IN THE MATTER OF UNDERTAKING DATED 3 MARCH 2008 LODGED BY TELSTRA CORPORATION LIMITED WITH THE AUSTRALIAN COMPETITION AND CONSUMER COMMISSION IN RESPECT OF UNCONDITIONED LOCAL LOOP SERVICE ("the Access Undertaking")

STATEMENT OF HENRY ERGAS

My name is Henry Ergas of 27 Jardine Street, Canberra, Australia. I have been briefed by Gilbert + Tobin (G + T) Lawyers as an expert under the Federal Court Guidelines and asked to consider the economic issues in response the Europe Economics (EE) report entitled "Pricing Principles for the Unconditioned Local Loop Service (ULLS) in Australia: The Conceptual Framework" dated 26 March 2009 (EE Report).

I have read the Federal Court's 'Guidelines for Expert Witnesses in Proceedings in the Federal Court of Australia, which forms Annexure A to this report. I have prepared this report accordingly, making all inquiries I consider to be appropriate, having regard to the instructions from G + T (attached in Annexure B to this report).

My Statement is structured as follows:

- Section 1 sets out my qualifications and the background to this Statement;
- Sections 2 to 5 discuss what appear to be base assumptions of the EE Report, but which, in my opinion are incorrect. The EE Report considers that:
  - *EE Report assumption 1: the proposed national broadband network (NBN) of the Australian Commonwealth Government (the Government) will largely be deployed as a fibre-to-the-node (FTTN) network, and the FTTN network deployment will not merely bypass the section of the copper loop that runs from the exchange to the node, but will render that loop perpetually unviable*. However, the EE Report fails to demonstrate that FTTN deployment need make the bypassed copper loop unviable, and in any case, the proposed FTTN network is no longer proceeding. Rather, the recent announcement by the Government is for the deployment of a materially different fibre-to-the-premise (FTTP) network, and FTTP bypass leaves the existing copper loop fully intact (section 2);
  - *EE Report assumption 2*: *the bypassed copper network would have been made economically valueless by the proposed FTTN network*. However, in my opinion the EE Report fails to demonstrate this. Instead, there are good reasons to believe the copper network could have remained used and efficiently so for the ongoing future under EE report's assumed FTTN. Again, in any case, this is probably so under the government's (FTTP) NBN (section 3);
  - *EE Report assumption 3: ducts and trenches are a physically perpetual asset for which there are no real alternatives*. However, in fact any given duct or trench

has a finite physical life, and in any case, may have to be expanded, replicated or upgraded to meet new demands. Similarly, contrary to the EE Report's presumption, there are efficient alternatives to ducts and trenches (section 4);

– *EE Report assumption 4: FTTN or other electronic communication networks are natural monopolies, and in any case, a FTTN network would preclude full-facility competition*. However, in my opinion, the EE Report fails to show this. In my view, vigorous competition against FTTN (and FTTP and HFC and copper) networks in numerous locations provides strong *prima facie* evidence against both these views (section 5).

- In section 6, I argue that the conclusions of the EE Report, which are dependent on assumptions I have shown to be incorrect, do not follow. In particular, the EE Report fails to make the case that access prices should be set to levels lower than those implied by the TSLRIC+ standard of the Australian Competition and Consumer Commission (the Commission), and all the more so in the light of the government's announced FTTP network. Rather, the case for continuing to use the TSLRIC+ approach, in particular the use of a forward-looking replacement cost standard, in setting access prices remains intact (and so specifically applies to trenches, ducts and the copper network).

1. QUALIFICATIONS AND BACKGROUND

I am Chairman of Concept Economics. Prior to my current position I was a Vice President and the Asia Pacific Regional Head of Charles River Associates International (CRA) and the founder and Managing Director of the Network Economics Consulting Group (NECG) Pty Ltd, which was acquired by CRA in November 2004. My Curriculum Vitae is attached in Annexure C to this report. I, and Concept Economics and its predecessors, have a previous consulting relationship with Telstra. I have advised Telstra since the early 1990s on regulatory and competition issues, including analysing costing and pricing issues, access charging, and matters related to cost-recovery under the Universal Service Obligation. I have also assisted Telstra in respect of major ACCC inquiries and proceedings. These include advice on a range of services, including ULLS, public switched telephone network (PSTN) originating and termination access services, local carriage service, line sharing service and wholesale line rental, as well as the National Broadband Network.

In this Statement, I provide my opinion with respect to the matters I have been asked to comment on, namely, the assumptions in, reasoning of, and main conclusions in, the EE Report.

2. THE BIDDING PROCESS FOR THE FTTN NETWORK ASSUMED BY THE EE REPORT HAS BEEN ABANDONED FOR A FTTP NETWORK

A central assumption of the EE Report is that an open access largely FTTN NBN is to be built, in part funded by up to a $4.7 billion dollar Government subsidy.[1] The EE Report provides

[1] EE Report, paragraph 2.15, basing its analysis on a Government source cited in its footnote 15. That the proposed NBN is central to its analysis can be seen from paragraphs 1.16 (b), 1.17 (a), 2.21-2.22, 3.23-3.24, especially 3.29-3.35, 4.1-4.15 and text related to these cited paragraphs.

substantial detail about the assumed characteristics of the proposed NBN.[2] Relevant to the conclusions of the EE Report, the proposed network is assumed to cover 98 percent of the Australian population,[3] and be completed by the end of 2014,[4] with the further assumption that Telstra has been excluded from the NBN bidding process.[5]

While EE's assumptions may have reflected its expectation at the time the report was authored, the originally proposed NBN bidding process is now not to proceed.[6] Instead, the Government has announced that a company with majority government ownership is to be set up to build what will largely be an FTTP network[7] that would "[c]onnect 90 percent of all Australian homes, schools and workplaces with broadband services with speeds up to 100 megabits per second" and "[c]onnect all other premises in Australia with next generation wireless and satellite technologies that will deliver broadband speeds of 12 megabits per second".

EE Report's assumed FTTN network and the just announced FTTP network are substantially different networks. Figure 1, which is based on my understanding of the various network structures, provides, moving from left to right, a schematic comparison of the ULLS (which is covered by the Undertaking), EE Report's anticipated FTTN network and the new FTTP network.

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2 For example, EE Report, paragraphs 2.15-2.20, and Appendix 3.

