TELSTRA CORPORATION LIMITED

PUBLIC INQUIRY TO MAKE FINAL ACCESS DETERMINATIONS FOR THE DECLARED FIXED LINE SERVICES

PART A OF TELSTRA'S RESPONSE TO THE COMMISSION'S DISCUSSION PAPER

SCHEDULE A.1: THE ACCC'S NEW APPROACH TO SETTING ACCESS PRICES: OPINION OF PROFESSOR DAVID SAPPINGTON

June 2011

The ACCC's New Approach to Setting Access Prices:

Opinion of Professor David E. M. Sappington

I have been asked by Gilbert and Tobin to provide my opinion of the Australian Competition and Consumer Commission (ACCC)'s new "building block" approach to setting access prices in the Australian telecommunications industry. In particular, I have been asked to address the questions posed in the May 27, 2011 letter from Gilbert and Tobin that appears at the end of this opinion.

In preparing my opinion, I have reviewed the statutory criteria that govern the ACCC's decision making and the ACCC's April 2011 Discussion Paper *Public Inquiry to Make Final Access Determinations for the Declared Fixed Line Services* ("ACCC 2011"). I have also reviewed the materials provided by Gilbert and Tobin that are listed at the end of this opinion.

I confirm that this opinion is provided in accordance with the Federal Court Guidelines for Expert Witnesses. My credentials are summarized briefly and my full curriculum vitae is provided at the end of this opinion.

OVERVIEW OF OPINION

The new building block approach to setting access prices requires the ACCC to establish an initial value for Telstra's regulated asset base (RAB). Since 1997, the ACCC has employed a forward-looking replacement cost methodology to value Telstra's network assets. This methodology has merit for the many reasons the ACCC has espoused consistently since 1997. Therefore, it is appropriate to continue to employ this methodology under the new building block approach to setting access prices.

Indeed, to foster investor confidence and to avoid having to value Telstra's network assets anew, I believe the ACCC should set an initial value for Telstra's RAB that reflects the most recent value specified by the ACCC, modified to reflect any major relevant industry changes since the most recent value was established. The investor confidence fostered by this consistent approach to valuing Telstra's RAB would promote the long-term interests of end-users of telecommunications services in Australia by ensuring the continuing flow of capital to the industry on reasonable terms and conditions.

The ACCC, instead, intends to set an initial value for Telstra's RAB that ensures a constant price for one access service in specific geographic regions of Australia. Because it risks a substantial reduction in the returns that investors can anticipate, this approach threatens to deter investment in Australia's telecommunications industry and thereby to jeopardize industry performance, harming producers and consumers alike.

The ACCC's new approach also does not adjust access prices to reflect the higher unit costs of supplying access services that arise as the demand for fixed-line telecommunications services declines. Such adjustment – which is routinely undertaken by leading regulators around the world – is important to ensure that access prices reflect the relevant unit costs of supply and

thereby provide adequate compensation to Telstra and send appropriate build-or-buy signals to access seekers.

In addition to being troubled by these two elements of the ACCC's new approach to setting access prices, I am troubled by elements of the analysis employed to justify the approach. In particular, I find that the analysis in the ACCC's April 2011 Discussion Paper provides limited justification for key conclusions regarding stranded depreciation, regulatory opportunism, investment support, and network bypass.

I address each of these matters below after summarizing briefly the ACCC's new building block approach to setting access prices and reviewing the statutory considerations the ACCC takes into account when setting access prices.

THE ACCC'S APPROACH

Since 1997, the ACCC has employed a forward looking total service long run incremental cost (TSLRIC) approach to setting prices for many of the access services that Telstra supplies.[1] The ACCC now plans to switch to a building block approach to setting these prices. The change is motivated in part by the observation that "The continual revaluation of network assets [under the TSLRIC approach] introduced uncertainty over the level of access prices" (ACCC, 2011, p. 25). Under the building block approach, the ACCC will establish an initial value for Telstra's RAB. This "initial RAB value is then 'locked in' and rolled forward by actual changes in the value of the asset base" (ACCC, 2011, p. 26). The building block approach thereby avoids the need to value Telstra's RAB anew every time access prices are set.

The ACCC appears to have undertaken four key steps in implementing the building block approach. First, the ACCC identified what it considered to be a range of suitable values for Telstra's RAB. The lower bound of this range reflects depreciated historic cost, which the ACCC refers to as depreciated actual cost (DAC). The upper bound of the range reflects depreciated optimized replacement cost (DORC). Second, the ACCC determined that a price of $16 for the unconditioned local loop service (ULLS) in Bands 1 – 3 would be an appropriate price for this access service. Third, the ACCC employed its fixed lines services model (FLSM) to identify the value for Telstra's RAB that, after allocating relevant costs across services, would generate the selected $16 price for ULLS in Bands 1 – 3. Fourth, the ACCC noted that the identified RAB value was in the range of values that were considered to be suitable.

[1] The ACCC observes, "In accordance with the 1997 Access Pricing Principles, a forward looking TSLRIC+ pricing approach was consistently adopted as the pricing principle for the ULLS, the LSS and the PSTN OTA, and indicative prices were calculated for those services based on that pricing principle" (ACCC, 2011, pp. 24-25). The ACCC has employed the "retail minus retail cost" methodology to set prices for the wholesale line rental (WLR) and local carriage service (LCS). (See Telstra Corporation Limited**,** *Public Inquiry to Make Final Access Determinations for the Declared Fixed Line Services. Response to the Commission's Discussion Paper, Schedule 3: Historical Background*, June 2011 ("Telstra, 2011"), p. 17.)

THE STATUTORY CONSIDERATIONS

In order to evaluate the ACCC's new approach to setting access prices, it is important to understand the considerations the ACCC is directed to take into account when setting access prices.

Gilbert and Tobin has advised me that the ACCC is directed to consider the following when setting access prices:

(a) the long-term interests of end-users (LTIE);

(b) the legitimate business interests of Telstra and Telstra's investment in the facilities used to supply the relevant service;

(c) the interests of all persons who have rights to use the service;

(d) the direct costs of providing access to the service;

(e) the value to a party of extensions, or enhancement of capability, the cost of which is borne by someone else;

(f) the operational and technical requirements necessary for the safe and reliable operation of the network; and

(g) the economically efficient operation of the network and associated services.

Gilbert and Tobin has also advised me that in determining whether an action promotes the LTIE, it is important to consider the extent to which the action promotes the achievement of:

(i) the objective of promoting competition in markets for listed services;

(ii) the objective of achieving any-to-any connectivity in relation to carriage services that involve communication between end-users; and

(iii) the objective of encouraging the economically efficient use of, and the economically efficient investment in, the infrastructure by which listed services are supplied.

THE PREFERRED APPROACH TO VALUING TELSTRA'S REGULATED ASSET BASE

Setting an appropriate initial value for Telstra's RAB is important because the established value plays a central role in determining the access prices that will be implemented. The established value determines the return of capital (depreciation) and the return on capital (the product of the cost of capital and the established RAB value) that will be reflected in access prices. The access prices that are implemented affect the costs of access seekers, the prices paid by end-users of telecommunications services, and the returns on investment secured by Telstra's shareholders. Consequently, the initial value that is established for Telstra's RAB has important implications for the end-users of telecommunications services, for access seekers, and for Telstra's shareholders.

The LTIE and the interests of access seekers are best served by policies that encourage economically efficient investment in Telstra's network. Regulatory policies that consistently respect Telstra's legitimate business interests serve this purpose. When investors are confident that they will consistently be afforded a reasonable opportunity to recover their investment and earn a normal return on the investment, they will deliver on reasonable terms the capital that Telstra requires to continually deliver high quality access services and retail services.

Potential investors in regulated industries value greater certainty about the likely returns from their investments. However, investors recognize that complete certainty about investment returns is not a reasonable expectation. It is impossible to predict the future perfectly, and regulatory policy that reflects the identified statutory considerations typically will change as industry conditions change. A regulatory policy that is "certain" in the sense that it does not change as industry conditions change typically is not the best policy. As unavoidable costs of delivering access services increase, for example, higher access charges typically are appropriate because they reflect direct costs, serve the legitimate interests of the access provider, and present appropriate "build-or-buy" signals to potential access seekers.

Because regulatory policies that ensure certainty typically are not ideal policies, "regulatory predictability" is a more reasonable objective than "regulatory certainty." Policies that promote regulatory predictability are policies that adapt to changing industry conditions in a consistent and predictable manner.

To promote the LTIE by consistently respecting the legitimate business interests of access providers, regulators should enhance the predictability of their policies by specifying clearly the principles that will guide their decisions and then faithfully following these principles when making decisions. Regulatory predictability endows investors with a clear understanding of the regulatory policy that will be implemented as industry conditions evolve, and thereby limits "regulatory surprises." As the likelihood of regulatory surprises declines, investors become more willing to supply capital to the regulated industry on reasonable terms and conditions, thereby promoting the LTIE.[2]

Since 1997, the ACCC has employed and emphasized the merits of the TSLRIC approach to setting prices for most access services.[3] In its July 1997 publication *Access Pricing Principles – Telecommunications: A Guide* (ACCC, 1997), the ACCC states:

---

[2] Of course, regulatory policies should reflect sound economic principles in addition to fostering regulatory predictability. Even when it is entirely predictable, an unsound policy may fail to promote the LTIE and protect the legitimate interests of stakeholders. To illustrate, a regulatory policy that is perfectly predictable in the sense that investors are certain that their investments will be fully exploited will not attract industry investment. Consequently, such a policy will fail to promote the LTIE.

[3] As noted above, the ACCC has employed the RMRC methodology to set prices for WLR and LCS.

> "The Commission's view is that … the access price should, in general, be based on the total service long-run incremental cost (TSLRIC) of providing the service" (ACCC, 1997, p. 28).

The ACCC further notes:

> "TSLRIC is based on forward-looking costs. These are the ongoing costs of providing the service in the future using the most efficient means possible and commercially available.
>
> An access price based on TSLRIC is consistent with the price that would prevail if the access provider faced effective competition, and usually best promotes the long-term interests of end-users" (ACCC, 1997, p. 29).

> More recently, the ACCC has observed that access prices that reflect:
>
> "… efficient forward-looking network costs will:
> - better promote the LTIE, as they will better promote competition and encourage the economically efficient use of and investment in infrastructure [and]
> - allow Telstra to recover amounts necessary to protect its legitimate business interests, but not more than necessary."[4]

To implement the TSLRIC approach to setting access prices, it is necessary to value the assets that are employed to produce the access services. To ensure that the asset valuation gives rise to a return of capital and a return on capital that reflect the long run cost of the asset, the asset value should reflect the cost of replacing the productive capacity of the asset in an efficient network. As the ACCC observes:

> "Estimating TSLRIC requires assets to be valued at their **economic cost**. There is a variety of methods of asset valuation … Of these methods, replacement cost is the methodology most consistent with TSLRIC.
>
> Replacement cost is the present-day cost of replacing the asset with another asset that provides the same service potential" (ACCC, 1997, p. 41).

