review of fibre prices quoted to Optus by its vendors (for contracts in which Optus purchased fibre for its own network). This is discussed further in Appendix D.

Other issues

8.33 In its review of the Analysys model, Network Strategies identified an error in the Visual Basic code that dimensions main cable sizes. In

[207] Network Strategies, *ULLS: review of the ACCC draft decision*, October 2009, p.32-33
[208] Analysys, *Fixed LRIC model documentation – Version 2.0*, August 2009, p.127
[209] Network Strategies, *ULLS: review of the ACCC draft decision*, October 2009, p.35
[210] Network Strategies, *ULLS: review of the ACCC draft decision*, October 2009, p.37

particular, they found that to cost the main cables the model incorrectly uses 400 pair cables (resulting in a significant overestimate of the cost of the modelled network and of the ULLS price). This issue is discussed further at Attachment 3.

8.34 Network Strategies also identified that the model overestimates the cost of jointing, due to the incorrect assumption that a cable is cut completely at each joint.[211]

8.35 Optus submits that the ACCC should take account of the issues raised by Network Strategies and adjust the model accordingly.

Implementation of Optus Assumptions / Inputs: Adjusted Model Results

8.36 Optus acknowledges that these values have been quantified as a result of adjustments to the model, however there remain are a number of interactions within the model that need to be qualified. As a result, the prices indicated above should only be taken as a guide and highlights that a number of issues within the model need to be addressed.

8.37 The model's parameters have been adjusted for each of the parameters discussed above, with a summary of these results set out below.[212]

AUD	2009	2010	2011	2012
CAN network	$31,725 m	$32,064 m	$32,411 m	$32,766 m
CORE network	$13,109 m	$13,131 m	$13,178 m	$13,254 m

AUD/month [213]	2009	2010	2011	2012
ULLS (Zone A)	$18.74	$19.14	$19.50	$19.72
ULLS (Band 2)	$17.58	$17.95	$18.29	$18.49
WLR (Zone A)	$18.94	$19.34	$19.71	$19.93
WLR (Band 2)	$17.35	$17.72	$18.05	$18.26

[211] Network Strategies, *ULLS: review of the ACCC draft decision*, October 2009, p.37

[212] In deriving these values, Optus has only adjusted for the parameters within the Cost module. In this scenario adjustments have only been made to the parameters identified (excluding those listed under 'other issues'), all other model inputs are unadjusted from their default values.

[213] Monthly charges for ULLS include the specific cost component, while the monthly charges for WLR include the marked up cost.

LCS	6.66 cents/call	7.21 cents/call	7.56 cents/call	7.70 cents/call
PSTN OTA	0.68 cents/min	0.73 cents/min	0.77 cents/min	0.78 cents/min

8.38 The overall effect of those adjustments we have been able to quantify is to further reduce the access prices calculated by the model. For example, the resulting Zone A ULLS price in 2009 is $18.74.

8.39 Further, the results are also conservative to the extent that they do not assume aerial cabling or the most cost-effective trenching technologies. These issues are discussed further in Appendix C.

9. Glide Path for Services Subject to Price Shock

9.1 Optus considers that it may be appropriate for the Commission to apply a glide path to the access prices that it sets.

9.2 Businesses manage their operations based on expectations about the state of the markets in which that they operate. Although there is a degree of uncertainty inherent in business forecasting, and even more so in an innovative industry such as telecommunications, generally this variance is diversifiable on a whole of business scale.

9.3 Variations in regulatory pricing can also be forecast to a degree, but, only if the regulator is consistent in their decision making. When a regulatory decision results in significant and unexpected change in prices outside of reasonable expectations this will 'shock' the market.