3 EE Report, paragraph A3.7.

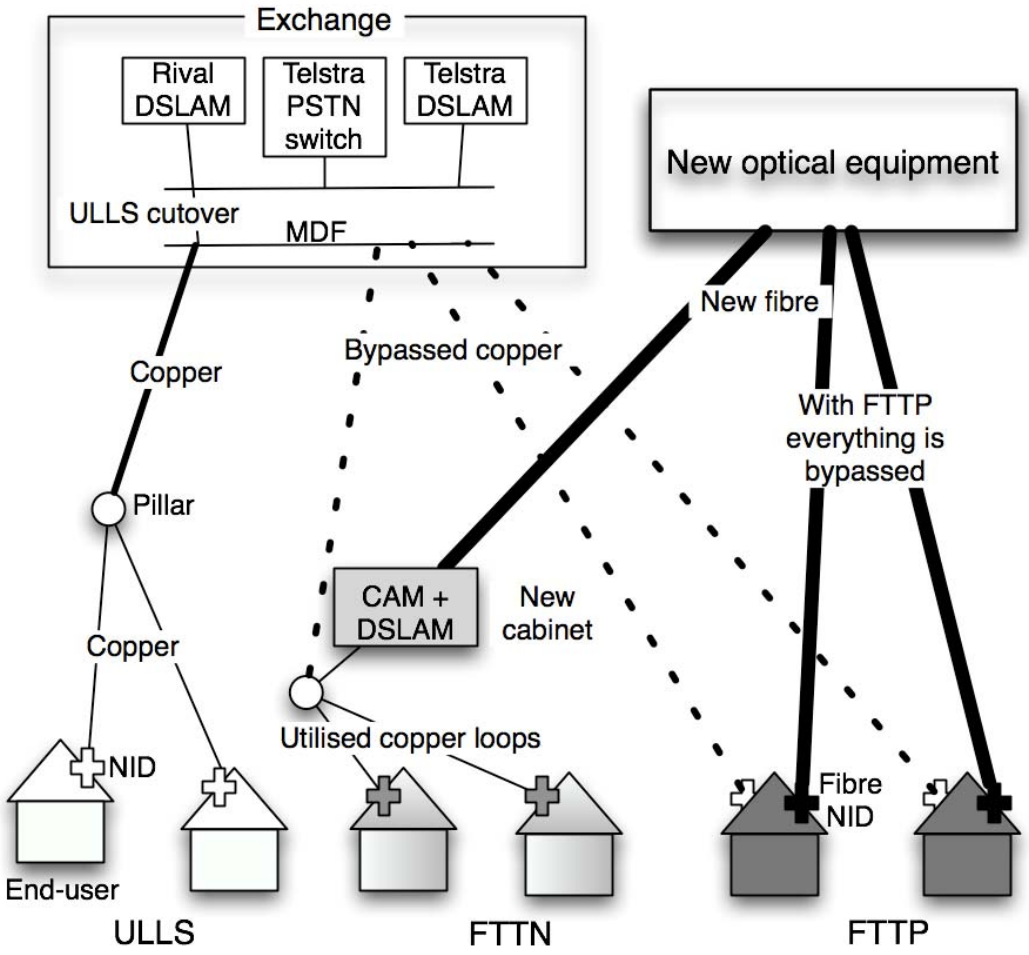
4 EE Report, paragraph 2.17.

5 EE Report, paragraph 2.19.

6 Prime Minister, Treasurer, Minister for Finance, Minister for broadband, New National Broadband Network, Press Release, 7 April 2009, http://www.minister.dbcde.gov.au/media/media_releases/2009/022. All quotes associated with this paragraph are from this source.

7 "The Panel of Experts has encouraged the Government to invest in optical fibre technology, supplemented by next-generation wireless and satellite technologies. The Australian Competition and Consumer Commission has also endorsed the use of FTTP as a superior technology to Fibre to the Node."

Figure 1: ULLS, FTTN and FTTP network schematic



Notes: CAM = customer access module; MDF = main distribution frame; NID = network interface device; PSTN = public switched telephone network.

Figure 1 merits some explanation. Starting with the ULLS, an access seeker typically would install its own digital subscriber line access multiplexer (DSLAM) in Telstra's exchange and the copper loops that connect the exchange to the access seeker's customers would be disconnected from Telstra's equipment and connected to that of the access seeker. In addition, the access seeker would provide backhaul from the exchange to its own network (not illustrated). In this illustration of the ULLS, each telephone line that terminates at an end-user's premise is supported by a copper loop that runs all the way to the exchange. Such loops often exceed a kilometre in length.

In contrast, under EE Report's assumed FTTN configuration (illustrated in the central part of Figure 1), a substantial piece of the copper line is bypassed. Cabinets would have been built at a node materially closer to the end-users' premises than the average PSTN loop length[8] and

[8] The EE Report also considers the appropriate length of copper loop distance from FTTN cabinets to the end-user to be commercially confidential (paragraphs A3.27-A3.29), but it is widely recognised that FTTN architecture requires that the active copper cable be substantially shorter than the PSTN average (see for example: da Silva, Henrique, *Optical Access Networks*, Instituto de Telecomunicações, March 2005).

the copper loops of those end-users who were to be supplied on the FTTN network would have been cutover to the cabinet, leaving the loop from the cabinet to the exchange idle. A new fibre optic cable would have then been pulled from the cabinets to a new (potentially non-Telstra) location where end-user traffic would be either directly connected to FTTN access seekers' backbone networks or processed for connection (not illustrated).

There is no dispute that EE Report's assumed FTTN network would have bypassed the copper loop that runs from the exchange to newly installed cabinets. The EE Report describes this loop as being "replaced" and "made redundant".[9] This could indicate that the EE Report assumes the bypassed loop to be merely unnecessary. However, it may be that the EE Report assumes that copper loop which runs from the exchange to the node, once cut at the node, could never be viably utilised again. If so, the EE Report provides little if any discussion or evidence of this. Further, as is recognised in the EE Report,[10] it is my understanding that cutting the copper loop at the node need not render the bypassed loop unviable (just as cutting the copper does not render the loop from the node to the customer's premise unviable), though it could increase the costs of using the loop.[11] Further, as Telstra was not part of the abandoned NBN bidding process, it would have had some incentive to protect that part of its network that would have been bypassed. Thus, in my view, it cannot be concluded without making further assumptions that EE Report's assumed FTTN would have rendered the loop from the exchange to the node incapable of being utilised.

However that may be, the newly proposed FTTP network is substantially different from EE Report's assumed FTTN network, as is illustrated on the right hand side of Figure 1. In particular, the FTTP network bypasses Telstra's copper network leaving its copper loops intact and fully capable of ongoing service. Consequently, it is difficult to place any weight on the conclusions of the EE Report that are based on the assumption that the physical (and hence economic) life of sections of Telstra's copper loop will be ended by a FTTN network.

3. THE CASE IS NOT MADE THAT THE COPPER NETWORK WILL BE STRANDED

A basic premise of the EE Report is that:[12]

> *[D]emand for the services of Telstra's ULLS will be significantly affected by the introduction of the NBN. This means that some of Telstra's local loop assets will no longer be used (being made technically obsolete by the NBN)*

but instead, will only be used for a "limited time"[13] and "will not be needed in the long term".[14] More specifically, the EE Report appears to assume any copper bypassed by an FTTN would "not be needed in the long term",[15] a process that would have been completed by 2014.[16]

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9 EE Report, paragraph A3.6.

10 The EE Report, paragraph 4.8. The conclusion of paragraph 4.8 does not follow. The EE Report's argument is that TSLRIC+ pricing should be abandoned for assets that will become redundant, but here the EE Report recognises the assets in question may continue to be used. In that case, TSLRIC+ pricing should be applied, rather than pricing to reflect the asset's residual value.

11 It is my understanding that it may be more expensive to cut the loop and preserve its capabilities than to simply cut it, and it may be, perhaps even substantially, more expensive to reactivate a loop that was cut without taking action to maintain the line's viability.

12 The EE Report, paragraph 3.23; see also paragraphs 1.17(b), 5.25, A3.6 and A3.20-A3.29.

This premise of the EE Report is somewhat different from those addressed in the previous section. In that section, I noted that (1) the EE Report does not demonstrate that a FTTN network would render unviable copper loop that runs from the exchange to FTTN cabinet, and (2) even if one accepted it would, a FTTN network is not going to be deployed and so the existing copper loop will remain intact. However, it remains the case that FTTN and FTTP networks bypass existing copper loop. Such networks could, therefore, make that loop economically valueless, even if they did not end its physical life, and this is what the EE Report seems to be assuming here. That is, the EE Report's assumption may be that while existing copper loop might still be kept in a state where it could be physically used or if need be reactivated (or, also possible in the case of a FTTP network, never deactivated), given the availability of a fibre bypass loop, demand would never justify reactivation or use, and so the bypassed copper loop would have no future economic life in the supply of electronic communications.

It is my view the EE Report fails to make the case that the copper network would, and much less that it should, become economically valueless in the supply of electronic communications, and for two reasons. First, even accepting the mistaken premise that EE Report's assumed FTTN network would be rolled out on a known timetable and without delays, the EE Report fails to make the case that the copper loop that would have been bypassed would consequently have no value in use. Such evidence is necessary since, as the EE Report explicitly recognises,[17] the bypassed copper may still be useful to Telstra. Third-party bypass of part of Telstra's copper loops does not imply that Telstra would abandon those loops. On the contrary, they would be maintained so long as Telstra expects that there will be a net contribution to its profits from doing so, whether from actual or potential use. In those circumstances, the partially bypassed copper remains valuable and efficiently so: it provides or is expected to provide end-users with services that they value more greatly than the services' costs, and can grant Telstra a competitive presence at a lower cost than that which would be incurred if Telstra abandoned the bypassed copper.