Because the ACCC has, since 1997, clearly and consistently endorsed the TSLRIC approach to setting access prices and the associated forward-looking replacement cost approach to valuing Telstra's RAB, investors would be surprised if, under the new building block approach to setting access prices, the initial value for Telstra's RAB were not consistent with this approach. Therefore, to best protect Telstra's legitimate business interests and thereby promote the LTIE and the interests of access seekers by ensuring an ongoing flow of capital on reasonable

[4] ACCC, *Unconditioned Local Loop Service: Access Dispute Between Telstra and PowerTel Ltd: Statement of Reasons for Final Determination*, March 2008, p. 76.

terms and conditions, the ACCC should set an initial value for Telstra's RAB that reflects the replacement cost of Telstra's assets.[5]

To set this initial value, the ACCC could undertake an entirely new assessment of the replacement cost of Telstra's assets. However, as noted above, the ACCC has observed that "The continual revaluation of network assets [can introduce] uncertainty over the level of access prices" (ACCC, 2011, p. 25). To avoid having to value Telstra's RAB anew at this time, the ACCC could select as an initial estimate of the value of Telstra's RAB the ACCC's most recent valuation of Telstra's RAB. The ACCC could then modify this initial estimate to reflect the impending change in depreciation schedules[6] and any major relevant industry changes since the most recent valuation was undertaken.[7]

Such a direct and explicit link between the most recent and the new RAB value would demonstrate clearly to investors that the adoption of a new methodology for setting access prices will not be employed as an opportunity to reduce investor returns below the levels they anticipated under the previous methodology. This demonstration would protect Telstra's legitimate business interests and thereby promote the LTIE and the interests of access seekers by ensuring that investors will continue to supply on reasonable terms and conditions the capital that Telstra requires to deliver high quality retail services and access services.

In summary, in my opinion, the initial value for Telstra's RAB that best promotes the LTIE while serving the interests of access seekers and respecting Telstra's legitimate business interests is the most recent value set by the ACCC, modified to reflect any major relevant industry changes since the most recent valuation was set. This initial value for Telstra's RAB would retain consistency with the access pricing principles the ACCC has espoused since 1997 while facilitating a smooth transition to the new building block approach to setting access prices.[8]

---

[5] The Royal Bank of Scotland notes the importance in the current setting of ensuring that "after allowing for changes in circumstances in the market, regulation doesn't arbitrarily reduce network value compared with what has been reflected in investor decisions when the access pricing process was well known and relied on by investors" (Ian Martin, Fraser McLeish and Alan Stuart, *Telstra Corporation: ACCC Relents a Little on Access*, Royal Bank of Scotland Analyst Report, March 3, 2011).

[6] This impending change is discussed below.

[7] This approach to setting an initial value for Telstra's RAB would seem to be consistent with the ACCC's "delta approach" to setting access prices. "The delta approach involves using existing access prices as a benchmark and altering the price in accordance with subsequent and projected changes in costs" (ACCC, 1997, p. 31). The ACCC cautions that "The Commission will need to be satisfied that the existing access price is based on TSLRIC before using the delta approach" (ACCC 1997, p. 31). In the present instance, there is every reason to believe that the existing access prices reflect TSLRIC principles. This is the case because the ACCC has applied the TSLRIC methodology systematically since 1997 to set prices for most access services.

[8] Alternatively, the ACCC might set as the initial value for Telstra's RAB the value that (via the FSLM) gives rise to prices for all of Telstra's access services that closely approximate the prevailing

LIMITATIONS OF THE ACCC'S APPROACH TO VALUING TELSTRA'S REGULATED ASSET BASE

In my opinion, the alternative approach to setting an initial value for Telstra's RAB that the ACCC has adopted fails to adequately promote the LTIE, Telstra's legitimate business interests, and the interests of access seekers. This failure reflects two primary shortcomings.

First, the ACCC's approach presumes that a range of suitable values for Telstra's RAB can be identified without reference to relevant regulatory history. This is not the case, for the reasons discussed below. Second, the ACCC's approach focuses on securing price stability for one access service (ULLS) in certain geographic regions of Australia. Such stability fails to protect Telstra's legitimate business interests and promote the LTIE for the reasons explained below.

The Need to Consider Relevant Regulatory History

For the reasons identified above, the LTIE, Telstra's legitimate business interests, and the interests of access seekers are best promoted by providing overall regulatory predictability. Consequently, absent substantial changes in relevant industry conditions, only RAB values that reasonably promote overall regulatory predictability should be considered as candidates for an appropriate initial value for Telstra's RAB. In particular, a "suitable" range of RAB values cannot be specified without regard for recent asset values and the implications of these recent values for regulated prices and investor returns.

The ACCC deems all values for Telstra's RAB between DAC and DORC to be suitable, rather than limiting attention to RAB values that reasonably promote overall regulatory predictability.[9] Methodologies for setting access prices can change over time for good reason. However, if a new methodology and the preceding methodology are not adequately harmonized to promote consistent returns for investors, then investors will face ongoing uncertainty about the returns they can reasonably anticipate. Importantly, this unnecessary and detrimental uncertainty will arise not because of the inherently unpredictable nature of the regulated industry, but simply because of unpredictable regulatory policy.

It is particularly important to set an initial value for Telstra's RAB now that ensures consistent returns for investors because this value will be "locked in" and "rolled forward" when access prices are set in the future. Consequently, the detrimental effects of an initial value for Telstra's RAB that is unduly low will persist far into the future.

---

indicative prices. Presumably, this alternative approach would produce an initial value for Telstra's RAB similar to the value generated by the approach suggested above. This alternative would provide broader price consistency than the ACCC's approach, which focuses on securing a constant price for one access service in specific geographic regions of Australia.

[9] The ACCC states that it "considers that a suitable range of RAB values is set by the depreciated historic value of Telstra's investments in network assets (that is, depreciated actual cost (DAC)) and by depreciated optimised replacement cost (DORC)" (p. 3).

Selective Price Stability Does Not Ensure Overall Regulatory Predictability

The ACCC has chosen as the initial value for Telstra's RAB the value that generates a $16 price for ULLS in Bands 1 – 3, the price that was established in 2008 for ULLS in Band 2.[10] The ACCC's April 2011 Discussion Paper does not carefully assess the implications of this choice of initial RAB value for Telstra's overall revenues and earnings. Therefore, the ACCC's policy has the potential to reduce the earnings that Telstra's shareholders anticipate well below the levels they anticipated under the TSLRIC regime.

The ACCC's new approach to setting access prices may provide some consistency for the price of ULLS in Band 2. However, the prices of several other access services are projected to decline substantially below the prevailing indicative prices under the ACCC's new approach. In particular, the prevailing indicative prices for wholesale line rental (WLR), line sharing service (LSS), and local carriage service (LCS) are $25.27, $2.50, and $0.17, respectively. The corresponding projected average prices for WLR, LSS, and LCS as of July 2011 under the ACCC's building block approach are $22.47, $1.80, and $0.087, respectively.[11]

These price reductions (of 11%, 28%, and 49%, respectively) amplify the aforementioned concern about the potential for reducing the returns that Telstra's shareholders can now anticipate below the returns they anticipated under the TSLRIC regime. Furthermore, it is not at all apparent that these substantial price reductions are consistent with the ACCC's observation that "a clear justification is required for any significant change in existing prices" (ACCC, 2011, p. 47).

Just as it is important to consider recent history when selecting a suitable initial value for Telstra's RAB, it is important to consider recent history when attempting to provide price consistency. Access prices generally were expected to increase over time under the TSLRIC approach to setting access prices.[12] Consequently, the unchanged $16 price for ULLS in Band 2 constitutes a departure from the expected price for this service and so, in this sense, may not provide price consistency.

The distinction between consistency on one dimension of regulatory policy and overall regulatory predictability warrants emphasis. Even if the $16 price for ULLS were considered to promote price consistency for this service, the ACCC's policy that includes this $16 price may diminish overall regulatory predictability in two distinct ways.

---

[10] Telstra (2011, p 16).

[11] ACCC (2011, pp. 168-169).

[12] The increasing prices reflected in part the tilted annuity form of depreciation employed under the TSLRIC approach to setting access prices (Telstra, 2011, p. 16). This form of depreciation is discussed further below.

First, the $16 price for ULLS in Bands 1 – 3 is accompanied by the identified substantial (and likely unanticipated) reductions in prices for other access services. Therefore, it is not apparent that the ACCC's policy promotes overall price consistency.

Second, the $16 price for ULLS in Bands 1 – 3 and the corresponding price changes for other access services have the potential to reduce Telstra's earnings below the levels that could reasonably have been anticipated under the TSLRIC approach to setting access prices. Consequently, even though the ACCC's approach to setting access prices may provide some measure of consistency for one access price, it may fail to respect Telstra's legitimate business interests and so may fail to promote the LTIE by jeopardizing the continued flow of capital to the telecommunications industry in Australia.

Finally, it should be noted that an unchanging access price is not required to limit uncertainty about the price. To illustrate, a clearly defined price schedule that specifies a systematic five percent annual price increase leaves no uncertainty about the price that will prevail at any moment in time. Consequently, a clearly defined schedule of gradually increasing access prices provide just as much certainty about the price as does a price that does change over time. Therefore, such a schedule of gradually increasing access prices can be preferable to unchanging access prices. This may be the case, for example, in settings where the costs of providing access are increasing systematically over time or where it is deemed desirable to encourage industry suppliers to invest more heavily in their own infrastructure over time as they develop a base of loyal customers.[13]

INADEQUATE ACCOUNTING FOR RELEVANT INDUSTRY CHANGES

Just as it is important to consider recent history when setting an initial value for Telstra's RAB, it is also important to consider recent and ongoing changes in industry conditions when setting access prices. The demand for fixed-line telecommunications services in Australia has declined substantially in recent years, both in Australia[14] and in other countries.[15] If the decline in Australia ultimately parallels the decline in other countries, the Australian decline may become even more pronounced in the coming years.[16] The decline in Australia and elsewhere

[13] See, for example, Alessandro Avenali, Giorgio Matteucci, Pierfrancesco Reverberi, "Dynamic Access Pricing and Investment in Alternative Infrastructures," *International Journal of Industrial Organization*, 28(2), March 2010, 167-175.

[14] See Telstra (2011, pp. 5-6). The International Telecommunication Union (ITU) reports that the number of fixed telephone lines in Australia has declined from 10.05 million in 2000 to 9.02 million in 2009 **(**ITU World Telecommunication/ICT Indicators database).

[15] To illustrate, the number of fixed telephone lines in the United States has declined from 192.5 million in 2000 to 155.0 million in 2009 **(**ITU World Telecommunication/ICT Indicators database).

[16] JP Morgan observes that "Experience from OECD incumbents suggests cumulated line loss from peak can reach as much as 25% of total lines. From peak, Telstra lost a cumulated 17% of total lines, as such there would seem to be some further downside to the current level of fixed lines in Australia" (JP Morgan, *Australian Telecom Sector: FY10 Telco Review – The End of the Line?* September 2010, p. 43). Business Monitor International Ltd. (BMI) projects a steady, ongoing decline in fixed telephone

largely reflects factors beyond the control of suppliers of fixed-line services. These factors include reduced demand for multiple fixed lines in the home (due to the reduced use of facsimile machines and dial-up internet service), changing consumer preferences regarding voice communication versus other forms of communication, and the substitution of wireless communications services for fixed-line services.[17]

An access price typically is set to reflect the unit cost of supplying the service. The unit cost of supplying a service is the ratio of the total cost of supplying the service to the number of units of the service that are sold. Consequently, the unit cost of supplying a service increases as fewer units of the service are sold, *ceteris paribus*.

Substantial reductions in demand for fixed-line services can generate substantial increases in the unit costs of supplying access services.[18] Therefore, if access prices are not increased as declining demand for fixed-line services produces higher unit costs of supplying access services, Telstra can be forced to incur financial losses in the provision of access service. In addition to jeopardizing Telstra's financial integrity, such a pricing policy can undermine Telstra's incentive to continue to expand and improve its network. Such undermining of investment incentives does not promote the LTIE or the interests of access seekers.

