

**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")**

**The Treatment of Ducting and Trenching Costs in Telecommunications Access Pricing: Why  
the UK Water Experience is not Relevant**

**Report of Professor Martin Cave**

- 1 My name is Professor Martin Cave, Professor and Director of the Centre for Management under Regulation, Warwick Business School at the University of Warwick in the United Kingdom. Annexure A to this report contains a copy of my resume.
- 2 I have read the Federal Court's 'Guidelines for Expert Witnesses in Proceedings in the Federal Court of Australia' which forms Annexure B to this report. I have prepared this report accordingly, making all inquiries I consider to be appropriate, having regard to the instructions from Gilbert + Tobin (**G + T**).
- 3 The report prepared by Europe Economics (EE) dated 26 March 2009 prepared for SingTel Optus<sup>1</sup> (EE Report) proposes that the cost of the Telstra assets used in the supply of the ULLS service (excluding what assets might be rendered redundant by the NBN) "would be estimated as the long-run costs of an efficient new entrant allowed to make use of the existing ducts and trenches in return for an appropriate payment to [Telstra]... plus a normal rate of return of the assets as valued in the accounts."<sup>2</sup> The EE Report says that such an approach would be consistent with the renewals accounting methodology applied by the UK water regulator, Ofwat, in setting retail water and sewerage prices.
- 4 I have extensive knowledge and experience in water regulation in the UK. I was a non-executive advisory director of Ofwat, the UK water regulator, from 2001 to 2004, and in March 2008 I was appointed by the UK Chancellor of the Exchequer, the Secretary of State for the Environment, Farming and Rural Affairs and Welsh Ministers to undertake an independent review of competition and innovation in the water sector in England and Wales. The report is completed and awaits publication on April 22 2009.
- 5 The questions which G + T has asked me to address and a summary of my answers in this paper are set out below:
  - (a) *what are the features of a sector or activity which may predispose it to the use of renewals accounting?*

It is a basic principle of regulatory economics that access pricing should permit recovery of costs over the lifetime of assets to ensure that a continuing flow of investible funds comes into the industry; allowing efficient cost recovery encourages investment to replace and expand facilities. Attainment of this goal is normally achieved by including a depreciation charge in the cost model, which ensures the return of capital to the investor over the life of the investment.

However, renewals accounting excludes depreciation because it is assumed that the assets will be used in perpetuity and therefore have no finite economic life. Renewal

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

<sup>2</sup> EE Report, page 24 at para 4.1 and page 28 at para 4.27.

accounting only allows the recovery of the costs of repairing wear and tear. It allows a return **on** capital but not a return **of** capital.

- (b) *what circumstances led to and were the rationale for the adoption of renewals accounting in the UK water industry?*

Renewal accounting for the duct, pipe and trench network of the UK water utilities was adopted *prior* to their privatisation. The Government's decision ensured retail water prices would remain low and this was factored into the price buyers of the privatised water companies were prepared to pay.

The ACCC has consistently applied a forward looking cost model approach to Telstra's copper network over the last decade, which has spanned consecutive tranches of Telstra privatisation. Changing asset valuations or, as in this case, the basis on which capital is returned to investors, can have a major effect on returns to investors, and shake their confidence in the fundamental stability of the regulatory regime.

- (c) *what is your response to the views expressed in the EE Report that similarities between the water industry and the telecommunications industry justify the costing of ducts and trenches in ULLS costing on a basis other than forward looking costs?*

A combination of technological dynamism and significant opportunities for competition undermines the EE Report's premise of the immortality of the Telstra duct and trench network. There already is evidence of bypass in the Australian market. The Optus HFC network passes a third of homes and does not rely on Telstra ducts. Australia leads the world in the deployment of high speed wireless networks.

The exact mix of technologies in the NGA space in the future and the pace of their deployment may well be unclear today, but the uncertain life span of the copper network infrastructure is a very different from the indefinite life of water infrastructure. Investors in a regulated firm would not be satisfied if it were told by the regulator that its on-going recoverable costs excluded depreciation because the lifetime of its assets was uncertain and that, when it became clear that the assets were to be taken out of use, the firm would then have to scramble to achieve the return of its capital investment.