That the deployment of a more modern network does not make bypassed copper obsolete is well illustrated by many telcos' continued use of, and indeed reliance on, their copper networks in regions where rivals have deployed more advanced hybrid fibre coaxial (HFC) networks. This is so in Australia, where Telstra has maintained, over a substantial period, its copper network intact in those locations where Optus has deployed its HFC network. Similarly, in the United States, very substantial cable overlap led the incumbent carriers to more aggressively use their copper networks, for example, through the rollout digital subscriber line technologies (xDSL), rather than to abandon them.[18]

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13 The EE Report, paragraph 4.1(a).

14 The EE Report, paragraph 4.4.

15 The EE Report, paragraphs A3.20-A3.29.

16 The EE Report, paragraph 4.13; Table 4.1; paragraph 4.30 suggests the EE Report considers that, given rollout of EE Report's assumed FTTN network, some of Telstra's assets may have no economic use prior to 2014 (see also paragraph 2.17).

17 See footnote 10 above.

18 United States Department of Justice (DOJ), 2007 Telecommunications Symposium, Voice, Video and Broadband: The Changing Competitive Landscape and Its Impact on Consumers: Report, November 2008, pages 7, 19*ff*, 33, http://www.usdoj.gov/atr/public/reports/239284.pdf.

In the same way, the copper network may remain valuable even when Telstra itself builds a new network that bypasses its own copper network. Indeed, this has already been shown to be the case in that Telstra did not abandon the copper network where it rolled out its own HFC network. Similarly, Verizon is not routinely abandoning its copper where it is deploying its FTTP network.[19] In short, network duplication, whether by rivals or the original network provider, does not provide even *prima facie* evidence that the original network is superfluous.

Second, the EE Report does not demonstrate bypass will occur in a material timeframe. The claim of the EE Report, that the FTTN NBN would be in place by 2014, was speculative, as has been illustrated by the abandonment of the bidding process. It is my experience, based on a wide range of industry studies and supported by informed observers,[20] that network deployment on the scale of the NBN (in either form) can readily experience substantial delays and changes. Consequently, simply assuming that such a network would be in place, largely as planned, and within five years, can provide no basis for setting prices only intended to apply until 31 December 2010, let alone for changing long standing economic policy. Rather, even if one accepted the EE Report's view that full and final completion of the assumed FTTN NBN would have rendered bypassed copper loop economically valueless as a means of supplying electronic communications (and I do not), informed policy would recognise that other outcomes were possible, including that delay or other changes may have substantially postponed or altogether prevented the aforesaid bypass.

In summary, in my view, the EE Report fails to make out the case that any, and most especially projected, bypass of Telstra's copper network justifies treating the bypassed copper as if it had no economic value in supplying electronic communications.

4. DUCTS AND TRENCHES ARE NEITHER PERPETUAL NOR WITHOUT ALTERNATIVES

The EE Report appears to consider ducts and trenches to be assets with infinite lives.[21] This seems incorrect to me as a matter of fact, because their physical lives are finite. Moreover, in my view their economically useful lives can be expected to be even shorter than their physical lives, due to factors I discuss below. In any case, existing ducts and trenches may either have no further capacity, requiring expansion or replication, or require upgrades to meet new demands. As a result, in my view, even if ducts and trenches were infinitely lived, new investments in ducts and trenches will have to be routinely made. The EE Report also appears

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19 "FiOS Kills Copper (Or Does It?): Verizon clarifies treatment of POTS, old copper...", DSL Reports, 9 July 2007 (http://www.dslreports.com/shownews/FiOS-Kills-Copper-Or-Does-It-85606).

20 See, for experience with infrastructure projects, Henry Ergas "In the Dark", The Review (supplement to the Australian Financial Review, 9 February, 2007); see also Bent Flyvbjerg, Massimo Garbuio and Dan Lovallo "Delusion and Deception in Large Infrastructure Projects", California Management Review Vol. 51, No. 2 Winter 2009. Specifically with respect to FTTN, see, for example, Internode's views on the FTTN network (Internode submission to the "Request for submissions on regulatory issues" related to the National Broadband Network (NBN), June 2008).

21 The EE Report, paragraphs 3.42, 4.27, 4.29(c) and 6.3. This is also implicit in paragraph 4.15, where it is argued that Telstra's ducts and trenches will be the only ones used, and that they should not be priced at replacement cost, presumably because Telstra will never have to replace them, and in similarly paragraph 4.20 (where I note the relevant parties' incentives to come to an arrangement that avoids inefficient bypass of Telstra's ducts and trenches increases with the extent of the bypass inefficiency, since that inefficiency provides a source of surplus that can be obtained through trade).

to assume that there are generally no efficient alternatives to use of Telstra's ducts and trenches.[22] In my view, this is incorrect. Each of these points is dealt with in turn:

- Ducts and trenches do not last forever, but are subject to routine deterioration and loss due to accidents of both natural and human causes. Indeed, ducts are typically considered to have a thirty to forty-year life,[23] and must be maintained and in some instances largely rebuilt or replaced. Consequently (as I discuss in section 6 below), the consistent application of a cost-based pricing approach (such as TSLRIC+) can provide efficient incentives for such investment in the same way as applies to other assets.

- In my view, the economic lives of ducts and trenches may be even shorter than their physical lives. A simple example is the case where secular changes lead to substantial population losses in a neighbourhood rendering some, still physically viable, ducts and trenches without economic value.

- Ducts and trenches are not only subject to maintenance and replacement because of physical deterioration or loss, but also because of changes in demand. Thus, duct space is not finite and has competing uses and consequently may need to be expanded or even replicated.

  For example, demand may call for installing new lines to increase capacity, or for adding fibre so as to supply new services. Even unused (spare) lines, and lines no longer used due to damage, place some demand on space, since removing these is costly.[24] In addition, other carriers and utilities may have a demand for duct space that may elicit a price that leads to duct sharing (or that can make it economic to keep a duct available so as to secure that demand at some future date). Conversely, that third party demand may diminish, if local demand for utility services changes or alternatives to Telstra's ducts become available.

  The result is that some ducts and trenches are at or may reach capacity and new investments may be called for. For instance, Telstra has and continues to add to existing routes. Often this involves digging a new trench rather than using an existing trench. Similarly, a recent Ofcom sponsored study found 50 to 60 percent of ducts in the United Kingdom are filled and that use of ducts with space is subject to other hurdles:[25]

  [T]here is a significant amount of unoccupied space, with between 40% and 50% [of ducts surveyed] having room for new cables… However, the amount of space is

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22 The EE Report, paragraph 3.42 (more generally on this, see footnote 53 below).

23 This asset life is used in the TEA model and has also been used by access seekers in submissions to the Commission (refer to: Optus submission to Australian Competition and Consumer Commission on Telstra's Access Undertaking for the Unconditioned Local Loop Service: Response to Draft Decision (Public Version), December 2008), page 10.

24 A redundant or broken line can be thought of as having a demand on space equal to the net cost of pulling that line out: it would not be pulled out so as to install a new line unless the expected return on the new line was exceeded the cost of taking out the old.

25 Quote is from Ofcom, 3 March 2009, http://www.ofcom.org.uk/media/news/2009/03/nr_20090303. The report is Analysys Mason, Setec Telecom and Lythgoes Limited, Telecoms infrastructure access – sample survey of duct access, 3 March 2009, http://www.ofcom.org.uk/telecoms/discussnga/duct/.

highly variable and there remain some potentially significant hurdles to using existing ducts to deliver competition to the majority of locations.