9.4 The ACCC's Draft Pricing Principles represent such a shock. The move to raise ULLS prices came as a complete surprise to most industry players with access seekers left simply stunned by the ACCC's approach:

> *"I thought it was a typo," Primus CEO Ravi Bhatia told CommsDay after reading the new indicative price regime. "Here's an organisation telling us to build infrastructure around ULLS, then they suddenly think it's time to kill ULLS and the whole thing's topsy-turvy."*
>
> *"iiNet chief regulatory officer Steve Dalby described the changes as "confusing" after iiNet invested so much into its extensive DSLAM infrastructure. "For the last ten years or more the ACCC has been promoting ULL, but... this set of pricing principles [doesn't] link up with previous messages encouraging companies to move onto ULL."*

9.5 It is clear from the reaction of industry leaders that that if the ACCC pursues this change in pricing stance is will be extremely disruptive. However it is important to note that it is not only business that will be affected - the price changes will flow through the chain of supply and end up hurting consumers.[214]

9.6 Optus has argues strongly against the ACCC's approach to setting prices and put forward compelling evidence to suggest that all prices (including the ULLS) should be reduced. To the extent that any prices are subject to substantial change from one to the next a glide path would be appropriate.

9.7 An appropriate 'rule of thumb' for determining whether a glide path was necessary would be if a price change resulted in prices that

[214] Optus has provided more detailed information on the various impacts of the pricing decision in Chapter 3 of this submission.

diverged by more than 10 per cent different from those applied in the previous period then a glide path needs to be implemented. [215]

9.8 Optus also considers that if the Commission choose to implement a glide path for a service then it should have the following characteristics:

- The adjustment path should proceed from the ACCC's previously determined indicative price;
- The glide path should have price intervals one year apart;
- The glide path should be 'straight' with each decrement of an equal size, and
- The end price should be set at the best estimate of the TSLRIC+ cost of supplying the service.

9.9 For the record Optus notes that it would support using a glide path even in the circumstance that the Commission decided to reduce prices. The key issue is that if a service, and especially a key service such as the fixed line service, is subject to a significant price change then it would be appropriate for industry to be afforded time to make transitional arrangements via a glide path.

9.10 One of the options proposed by Optus in this submission was for the ACCC to adopt a roll-over of the current prices. That is, that the Commission should set no new prices now – or if it must set prices now, it should simply roll-over the current indicative prices until 1 July 2010. If the ACCC choses to adopt Optus' proposed approach the issue of price shock does not arise.

[215] Optus therefore agrees with the ACCC that a glide path will not be necessary for the WLR and LCS services.

10. Two Tiered Pricing for ULLS and WLR

10.1 Optus submits that the ACCC should not embrace averaged ULLS pricing (which it has criticised for years); rather it should continue to set prices for the ULLS according to cost-reflective geographic price bands.

10.2 The ACCC has for some time maintained a policy of setting separate ULLS prices for each of four geographic bands. It has emphatically rejected previous attempts by Telstra to have prices set on a geographically averaged basis.

10.3 As evident from the ACCC's past ULLS pricing principles[216] and its determinations on various ULLS access disputes[217], ULLS prices were set based on a geographic de-averaged price structure since it was first declared in 1999.[218]

Telstra's undertaking proposed geographical averaging

10.4 In its December 2005 ULLS undertaking Telstra proposed a geographically averaged price of $30 per month across all geographic Bands. But the ACCC and the Australian Competition Tribunal were highly critical of this approach and rejected the undertaking – and the principles of geographic averaging:

> "*The ACCC reached a view in its undertaking assessment that it was not satisfied that Telstra's proposed averaged ULLS charges were reasonable. In particular, the ACCC considered that averaged pricing would adversely affect competition in the markets for basic telephony and broadband services, and distort usage and investment decisions, resulting in the inefficient use of, and investment in, telecommunications infrastructure."*[219]
>
> *"The ACCC noted that Telstra had a legitimate business interest in recovering its costs of complying with its retail parity obligation. However, it was not satisfied that Telstra would not be adequately compensated for those costs without averaged pricing due to the limited scope of the parity obligation and the role of the Universal Service Fund in compensating for retail parity.*

[216] ACCC, *Unconditioned local loop service (ULLS) – Final pricing principles*, November 2007; ACCC, *Pricing of ULLS*, Final Report, March 2002

[217] ACCC, *Optus/Telstra ULLS (monthly) final determination*, March 2008; ACCC, *Chime-Telstra (monthly) final determination*, March 2008; and *Primus-Telstra ULLS (monthly) final determination*, December 2007.