- (d) *what are your views as to the appropriate approach to the costing of ducts and trenches in assessing the access price for ULLS and what is your response to the proposed model in the EE Report to use historic cost (HCA)?*

Where there are prospects of competitive entry using different technologies, regulatory policy should take a technologically neutral approach. In particular, care should be taken to avoid interventions which offer exceptionally favourable access terms to a particular delivery system, if doing so will penalise end-to-end competitors using different technologies.

The access pricing rule which has the strongest support, both from the academic literature and the practice of regulators, including the ACCC, is the use of forward-looking long-run incremental cost. Potential entrants, including the builder of the NBN, then will face an efficient build or buy decision between investing in their own facilities or using Telstra's.

The risk that would be run under a renewals accounting approach or the use in price-setting of Telstra's historic costs, which EE also proposes, is that Australia would be locked into a single technology solution.

#### *The argument made by Europe Economics*

- 6 I understand EE to be arguing that a distinction should be made in modelling the forward-looking costs between assets which will be maintained by Telstra in use into the indefinite future

and those which will be taken out of use after a relatively short period. In the case of the former, “the charges that should be made for the use of those of Telstra’s assets expected to be in use in the indefinite future, are the long run costs of maintaining them in service if that is more cost-effective than replacing them (eg, digging new trenches and providing new ducts), plus a normal rate of return on the assets as valued in the accounts.” (EE Report at para 4.27.) The remarks which follow are based on this proposal, and do not deal with the assets which will shortly be taken out of use.

- 7 EE argues in favour of their proposal for assets of indefinite life by analogy with the treatment of most underground assets in the England and Wales water industry. According to EE, the similarity resides in the fact that the “practical issue for the suppliers [of ‘trenches, ducts and copper wires’ in one case, and ‘of reservoirs, tunnels, pipes and treatment works’ in the other] is to maintain these old assets in working order, with of course some extensions or major engineering work from time to time.” (EE Report at para 6.2).
- 8 I will discuss this analogy below, after some very brief general observations concerning the issues at hand.

#### *Setting regulated prices in network industries*

- 9 At its simplest, where regulated firms are investor-owned, regulated prices are required to allow recovery of efficiently incurred costs, if end user interests are to be maintained and if a continuing flow of investible funds is to come into the industry. It is well known that prices based on costs calculated according to a variety of accounting principles can permit cost recovery over the life time of a business or a project of any duration; the differences between them consisting largely of the contributions to cost made by successive generations of customers. However, in cases where competitive entry into the activity in question is feasible, an additional requirement may be needed on the sequence of cost-recovering prices- that they elicit efficient entry. As a rough generalisation, while competition in the distribution network of the water and sewerage sector has not been seen for several centuries, simple observation suggests that all elements of the telecommunications value chain, including the local loop, are subject to competition. I return to this difference below.

#### *The context of infrastructure accounting in the England and Wales water industry,*

- 10 Before the England and Wales water industry was privatised in 1989, a decision was made to adopt a system of infrastructure renewals accounting for certain assets- mains and sewers, impounded and pumped raw water storage reservoirs and sludge pipelines.<sup>3</sup> The soon-to-be privatised companies adopted this approach in their accounts for the year ending March 31 1989. (In my opinion, it is significant that this decision was made before privatisation.) The decision was explained shortly afterwards as follows:

‘No depreciation was to be charged on infrastructure assets because they represented a network of systems which must be maintained in perpetuity and therefore had no finite economic life.’<sup>4</sup>

- 11 The licence issued to water undertakers at the time expressed it thus:

‘infrastructure renewals expenditure means expenditure on maintaining or restoring the original operating capability, qualitative performance and condition of infrastructure

<sup>3</sup> Note that the list does not include treatment works- which are included in EE’s list of assets quoted in para 7 above. I believe this distinction may reflect the fact that treatment works have a defined life and are a potentially competitive activity. On the latter point, see M Cave, *Independent Review of Competition and Innovation in Water Markets (Interim Report)*, November 2008.