Ducts and trenching may also require substantial upgrades or replacement because demand changes can mean that an existing duct, though still suitable for its original purpose, requires upgrades. Ducts that were perfectly adequate for a traditional copper network are often not suitable in the locations where new networks, for example, an FTTN, requires the installation of electronics (because the duct space is neither waterproofed nor supplied with mains electrical power).

Again, for all the reasons outlined under this dot point, unless duct prices consistently signal the economic cost of undertaking upgrades, which may require building entirely new ducts (an option equally open to entrants as it is to Telstra), they will fail to provide appropriate signals for duct use and investment (see section 6 below).

- It may be the case that presently there are no generally efficient alternatives to ducts and trenches. However, it is clear that there is currently bypass of ducts and trenches by broadband delivery over wireless (most especially, looking forward) [26], and by aerial cabling for HFC. I understand that presently, local planning and other regulatory requirements[27] reduce the economic attractiveness of aerial deployment beyond the customer drop. This may help explain why the Government has proposed regulatory changes to make it easier to aerially deploy fibre, while wireless options are explicitly canvassed in both the previously mooted FTTN and announced FTTP projects.[28] Thus, access prices for ducts and trenches do not merely signal whether investors (including Telstra and entrants) should build, or purchase access to, ducts or trenches (as the EE Report suggests[29]). Rather, they also provide signals as to the relative attractiveness of potential alternative means of distribution (as the EE Report explicitly recognises[30]). As a result, access prices that consistently signal cost are required to ensure efficient infrastructure choices between buying access to ducting and/or trenching or instead relying on aerial and wireless delivery (again see section Efficient price signals for telecommunications investment reflect efficient costs below)

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26 For example, Verizon and Vodafone are both planning to offer 100Mbps mobile broadband services over 4G networks in future ("Vodafone, Verizon Both Eyeing 100Mbps LTE", *DSL Reports*, 20 September 2007, http://www.dslreports.com/shownews/Vodafone-Verizon-Both-Eyeing-100Mbps-LTE-87724).

27 Telstra, 'Telstra's Ordinary Access Undertaking for the Unconditioned Local Loop Service: Response to Ovum Advisory Notes', April 2009, pp 6-7

28 Department of Broadband, Communications and the Digital Economy, National Broadband Network: Regulatory Reform for 21st Century Broadband Discussion Paper, April 2009, page 1, http://www.dbcde.gov.au/communications_for_business/funding_programs__and__support/national_broadband_network/regulatory_reform_for_21st_century_broadband.

29 The EE Report, paragraphs 1.17(a) and 3.2 *ff*.

30 On aerial options, see the EE Report, paragraphs A4.32. On wireless options, see the EE Report, paragraphs 2.20, 3.35(c), 4.20, A3.29, A4.32 and Table A3.2. While the EE Report expresses concern that TSLRIC+ prices might lead to inefficient bypass, as noted in footnote 21 above, the parties have good incentives to avoid this.

5. THE CASE IS NOT MADE THAT THE NBN IS A NATURAL MONOPOLY OR THAT THE NBN WOULD PREVENT FULL-FACILITY COMPETITION

While the EE Report is not entirely clear on the matter, it appears to consider that the assumed FTTN network would have been a natural monopoly.[31] The EE Report also suggests the assumed FTTN network would not have faced any full-facility competition, so that issues of investment signals for potentially substitutive networks do not arise.[32] In my view, both these points are undemonstrated.

A natural monopoly is generally defined as an industry where a single provider minimises production costs.[33] A natural monopolist would be able to exclude any rivals, since it could profitably price above its costs and still set prices that are lower than the costs an entrant must incur.[34] Thus, an FTTN natural monopoly would imply that full-facility competition to the Government's proposed FTTN network would have been impossible. However, the evidence from practice is to the contrary: in the United States extensive FTTN and FTTP networks are currently being built in regions that are already covered by competing sophisticated HFC networks.[35] In response, the owners of those HFC networks show no signs of exiting, but rather are upgrading their networks.[36] Moreover, in at least one location, a FTTP network is being rolled out in competition to competing existing HFC and FTTN networks.[37] In addition, in all of

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31 The EE Report, paragraphs 3.3 and footnote 24. The EE Report also goes to some length to try and demonstrate that important aspects of Telstra's network could not be affordably replicated (for example, see the cites in footnote 53 below).

32 The EE Report, paragraphs 3.29-3.33.

33 Sharkey, W. W. (1982) *The Theory of Natural Monopoly*, Cambridge, UK, Cambridge University Press, pages 3, 55-64, 67-68; Baumol, William J. (1977), 'On the Proper Cost Tests for Natural Monopoly in a Multi-product Industry', 809 *American Economic Review*; Panzar, John C. and Willig, Robert D. (1977), 'Free Entry and the Sustainability of Natural Monopoly', 8 *The Bell Journal of Economics*, 1-22.

34 This is true even when the market is contestable (for example, if there are no barriers to entry or exit), except in the theoretical (and pathological) case of an unsustainable natural monopoly (Sharkey, *ibid*, 84-144). However, a natural monopoly would be sustainable if there are barriers to entry (for example, if the incumbent can cut price sufficiently fast that the entrant cannot fully recover its sunk costs before exiting), since a price exists that would not allow an entrant to recover costs, but would allow the incumbent to do so. While I take no position on the matter, the EE Report suggests there are substantial barriers to entry (The EE Report, paragraphs 1.16(c), 3.27-3.28, 3.30, 3.34-3.35, 4.1(b) and A4.35-A4.36), which implies any telecommunications network, including the assumed FTTN NBN, if also a natural monopoly, is unlikely to be an unsustainable natural monopoly. Moreover, if the natural monopoly were unsustainable, the incumbent's position would be highly unstable, with entry occurring frequently and often displacing the incumbent (Sharkey, *ibid*, 24-28, 134-144; Panzar & Willig, *ibid*). This does not characterise any telecommunications market that I am aware of.

35 Concept Economics, Response to Optus supplementary submission on investment incentives, Draft Decision on Telstra's Access Undertaking for ULLS, 20 March 2009, section 5; see also DOJ, *ibid*, *passim*, and especially pages 31*ff*.

36 For example, Comcast is in the process of upgrading its network to DOCSIS 3.0 and launched 50Mbps services in various parts of the United States in 2008 ('Comcast broadens reach of DOCSIS 3.0, 50Mbps connections', Ars Technica, October 2008, http://arstechnica.com/old/content/2008/10/comcast-broadens-reach-of-docsis-3-0-50mbps-connections.ars). More recently, Cox has also upgraded to DOCSIS 3.0 and has begun offering 50Mbps services ('Cox joins the DOCSIS 3.0 party', CedMagazine.com, April 2009, http://www.cedmagazine.com/News-Cox-DOCSIS30-040109.aspx).

37 Matt Stump, Verizon (FiOS) begins overbuilding AT&T (U-verse) in Texas, OneTrak, Real Time Communications Intelligence, 9 June 2008, http://www.onetrak.com/ShowArticle.aspx?ID=3487; Saul Hansell, Verizon's FiOS: A Smart Bet or a Big Mistake?, New York Times, 19 August 2008, http://www.nytimes.com/2008/08/19/technology/19fios.html; Carol Wilson, More disturbing numbers for telcos, 13 May 2008, TelephonyOnline, http://telephonyonline.com/broadband/news/disturbing-numbers-telcos-0513/.

these locations there are copper and modern mobile networks, which also offer telephony and broadband services,[38] while in some of these locations other forms of wireless broadband are also available.[39] Further, over time this unwired competition is expected to become more effective.[40]

In short, given observed full-facility competition against FTTN (respectively FTTP/HFC/copper) networks, it is, in my view, difficult to sustain the claim that FTTN (or FTTP or HFC or copper) networks are natural monopolies. Rather, the prospects for competition through innovation seem sufficiently strong to ensure continuing rivalry in the relevant markets, regardless of the shape of static cost curves. Moreover, natural monopoly or not, vigorous full-facility competition against FTTN (or FTTP or HFC or copper) networks suggests that the mere presence of one such network is insufficient to rule out full-facility competitive entry.