Despite the importance of setting access prices to reflect the prevailing unit costs of providing access, the ACCC declines to do so. The ACCC summarizes its policy for setting access prices in the presence of declining demand for fixed-line telecommunications services as follows:

> "[T]he ACCC does not consider that it is appropriate to compensate Telstra for any loss of market share, or reduced customer demand for, fixed line services by allocating total network costs across a declining number of retail and wholesale services. The ACCC has therefore not increased unit costs for the declared fixed line services to reflect any further decline in the total demand for fixed line services" (ACCC, 2011, p. 161).

---

lines in Australia throughout BMI's 2014 forecast horizon (BMI, *Australia Telecommunications Report*, Q3, 2010, p. 19). The demand for Telstra's fixed-line services could decline even more sharply in the future as Telstra's customers migrate to the NBN.

[17] The Australian Communications and Media Authority (ACMA) predicts that "mobile plans will become increasingly generous and so further encourage the substitution of mobile traffic for fixed" in Australia (ACMA, *Fixed-Mobile Convergence and Fixed-Mobile Substitution in Australia*, July 2008, p. 1).

[18] Because unit cost (u) is the ratio of total cost (C) to output (Q), i.e., $u = C/Q$, unit cost increases by more than one percent for each one percent decline in output, absent offsetting reductions in total cost (since $C/[.99Q] > 1.01[C/Q]$). For an illustration of the substantial changes in access prices that can arise from changes in the realized demand for fixed-line services after standard cost allocation procedures are employed to approximate the costs of supplying individual access services, see Telstra Corporation Limited, *Pricing Principles for Fixed Line Services: Supplementary Response to the ACCC's Draft Report*, November 2010.

The ACCC's policy in this regard stands in stark contrast to the position of other regulators. Consider, for example, the policy of Ofcom, the telecommunications regulator in the United Kingdom:

> "The economic and market environment in which new NCCs (network charge controls) will be set is different to that in previous NCC reviews. Technology change is likely to mean that some voice telephony traffic migrates from the public switched telephony network (PSTN) to next generation networks (NGNs) during the life of the next control. Ofcom's approach to this is explained in this consultation document. Also, the volume of calls delivered using wholesale conveyance services provided over BT's network has declined and is forecast to continue on a downward trend. As a result we are forecasting that unit costs will rise during the period of the next NCC. Under the proposals set out in this document, NCC charges would consequently be allowed to rise."[19]

Ovum reports that the telecommunications regulators in Italy and Spain are also increasing access prices in response to the declining demand for fixed-line services.[20]

In defending its decision not to employ the policy that is routinely employed by other regulators around the world, the ACCC suggests that:

> "its methodology for adjusting the cost allocation factors to reflect forecast changes in demand will generally offset any demand forecasting errors"
>
> and so
>
> "estimated unit costs will not change significantly as a result of changes in demand ... Consequently, demand changes will not alter estimated prices to any significant degree" (ACCC, 2011, p. 128).

The analysis in the Appendix to this opinion summarizes my understanding of how the ACCC sets cost allocation factors and determines the fraction of common costs that is recovered from each of Telstra's services. This understanding is largely consistent with ACCC's statements immediately above. However, even though changes in consumer demand for fixed-line services may not affect cost allocation factors and estimated unit costs, these demand changes can have a profound impact on Telstra's revenues from access services and on Telstra's ability to recover its common costs.

The analysis in the Appendix identifies the fraction of its common costs that Telstra can recover in a given year, *t*, when the ACCC effectively employs the realized demand in a base year, *b*, rather than the actual demand in year *t* to calculate unit production costs. The analysis

---

[19] Ofcom, *Review of BT Network Charge Controls: Consultation on Proposed Charge Controls in Wholesale Narrowband Markets*, March 19, 2009, p. 1.

[20] Luca Schiavoni, "A Rise in the Cost of Unbundling the Local Loop in Europe," *Ovum Opinion*, OT00015-005, May 2011, pp. 1-2.

shows that this fraction is L_t/L_b, the ratio of the actual demand in year t (L_t) to the demand in the base year b (L_b). Therefore, whenever demand is lower in year t than in the base year b, Telstra will not be permitted to recover all of its common costs in year t (since $L_t/L_b < 1$ in this case). A ten percent decline in demand, for example, implies that Telstra will only be permitted to recover ninety percent of its common costs.[21]

The ACCC appears to be aware of this under-recovery of common costs when it suggests that it is not "appropriate to compensate Telstra for any loss of market share, or reduced customer demand for, fixed line services" (ACCC, 2011, p. 161). It can be inappropriate to compensate a supplier when poor service quality or other factors directly within the supplier's control cause the demand for the supplier's products to decline. In contrast, it generally is inappropriate to hold a supplier responsible for exogenous changes in demand that are beyond its control. Holding a supplier responsible for such events typically will not improve industry performance, but will impose undue risk on the supplier, which raises its cost of capital.[22]

In principle, the ACCC could compensate Telstra for bearing the full risk associated with exogenous declines in the demand for fixed-line services. The ACCC could do so by explicitly increasing Telstra's weighted average cost of capital (WACC), thereby authorizing higher prices for Telstra's regulated services. The ACCC suggests it may have done so.[23] However, the ACCC's 2011 Discussion Paper presents no evidence to support this suggestion, nor does it attempt to quantify the compensation that Telstra has been afforded in this regard.

Furthermore, adjustments via the WACC do not ensure that access prices reflect the costs of supplying access services. Consequently, these prices may not deliver appropriate build-or-buy signals to access seekers. When an access price reflects the access provider's actual unit cost of production rather than some base-line unit cost that reflects a historical level of demand, access seekers will face the true prevailing cost of access when they decide whether to purchase access or employ their own production facilities to produce their retail services. Consequently, an industry competitor will choose to purchase access when and only when the access provider can deliver access at lower cost than the competitor can produce the corresponding service itself. Therefore, in maximizing its own profit, the competitor will choose the mode of operation that

---

[21] This is the case because if $L_t = 0.9\,L_b$, then $L_t/L_b = 0.9\,L_b/L_b = 0.9$.

[22] Sappington and Weisman emphasize "the general principle that it is desirable to hold the firm responsible for outcomes over which it has significant control and to limit the firm's financial responsibility for outcomes that are largely beyond its control" (David Sappington and Dennis Weisman, *Designing Incentive Regulation for the Telecommunications Industry*, Cambridge, MA: The MIT Press, 1996, p. 126).

[23] The ACCC states "It considers that Telstra has been appropriately compensated for its business risks through the risk premium included in the commercial rate of return provided by the WACC" (ACCC, 2011, p. 127).

minimizes industry production costs. This outcome promotes the LTIE by encouraging the economically efficient use of, and investment in, industry infrastructure.[24]

The analysis in the Appendix to this opinion also reveals that the failure to adjust access prices to reflect changing patterns of consumer demand can increase the fraction of common costs that is allocated to Telstra's retail services and decrease the corresponding fraction allocated to Telstra's access services.[25] In this event, access prices will be lower than they would be if access prices reflected actual demand. If retail price controls and/or retail competition limit Telstra's ability to recover the increased fraction of common costs allocated to retail services, then the failure to adjust access prices to reflect changing patterns of demand can further reduce Telstra's earnings.

KPMG has studied the consequences of the ACCC's decision not to adjust access prices to reflect changing patterns of consumer demand. KPMG documents substantial potential losses for Telstra, concluding that:

> "Telstra may be at risk of not being able to recover its total revenue requirement if the actual demand for services over the forecast period is less than the default volume assumptions in the Model, which are the basis for the Final Access Determination prices applied by the ACCC."[26]

Such risk does not respect Telstra's legitimate business interests and thereby jeopardizes continued investment in Telstra's network, which fails to promote the LTIE and the interests of access seekers.

It should also be noted that access prices that do not reflect prevailing unit production costs are inconsistent with the statutory requirement to consider the direct costs of providing access when setting access prices.

---

[24] There are some conditions under which efficient build-or-buy decisions can arise even if access prices depart from unit production costs. (See David Sappington, "On the Irrelevance of Input Prices for Make-or-Buy Decisions," *American Economic Review*, 95(5), December 2005, 1631-1638.) However, setting access prices to reflect unit production costs generally is advised to ensure efficient build-or-buy decisions. (See, for example, Philip Gayle and Dennis Weisman, "Are Input Prices Irrelevant for Make-or-Buy Decisions?" *Journal of Regulatory Economics*, 32(2), October 2007, 195-207; and David Mandy, "Pricing Inputs to Induce Efficient Make-or-Buy Decisions," *Journal of Regulatory Economics*, 36(1), August 2009, 29-43.)

[25] This will be the case if the fraction of Telstra's total units of sale (e.g., number of lines) accounted for by retail services declines over time.

[26] Lockey, Keith, "Calculation of Revenue Impact from Changing Demand Volumes," *Letter from KPMG Executive Director to Telstra*, June 1, 2011, p. 12.

SHORTCOMINGS OF THE ACCC'S ANALYSIS

In addition to being troubled both by the ACCC's choice of an initial value for Telstra's RAB and by the ACCC's decision not to adjust access prices to reflect the declining demand for fixed-line telecommunications services, I am troubled by the analysis that apparently underlies these policy decisions. In my opinion, the analysis in the ACCC's 2011 Discussion Paper provides inadequate justification for key conclusions about stranded depreciation, regulatory opportunism, investment support, and network bypass. I now explain my concern about each of these issues.

Stranded Depreciation

The switch from the TSLRIC approach to the building block approach to setting access prices will be accompanied by a change in depreciation methodology. The tilted annuity depreciation employed under the TSLRIC approach will be replaced by straight line depreciation under the building block approach. The former methodology shifts the recovery of depreciation toward the latter stages of an asset's life. Consequently, as the ACCC acknowledges, the impending change in depreciation methodology, when applied retrospectively to an established depreciation profile, introduces the possibility of "stranded depreciation." Stranded depreciation arises when some depreciation expense that Telstra would have recovered under continued implementation of the TSLRIC approach will not be recovered under the building block approach.[27]

The ACCC observes that the problem of stranded depreciation is particularly severe if assets were new at the start of the TSLRIC regime. The same is true if the assets were installed after the onset of the regime. In both cases, there is a considerable period of time during which depreciation recovery is deferred under the TSLRIC regime, and so the depreciation may not be recovered following a switch to straight line depreciation. In contrast, over-recovery of depreciation is possible when assets are "at the end of their lives when TSLRIC-based regulation commences" (ACCC, 2011, p. 67). The ACCC concludes that "It is not possible, on the information available to the ACCC, to calculate whether there has been net under or over-recovery on balance" (ACCC, 2011, p. 69).

Despite its admitted inability to determine the magnitude of stranded depreciation, the ACCC concludes that "Telstra is unlikely, on average, to have under-recovered depreciation on its network assets under the previous TSLRIC+ approach" (ACCC, 2011, p. 58). A detailed rationale for this conclusion is not provided. However, the statement appears to reflect the ACCC's assertion that "many assets comprising Telstra's fixed line network were not new when the TSLRIC regime began" and that "a large proportion of assets were in place prior to the commencement of the TSLRIC framework in 1997" (ACCC, 2011, p. 58).

[27] The ACCC observes "If the majority of Telstra's assets were new when the TSLRIC framework commenced, it is possible that a move from the TSLRIC+ asset valuation approach (with a tilted annuity depreciation method) to a BBM methodology (with straight line depreciation) may lead to Telstra not recovering its investment costs" (ACCC, 2011, p. 58).