[218] ACCC, *Unconditioned local loop service (ULLS) – Final pricing principles*, November 2007, p.17

[219] ACCC, *Unconditioned local loop service (ULLS) – Final pricing principles*, November 2007, p.19

> … *Accordingly, the ACCC's pricing principle is that ULLS prices should be geographically de-averaged."*[220]

10.5 The rationale for the ACCC's policy was that prices should be cost-reflective. The bands are defined by substantial differences in teledensity, and network costs per line are closely related to teledensity. As the ACCC noted in the past:

> "*It is therefore efficient to have a pricing structure that reflects significant price differentials between different areas where there are significant cost differences, while minimising the administrative burden. To date, Telstra has generally sought to achieve this balance by proposing a banded pricing structure that reflects the different cost of providing ULLS in CBD, metropolitan, regional and rural areas.*"[221]

10.6 The Tribunal supported the ACCC's conclusions. It reaffirmed that geographic averaging is inappropriate having regard to s152AB and s152AH of the Act. The Tribunal found that geographic averaging in not in the long term interests of end users.[222]

10.7 The Tribunal considered that geographic averaging will not promote competition in both urban and rural areas. In respect of urban areas (Band 1 and 2), the Tribunal found that geographic averaging:

> "*will not bring about a result that the competitive environment for the supply of retail services provided using access to the ULLS in urban areas will be enhanced, improved or changed in a way which provides a positive boost for the competitive environment.*"[223]

10.8 The Tribunal also concluded that averaging would not result in the promotion of competition in rural areas.[224] [225] The Tribunal also found that geographic averaging does not encourage the efficient use of, and investment in infrastructure in both urban and rural areas.

10.9 However, the Tribunal identified many negative effects of geographic averaging. In respect of urban areas (Band 1 and 2), the Tribunal

---

[220] ACCC, *Unconditioned local loop service (ULLS) – Final pricing principles*, November 2007, p20

[221] ACCC, *Assessment of Telstra's ULLS monthly charge undertaking*, Final Decision public version, August 2006, p81

[222] *Re Telstra Corporation Ltd (No 3)* [2007] ACompT3

[223] *Re Telstra Corporation Ltd (No 3)* [2007] ACompT3, para 130

[224] *Re Telstra Corporation Ltd (No 3)* [2007] ACompT3, para 144-145

[225] In respect of rural areas (Band 3 and 4), the Tribunal noted that there are technical limitations on the use of ULLS in the rural areas. The Tribunal quoted Telstra's Chief Technology Officer, Dr Hugh Bradlow who stated that: "The limitation of DSL technology is that it can only be offered where the customer's premises are within a certain distance from the local telephone exchange. This distance depends on the type of copper cable, (e.g. its thickness) which is used to connect the customer to the exchange." The Tribunal further noted that at that time there had been minimal take up of ULLS in rural areas and that competition in rural areas had been virtually non-existent. *Re Telstra Corporation Ltd (No 3)* [2007] ACompT3, para 140

considered that geographic averaging has the potential for encouraging:

> *"• inefficient bypass of Telstra's CAN;*
> *• inefficiently low levels of infrastructure investment by access seekers in the infrastructure needed to be used with the ULLS (such as DSLAMs) in order to provide telecommunications services to end-users in these areas; and*
> *• inefficiently high investment in the infrastructure necessary for Telstra to provide alternative wholesale products to access seekers."*[226]

10.10 In respect of rural areas (Band 3 and 4), the Tribunal considered that geographic averaging increases the potential for:

> "*• inefficiently low investment in alternative infrastructure by which telecommunications services can be provided in competition with those provided over the CAN;*
> *• inefficiently high infrastructure investment by access seekers in the infrastructure necessary to provide telecommunications services in combination with access to the ULLS; and*
> *• inefficiently low investment in the infrastructure needed by Telstra to provide alternative wholesale products to access seekers"*[227].