6. EFFICIENT PRICE SIGNALS FOR TELECOMMUNICATIONS INVESTMENT REFLECT EFFICIENT COSTS

In the preceding I have pointed out that it is incorrect to assume, as do EE, that:

- A FTTN network will be deployed and will end the physical (and hence economic) life of sections of Telstra's copper network (section 2);
- Regardless of impacts on its physical life, the copper network would in any event be made economically redundant by deployment of a competitive FTTN or FTTP or HFC network (section 3);
- Ducts and trenches are perpetual assets and that entrants cannot employ efficient alternatives to Telstra's ducts and trenches, including in some instances, their own ducts and trenches (section 4); and
- A FTTN or FTTP or HFC or copper network is a natural monopoly and/or would foreclose full-facility competition (section 5) .

In this section, I consider more generally how regulated access prices should be set and argue that, given the regulatory approach taken in Australia to date, the ULLS should be priced using the Commission's standard TSLRIC+ approach. In particular, in setting prices, the cost of copper loop, duct, trenches and all other relevant network assets should be evaluated at their forward-looking replacement costs. This is contrary to the position of the EE Report, which recommends that these assets be priced at levels less than this. In what follows, I:

- explain why, given the history of access pricing in Australia, TSLRIC+ pricing is a reasonable and desirable regulatory approach;

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[38] 3G mobile networks are operated in the United States by Sprint, AT&T and Verizon.

[39] For example WiMAX is available in some areas from Clear (formerly ClearWire and Xohm)—see "Clearwire, Xohm Combo Officially Cleared", *WirelessWeek*, 1 December 2008 (http://www.wirelessweek.com/Clearwire-Xohm-Combo-Official.aspx); see also DOJ, *ibid*, pages 23-28.

[40] See references in footnote 26 above.

- explain why I believe that if one accepts TSLRIC+ pricing as an optimal regulatory approach, then access prices for access should reflect replacement costs, even where some assets (or even a class of assets) used to supply the access service are likely to become redundant; and
- explain why I believe that pricing to recover the replacement cost of an asset, or even a class of assets, used to supply a regulated service, remains applicable in the Australian context even if the asset is (or assets are) perpetual, or could not be efficiently replicated.

6.1. THE CASE FOR TSLRIC+ PRICING

The Commission and the Australian Competition Tribunal (ACT) have endorsed TSLRIC+ pricing for many years as means of providing efficient price signals for both asset use and replacement.[41] The result is that the bulk of Telstra's access services, including the ULLS, have in the past, and are currently are, priced according to a TSLRIC+ approach.[42] In my opinion, supported by a long line of economic literature, predictability and time-consistency (that is, the adherence *ex post* to the regulatory standards set out *ex ante*) contribute to reducing regulatory risk, thereby promoting efficient investment and the long-term interests of end-users.[43] As a result, there should, in my opinion, be a strong presumption against seemingly arbitrary changes in the cost standard that is applied, especially when those changes seem primarily intended merely to redistribute income between the parties to regulatory proceedings.

Consistent application of a TSLRIC+ approach is also in line with international regulatory practice. Thus, whatever the approach's theoretical merits or demerits, the European Commission (EC) imposes a long run average incremental cost standard for ULLS pricing,[44] as does the Federal Communications Commission (FCC).[45] Directly relevant to the case at hand, Ofcom has chosen to use forward-looking efficient costs as the basis for setting BT's network charge controls in the wholesale narrowband markets, despite the imminent deployment of BT's next generation network, 21CN. In making this decision Ofcom noted the need to ensure appropriate signals for the efficient migration from the legacy PSTN to BT's 21CN:[46]

> *[W]e assume that the capital costs (i.e. depreciation and cost of capital employed) and operating costs of the network are at the efficient levels that would be expected if the network were in an ongoing environment.*

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41 Telstra, Response to the ACCC's Draft Decision, 23 December 2008, Section C.

42 The notable exception has been where such a price results in a margin between wholesale and retail prices that is smaller than the avoidable cost of transforming the wholesale input into a retail output, in which case the wholesale price was set equal to the retail price minus the transformation cost.

43 Henry Ergas "Time Consistency In Regulatory Decision-Making", forthcoming in *The Review of Network Economics*, 2009 and references therein; Henry Ergas "Institutional Aspects of Climate Change Policies", forthcoming in *The Australian Journal of Agricultural and Resource Economics*, 2009.

44 European Commission, 'Commission Communication on interconnection pricing in a liberalized telecommunications market', (98/C 84/03).

45 Federal Communications Commission, Implementation of the Local Competition Provisions in the Telecommunications Act of 1996, Interconnection between Local Exchange Carriers and Commercial Mobile Radio Service Providers, *First report and order* (CC Docket No. 96-98; CC Docket No. 95-185), 1 August 1996, paragraphs 29 and 377-396.

46 Ofcom 2009, Review of BT Network Charge Controls, Consultation on Proposed Charge Controls in Wholesale Narrowband Markets, March, p.23.

The EE Report also supports TSLRIC+ pricing at least at a general level:[47]

> *When a service is expected to be required indefinitely, and the assets concerned will be replaced and improved through technical progress, as is generally assumed to be the case for telecommunications network assets, then the LRIC [long run incremental cost] approach is likely to be required.*

Despite this, the EE Report recommends that the TSLRIC+ approach should not be used when pricing services that (1) use assets that effectively are to be removed from service (as it argues, incorrectly in my view, is the case for copper), or (2) have a perpetual life and/or which would generally be inefficient to replace (as it argues, incorrectly in my view, is the case for ducts and trenches). Instead, the EE Report argues that lower prices should be developed based on approaches that do not rely on replacement costs. I have shown above how the assumptions on which the EE Report bases these two arguments are wrong. In the next two sections I explain why, even if the assumptions were correct, I think the EE Report's argued approach is incorrect, first addressing redundant assets and then perpetual or inefficient-to-replace assets.

6.2. WHY ASSET REDUNDANCY DOES NOT VOID THE REPLACEMENT COST APPROACH

In this section, I accept for the sake of argument that there may be some assets, or even classes of assets, that a FTTN or FTTP rapidly makes redundant. If one further accepts, as the EE Report does,[48] that, such redundancy aside, the TSLRIC+ pricing approach is the optimal regulatory strategy, then I argue that the TSLRIC+ approach should also be applied to services that rely on assets that are to become redundant. In particular, I consider that the EE Report mistakes *redundancy of an asset used to produce a service* with *termination of a service*. Thus, to minimally paraphrase the EE Report,[49] when a service is expected to be required indefinitely, *as telecommunications services are*, and the assets concerned will be replaced and improved through technical progress, as is generally assumed to be the case for telecommunications network assets, then the TSLRIC+ approach is likely to be required.

Electronic communications networks, whether to supply telephony, broadband, subscription television or other services, will be a central part of the world's economy for the foreseeable future, just as they have been for more than a century. One immutable aspect of that continuity is constant network change. Assets wear out and must be replaced, but in electronic communications, due to changes in technology or demand, worn out assets are typically replaced by more modern, and sometimes substantially altered, facilities. Further, changes in demand often force replacement or bypass before an asset is physically worn out. Yet, despite such physical, technological and economic depreciation, the fact remains that the general enterprise is ongoing: while new services are added and service quality rises, often quite rapidly, and old services decline and are sometimes eventually discontinued, there remains a continuity in supply of electronic communication services. Thus, it is almost certain that wholesale and retail services supplied on traditional copper-based networks will continue to be supplied, no doubt upgraded, in some cases eventually superseded, and always alongside new services, on copper or FTTN or FTTP or wireless or even other, as yet unimagined, networks. In

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47 EE Report, paragraph 3.20.

48 EE Report, paragraphs 3.4-3.7, 3.12-3.22.

49 EE Report, paragraph 3.20.

short, contrary to the suggestion of EE Report,[50] the supply of electronic communications is not likely to only find customers for a short period.