As is apparent from the examples the ACCC employs to illustrate the determinants of stranded depreciation (ACCC, 2011, pp. 61-69), significant amounts of depreciation can be stranded by a switch from the TSLRIC approach to the building block approach even if many of Telstra's network assets were in place at the start of the TSLRIC regime in 1997. The magnitude of stranded depreciation is determined by the details of the entire history of asset investment, not simply whether many assets were in place at a particular point in time.[28] Without a thorough examination of this history, it is not possible to draw definitive conclusions about the magnitude of stranded depreciation. Therefore, the rationale for the assertion that Telstra is "unlikely" to have "under-recovered depreciation on its network assets" (ACCC, 2011, p. 58) is not apparent.

Telstra has identified large amounts of deferred depreciation that are at risk of being stranded under the ACCC's new approach to setting access prices.[29] Telstra also has documented that a substantial portion of its network assets were installed after the TSLRIC regime was implemented in 1997.[30] In addition, Telstra has reported low returns on its network investments in recent years.[31] This evidence calls into question the suggestion that under-recovery of depreciation during the TSLRIC regime was "unlikely."

Furthermore, the ACCC's discussion of potential over-recovery of depreciation appears to abstract from a key element of the TSLRIC approach to setting access prices. Under the TSLRIC approach, the access provider is not ensured of any return of investment or any return on investment. Whenever the access provider's rate base is revalued, the provider's actual investment in an asset that is no longer a component of a hypothetical optimized network is removed from the provider's rate base, and so the provider does not recover the associated investment or earn a return on the investment. This is the case even if the investment was prudent at the time it was undertaken. Therefore, concerns about potential over-recovery of depreciation should be assessed in the context of the threat of substantial under-recovery of investment that a TSLRIC regime imposes.

Regulatory Opportunism

The ACCC suggests that it "avoids the risk of regulatory opportunism" by setting an initial value for Telstra's RAB that reflects the depreciated cost of Telstra's assets without adjusting for inflation (ACCC, 2011, p. 53). The ACCC's concern with avoiding regulatory opportunism is well-founded. However, the ACCC's assertion that it has avoided regulatory opportunism in setting an initial value for Telstra's RAB appears to ignore the aforementioned

[28] As the ACCC acknowledges, "The extent of actual under or over-recovery of depreciation will therefore depend on the ages of Telstra's assets when regulation commenced and their asset lives" (ACCC, 2011, p. 69).

[29] See Telstra Corporation Limited, *Pricing Principles for Fixed Line Services: Response to the ACCC's Draft Report*, October 2010 ("Telstra, 2010"), p. 9.

[30] See Telstra (2010, pp. 43, 78) and Telstra (2011, pp. 8-9).

[31] See Telstra (2010, p. 16).

fact that the task of identifying a reasonable value for Telstra's RAB cannot proceed without careful consideration of recent regulatory history.

Investors have made substantial investments in Australia's telecommunications industry under the TSLRIC regime.[32] A new valuation of Telstra's RAB can constitute regulatory opportunism if, in the absence of major industry changes, the new valuation fails to generate the returns that investors reasonably anticipated when they supplied capital to the industry.

For the reasons identified above, the ACCC's new approach to setting access prices may reduce investors' returns below the levels they anticipated under the TSLRIC regime. Consequently, the approach does not "avoid the risk of regulatory opportunism" and so may fail to protect Telstra's legitimate business interests. The approach thereby may jeopardize the continued flow of capital to the telecommunications industry in Australia and so may fail to promote the LTIE and the interests of access seekers.

Investment Support

In explaining its decision to specify an initial value for Telstra's RAB that generates a $16 price for ULLS in Bands 1 – 3, the ACCC states:

> "In determining the appropriate initial value of the RAB, the ACCC has taken into account pricing stability to the extent that it supports past investments and promotes industry confidence in making future investment decisions" (ACCC, 2011, p. 183).

The sense in which a $16 price for ULLS in Bands 1 – 3 "supports past investments" is not clear. If the phrase "supports past investments" is intended to imply that the ACCC's policy ensures the return of relevant investment and a normal return on this investment, the claim has not been substantiated.

As noted above, maintaining a constant price for a particular service in a specific geographic region does not necessarily provide overall "pricing stability." Furthermore, the constant price for one access service in certain geographic regions does not preclude a substantial reduction in Telstra's combined revenue from all access services.

The ACCC's new approach to setting access prices is projected to produce the substantial reductions in the prices of WLR, LSS, and LCS identified above. To the extent that these price reductions translate into significant reductions in Telstra's earnings, the pricing stability that the ACCC emphasizes has the potential to undermine investor confidence and thereby reduce future industry investment. Such an outcome would fail to promote the LTIE.

[32] See Telstra (2010, pp. 43, 78) and Telstra (2011, pp. 8-9).

Network Bypass

In explaining its new approach to setting access prices, the ACCC states:

> "The ACCC considered that efficient 'build/buy' incentives promoted by a DORC approach are less relevant in the current environment of an aging copper network and the delivery of services across a variety of emerging technologies. It recognised that Telstra's copper CAN clearly displays enduring bottleneck characteristics, rather than being a network likely to be bypassed through technological or market development. Inefficient duplication of CAN infrastructure is unlikely. The ACCC concluded that a replacement cost pricing approach like DORC, with its rationale of providing efficient 'build/buy' signals, is less applicable in the present environment" (ACCC, 2011, p. 52).

The rationale for the ACCC's apparent suggestion that the potential for network bypass has declined in recent years is not apparent. Indeed, it might be argued that competition and investment by non-incumbent suppliers have increased, not decreased, in the Australian telecommunications industry in recent years. To illustrate, the Royal Bank of Scotland reports:

> "There has been a 68% increase in revenue-generating fixed network carriers since 2004 to 148 in 2009 … Most of these are small with less than A$2m per annum in carrier revenue. However, most have grown quickly from a low base. In addition to ADSL2+ carriers, there are many fixed wireless and backhaul operators, many with multi-million dollar carrier (ie, not resale) revenue."[33]

For the reasons explained above, access prices that reflect production costs deliver appropriate build-or-buy signals to suppliers of telecommunications services. Consequently, such prices promote the LTIE by encouraging the efficient use of, and investment in, the telecommunications infrastructure in Australia.

CONCLUSION

In concluding, I reiterate my opinion that the ACCC's choice of an initial value for Telstra's RAB does not adequately protect Telstra's legitimate business interests and so jeopardizes the continued flow of capital to Australia's telecommunications industry. This choice thereby fails to promote the LTIE and the interests of access seekers. A preferable choice, in my opinion, would be the ACCC's most recent valuation of Telstra's RAB, modified to reflect any major relevant industry changes since this valuation was set.

I also believe that the ACCC would better protect Telstra's legitimate business interests and promote the LTIE by acting in concert with other leading regulators to adjust access prices to reflect the higher unit costs of supplying access services caused by the decline in consumer demand for fixed-line telecommunications services.

[33] Ian Martin, Fraser McLeish and Alan Stuart, *Telco Services, Fixed Carrier Revenue Decline*, Royal Bank of Scotland Analyst Report, October 4, 2010.

QUALIFICATIONS

I presently serve as the Lanzillotti-McKethan Eminent Scholar in the Warrington College of Business at the University of Florida. I am also the Director of the University's Public Policy Research Center. I earned my Ph.D. in Economics from Princeton University in 1980. Since that time, I have served as a full-time faculty member at the University of Michigan, the University of Pennsylvania, and the University of Florida. I have also served as a visiting lecturer with the title of full professor at Princeton University.

Between 1984 and 1989, I was a member of the professional staff of Bell Communications Research (Bellcore). I was promoted to the rank of District Manager at Bellcore in 1989, before leaving to join the faculty of the University of Florida. In 2001 and 2002, I served as the Chief Economist of the U.S. Federal Communications Commission. As Chief Economist, I assumed primary responsibility for all economic matters that came before the Commission.

My research focuses on the design of regulatory policy in the telecommunications industry. This research has culminated in more than one hundred articles and a book entitled *Designing Incentive Regulation for the Telecommunications Industry*. My work has been published in leading economics and law journals, including the *American Economic Review*, the *Journal of Political Economy*, the *Rand Journal of Economics*, the *Journal of Regulatory Economics*, and the *University of Chicago Law Review*.

I presently serve on the editorial boards of six leading economics journals, including the *Rand Journal of Economics*, the *Journal of Regulatory Economics*, and the *Journal of Economics and Management Strategy*. I have also served on the editorial boards of other major journals, including the *American Economic Review* and the *Journal of Industrial Economics*. I have also served as the President and as the Vice President of the International Industrial Organization Society.

In addition to my academic research, I have provided expert advice to many corporations, including AT&T, BellSouth, Earthlink, TELUS, and US Cellular. I have also advised the World Bank, the OECD, and several regulatory bodies, including the U.S. Federal Communications Commission, the New York State Public Service Commission, and COFETEL, CONATEL and OSIPTEL, the national telecommunications regulatory agencies in Mexico, Ecuador, and Peru, respectively. In addition, I have served as an advisor on competition policy in the communications industry for the Antitrust Division of the U.S. Department of Justice.

In advising corporations and regulatory agencies, I routinely analyze complex issues related to the design of regulatory policy in dynamic industries like the telecommunications industry in Australia. I also analyze such issues in my research and in my service on editorial boards, just as I did on a daily basis during my tenure as chief economist at the U.S. Federal Communications Commission.

I have made all of the enquiries which I believe are desirable and appropriate and no matters of significance which I regard as relevant have, to my knowledge, been withheld from the ACCC.

David E. M. Sappington

June 2, 2011

Appendix: Elements of the ACCC's Cost Allocation Procedures

The purpose of this Appendix is two-fold. The first purpose is to explain in a simple, canonical setting my understanding of the central elements of the ACCC's methodology for allocating common costs across Telstra's services. The second purpose is to illustrate two qualitative effects of the methodology.

Initial Simplifying Assumptions

1. There are three relevant services (e.g., WLR, ULLS, and "Residual").
2. There is a single source of the common cost (e.g., Ducts and Pipes) that is to be allocated across the three services.
3. The common cost is the only relevant production cost for each service.

Notation

L_t^i = the number of units (e.g., lines) of service i sold in year t.

L_t = the total number of units of all three services sold in year t (i.e., $L_t = L_t^1 + L_t^2 + L_t^3$).

C_t = the magnitude of the common cost in year t.

K_t^i = the cost allocated to service i in year t.

Analysis

The cost allocated to service i in year t is a fraction of the common cost in year t. The fraction is the ratio of the number of units of service i sold in a base year (b) to the total number of units sold in the base year. Formally:

$$K_t^i = \left[\frac{L_b^i}{L_b}\right] C_t \ . \tag{1}$$

The estimated unit cost of supplying service i in year t (e_t^i) is the ratio of the cost allocated to service i in year t to the number of units of service i sold in a base year (b). Formally:

$$e_t^i = \frac{K_t^i}{L_b^i} = \frac{C_t}{L_b}.^{34} \tag{2}$$

[34] The second equality in equation (2) reflects equation (1). Equation (2) is consistent with the ACCC's observations that "its methodology for adjusting the cost allocation factors to reflect forecast changes in demand will generally offset any demand forecasting errors" and that "estimated unit costs will not change significantly as a result of changes in demand" (ACCC, 20111, p. 128). Forecast demand does not affect cost allocation factors because these factors depend only upon the number of units sold in a base year. Furthermore, estimated unit costs do not change as demand changes because estimated unit cost only reflects demand in the base year.