10.11 The Tribunal concluded that:

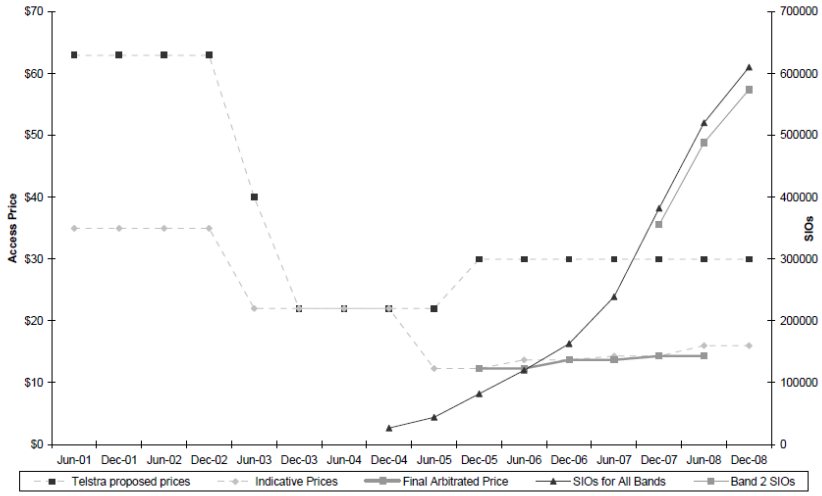
> "*The resultant disassociation between prices and costs would be likely to generate:*
> *• less than allocatively-efficient consumption of telecommunications services in Bands 1 and 2; and*
> *• greater than allocatively-efficient consumption of telecommunications services in Bands 3 and 4."*[228]

Implications of the deaveraged pricing policy

10.12 The ACCC's policy has had significant practical implications. Access seekers have made substantial investments in DSLAM infrastructure in Band 2 in reliance on the ACCC's pricing approach to ULLS. As acknowledged by the ACCC in its assessment of Telstra's 2008 Band 2 ULLS monthly charge undertaking (Table 2 and Figure 6 below),[229] there is a strong correlation between the uptake of ULLS and the Band 2 ULLS indicative prices.

[226] *Re Telstra Corporation Ltd (No 3)* [2007] ACompT3, para 167
[227] *Re Telstra Corporation Ltd (No 3)* [2007] ACompT3, para 169
[228] *Re Telstra Corporation Ltd (No 3*) [2007] ACompT3, para 172
[229] ACCC, *Assessment of Telstra's ULLS Band 2 monthly charge undertaking*, Final Decision public version, April 2009, pp78-80

Figure 6 ULLS price trends and ULLS SIO uptake



Sources:
ACCC analysis of Telstra's Customer Access Network Record Keeping and Reporting Rules (2008)

Table 2 Band 2 ULLS prices, and ULLS SIO uptake

	Band 2					All Bands	
	Telstra proposed prices	ULLS indicative prices	Final arbitrated prices	Annual ULLS SIO growth	Band 2 SIO growth as a % of all bands SIO Growth	Annual ULLS SIO Growth[1]	Annual TLS Retail DSL Growth[2]
Dec-01	$63	$35					
Dec-02	$63	$35					
Dec-03[3]	$22[4]	$22[5]					
Dec-04[6]	$22	$22[7]					
Dec-05[8]	$30[9]	$12.30	$12.30			209.70%	107.61%
Dec-06	$30[10]	$13.70	$13.70			98.78%	46.90%
Dec-07	$30[11]	$14.30	$14.30			134.48%	13.93%
Dec-08[12]	$30	$16		61.54%	95.83%	59.76%	0.03%
average annual growth				61.54%		125.68%	42.12%