This replacement of assets is completely routine and ubiquitous, and hence is found in competitive (and efficient) industries. Further, in competitive industries where services are expected to be sold into the future, prices are entirely unaffected by the fact that a particular asset must be replaced, but rather reflect the costs of efficient supply. It is commonplace for a competitive firm to operate outdated plants that eventually will be shut down and replaced with entirely new plants, perhaps in very different locations. The prices the competitive firm sets in those circumstances are the prices it sets in all circumstances: those that will, because of competition, just recover the costs of the most efficient producers of the day. What those prices do not reflect is the fact that some outmoded plant will soon be retired (as is almost always the case). In fact, it is reasonable to expect that prices would just allow recovery of short run costs, and not reflect long run expansion costs,[51] *only if demand no longer justified long-term ongoing supply*. In that circumstance, no firm would be investing in upgrades or new plant, but instead would be simply seeking to maximise the difference between its revenue and operating costs so long as that remained positive).

Moreover, in competitive industries with an ongoing future, the principle that price reflects the costs of efficient producers holds even if dramatic technological or demand changes imply that a significant proportion of the industries' existing capital will soon be replaced. Indeed, this must be the case, since replacement would only occur if prices were expected to recover the costs of replacement.

Present developments in telecommunications, though perhaps more radical than the switch from operators to mechanical exchanges, or from mechanical to electronic exchanges, or from analogue to digital networks, are no different. If asset replacement and alteration, whether incremental or radical, is to occur efficiently, then price signals must reflect efficient costs. In an ongoing industry at the margin of expansion, efficient costs are not the short run costs of operating an asset that is outmoded, but rather are the cost that would lead efficient producers to make the investments in new infrastructure.

In short, if one accepts the view the Commission and the ACT have articulated on numerous occasions, to the effect that charges set on the basis of TSLRIC+ reflect replacement costs, and guide efficient investment decisions,[52] then the mere fact of ongoing technological change – and of technological competition between networks – does not undermine or alter the validity of the TSLRIC+ approach. Rather, it remains important to provide price signals that can guide decisions as between the use of existing assets and their replacement by new assets.

6.3. REPLACEMENT COSTS ARE STILL RELEVANT FOR PERPETUAL ASSETS OR ASSETS THAT CANNOT BE EFFICIENTLY REPLICATED

In the preceding section I argued that so long as redundant assets must be replaced, then given acceptance of a TSLRIC+ approach, the logic that justifies TSLRIC+ pricing applies: that is,

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[50] Compare with EE Report, paragraph 3.22.

[51] The long run is the shortest period over which all assets are subject to renewal. Any period shorter than the long run is a particular short run.

[52] See footnote 41.

exactly because those redundant assets must be replaced, access prices should be set to recover replacement costs. It immediately follows that the same logic also applies to assets that it would never be efficient for an entrant to replicate. That is, so long as those assets must eventually be replaced, even if (for some unexplained reason) only Telstra could replace them, the logic of TSLRIC+ pricing implies that access services that use those assets should be priced so as to recover their replacement costs (since TSLRIC+ pricing is said to provide the minimal signal necessary to lead investors to replace redundant assets).

However, the EE Report further argues that if an asset never needs to be replaced then there is no need to price an access service that relies on that asset in a way that recovers that asset's replacement cost. After all, the EE Report's logic runs, there is no need to replace the assets, so no need to signal their costs as a means of ensuring efficient investment, and consequently, in this case, the TSLRIC+ approach that has been historically applied can be set aside.

My difficulty with this claim is that such an *ad hoc* approach has harmful effects that extend beyond the particular decision. In particular, it harms investment incentives by increasing uncertainty and reducing expected returns, including on all other investments, thereby harming efficient investment incentives.

Setting aside the TSLRIC+ approach and its focus on use of replacement assets in favour of approaches that would produce lower access prices would raise risk in three ways. First, investors would place a higher probability on the prospect that some assets may *ex post* be declared to be perpetual, and hence potentially priced at a different (it could be a higher or lower) level than would otherwise have been expected.

Second, and more importantly, there would be a future risk that the regulator would accidently determine an asset to be perpetual when it is not, and *vice versa* (even if the assets presently in question have correctly been identified as perpetual assets, an assumption I argued in section 4 above to be incorrect).

Third, and most importantly, such a regulatory change, especially if it is perceived to be designed to transfer income from investors to access seekers, would raise the expectation that the regulator will take opportunistic advantage of investors after they sink their investments. This last effect (which economists refer to as "time inconsistency") does not merely raise risk but also lowers expected returns, harming efficient investment incentives through both effects.

It is of particular concern that the present case could well be perceived to amount to regulatory opportunism. For example, the EE Report calls for a reduction of prices from TSLRIC+ levels where assets are to be rendered redundant by replacement assets (as discussed in the previous section), and also where assets cannot be replaced, because they are perpetual. However, virtually all assets are either perpetual or somewhat depreciated, that is, in part redundant. Adopting the EE approach would therefore imply that any snapshot of an existing asset base could not account for the replacement cost of any except "brand-new" non-perpetual assets. All other assets (which presumably account for the vast majority of the assets in use) would seem to be vulnerable under this approach to being treated as stranded, and hence having their value substantially marked down. It is difficult to see how such an approach could provide investors with the confidence needed for efficient investments to be made.

Similarly, the EE Report repeatedly appears to argue that TSLRIC+ prices can be lowered because they are higher than the prices that would emerge from a different methodology.[53] For example, the EE Report calls for an "appropriate price" for ducts rather than a price based on the cost of rebuilding the ducts as "this would cost less".[54] But if forward-looking cost measures are inappropriate merely because they would cost more, then that would suggest regulatory opportunism is inevitable and that total costs will never be recovered. Thus, historical costs would never be recovered because whenever forward looking costs were lower than historical costs, they would be used instead; and equally, forward looking costs would never be recovered because whenever historical costs were lower than forward looking costs, the historical costs would be used instead. Assuming forward-looking and historical costs at some time diverge, as is inevitable in an economy in which there are on-going changes in relative prices, investors would face a sure loss, chilling socially desirable investment.

Finally, the EE Report does not present any examples of perpetual assets where replacement costs are lower than what would result from alternative methods. Yet, there is no reason why a perpetual asset should always be more expensive to replicate than when first built, as seems to be assumed in EE's line of argument. This makes it all the more likely that any decision to treat these assets differently will be perceived as opportunism, aimed merely at redistributing income to a favoured group (in this instance, access seekers) at the expense of sound investment signals.

In summary, given (1) that there are questions as to whether any telecommunications assets are truly perpetual; (2) that a TSLRIC+ approach is the current standard (3) that *ex post* changes raise uncertainty; and (4) that the proposed change runs the real risk of being interpreted as being opportunistically designed to merely redistribute income to access seekers, it is my view that the *status quo* of setting TSLRIC+ prices, which take account of the full replacement cost of even perpetual assets, should be maintained.

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[53] The EE Report, paragraphs 1.16(c), 3.25, 3.27-3.28, 3.30, 3.34-3.35, 4.1(b) and A4.35-A4.36.

[54] The EE Report, paragraph 1.16(c) which appears to be circular: it is explicitly assumed that an appropriate price would be lower than a TSLRIC+ price ("The evidence for this is… the assumption that this would cost a lot less than re-building the trenches and ducts") and then this assumption is used to justify applying a lower price than the TSLRIC+ price ("economic reasoning based on that assumption showing that, in order for investment to be efficient, potential investors should be comparing the costs and benefits of alternatives with the costs and benefits of using the existing ducts and trenches in return for payment for use of the assets, not with the higher alternative costs of replacing them"—notice that the payment is determined by the matter in question, what the price of ducts should be). Paragraph 3.25 is similarly circular.