Suppose the price of each service is set equal to its estimated unit cost of supply.[35] Then the revenue derived from service i in year t will be:

$$e_t^i \, L_t^i \;=\; \left[\frac{C_t}{L_b}\right] L_t^i \;=\; C_t \left[\frac{L_t^i}{L_b}\right]. \tag{3}$$

The corresponding total revenue from all three services in year *t* will be:

$$\sum_{i=1}^{3} e_t^i \, L_t^i \;=\; C_t \sum_{i=1}^{3} \left[\frac{L_t^i}{L_b}\right] \;=\; C_t \left[\frac{L_t}{L_b}\right]. \tag{4}$$

Equation (4) indicates that the firm will recover the fraction $\frac{L_t}{L_b}$ of its common cost in year t. Therefore:

(a) The firm will systematically under-recover its common cost if the demand for its services is declining; and

(b) If the total number of units sold in year t is x percent of the total number of units sold in the base year, then the firm recovers only x percent of its common costs in year t.

So, for instance, if the number of units that the firm sells declines by 10% between the base year and t, the firm will recover only 90% of its common cost in year t.[36]

Now consider the effects of changes in the relative demands for the firm's services. In particular, suppose the total number of units the firm sells does not change over time, so $L_t = L_b$. Further suppose: (i) the firm's sales of service 3 decrease by Δ units between the base year, b, and year t; and (ii) the firm's combined sales of services 1 and 2 increase by Δ units between the base year, b, and year t.

If the fraction of common costs allocated to each service in year t reflects the actual relative sales of the service in year t, then the fraction of common costs allocated to services 1 and 2 in year t will be:

$$\frac{L_t^1 + L_t^2}{L_t} \;=\; \frac{L_b^1 + L_b^2 + \Delta}{L_b} \;>\; \frac{L_b^1 + L_b^2}{L_b}. \tag{5}$$

Equation (5) implies that allocating common costs to reflect relative sales in the base year, b, rather than in the current year, t, results in a smaller fraction ($\frac{L_b^1 + L_b^2}{L_b} < \frac{L_t^1 + L_t^2}{L_t}$) of the common costs being allocated to services 1 and 2 in period t.

---

[35] This assumption and equation (2) seem consistent with the ACCC's observation that "demand changes will not alter estimated prices to any significant degree" (ACCC, 2011, p. 128), assuming that "estimated price" is equivalent to estimated unit cost.

[36] These conclusions follow directly from equation (4) because if $L_t = x\, L_b$, then $\frac{L_t}{L_b} = \frac{x\, L_b}{L_b} = x$.

Curriculum Vitae of David E. M. Sappington

Department of Economics, P.O. Box 117140
University of Florida, Gainesville, Florida 32611-7140
Telephone: (352) 392-3904 E-Mail: SAPPING@UFL.EDU

EDUCATION:

1980	Ph.D.	Economics, Princeton University.
1978	M.A.	Economics, Princeton University.
1976	B.A.	Economics, Haverford College.

PROFESSIONAL EXPERIENCE:

1991 – Present	Lanzillotti-McKethan Eminent Scholar, Department of Economics, University of Florida.
2001 – 2002	Chief Economist, Federal Communications Commission.
1989 – 1990	Matherly Professor of Economics, Department of Economics, University of Florida.
1989 – 1990	District Manager, Economics Research Group, Bell Communications Research.
1988 – 1989	Visiting Lecturer with Title of Full Professor, Department of Economics, Princeton University.
1984 – 1989	Member of Technical Staff, Economics Research Group, Bell Communications Research.
1982 – 1986	Assistant Professor, Department of Economics, University of Pennsylvania.
1980 – 1982	Assistant Professor, Department of Economics and Institute of Public Policy Studies, University of Michigan.

ADDITIONAL POSITIONS:

1999 – Present	Director, Public Policy Research Center, University of Florida.
2009 – Present	Member of Board of Directors, Industrial Organization Society.
2008 – 2009	President, Industrial Organization Society.
2006 – 2007	Vice President, Industrial Organization Society.
1993 – 1998	Associate Director, Public Policy Research Center, University of Florida.
1989 – Present	Senior Research Associate, Public Utility Research Center, University of Florida.

SERVICE ON EDITORIAL BOARDS:

2009 – Present	*The Review of Network Economics*	(Board of Editors).
2009 – Present	*The Review of Industrial Organization*	(Board of Editors).
1997 – Present	*The Rand Journal of Economics*	(Associate Editor).
1995 – Present	*The Journal of Regulatory Economics*	(Associate Editor).
1993 – Present	*Journal of Economics and Management Strategy*	(Co-Editor).
1992 – Present	*Information Economics and Policy*	(Board of Editors).
1983 – Present	*Economics Letters*	(Advisory Editor).
2001 – 2006	*Journal of Public Policy and Marketing*	(Board of Editors).
1996 – 1999	*The American Economic Review*	(Board of Editors).
1991 – 1994	*The Journal of Industrial Economics*	(Associate Editor).
1991 – 1994	*The Journal of Regulatory Economics*	(Board of Editors).
1988 – 1992	*The American Economic Review*	(Board of Editors).

JOURNAL PUBLICATIONS:

"Strategic Firm Behavior Under a Dynamic Regulatory Adjustment Process," *The Bell Journal of Economics*, Vol. 11(1), Spring 1980, pp. 360-372.

"Precontractual Information Asymmetry Between Principal and Agent: The Continuous Case," *Economic Letters*, Vol. 5(4), November 1980, pp. 371-375.

"Optimal Regulation of Research and Development Under Imperfect Information," *The Bell Journal of Economics*, Vol. 13(2), Autumn 1982, pp. 354-368.

"Sustainability, Entry Restrictions, and Induced Technological Bias," *Quarterly Review of Economics and Business*, Vol. 22(4), Winter 1982, pp. 43-52 (with W. Shepherd).

"Limited Liability Contracts Between Principal and Agent," *Journal of Economic Theory*, Vol. 29(1), February 1983, pp. 1-21.

"Optimal Regulation of a Multiproduct Monopoly with Unknown Technological Capabilities," *The Bell Journal of Economics*, Vol. 14(2), Autumn 1983, pp. 453-463.

JOURNAL PUBLICATIONS (CONTINUED):

"Multi-Agent Control in Perfectly Correlated Environments," *Economics Letters*, Vol. 13(4), November 1983, pp. 325-330 (with J. Demski).

"Optimal Incentive Contracts with Multiple Agents," *Journal of Economic Theory*, Vol. 33(1), June 1984, pp. 152-171 (with J. Demski).

"Incentive Contracting with Asymmetric and Imperfect Precontractual Knowledge," *Journal of Economic Theory*, Vol. 34(1), October 1984, pp. 52-70.

"To Brand or Not to Brand?: A Theoretical and Empirical Question," *The Journal of Business*, Vol. 58(3), July 1985, pp. 279-294 (with B. Wernerfelt).

"Line Item Reporting, Factor Acquisition, and Subcontracting," *The Journal of Accounting Research*, Vol. 24(2), Autumn 1986, pp. 250-269 (with J. Demski).

"On the Timing of Information Release," *Information Economics and Policy*, Vol. 2(4), December 1986, pp. 307-316 (with J. Demski).

"Commitment to Regulatory Bureaucracy," *Information Economics and Policy*, Vol. 2(4), December 1986, pp. 243-258.

"Managing Supplier Switching," *The Rand Journal of Economics*, Vol. 18(1), Spring 1987, pp. 77-97 (with J. Demski and P. Spiller).

"Information, Incentives and Organizational Mode," *The Quarterly Journal of Economics*, Vol. 102(2), May 1987, pp. 243-263 (with M. Riordan).

"Information and Regulation," in *Public Regulation: New Perspectives on Institutions and Policies*, E. Bailey (ed.), MIT Press, 1987, pp. 3-43 (with J. Stiglitz).

Reprinted in *Privatization in Developing Countries*, edited by P. Cook and C. Kirkpatrick. Cheltenham, England: Edward Elgar Publishers, 1999.

"Delegated Expertise," *Journal of Accounting Research*, Vol. 25(1), Spring 1987, pp. 68-89 (with J. Demski).

"Awarding Monopoly Franchises," *The American Economic Review*, Vol. 77(3), June 1987, pp. 375-387 (with M. Riordan).

"Efficient Awards and Standards of Proof in Judicial Proceedings," *The Rand Journal of Economics*, Vol. 18(2), Summer 1987, pp. 308-315 (with D. Rubinfeld).

JOURNAL PUBLICATIONS (CONTINUED):

"Privatization, Information, and Incentives," *Journal of Policy Analysis and Management*, Vol. 6(4), Summer 1987, pp. 567-581 (with J. Stiglitz).

Reprinted in *The Political Economy of Privatization and Deregulation*, edited by E. Bailey and J. R. Pack. Cheltenham, England: Edward Elgar Publishers, 1995.

Also reprinted in *Privatisation and Corporate Performance*, edited by D. Parker. Cheltenham, England: Edward Elgar Publishers, 2001.

"Incentive Schemes with Multiple Agents and Bankruptcy Constraints," *Journal of Economic Theory*, Vol. 44(1), February 1988, pp. 156-167 (with J. Demski and P. Spiller).

"Regulating Without Cost Information: The Incremental Surplus Subsidy Scheme," *International Economic Review*, Vol. 29(2), May 1988, pp. 297-306 (with D. Sibley).

"Optimal Contracts with Public Ex Post Information," *Journal of Economic Theory*, Vol. 45(1), June 1988, pp. 189-199 (with M. Riordan).

Reprinted in *The International Library of Critical Writings in Economics: The Principal Agent Model: The Economic Theory of Incentives*, edited by J. Laffont. Cheltenham, England: Edward Elgar Publishers, 2003.

"Commitment in Procurement Contracting," *The Scandinavian Journal of Economics: Special Issue on Information and Incentives in Organizations*, Vol. 90(3), September 1988, pp. 357 372 (with M. Riordan).

"Profiting from Countervailing Power: An Effect of Government Control," *International Journal of Industrial Organization*, Vol. 6(4), December 1988, pp. 323-333 (with W.J. Adams).

"Regulating a Monopolist with Unknown Demand and Cost Functions," *The Rand Journal of Economics*, Vol. 18(3), Autumn 1988, pp. 438-457 (with T. Lewis).

"Regulating a Monopolist with Unknown Demand," *The American Economic Review*, Vol. 78(5), December 1988, pp. 986-998 (with T. Lewis).

Reprinted in *Critical Ideas in Economics: Economic Regulation*, edited by P. Joskow. Cheltenham, England: Edward Elgar Publishers, 2000.

"Inflexible Rules in Incentive Problems," *The American Economic Review*, Vol. 79(1), March 1989, pp. 69-84 (with T. Lewis).

"Hierarchical Regulatory Control," *The Rand Journal of Economics*, Vol. 18(3), Autumn 1987, pp. 369-383 (with J. Demski).

JOURNAL PUBLICATIONS (CONTINUED):

"Hierarchical Structure and Responsibility Accounting," *The Journal of Accounting Research*, Vol. 27(1), Spring 1989, pp. 40-58 (with J. Demski).

"An Informational Effect When Regulated Firms Enter Unregulated Markets," *The Journal of Regulatory Economics*, Vol. 1(1), March 1989, pp. 35-46 (with T. Lewis).

"Regulatory Options and Price Cap Regulation," *The Rand Journal of Economics*, Vol. 20(3), Autumn 1989, pp. 405-416 (with T. Lewis).

"Second Sourcing," *The Rand Journal of Economics*, Vol. 20(1), Spring 1989, pp. 41-58 (with M. Riordan).

Reprinted in *The International Library of Critical Writings in Economics: The Economics of Defence*, edited by K. Hartley and T. Sandler. Cheltenham, England: Edward Elgar Publishers, 2001.