Sources:
ACCC analysis of Telstra's Customer Access Network Record Keeping and Reporting Rules (2008)
ACCC, *Final Pricing Principals for the Unconditioned Local Loop Service Amendment Determination 2008 (No.1)*
ACCC, *Pricing of unconditioned local loop services final report-2002*
ACCC, *Price model terms and conditions Final Determination-October 2003*
UBS, *Australian Telecommunications Tracker*
Telstra, *Annual Report*, 2006 to 2008

10.13 Band 2 ULLS indicative prices have fallen over time whilst the uptake of ULLS has grown significantly. The ACCC stated that:

> "*[t]he ULLS price is an important factor in encouraging new investment in, and further augmentation to the ULLS-based network, as access seekers incur this cost when delivering broadband/DSL and voice services to end-users, using their own infrastructure.*"[230]

The ACCC's new position

10.14 However, in its draft pricing principles, the ACCC appears to have abandoned its longstanding commitment to cost-reflective pricing by moving towards more geographically averaged prices.

[230] ACCC, *Assessment of Telstra's ULLS Band 2 monthly charge undertaking*, Final Decision public version, April 2009, p.81

10.15 It appears that averaging will be effectively complete under the proposed regime, since all of the addresses in Australia to which it is cost-effective to supply broadband over the ULLS will be in Zone A (since for Zone B addresses are more economic to supply via wireless or satellite technologies). It follows that access seekers will be charged the same geographically averaged ULLS access price in respect of supply to all of the addresses in Australia to which it is feasible to supply broadband over the ULLS.

The business case for Access Seeker investment in ULLS-based services

10.16 It appears that one of the ACCC's objectives in abandoning its policy of cost-reflective geographic price bands may have been its desire to encourage investment by access seekers in those Band 3 and 4 exchange areas which would fall into Zone A under the proposed new geographic approach.

10.17 However, Optus considers that the business case for further Access Seeker investment in ULLS-based services is weak, even in those Band 3 and 4 exchange areas. Optus considers that the new geographical averaging policy will not encourage access seekers to invest in Bands 3 and 4, for the reasons discussed in Chapter 3.

10.18 Optus submits that there are no good reasons for a shift towards geographically averaged prices, which place a tax on end users of telecommunications services in metropolitan areas and will overcompensate Telstra. Optus submits that the ACCC should not depart from the policy of cost-reflective geographic bands on which access seekers have relied in making their substantial investments in DSLAM infrastructure in Band 2.

Optus' proposed approach to pricing according to cost-reflective price bands

10.19 If the ACCC wishes to encourage investment by access seekers in those Band 3 and 4 exchange areas which would fall into Zone A, then, to the extent such investment may occur, it could be made more likely by retaining the current Bands 1 and 2, and simply replacing Bands 3 and 4 with new bands representing the "clustered" and "spread" ESAs respectively within Bands 3 and 4. This would cause the access price for "clustered" Band 3 and 4 exchanges to fall relative to the pricing which would apply to the remainder of Bands 3 and 4.

10.20 This approach would be significantly more cost-reflective than the ACCC's proposed two-band approach. It would also be significantly more cost-reflective than Telstra's current four-band system (since clustered ESAs in Bands 3 and 4 are closer in terms of cost to each other than to spread ESAs in Bands 3 and 4). It could potentially encourage investment in "clustered" Band 3 and 4 exchanges (to the extent any further DSLAM investment is likely in present circumstances) without affecting the pricing of Band 2 exchanges (thereby avoiding all the deleterious effects on competition described in Chapter 3).

10.21 Analysys has taken a very detailed approach in analysing the demand and location factors of each exchange area in order to assign it to its appropriate geotype. In addition, Analysys has also reconsidered the assignment of exchange areas within the existing Bands 3 and 4, consequently redefining the conditions each of these exchange areas should satisfy in order to assign it to its appropriate geotype.