<sup>4</sup> A Carey, M Cave, R Duncan, G Houston and K Langford, *Accounting for Regulation in UK Utilities*, ICAEW, 1994, page 63.

assets, other than expenditure which is capitalised and routine day-to-day maintenance expenditure which is charged as an operating cost to the profit and loss account.’<sup>5</sup>

- 12 In other words, renewals expenditure maintains broadly the condition of a network which is expected to last for ever. The provider of the assets receives a return on the recognised asset base; the recovery of renewals expenditure covers the cost of ‘wear and tear’; but, crucially, there is no return of capital, because it is unnecessary because the assets are expected to last forever. In the last respect, the assets are treated like land, or another non-depreciating asset.
- 13 It is important to draw a distinction between the case of infinite asset life and the case where the asset life is subject to uncertainty. Unfortunately the term ‘indefinite’ could at a stretch be applied to either, though I think it is better suited to the ‘uncertain life’ meaning. As an indication of the difference, while a firm might accept a situation in which it did not receive a revenue allowance to recover the cost of an asset the value of which did not decline with age or use, it would not be satisfied if it were told by the regulator that its on-going recoverable costs did not include depreciation of its assets, because their lifetime was uncertain or not subject to precise prediction; and that by implication, when it became clear that the assets were to be taken out of use, it should then scramble to achieve the return of its capital investment. It is easy to agree that assets have uncertain lives, but cases where they have infinite lives are rare.
- 14 Even in the water sector, climate change is now considered likely to impose large and unprecedented changes in the configuration of water industry assets, to an extent which may put strains on the notion of an indefinitely renewable structure of assets.<sup>6</sup> It is conceivable but not yet likely that changes in the demands placed on the network will be severe enough to undermine the concept of a water delivery network with no finite economic life.

*The read across to the telecommunications sector*

- 15 I am not aware of EE’s suggestion in connection with the treatment of trenches, ducts and copper wires having been made before. For example, in its 2005 statement on valuing the local loop, Ofcom asked the question ‘Do you agree that Ofcom should adopt a straight line depreciation of 40 years as the appropriate book life for duct?’ It answered as follows:

‘..it is Ofcom’s view that the useful life of duct is likely to be at least as long as the average book life of 38 years stated by BT. Ofcom has, therefore, decided to adopt a straight line depreciation of 40 years in the regulatory accounts for BT’s D and E-side duct..’

It earlier noted that:

‘..BT will recover costs on regulated products throughout the useful life of the asset. This view is informed by benchmarking and by understanding BT’s real experience of typical service life.’<sup>7</sup>

- 16 In its Draft Recommendation on regulated access to Next Generation Access Networks (NGAs), the European Commission clearly signals that it envisages that, for the purposes of regulating the price of access to ducts, the latter will be given a (presumably finite) asset lifetime.<sup>8</sup>
- 17 I also note that in New Zealand, where the Commerce Commission is under a legislative mandate to devise detailed input methodologies to be employed for regulation in a number of

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<sup>5</sup> Quoted *ibid*.

<sup>6</sup> See Ofwat, *Sewerage system design and climate change*, PRO9/13, 20 June 2008.

<sup>7</sup> Ofcom, *Valuing Copper Access: Final Statement*, 18 August 2005, paras 4.43 and 4.40.

<sup>8</sup> European Commission, *Draft Recommendation on regulated access to Next Generation Access Networks (NGA)*, 2008, para 5 and *Explanatory Note* thereto, 2008, page 11.

sectors, the notion of infrastructure renewals accounting does not make an appearance as an 'input methodology' in contemplation.<sup>9</sup>

- 18 In my view, the stumbling block to use of renewals accounting in telecommunications is the technical dynamism of the industry, which makes it inappropriate to make an assumption that any particular asset will be used in perpetuity, or even, with certainty, in or beyond the medium term. This opinion is based on the following observations:
- (a) It is quite possible that the present choice between FTTN and FTTH, and other currently unforeseeable but possibly quite imminent alternatives will change the requirements of operators vis-à-vis the ducts they will need. We have seen a clear example of this with the Australian Government announcement on 7 April to deploy a FTTP network to 90% of Australian business and residential premises<sup>10</sup>. The Government consultation paper sets out a proposal to facilitate the deployment of all fibre networks, including the NBN but also other networks, by modifying the current carrier powers and immunities regime to support the deployment of aerial cable, which would bypass the Telstra ducts and trenches, and to provide for sharing of other utilities' ducts.<sup>11</sup> As a result, it may turn out that there is less need for Telstra ducts in the Government's FTTH network. The Government's surprise shift from an FTTN to an FTTP architecture illustrates how fundamental changes in the design of the local loop in connection with the installation of NGAs can have the effect of 'stranding' significant volumes of trenches and ducts which were previously considered virtually indispensable;
  - (b) Australia already has several networks passing a significant number of homes and business premises. Competition among wireline NGA networks is quite possible, and not all of them may use ducts. This competition may result in the exit of one or more networks and cessation of use of its (or their) ducts. This is considered to be a serious possibility by some operators in Europe, where a FTTx network faces an upgraded cable network, especially subject to c) and d) below;
  - (c) Australia presently leads the world in the deployment of high speed mobile data networks. The Telstra NextG™ network has recently been upgraded to 21 Mbps and Vodafone and SingTel Optus are deploying similar networks;
  - (d) future wireless solutions for the local loop support broadband and telephony services and could wholly replace the fixed network, although these technologies are subject to an uncertain development path which is likely to differ from area to area within Australia. For example, the release of spectrum with the switchover to digital TV in the next several years is likely to release spectrum which could support several high speed networks with speeds of 100 Mbits or more. They may possibly lead to the total exit of fixed wireline operators in some areas and to no further need for the associated ducts.
- 19 I infer from this that EE's apparent certainty that a clear distinction can be made between assets which will shortly go out of service and those which will remain in use for ever is misplaced. NGAs are disruptive in their effects. There is nothing remotely comparable in the water sector. Whatever the arguments may be for infrastructure renewals accounting in that sector, I do not believe that they apply to the local loop in telecommunications.