"Renegotiation and Specific Performance," *Law and Contemporary Problems: Special Issue on The Economics of Contract Law*, Vol. 52(1), Winter 1989, pp. 33-48 (with T. Lewis and M. Perry).

"Countervailing Incentives in Agency Problems," *Journal of Economic Theory*, Vol. 49(2), December 1989, pp. 294-313 (with T. Lewis).

Reprinted in *The International Library of Critical Writings in Economics: The Principal Agent Model: The Economic Theory of Incentives*, edited by J. Laffont. Cheltenham, England: Edward Elgar Publishers, 2003.

"Fully Revealing Income Measurement," *The Accounting Review*, Vol. 65(2), April 1990, pp. 363-383 (with J. Demski).

"Regulating Without Cost Information: Further Thoughts," *International Economic Review*, Vol. 31(4), November 1990, pp. 1027-1029 (with D. Sibley).

"Sequential Regulatory Oversight," *The Journal of Regulatory Economics*, Vol. 2(4), December 1990, pp. 327-348 (with T. Lewis).

"Sharing Productive Knowledge in Internally Financed R&D Contests," *The Journal of Industrial Economics*, Vol. 39(2), December 1990, pp. 187-208 (with S. Bhattacharya and J. Glazer).

"Incentives in Principal-Agent Relationships," *The Journal of Economic Perspectives*, Vol. 5(2), Spring 1991, pp. 45-66.

JOURNAL PUBLICATIONS (CONTINUED):

"Resolving Double Moral Hazard Problems with Buyout Agreements," *The Rand Journal of Economics*, Vol. 22(2), Summer 1991, pp. 232-240 (with J. Demski).

"Oversight of Long-Term Investment by Short-Lived Regulators," *International Economic Review*, Vol. 32(3), August 1991, pp. 579-600 (with T. Lewis).

"Incentives for Monitoring Quality," *The Rand Journal of Economics*, Vol. 22(3), Autumn 1991, pp. 370-384 (with T. Lewis).

"All-or-Nothing Information Control," *Economics Letters*, Vol. 37(2), October 1991, pp. 111 113 (with T. Lewis).

"Technological Change and the Boundaries of the Firm," *The American Economic Review*, Vol. 81(4), September 1991, pp. 887-900 (with T. Lewis).

Reprinted in *The Theory of the Firm*, edited by M. Casson. Cheltenham, England: Edward Elgar Publishers, 1996.

Also reprinted in *The Theory of the Firm: Critical Perspectives on Business and Management*, edited by N. Foss. London: Routledge Publishers, 2000.

"Licensing and the Sharing of Knowledge in Research Joint Ventures," *Journal of Economic Theory*, Vol. 56(1), February 1992, pp. 43-69 (with S. Bhattacharya and J. Glazer).

"Strategic Nonlinear Pricing Under Price Cap Regulation," *The Rand Journal of Economics*, Vol. 23(1), Spring 1992, pp. 1-19 (with D. Sibley).

"Further Thoughts on Fully Revealing Income Measurement," *The Accounting Review*, Vol. 67(3), July 1992, pp. 628-630 (with J. Demski).

"Incentives for Conservation and Quality-Improvement by Public Utilities," *The American Economic Review*, Vol. 82(5), December 1992, pp. 1321-1340 (with T. Lewis).

"Regulatory Incentive Policies and Abuse," *The Journal of Regulatory Economics*, Vol. 5(2), June 1993, pp. 131-141 (with D. Sibley).

"Sourcing with Unverifiable Performance Information," *The Journal of Accounting Research*, Vol. 31(1), Spring 1993, pp. 1-20 (with J. Demski).

"Choosing Workers' Qualifications: No Experience Necessary?," *International Economic Review*, Vol. 34(3), August 1993, pp. 479-502 (with T. Lewis).

JOURNAL PUBLICATIONS (CONTINUED):

"Ignorance in Agency Problems," *Journal of Economic Theory*, Vol. 61(1), October 1993, pp. 169-183 (with T. Lewis).

"An Incentive Approach to Banking Regulation," *Journal of Finance*, Vol. 48(4), September 1993, pp. 1523-1542 (with R. Giammarino and T. Lewis).

"Designing Superior Incentive Regulation: Accounting for All of the Incentives All of the Time," *Public Utilities Fortnightly*, Vol. 132(4), February 15, 1994, pp. 12-15 (with D. Weisman).

"Designing Superior Incentive Regulation: Modifying Plans to Preclude Recontracting and Promote Performance," *Public Utilities Fortnightly*, Vol. 132(5), March 1, 1994, pp. 27-32 (with D. Weisman).

"Supplying Information to Facilitate Price Discrimination," *International Economic Review*, Vol. 35(2), May 1994, pp. 309-327 (with T. Lewis).

"Designing Optional No-Fault Insurance Policies for Health Care Systems," *Journal of Economics and Management Strategy*, Vol. 3(1), Spring 1994, pp. 113-142.

"Designing Incentive Regulation," *Review of Industrial Organization*, Vol. 9(3), June 1994, pp. 245-272.

"Toward A Benchmark for Optimal Prudency Policy," *The Journal of Regulatory Economics*, Vol. 7(2), March 1995, pp. 111-130 (with W. Encinosa).

"Insurance, Adverse Selection, and Cream-Skimming," *Journal of Economic Theory*, Vol. 65(2), April 1995, pp. 327-358 (with T. Lewis).

"Simple Regulatory Policies in the Presence of Demand and Cost Uncertainty," *Information Economics and Policy*, Vol. 7(1), April 1995, pp. 57-73 (with B. Blair and T. Lewis).

"Optimal Industrial Targeting With Unknown Learning-By-Doing," *The Journal of International Economics*, Vol. 38(3/4), May 1995, pp. 275-295 (with E. Dinopoulos and T. Lewis).

"Revisiting the Line-of-Business Restrictions," *Managerial and Decision Economics*, Vol. 16(4), July-August 1995, pp. 291-300.

Reprinted in *Deregulating Telecommunications: The Baby Bells' Case for Competition*, edited by R. Higgins and P. Rubin. Chichester, England: John Wiley & Sons, 1995.

JOURNAL PUBLICATIONS (CONTINUED):

"Explaining the Choice Among Regulatory Plans in the U. S. Telecommunications Industry," *The Journal of Economics and Management Strategy*, Vol. 4(2), Summer 1995, pp. 237-265 (with S. Donald).

"Using Markets to Allocate Pollution Permits and Other Scarce Resource Rights Under Limited Information," *The Journal of Public Economics*, Vol. 57(3), July 1995, pp. 431-455 (with T. Lewis).

"Optimal Capital Structure in Agency Relationships," *The Rand Journal of Economics*, Vol. 26(3), Autumn 1995, pp. 343-361 (with T. Lewis).

"Revisiting the Conditions for Fully Revealing Disclosure," *Journal of Business Finance and Accounting*, Vol. 23(3), April 1996, pp. 487-490 (with J. Demski).

"The Effects of Incentive Regulation in the Telecommunications Industry: A Survey," *The Journal of Regulatory Economics*, Vol. 9(3), May 1996, pp. 269-306 (with D. Kridel and D. Weisman).

Reprinted in *Critical Ideas in Economics: Economic Regulation*, edited by P. Joskow. Cheltenham, England: Edward Elgar Publishers, 2000.

"Potential Pitfalls in Empirical Investigations of the Effects of Incentive Regulation Plans in the Telecommunications Industry," *Information Economics and Policy*, Vol. 8(2), June 1996, pp. 125-140 (with D. Weisman).

"Revenue Sharing in Incentive Regulation Plans," *Information Economics and Policy*, Vol. 8(3), September 1996, pp. 229-248 (with D. Weisman).

"Competition Among Health Maintenance Organizations," *The Journal of Economics and Management Strategy*, Vol. 6(1), Spring 1997, pp. 129-150 (with W. Encinosa).

"Penalizing Success in Dynamic Incentive Contracts: No Good Deed Goes Unpunished?" *The Rand Journal of Economics*, Vol. 28(2), Summer 1997, pp. 346-358 (with T. Lewis).

"Information Management in Incentive Problems," *The Journal of Political Economy*, Vol. 105(4), August 1997, pp. 796-821 (with T. Lewis).

"Choosing Among Regulatory Options in the United States Telecommunications Industry," *The Journal of Regulatory Economics*, Vol. 12(3), November 1997, pp. 227-243 (with S. Donald).

JOURNAL PUBLICATIONS (CONTINUED):

"Access Pricing With Unregulated Downstream Competition," *Information Economics and Policy*, Vol. 11(1), March 1999, pp. 73-100 (with T. Lewis).

"Summarization with Errors: A Perspective on Empirical Investigations of Agency Relationships," *Management Accounting Research*, Vol. 10(1), March 1999, pp. 21-37 (with J. Demski).

"Setting the *X* Factor in Price Cap Regulation Plans," *The Journal of Regulatory Economics*, Vol. 16(1), July 1999, pp. 5-25 (with J. Bernstein).

"Employing Decoupling and Deep Pockets to Mitigate Judgment-Proof Problems," *The International Review of Law and Economics*, Vol. 19(2), June 1999, pp. 275-293 (with T. Lewis).

"Using Subjective Risk Adjusting to Prevent Patient Dumping in the Health Care Industry," *The Journal of Economics and Management Strategy*, Vol. 8(3), Fall 1999, pp. 351-382 (with T. Lewis).

"ACR Reforms to Promote HMO Participation in Medicare + Choice," *Health Care Financing Review*, Vol. 21(1), Fall 1999, pp. 19-29 (with W. Encinosa).

"How to Determine the *X* in *RPI - X* Regulation: A User's Guide," *Telecommunications Policy*, Vol. 24(1), February 2000, pp. 63-68 (with J. Bernstein).

"Contracting With Wealth-Constrained Agents," *International Economic Review*, Vol. 41(3), August 2000, pp. 743-767 (with T. Lewis).

"Motivating Wealth-Constrained Actors," *The American Economic Review*, Vol. 90(4), September 2000, pp. 944-960 (with T. Lewis).

"Optimal Contracting With Private Knowledge of Wealth and Ability," *The Review of Economic Studies*, Vol. 68(1), January 2001, pp. 21-44 (with T. Lewis).

"How Liable Should a Lender Be? The Case of Judgement Proof Firms and Environmental Risk: Comment," *The American Economic Review*, Vol. 91(3), June 2001, pp. 724-730 (with T. Lewis).

"Status and Trends of Performance-Based Regulation in the U.S. Electric Utility Industry," *The Electricity Journal*, Vol. 14(8), October 2001, pp. 71-79 (with G. Basheda, P. Hanser, and J. Pfeifenberger).

JOURNAL PUBLICATIONS (CONTINUED):

"The Impact of State Incentive Regulation on the U.S. Telecommunications Industry," *The Journal of Regulatory Economics*, Vol. 22(2), September 2002, pp. 133-159 (with C. Ai).

"Economic Issues at the Federal Communications Commission," *The Review of Industrial Organization*, Vol. 21(4), December 2002, pp. 337-356 (with E. Kwerel, J. Levy, R. Pepper, D. Stockdale, and J. Williams).

"Regulating Horizontal Diversification," *International Journal of Industrial Organization*, Vol. 21(3), March 2003, pp. 291-315.

"The Federal Communications Commission's Competition Policy and Marketing's Information Technology Revolution," *Journal of Public Policy & Marketing*, Vol. 22(1), Spring 2003, pp. 26-34 (with D. Stockdale).

"Incentives for Anticompetitive Behavior by Public Enterprises," *Review of Industrial Organization*, Vol. 22(3), May 2003, pp. 183-206 (with J.G. Sidak).