10.22 The process for this reassignment of Bands 3 and 4 has been two-fold. The first involves the aggregation then disaggregation of all Band 3 and 4 exchange areas into two redefined bands, referred to as Band 3/4 (clustered) and Band 3/4 (spread). The key objective of this assignment is to identify if a certain proportion of serviceable addresses is located within a particular distance to a copper centre, for example the local exchange. Analysys has adopted the assumption that this objective is satisfied if 98 per cent of the serviceable addresses are located within a 4km radius of the local exchange: then the exchange area will be considered to be clustered.

10.23 Following this initial assignment, the new bands are then further disaggregated using an average road length per location as a proxy for trench cost in order to assign each exchange area to its appropriate geotype.

10.24 A comparison of the classification schedule for exchange areas is illustrated below. This demonstrates the relationship between each of the approaches taken first by Telstra then improved by Analysys. However, the approach taken by the ACCC appears to take a backward step by essentially undoing the classification approach of Analysys.

Telstra Bands 1 to 4	Band 1		Band 2				Band 3 and 4 [231]									
Analysys Geotypes 1-16	G1	G2	G3	G4	G5	G6	G7	G8	G9	G10	G11	G12	G13	G14	G15	G16
Analysys Bands [232]	Band 1		Band 2				Band 3/4 (clustered)			Band 3/4 (spread)					n/a	
ACCC Zone A and B	Zone A										Zone B [233]					

10.25 The following table sets out the monthly charges that would result using the ACCC's zoning classification and Analysys' banding

[231] For the purpose of this illustration, Bands 3 and 4 have been aggregated as there is no explicit relationship linking Telstra's Bands 3 and 4 since Analysys has reallocated the exchange areas within these bands to derive the geographically de-averaged cost-reflective "sub-bands" within these bands.

[232] For the purpose of this illustration, the revised banding approach taken by Analysys has been represented. As shown, this utilises a similar structure to Telstra's banding approach with a more efficient geographic classification for Bands 3 and 4.

[233] Geotype 16 exchange areas have been allocated manually, therefore a while the majority of exchange areas have been allocated to Zone B, there are two exchange areas within this grouping that have been allocated to Zone A.

classification. The access prices indicated represents the model output for 2009 and assumes that no adjustments have been made to the model.[234]

Output for 2009	**ACCC Zoning**		**Analysys Bands**			
AUD/month [235]	**Zone A**	**Zone B**	**Band 1**	**Band 2**	**Band 3/4 (clustered)**	**Band 3/4 (spread)**
ULLS	$21.62	$59.39	$3.29	$20.04	$33.52	$51.86
WLR	$22.88	$66.69	$8.99	$20.79	$34.36	$57.33
LCS	6.79 cents/call		6.79 cents/call			
PSTN OTA	0.69 cents/min		0.69 cents/min			

10.26 Optus submits that the ACCC should adopt the Analysys banding system described above, retaining Bands 1 and 2, and introducing new bands representing the "clustered" and "spread" ESAs respectively within Bands 3 and 4.

[234] It should be noted that the Analysys model currently does not provide an explicit output price for the ACCC's zoning classification.
[235] Monthly charges for ULLS exclude the specific cost component, while the monthly charges for WLR include the marked up cost.

11. Single National Pricing for PSTN and LCS

11.1 The are two key aspects to the ACCC's proposed prices for PSTN OTA services; firstly, a reduction in the average per unit cost to 0.8 cent/min, and; secondly, a move to a single national rate with the removal of Telstra's arcane tiered pricing table. Optus is highly supportive of both of these changes, since they respond to criticisms Optus has raised since 2003 about the level and structure of Telstra's PSTN OTA rates.

11.2 Before examining these issues in more detail it should be stressed that Optus' previous comments relating to the ACCC's application of TSLRIC apply equally to PSTN OTA. That is, we believe that prices should be set on DORC methodology which would actually lead to lower prices than those proposed in the ACCC's draft Pricing Principles.