COMPLIANCE WITH EXPERT WITNESS GUIDELINES AND SUFFICIENCY OF INQUIRIES

In preparing this report I have complied with the Federal Court of Australia's 'Guidelines for Expert Witnesses in Proceedings'. I have made all the inquiries that I believe are desirable and appropriate and no matters of significance that I regard as relevant have, to my knowledge, been withheld in this report.

Henry Ergas

Tuesday, 14 April 2009

ANNEXURE A—GUIDELINES FOR EXPERT WITNESSES IN PROCEEDINGS IN THE FEDERAL COURT OF AUSTRALIA

Federal Court of Australia

Practice Direction

This replaces the Practice Direction on Guidelines for Expert Witnesses in Proceedings in the Federal Court of Australia issued on 6 June 2007.

Practitioners should give a copy of the following guidelines to any witness they propose to retain for the purpose of preparing a report or giving evidence in a proceeding as to an opinion held by the witness that is wholly or substantially based on the specialised knowledge of the witness (see **- Part 3.3 - Opinion** of the *Evidence Act 1995* (Cth)).

M.E.J. BLACK

Chief Justice

5 May 2008

Explanatory Memorandum

The guidelines are not intended to address all aspects of an expert witness's duties, but are intended to facilitate the admission of opinion evidence (footnote #1), and to assist experts to understand in general terms what the Court expects of them. Additionally, it is hoped that the guidelines will assist individual expert witnesses to avoid the criticism that is sometimes made (whether rightly or wrongly) that expert witnesses lack objectivity, or have coloured their evidence in favour of the party calling them.

Ways by which an expert witness giving opinion evidence may avoid criticism of partiality include ensuring that the report, or other statement of evidence:

(a) is clearly expressed and not argumentative in tone;

(b) is centrally concerned to express an opinion, upon a clearly defined question or questions, based on the expert's specialised knowledge;

(c) identifies with precision the factual premises upon which the opinion is based;

(d) explains the process of reasoning by which the expert reached the opinion expressed in the report;

(e) is confined to the area or areas of the expert's specialised knowledge; and

(f) identifies any pre-existing relationship (such as that of treating medical practitioner or a firm's accountant) between the author of the report, or his or her firm, company etc, and a party to the litigation.

An expert is not disqualified from giving evidence by reason only of a pre-existing relationship with the party that proffers the expert as a witness, but the nature of the pre-existing relationship should be disclosed.

The expert should make it clear whether, and to what extent, the opinion is based on the personal knowledge of the expert (the factual basis for which might be required to be established by admissible evidence of the expert or another witness) derived from the ongoing relationship rather than on factual premises or assumptions provided to the expert by way of instructions.

All experts need to be aware that if they participate to a significant degree in the process of formulating and preparing the case of a party, they may find it difficult to maintain objectivity.

An expert witness does not compromise objectivity by defending, forcefully if necessary, an opinion based on the expert's specialised knowledge which is genuinely held but may do so if the expert is, for example, unwilling to give consideration to alternative factual premises or is unwilling, where appropriate, to acknowledge recognised differences of opinion or approach between experts in the relevant discipline.

Some expert evidence is necessarily evaluative in character and, to an extent, argumentative. Some evidence by economists about the definition of the relevant market in competition law cases and evidence by anthropologists about the identification of a traditional society for the purposes of native title applications may be of such a character. The Court has a discretion to treat essentially argumentative evidence as submission, see Order 10 paragraph 1(2)(j).

The guidelines are, as their title indicates, no more than guidelines. Attempts to apply them literally in every case may prove unhelpful. In some areas of specialised knowledge and in some circumstances (eg some aspects of economic evidence in competition law cases) their literal interpretation may prove unworkable.

The Court expects legal practitioners and experts to work together to ensure that the guidelines are implemented in a practically sensible way which ensures that they achieve their intended purpose.

Nothing in the guidelines is intended to require the retention of more than one expert on the same subject matter – one to assist and one to give evidence. In most cases this would be wasteful. It is not required by the Guidelines. Expert assistance may be required in the early identification of the real issues in dispute.

GUIDELINES

1. General Duty to the Court (footnote #2)

1.1 An expert witness has an overriding duty to assist the Court on matters relevant to the expert's area of expertise.

1.2 An expert witness is not an advocate for a party even when giving testimony that is necessarily evaluative rather than inferential (footnote #3).

1.3 An expert witness's paramount duty is to the Court and not to the person retaining the expert.

2. The Form of the Expert Evidence (footnote #4)

2.1 An expert's written report must give details of the expert's qualifications and of the literature or other material used in making the report.

2.2 All assumptions of fact made by the expert should be clearly and fully stated.

2.3 The report should identify and state the qualifications of each person who carried out any tests or experiments upon which the expert relied in compiling the report.

2.4 Where several opinions are provided in the report, the expert should summarise them.

2.5 The expert should give the reasons for each opinion.

2.6 At the end of the report the expert should declare that "[the expert] has *made all the inquiries that* [the expert] *believes are desirable and appropriate and that no matters of significance that* [the expert] *regards as relevant have, to* [the expert's] *knowledge, been withheld from the Court*."

2.7 There should be included in or attached to the report; (i) a statement of the questions or issues that the expert was asked to address; (ii) the factual premises upon which the report proceeds; and (iii) the documents and other materials that the expert has been instructed to consider.

2.8 If, after exchange of reports or at any other stage, an expert witness changes a material opinion, having read another expert's report or for any other reason, the change should be communicated in a timely manner (through legal representatives) to each party to whom the expert witness's report has been provided and, when appropriate, to the Court (footnote #5).

2.9 If an expert's opinion is not fully researched because the expert considers that insufficient data are available, or for any other reason, this must be stated with an indication that the opinion is no more than a provisional one. Where an expert witness who has prepared a report believes that it may be incomplete or inaccurate without some qualification, that qualification must be stated in the report (footnote #5).

2.10 The expert should make it clear when a particular question or issue falls outside the relevant field of expertise.

2.11 Where an expert's report refers to photographs, plans, calculations, analyses, measurements, survey reports or other extrinsic matter, these must be provided to the opposite party at the same time as the exchange of reports (footnote #6).

3. Experts' Conference

3.1 If experts retained by the parties meet at the direction of the Court, it would be improper for an expert to be given, or to accept, instructions not to reach agreement. If, at a meeting directed by the Court, the experts cannot reach agreement about matters of expert opinion, they should specify their reasons for being unable to do so.

footnote #1

As to the distinction between expert opinion evidence and expert assistance see *Evans Deakin Pty Ltd v Sebel Furniture Ltd* [2003] FCA 171 per Allsop J at [676].

footnote #2

See rule 35.3 Civil Procedure Rules (UK); see also Lord Woolf "Medics, Lawyers and the Courts" [1997] 16 CJQ 302 at 313.

footnote #3

See *Sampi v State of Western Australia* [2005] FCA 777 at [792]-[793], and *ACCC v Liquorland and Woolworths* [2006] FCA 826 at [836]-[842]

footnote #4

See rule 35.10 Civil Procedure Rules (UK) and Practice Direction 35 – Experts and Assessors (UK); *HG v the Queen* (1999) 197 CLR 414 per Gleeson CJ at [39]-[43]; *Ocean Marine Mutual Insurance Association (Europe) OV v Jetopay Pty Ltd* [2000] FCA 1463 (FC) at [17]-[23]

footnote #5

The *"Ikarian Reefer"* [1993] 20 FSR 563 at 565

footnote #6

The *"Ikarian Reefer"* [1993] 20 FSR 563 at 565-566. See also Ormrod *"Scientific Evidence in Court"* [1968] Crim LR 240.