"The Effects of Incentive Regulation on Retail Telephone Service Quality in the United States," *Review of Network Economics*, Vol. 2(4), December 2003, pp. 355-375.

"Competition Law for State-Owned Enterprises," *Antitrust Law Journal*, Vol. 71(2), December 2003, pp. 479-523 (with J.G. Sidak).

"Competition Policy, Parity Regulation, and Self-Sabotage," *Info*, Vol. 6(1), February 2004, pp. 52-56 (with D. Weisman).

"Efficient Manipulation in a Repeated Setting," *Journal of Accounting Research*, Vol. 42(1), March 2004, pp. 31-49 (with J. Demski and H. Frimor).

"Toward a Synthesis of Models of Regulatory Policy Design with Limited Information," *The Journal of Regulatory Economics*, Vol. 26(1), July 2004, pp. 5-21 (with M. Armstrong).

"Wholesale Pricing and Local Exchange Competition," *Info*, Vol. 6(5), 2004, pp. 318-325 (with L. Wood and W. Zarakas).

"Incentive Regulation and Telecommunications Service Quality," *The Journal of Regulatory Economics*, Vol. 26(3), November 2004, pp. 263-285 (with C. Ai and S. Martinez).

JOURNAL PUBLICATIONS (CONTINUED):

"On the Design of Performance Measurement Plans in the Telecommunications Industry," *Telecommunications Policy*, Vol. 28(11), December 2004, pp. 801-820 (with L. Wood).

"Regulating Service Quality: A Survey," *The Journal of Regulatory Economics*, Vol. 27(2), March 2005, pp. 123-154.

Reprinted in *Developments in the Economics of Privatization and Regulation*, edited by M. Crew and D. Parker. Cheltenham: Edward Elgar Publishing Ltd., 2008.

"Self Sabotage," *The Journal of Regulatory Economics*, Vol. 27(2), March 2005, pp. 155-175 (with D. Weisman).

"Privately-Negotiated Input Prices," *The Journal of Regulatory Economics*, Vol. 27(3), May 2005, pp. 263-280 (with B. Unel).

"Reviewing the Impact of Incentive Regulation on U.S. Telephone Service Quality," *Utilities Policy*, Vol. 13(3), September 2005, pp. 201-210 (with C. Ai).

"On the Irrelevance of Input Prices for Make-or-Buy Decisions," *The American Economic Review*, Vol. 95(5), December 2005, pp. 1631-1638.

"Regulation in Vertically-Related Industries: Myths, Facts, and Policy," *Review of Industrial Organization*, Vol. 28(1), February 2006, pp. 3-16.

"The Effects of Reinsurance in Financing Children's Health Care," *Inquiry*, Vol. 43(1), Spring 2006, pp. 23-33 (with S. Aydede, A. Dick, B. Vogel, and E. Shenkman).

"Regulation, Competition, and Liberalization," *Journal of Economic Literature*, Vol. 44(2), June 2006, pp. 325-366 (with M. Armstrong).

Reprinted in *Developments in the Economics of Privatization and Regulation*, edited by M. Crew and D. Parker. Cheltenham: Edward Elgar Publishing Ltd., 2008.

"Audit Error," *The Journal of Engineering and Technology Management*, Vol. 23(1-2), March – June, 2006, pp. 4-17 (with J. Demski and H. Frimor).

"On the Design of Input Prices: Can TELRIC Prices Ever be Optimal?" *Information Economics and Policy*, Vol. 18(2), June 2006, pp. 197-215.

"On the Merits of Vertical Divestiture," *The Review of Industrial Organization*, Vol. 29(3), November 2006, pp. 171-191.

JOURNAL PUBLICATIONS (CONTINUED):

"Simple Cost-Sharing Contracts," *The American Economic Review*, Vol. 97(1), March 2007, pp. 419-428 (with L. Chu).

"Equity and Adverse Selection with Correlated Costs," *Economics Letters*, Vol. 95(3), June 2007, pp. 402-407 (with R. Desiraju).

"Incentives for Sabotage in Vertically-Related Industries," *The Journal of Regulatory Economics*, Vol. 31(3), June 2007, pp. 235-260 (with D. Mandy).

"Persistence of High Health Care Expenditures among Children in Medicaid," *Medical Care Research and Review*, Vol. 64(3), June 2007, pp. 304-330 (with E. Shenkman, C. Knapp, B. Vogel, and D. Schatz).

"Equity and Adverse Selection," *The Journal of Economics and Management Strategy*, Vol. 16(2), Summer 2007, pp. 285-318 (with R. Desiraju).

"The Bright Side of Supplier Encroachment," *Marketing Science*, Vol. 26(5), September-October 2007, pp. 651-659 (with A. Arya and B. Mittendorf).

"A Note on Optimal Procurement Contracts with Limited Direct Cost Inflation," *Journal of Economic Theory*, Vol. 137(1), November 2007, pp. 745-753 (with L. Chu).

"Outsourcing, Vertical Integration, and Price vs. Quantity Competition," *The International Journal of Industrial Organization*, Vol. 26(1), January 2008, pp. 1-16 (with A. Arya and B. Mittendorf).

"Does the Quality of Care in Medicaid MCOs Vary with the Form of Physician Compensation?" *Health Economics Letters*, Vol. 17(4), April 2008, pp. 545-550 (with T. Quast and E. Shenkman).

"Asset Revaluation Regulation with Multiple Information Sources," *The Accounting Review*, Vol. 83(4), July 2008, pp. 869-891 (with J. Demski and H. Lin).

"The Make-or-Buy Decision in the Presence of a Rival: Strategic Outsourcing to a Common Supplier," *Management Science*, Vol. 54(10), October 2008, pp. 1747-1758 (with A. Arya and B. Mittendorf).

"Procurement Contracts: Theory vs. Practice," *The International Journal of Industrial Organization*, Vol. 27(1), January 2009, pp. 51-59 (with L. Chu).

JOURNAL PUBLICATIONS (CONTINUED):

"Designing Input Prices to Motivate Process Innovation," *The International Journal of Industrial Organization*, Vol. 27(3), May 2009, pp. 390-402 (with Y. Chen).

"Implementing High-Powered Contracts to Motivate Intertemporal Effort Supply," *The Rand Journal of Economics*, Vol. 40(2), Summer 2009, pp. 296-316 (with L. Chu).

"Asset Revaluation Regulations," *Contemporary Accounting Research*, Vol. 26(3), Fall 2009, pp. 843-865 (with J. Demski and H. Lin).

"Equal Pay for Unequal Work: Limiting Sabotage in Teams," *The Journal of Economics and Management Strategy*, Vol. 19(1), Spring 2010, pp. 25-53 (with A. Bose and D. Pal).

"Innovation in Vertically Related Markets," *The Journal of Industrial Economics*, Vol. 58(2), June 2010, pp. 373-401 (with Y. Chen).

"On the Design of Piece-Rate Contracts," *Economics Letters*, Vol. 107(3), June 2010, pp. 330-332 (with A. Bose and D. Pal).

"Contracting with Private Knowledge of Signal Quality," *The Rand Journal of Economics*, Vol. 41(2), Summer 2010, pp. 244-269 (with L. Chu).

"Asymmetric Treatment of Identical Agents in Teams," *European Economic Review*, Vol. 54(7), October 2010, pp. 947-961 (with A. Bose and D. Pal).

"Price Cap Regulation: What Have We Learned from Twenty-Five Years of Experience in the Telecommunications Industry?" *The Journal of Regulatory Economics*, Vol. 38(3), December 2010, pp. 227-257 (with D. Weisman).

"On the Performance of Linear Contracts," *The Journal of Economics and Management Strategy*, Vol. 20(1), Spring 2011, pp. 159-193 (with A. Bose and D. Pal).

"Pareto-Improving Inefficiency," *Oxford Economic Papers*, Vol. 63(1), January 2011, pp. 94-110 (with A. Bose and D. Pal).

"Exclusive Contracts, Innovation, and Welfare," *The American Economic Journal: Microeconomics*, Vol. 3(2), May 2011, pp. 194-220 (with Y. Chen).

"Managing Planning and Production Moral Hazard," *Journal of Management Accounting Research*, forthcoming (with H. Lin).

BOOKS/MONOGRAPHS:

Designing Regulatory Policy with Limited Information. London, England: Harwood Academic Publishers, 1987 (with D. Besanko).

Designing Incentive Regulation for the Telecommunications Industry. Cambridge, MA: The MIT Press, 1996 (with D. Weisman).

BOOK CHAPTERS:

"Procurement and Quality Monitoring," in *Incentives in Procurement Contracting*, edited by J. Leitzel and J. Tirole. Westview Press, 1993, pp. 61-70 (with T. Lewis).

"Principles of Regulatory Policy Design," in *Infrastructure Delivery: Private Initiative and the Public Good*, edited by A. Mody. The World Bank, 1996, pp. 79-105.

"Seven Myths About Incentive Regulation," in *Pricing and Regulatory Innovations Under Increasing Competition*, edited by M. Crew. Kluwer Academic Publishers, 1996, pp. 1-20 (with D. Weisman).

"Horizontal Vicarious Liability," in *The Law and Economics of the Environment*, edited by A. Heyes. Edward Elgar Publishers, 2001, pp. 71-91 (with T. Lewis).

"Price Regulation," in *The Handbook of Telecommunications Economics. Volume I: Structure, Regulation, and Competition*, edited by M. Cave, S. Majumdar, and I. Vogelsang. Elsevier Science Publishers, 2002, pp. 225-293.

"Anticompetitive Behavior by State-Owned Enterprises: Incentives and Capabilities," in *Competing with the Government: Anticompetitive Behavior and Public Enterprises*, edited by R. Richard Geddes. Hoover Press, 2004, pp. 1-25 (with J. G. Sidak).

"Recent Developments in the Theory of Regulation," in *The Handbook of Industrial Organization, Volume 3*, edited by M. Armstrong and R. Porter. Elsevier Science Publishers, 2007, pp. 1557-1700 (with M. Armstrong).

"Pricing in Network Industries," in *The Oxford Handbook of Regulation*, edited by R. Baldwin, M. Cave, and M. Lodge. Oxford University Press, 2010, pp. 462-499 (with J. Hauge).

BOOK REVIEWS:

"Review of Berg and Tschirhart's *Natural Monopoly Regulation*," *Managerial and Decision Economics*, Vol. 11(1), February 1990, pp. 70-71.

"Review of Laffont and Tirole's *A Theory of Incentives in Procurement and Regulation*," *Journal of Economic Literature*, Vol. 32(2), June 1994, pp. 720-721.

"Review of Vogelsang and Mitchell's *Telecommunications Competition: The Last Ten Miles*," *Information Economics and Policy*, Vol. 9(4), December 1997, pp. 354-357.

"Review of Vogelsang and Mitchell's *Telecommunications Competition: The Last Ten Miles*," *Review of Industrial Organization*, Vol. 12(5-6), December 1997, pp. 837-840.

"Are Public Enterprises the Only Credible Predators?," *The University of Chicago Law Review*, Vol. 67(1), Winter 2000, pp. 271-292 (with G. Sidak).

"Review of Sclar's *You Don't Always Get What You Pay For: The Economics of Privatization*," *Journal of Economic Literature*, Vol. 39(2), June 2001, pp. 601-603.

"Review of De Bijl and Peitz's *Regulation and Entry into Telecommunications Markets*," *Journal of Economic Literature*, Vol. 42(2), June 2004, pp. 538-539.

OTHER PUBLICATIONS:

"Consumer Shopping Behavior in The Retail Coffee Market: A Comment," in *Proceedings of the Federal Trade Commission's Conference on Empirical Approaches to Consumer Protection Economics*, edited by P. Ippolito and D. Scheffman, 1986, pp. 445-446.