Appropriate Level of PSTN OTA rates

11.3 The ACCC last undertook a detailed examination of PSTN OTA prices in its final determination of model prices in October 2003. In that determination the ACCC proposed a glide path for PSTN OTA prices that would allow for the gradual unwinding of the Access Deficit Contribution previously included in PSTN OTA prices between the period 2003-04 to 2005-06. Under this proposal PSTN OTA rates were to be reduced from 1.25 c/min to 1.0 c/min. The ACCC signalled that PSTN OTA rates should ultimately be reduced to a cost based level of 0.7 c/min (on average) by 2006-07.

11.4 Against advice from Optus, and notwithstanding its own evidence to the contrary the ACCC did not enforce a reduction in PSTN OTA prices to cost. At the end of its 2003 model prices determination the ACCC simply rolled over PSTN rates at an average rate of 1 c/min for both the periods 2006-07 and 2007-08. As a consequence, Optus submits that current PSTN OTA rates remain well above cost.

11.5 It is appropriate, therefore, that PSTN OTA rates are reduced now. Unlike ULLS, the outputs of the Analysys model appear to be in line with previous estimates of PSTN OA costs, including those sourced from Telstra's PIE II model and its RAF data. Further, as indicated in the table below a PSTN OTA rate at 0.8 c/min would remain above the rates charged by incumbents in many other jurisdictions.

Operator	USD cents/min
Telstra	0.701
Telia	0.51
BT	0.47
US Fixed Operators	0.44

Structure of charges

11.6 The ACCC has previously adopted a tiered rate table for PSTN OTA rates that was originally proposed by Telstra with charges based on Call Collection Areas (CCA). Under this structure access seekers have been charged both a flagfall and conveyance component each of which attracts a different rate depending upon the CCA in which the call originates or terminates.

11.7 Optus has long expressed concerns with this approach. In particular, it has never been satisfactorily proven that such a structure is justified according to the underlying costs. Further, Optus considers that the structure of this rate table has enabled Telstra to systematically over recoup costs from access seekers. The way this has occurred is as follows.

- The costs of PSTN OTA are largely fixed since they reflect sunk investment.
- The ACCC has previously determined that Telstra's average costs are 1 cent for any given minute of traffic.
- However, actual access prices are based on a rate table with 12 different charges.
- It follows that Telstra will only recoup on average 1 cent/minute if actual traffic patterns perfectly correlate to the traffic assumptions underpinning the rate table.
- Optus has previously put forward evidence to demonstrate that actual traffic patterns differed significantly from the ACCC's expectations with the result that Telstra is actually recouping a rate well in excess of 1 cent/minute from Access Seekers. The application of the ACCC's previous rate would have required Optus to pay Telstra as much as **CiC**

11.8 Optus submits that the proposed change to the charging structure for PSTN OTA is long overdue. As with Mobile Termination the geographic cost differences are insignificant and certainly insufficient to justify the complexity and risk of over recovery from continuing with the present tiered pricing structure. It is appropriate that the ACCC moves to a single national rate and removes Telstra's ability to rort the industry through the application of its arbitrary rate table.

Appendix A: International Benchmarking Analysis

Attached as separate document.

Appendix B: WACC parameters

Attached as separate document.

Appendix C: Technology choice and network deployment

Attached as separate document.

Appendix D: Tilted Adjustments

Attached as separate document.

Attachment 1: CEG, Reform of Part XIC: Regulatory Certainty

Attached as separate document.

Attachment 2A: CEG, Contestable market asset valuation for the unbundled local loop

Attached as separate document.

Attachment 2B: Milner, Using the ACCC Analysys Network Model for Modeling Fibre to the Premise

Attached as separate document.

Attachment 3: Network Strategies, ULLS: review of the ACCC draft decision

Attached as separate document.

Attachment 4: Network Strategies, ULLS: benchmarking study

Attached as separate document.

Attachment 5: NERA, Role of TSLRIC in Telecommunications Regulation

Attached as separate document.