ANNEXURE B—INSTRUCTIONS FROM G+T

Questions to be addressed in expert report

a. Comment on the following assumptions made in the EE Report as outlined below:

   – The Government's national broadband network (NBN) will largely be deployed as a FTTN network and that FTTN deployment will make the bypassed copper loop redundant. As a result, the bypassed copper network would be made economically valueless by the proposed FTTN network;

   – Ducts and trenches are physically perpetual assets for which there are no real alternatives; and

   – The NBN is likely to constitute a natural monopoly and would preclude full-facility competition.

b. Provide your views on the appropriate approach to modelling the costs of the Telstra copper network. In particular, to provide your views on the conclusions reached in the EE Report on the following questions (and for this purpose, to assume the three assumptions in the EE Report specified in paragraph (a) were correct):

   – Whether access prices should reflect replacement costs even where some assets used to supply the access service are likely to become redundant over the relevant modelling period; and

   – What is the appropriate treatment in access pricing of assets which are perpetual or could not be efficiently replicated?

For that purpose, we request that you review the following:

1. Europe Economics, Pricing Principles for the Unconditioned Local Loop Service (ULLS) in Australia, The Conceptual Framework, Final Report for Optus, 26 March 2009.

Available at: http://www.accc.gov.au/content/index.phtml/itemId/855566

2. Joint Press Release by the Prime Minister, Treasurer, Minister for Finance and Minister for Broadband, *New National Broadband Network*, 7 April, 2009.

Available at http://www.minister.dbcde.gov.au/media/media_releases/2009/022

3. Minister for Broadband, Communications and the Digital Economy, National Broadband Network, *Regulatory Reform for 21st Century Broadband – Discussion Paper*, April 2009.

Available at:
http://www.dbcde.gov.au/communications_for_business/funding_programs__and__support/national_broadband_network/regulatory_reform_for_21st_century_broadband

4. Ofcom, Review of BT Network Charge Controls, Consultation on Proposed Charge Controls in Wholesale Narrowband Markets, 19 March 2009.

Available at: http://www.ofcom.org.uk/consult/condocs/review_bt_ncc/reviewbtncc.pdf

5. Telstra Corporation Limited, Telstra's Ordinary Access Undertaking the Unconditioned Local Loop Service: Response to Ovum Advisory Notes, Public Version, 8 April 2009.

Available at:
http://www.accc.gov.au/content/item.phtml?itemId=868445&nodeId=af1dd04789e27c877d5016f56dda812a&fn=Response%20to%20Ovum%20-%20Public.pdf

ANNEXURE C—CURRICULUM VITAE

HENRY ERGAS

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PROFESSIONAL QUALIFICATIONS

M.Ec.Stud. (High Distinction)
University of Queensland

B.A. (Econ) First-Class Honours
Sussex University

External Appointments

2008	*Editorial Board,* Agenda, Journal of the ANU College of Business and Economics, Australian National University
2007	*Honorary Professor*, Department of Economics, Monash University
2006	*Member*, Defence Industry Consultative Group reporting to the Australian Minister for Defence
2005	*Member*, Prime Minister's Taskforce on Exports and Infrastructure
2004–	*Adjunct Professor*, School of Economics, National University of Singapore
2004–	*Member*, Australian Centre of Regulatory Economics (ACORE) Advisory Board
2004–	*Member*, French Ordre Nationale du Merite
2002–	*Editorial Board*, The Review of Network Economics at www.rnejournal.com

2001–	*Lay Member*, New Zealand High Court in cases involving appeals from decisions of the Commerce Commission and other matters under the Commerce Act
1999–2000	*Chairman*, Intellectual Property and Competition Review Committee, Attorney-General's Department, Australia
1998–2004	*Member*, Commissione Scientifica, Telecom Italia, Rome, Italy
1997	*Member*, Advisory Panel on Telecommunications Reform to the Minister for Communications and the Arts, Australia

Employment History

2008–	*Chairman*, Concept Economics
2004–2007	*Vice President and Regional Head*, Asia Pacific, CRA International
1996–2004	*Managing Director*, Network Economics Consulting Group (NECG), Australia
1995–1997	*BellSouth NZ Visiting Professor of Network Economics and Communications*, The University of Auckland, New Zealand
1994–1995	*Visiting Professor*, Kennedy School of Government, Harvard University
1993–1997	*Advisor*, Trade Practices Commission, Canberra, Australia
1991–1993	*Counsellor for Structural Policy*, Economics Department, OECD, Paris
1987–1991	*Professor*, Graduate School of Management, Monash University, Melbourne
1978–1987	*Administrator*, Principal Administrator, and subsequently Counsellor, OECD, Paris

Papers and Publications

Journal Articles

2009, 'Time Consistency in Regulatory Price Setting: An Australian Case Study', forthcoming in the *Review of Network Economics,* 2009.

2009, 'Economic certainty', *The Review (a supplement to the Australian Financial Review)*, 30 January 2009, p. 3. This paper was originally presented at the Australian Society of Economics, Canberra branch, on the 20th of November 2008.

2009, 'New Policies Create a New Politics: Issues of Institutional Design in Climate Change Policy', forthcoming in the *Australian Journal of Agricultural and Resource Economics*.

2008, 'Setting Access Prices: A Critique of the ACCC's Approach in Telecommunications, *Agenda*, vol 15, no 4, pp. 35-58.

2008, 'Why we need to revive Federalism', *Quadrant Magazine*, vol 53, no 12.

2008, 'Shelter from the Storm: Reflections on "The Risk Society"', *Quadrant Magazine*, vol 52, no 1–2.

2007, 'The Owl of Minerva', *The Review (a supplement to the Australian Financial Review)*, 30 November 2007, p. 1.

2007, 'Reflections on Expert Economic Evidence', Bar News, *The Journal of the New South Wales Bar Association*, Summer 2006–2007, available at http://www.nswbar.asn.au/docs/resources/publications/bn/bn_summer0607.pdf

2007, 'Pillars of Sand', *The Review (a supplement to the Australian Financial Review)*, 18 May 2007, p. 1.

2007, 'In the Dark: Defence Spending', *The Review (a supplement to the Australian Financial Review)*, 9 February, p. 1.

2006, 'Carbon Trading is Smoke and Mirrors', (with Anna Matysek), *The Review (a supplement to the Australian Financial Review)*, 18 May 2006.

2005, 'Panel on Competition Policy in Card-Based Payment Systems: Commentary', *Review of Network Economics*, vol. 4, issue 4, pp. 415–419.

2004, 'Exclusive Licensing in Harbour Towage', (with Teresa Fels and Jason Soon), *Review of Network Economics*, vol. 3, issue 2, pp. 145–167.

2004, 'Not another article about Section 46 of the Trade Practices Act', (with Mitchell Landrigan), *Australian Business Law Review*, vol. 32, no. 6, pp. 415–435.

2004, 'The Economics of Buying Complex Weapons', (with Flavio Menezes), *Agenda* vol. 11, no. 3, pp. 247–64.

2003, 'New Directions in Australian Air Transport', (with Christopher Findlay), *Agenda*, vol. 10, no. 1, pp. 27–41 available at http://epress.anu.edu.au/agenda/010/01/10-1-A-4.pdf

2002, 'Stirling Harbour Services v Bunbury Port Authority: A Review of Some Economic Issues', *Competition & Consumer Law Journal*, 10(1), pp. 27-41.

2002, ‘Public Liability : An Economists Perspective’, Bar News, *The Journal of the New South Wales Bar Association*, Winter 2002, available at http://www.nswbar.asn.au/docs/resources/publications/bn/bn_winter2002.pdf

1998, ‘Are the ACCC's Merger Guidelines too Strict?’, *Competition and Consumer Law Journal*, vol. 6, p. 171.

1998, ‘Telecommunications Issues in Market Definition’, (with Deena Shiff and Mitchell Landrigan), *Competition and Consumer Law Journal*, vol. 6, p. 32.

1995, ‘ Competition Policy in Deregulated Industries’, *International Business Lawyer*, vol. 23, no. 7, p. 305.

1994, ‘The Interconnection Problem with a Focus on Telecommunications’, (with Eric Ralph), *Communications & Strategies*, no 16, 4th quarter, 1994, pp. 9–24.

1994, ‘Oftel: A Tragic Libretto ‘,*CommunicationsWeek International*, 21 February, Issue 119, p. 8.

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