*The impact of adopting infrastructure renewals accounting on regulatory certainty.*

- 20 There is also a significant issue concerning regulatory certainty and predictability. I noted that the infrastructure renewals regime in the UK water industry was introduced before privatisation, and purchasers of shares at the initial offering knew what the accounting regime would be. I

<sup>9</sup> Commerce Commission, *Regulatory Provisions of the Commerce Act 1986 - Discussion Paper*, 18 December 2008, Ch 5.

<sup>10</sup> Prime Minister, Treasurer, Minister for Finance and Minister for Broadband, *Joint Press Release - New Broadband Network*, 7 April, 2009: [http://www.minister.dbcde.gov.au/media/media\\_releases/2009/022](http://www.minister.dbcde.gov.au/media/media_releases/2009/022).

<sup>11</sup> Minister for Broadband, Communications and the Digital Economy, *National Broadband Network: Regulatory Reform for 21<sup>st</sup> Century Broadband - Discussion Paper*, April 2009, pages 17-18.

understand that the ACCC has hitherto not mentioned or consulted on or evaluated or recommended infrastructure renewals accounting's use for regulating ULLS prices. Changing asset valuations or, as in this case, the basis on which capital is returned to investors, can have a major effect on returns to investors, and to their confidence in the fundamental stability of the regulatory regime. In my opinion, a change as fundamental as this should only be undertaken when it is clearly necessary and the arguments in its favour are unusually strong. For reasons set out above, I do not think that these conditions are satisfied.

*What should be done instead?*

- 21 The discussion above has been addressed to the rather narrow question of whether ducts have or do not have a finite economic life. But the points made in para 18 above go to a broader question- whether intermodal competition is likely to be a feature of the future of telecommunications services, or whether technological forces will corral all firms to use the single fibre-based delivery mechanism represented by the NGA provider formed as a successor to the copper-based telecommunications network.
- 22 While there can be no certainty as to the correct answer to this question, there has been a discernible shift amongst European policymakers and regulators from their initial pessimistic views that NGAs would lead to a re-monopolisation of the local network towards a more positive, nuanced view of the prospects of infrastructure-based competition. As discussed in the recent interim Digital Britain Report and Ofcom's report on Super-Fast Broadband<sup>12</sup>, the future NGA is likely to be based on a mix of technologies, although the exact mix may be hard to predict at this stage. It now seems likely that higher levels both of coverage of broadband services and of competition among them are achievable than was thought likely in the early days of the NGA debate.
- 23 This means that the outcome in terms of competition must necessarily depend on how the ACCC regulates. In the circumstances, the appropriate policy seems to be one of technological neutrality, which can be achieved by implementing the second element of access regulation described in para. 9 above - seeking to set access prices which, within the access provider's efficient break-even constraint, will elicit efficient entry.
- 24 In particular, care should be taken to avoid interventions which offer exceptionally favourable access terms to a particular delivery system, if that will penalise other users of that system and/or end-to-end competitors using different technologies. In the Australian context, the competing modes of current generation technologies include cable networks and mobile networks. In the future they will include cable networks upgraded to the DOCSIS 3.0 standard, mobile networks using generations of technology subsequent to 3G, including in particular LTE (long term extension), and other fixed and mobile wireless technologies such as WiMax and its extensions. Hybrid systems which combine wireline and wireless systems in different ways than is done at present may also come into use. A promising example is precisely the use of a wireless connection from the cabinet to cover the 'last meters' of a hybrid network.
- 25 In these circumstances the access pricing rule which has the strongest support, both in the academic literature and on the basis of the practice of regulators, including the ACCC, is the use of forward-looking long-run incremental cost.<sup>13</sup> The EE Report appears to acknowledge this, outside the special circumstances which it says apply to the present case. Because I do not believe that the conditions of the present case are special in the way they describe (because of the combination of technological uncertainties and competition which negate the EE Report's premise of the immortality of the duct), it follows that forward-looking TSLRIC is the right approach. I believe that this proposition applies whether and when the NBN will be built.

<sup>12</sup> Department for Culture, Media and Sport and Department for Business, Enterprise and Regulatory Reform, *Digital Britain - The Interim Report*, January 2009; Ofcom, *Delivering super-fast broadband in the UK*, March 2009.

<sup>13</sup> See ACCC, *Assessment of Telstra's Unconditioned Local Loop Service Band 2 monthly charge undertaking, Draft Decision, Public Version*, November 2008, page 71: 'The ACCC considers that access charges that represent the forward-looking costs of an efficient provider best promote competition. The ACCC's pricing principles make this clear in the adoption of a TSLRIC+ methodology. This is because, over the long run, forward-looking efficient costs lead to conditions which allow the access provider and access seeker to compete in downstream markets on their relative merits.'

- 26 Implementing a forward-looking TSLRIC approach via building blocks based on accounting valuations involves the use of properly constructed current cost accounts, since otherwise mistaken entry signals are given over time. For this reason I disagree with the recommendation in the EE Report that HCA valuations should be used. The EE Report at page 73 makes the following observation about HCA:

‘A4.6 Assessing the advantages and disadvantages of HCA (and bearing in mind the objectives set out in the Australian legislation) it is clear that HCA does not usually score well in terms of economic efficiency and would therefore not be in the LTIE.’

It goes on to argue, however, that the special circumstances of the present case make it appropriate.<sup>14</sup> However, anyone not persuaded that the circumstances are special in the way claimed by the EE Report will find it hard to avoid the conclusion that HCA is inappropriate. Additionally, I note that the ACCC<sup>15</sup> and Australian Competition Tribunal (ACT)<sup>16</sup> have both previously considered and criticised the application of HCA. Relevantly, the ACCC did not adopt HCA in the ULLS Final Pricing Principles noting that it had not used this pricing approach to price any declared service.<sup>17</sup>

### *Conclusion*

- 27 It is argued above that the exceptional circumstances claimed in the EE Report in relation to ducts from the pillar to customers' premises do not apply. According to the EE Report, they can be treated as having infinite lives. As a result, return of capital through depreciation charges is not necessary; it is sufficient to recover the costs of repairing 'wear and tear'. The EE Report argues that the system of infrastructure renewals accounting used in the England and Wales regulated water industry can properly be extended to the telecommunication assets in question. It is suggested that, in these circumstances, a return on capital valued on HCA principles, as in the company accounts, is appropriate.
- 28 The alternative view proposed above is that, unlike water industry underground assets and reservoirs, the telecommunications sector, including the local loop, in both the current and the next generation, is both dynamic and competitive. Because it is dynamic, it is unsafe to assume that the ducts in question will continue to be used indefinitely and will not be subject to economic obsolescence. Because it is competitive, in both the intramodal sense (competitors using the same network elements) and in the intermodal sense (with competitors using different networks and technologies- fibre, upgraded cable networks, mobile, wi-max etc), an access pricing regime which departs from forward-looking LRIC principles risks distorting competition in both these forms. Accordingly, the ACCC should set access prices in this case using its normal forward-looking efficient costing approach.

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<sup>14</sup> EE Report, para 4.22 and footnote 48, page 27.

<sup>15</sup> ACCC, *Access pricing principles: telecommunications a guide*, 31 July 1997, page 43.

<sup>16</sup> *Telstra Corporation Ltd (No 3)* [2007] ACompT 3.

<sup>17</sup> ACCC, *Unconditioned Local Loop Service (ULLS) Final Pricing Principles*, November 2007, page 8.

*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.

Martin Cave

Martin Cave

Date: 7 April 2009