"Endogenous Commitment and Regulatory Design: A Comment on Levy and Spiller's *Regulation, Institutions, and Commitment in Telecommunications*," in *Proceedings of the World Bank Annual Conference on Development Economics*, edited by M. Bruno and B. Pleskovic. The World Bank, 1994, pp. 253-256.

"Comment on R. Geddes' 'Agency Costs and Governance in the United States Postal Service'," in *Governing the Postal Service*, edited by J. G. Sidak. American Enterprise Institute, 1994, pp. 140-143.

"Economic Theory of Regulation," in *The International Encyclopedia of the Social and Behavioral Sciences*, edited by N. Smelser and P. Baltes, Elsevier Science Publishers, 2001.

"Overview of the Special Issue – Marketing's Information Technology Revolution: Implications for Consumer Welfare and Economic Performance," *Journal of Public Policy & Marketing*, Vol. 22(1), Spring 2003, p. 3 (with A. Silk).

HONORS AND AWARDS:

2011 – 2013	Research Foundation Professorship, University of Florida.
2003	Distinguished Service Award, Public Utility Research Center, University of Florida.
2000	Faculty Honoree, Anderson Scholars Program, University of Florida.
1998	Professorial Excellence Program Award, University of Florida.
1997 – 1999	Research Foundation Professorship, University of Florida.
1992	Research Achievement Award, University of Florida.
1976	Inducted into the Phi Beta Kappa Society.

RESEARCH GRANTS:

2007	U. S. Department of Health and Human Services: Maternal and Child Health Bureau.
2001 - 2004	U. S. Department of Health and Human Services: Maternal and Child Health Bureau.
1998 - 2000	The World Bank.
1995 - 1998	Management Science Group, Department of Veterans Affairs Medical Center at Bedford, Massachusetts.
1993 - 1995	National Science Foundation: Economics Division.
1993	Management Science Group, Department of Veterans Affairs Medical Center at Bedford, Massachusetts.
1990 - 1992	National Science Foundation: Economics Division.
1990	University of Florida: Division of Sponsored Research.
1990	The Garn Institute of Finance.
1984 - 1986	National Science Foundation: Economics and Information Sciences Divisions.
1982 - 1984	University of Pennsylvania: Center for the Study of Organizational Innovation.
1982 - 1983	National Science Foundation: Economics and Information Sciences Divisions.
1982	Sloan Foundation: Support through the Institute of Public Policy Studies, University of Michigan.
1978 - 1980	Sloan Foundation: Support through the Department of Economics, Princeton University.

REFEREE/REVIEWER FOR:

Accounting Review
Addison Wesley, Publishers
American Economic Journal: Economic Policy
American Economic Review
American Law and Economics Review
American Enterprise Institute
Bell Journal of Economics
Berkeley Electronic Press Journal of Economic Analysis and Policy
Bulletin of Economic Research
Cambridge University Press
China Economic Review
Danish Social Science Research Council
Economic Journal
Econometrica
Economic and Social Research Council
Economic Design
Economic Inquiry
Economics Letters
Economic Theory
Energy Journal
Encyclopedia of Law and Economics
European Economic Review
European Journal of Operational Research
Games and Economic Behavior
Harcourt Brace, Publishers
International Economic Review
Information Economics and Policy
International Journal of Industrial Organization
International Journal of the Economics of Business
International Review of Law and Economics
Israel Science Foundation
Johns Hopkins University Press
John Wiley, Publishers
Journal of Accounting Research
Journal of the American Statistical Association
Journal of Business
Journal of Competition Law & Economics
Journal of Corporate Finance
Journal of Economic Behavior and Organization
Journal of Economic Dynamics and Control
Journal of Economic Literature
Journal of Economic Theory
Journal of Economics and Business
Journal of Economics and Management Strategy
Journal of Environmental Economics and Management
Journal of Health Economics
Journal of Industrial Economics
Journal of International Economics
Journal of Law and Economics
Journal of Law, Economics and Organization
Journal of Marketing Research
Journal of Policy Analysis and Management
Journal of Political Economy
Journal of Public Economics
Journal of Public Policy and Marketing
Journal of Regulatory Economics
Management Science
Managerial and Decision Economics
Marketing Science
MIT Press
National Science Foundation
Nonlinear Dynamics and Systems Theory
Oxford Economic Papers
Oxford University Press
Princeton University Press
Quarterly Journal of Economics
Quarterly Review of Economics and Business
Rand Journal of Economics
Research Grants Council of Hong Kong
Research in Labor Economics
Review of Economic Studies
Review of Economics and Statistics
Review of Industrial Organization
Review of Network Economics
Sloan Foundation
Southern Economic Journal
Telecommunications Policy
Utilities Policy
World Bank Economic Review

SELECTED ADDITIONAL EXPERIENCE:

1997 - Present	Instructor in *The International Training Program on Utility Regulation and Strategy*, sponsored by The World Bank and Florida's Public Utility Research Center.
2010	Advisor to COFETEL, Mexico's Telecommunications Regulator, on Competition Policy in Mexico's Communications Industry.
2010	Advisor to the U.S. Federal Communications Commission on Incentive Regulation and Broadband Deployment.
2009	Advisor to the OECD on Competition Policy in Mexico's Communications Industry.
2009	Advisor to Afilias on the Design of Policy to Assign Internet Names and Addresses.
2008 - 2009	Advisor and Expert Witness for AT&T on the Design of Competition Policy in the U.S. Telecommunications Industry.
2008	Member of Advisory Committee to the "Electronic Health Information Exchange Project," sponsored by the National Governors Association.
2008	Advisor to United States Cellular Corporation on the Design of Telecommunications Universal Service Policy.
2007 - 2008	Advisor to United Parcel Service on the Design of Regulatory Policy in the Postal Industry.
2006 - 2007	Advisor to Earthlink, Inc. on the Design of Telecommunications and Internet Competition Policy.
2006 - 2007	Advisor to Telstra Corporation, Ltd. on the Design of Competition Policy in Australia's Telecommunications Industry.
2005 – 2006	Advisor to General Communication, Inc. on the Design of Telecommunications Competition Policy.
2005	Advisor to United Parcel Service on Competition Policy in the U.S. Postal Industry.
2004 – 2005	Advisor to the Antitrust Division of the U.S. Department of Justice on Competition Policy in the Telecommunications Industry.

SELECTED ADDITIONAL EXPERIENCE (CONTINUED):

2004	Advisor to OSIPTEL, Peru's Telecommunications Regulatory Agency, on the Design of Price Cap Regulation
2003 – 2004	Advisor to SBC, Inc. on the Design of Performance Measurement Systems in the U.S. Telecommunications Industry.
2003	Presented Invited Testimony to the President's Commission on the United States Postal Service.
2003	Advisor to General Communication, Inc. on the Design of Universal Service and Competition Policy.
2001	Advisor to CONATEL, Ecuador's Central Regulatory Body on the Design of Telecommunications Policy.
2000 – 2001	Advisor to Ameren UE on the Design of Incentive Regulation for Electric Utilities.
1998 – 2000	Consultant and Expert Witness for United Parcel Service on Postal Industry Pricing.
1999 – 2000	Advisor to the Antitrust Division of the U. S. Department of Justice on a Proposed Merger in the Communications Industry.
1998 – 2000	Advisor to the World Bank on Telecommunications Privatization in Africa.
1996	Consultant and Expert Witness for TELUS Communications, Inc. on the Design of Price Cap Regulation.
1995	Advisor and Expert Witness for GTE-California on Incentive Regulation and Telecommunications Competition Policy.
1992 – 1994	Advisor to the Southern Bell Telephone Company on the Design of Incentive Regulation.
1992	Advisor to the New York State Public Service Commission on Incentive Regulation in the Electric Power Industry.

Partner Luke Woodward
Contact Geoff Petersen
T +61 2 9263 4388
gpetersen@gtlaw.com.au
Our ref LXW:GCP:1012462

GILBERT TOBIN
LAWYERS

Sydney
2 Park Street Sydney NSW 2000 Australia
GPO Box 3810 Sydney NSW 2001
T +61 2 9263 4000 F +61 2 9263 4111
www.gtlaw.com.au

27 May 2011

By email

Professor David Sappington
Department of Economics
University of Florida

Dear Professor Sappington

Expert opinion re valuation of Telstra's regulatory asset base

We act for Telstra Corporation Limited (**Telstra**), the fixed-line telecommunications carrier in Australia.

We are currently advising Telstra in relation to its engagement with the Australian Competition and Consumer Commission (**ACCC**) in relation to regulation of prices for fixed-line wholesale services.

Background

On 21 April 2011, the ACCC published a discussion paper initiating an inquiry to make a final access determination covering five fixed line wholesale services supplied by Telstra (**Discussion Paper**). The final access determination would (inter alia) establish prices for these five services for the next five years. Prior to issuing the Discussion Paper, the ACCC had issued interim access determinations for the same services. The Discussion Paper proposes that pricing in the final access determination would be similar to that in the interim access determinations and based on a similar methodology.

The Discussion Paper proposes that pricing should be based on a building block methodology where the asset base is locked in and rolled forward to account for new capital expenditure, asset disposal, depreciation and inflation. This represents a shift away from the previous total service long-run incremental cost (**TSLRIC+**) pricing methodology which involved periodic re-optimisation and revaluation of Telstra's asset base.

A key issue in moving from the TSLRIC+ regime to the new building block regime is the value to be ascribed to the initial asset base. In the Discussion Paper, the ACCC states that a suitable range of values for the initial asset base is between depreciated actual cost (**DAC**) and depreciated optimised replacement cost (**DORC**) (Discussion Paper pages 46-48 and 54-56). The ACCC estimates a DAC value based on the unindexed depreciated values in Telstra's regulatory accounts, but does not estimate a DORC value. The ACCC selects a value that is assumed to be within this range (the value is above the ACCC's DAC and is assumed to be below DORC) that it considers provides price stability. The ACCC methodology results in a valuation for the initial asset base of $17.75 billion as at 1 July 2009. This asset valuation is significantly below both the replacement cost valuations applied under the current TSLRIC+ pricing regime and Telstra's estimate of indexed historic cost. The most recent valuation of Telstra's assets under the TSLRIC+ regime ascribed a value of $18 billion to the customer access network and $15 billion to the core network.

A further issue that arises out of the ACCC's pricing approach is the extent to which remaining asset values are allowed to be recovered through prices. In the Discussion Paper, the ACCC states that Telstra should not be compensated for declining demand resulting from substitution to mobile services

and other fixed networks through rising prices (Discussion Paper pages 127-128). Accordingly, the ACCC assumes constant demand for fixed-line services over the five-year regulatory period, thus ensuring stable (rather than increasing) unit costs. The ACCC demand assumption appears to be based on historic (rather than current) demand for fixed line services.

If implemented, the pricing approach proposed in the Discussion Paper would result in a reduction in wholesale line rental prices of more than 10%, between 2010 and 2011 (calendar years). Pricing for other services such as the unconditioned local loop would also be affected.

Scope of work

We are seeking your expert opinion on the appropriate approach to be adopted for valuation of the initial asset base in the current Australian context. We are seeking a report which sets out your expert opinion on the following:

1 The relevant economic principles for valuing the initial asset base, in the context of the relevant statutory criteria

2 Having regard to these economic principles and the relevant statutory criteria, the asset valuation methodology or methodologies which are likely to be most appropriate in the determination of prices for Telstra's fixed line services

3 Whether in your opinion, the ACCC's proposed approach to valuation conforms to these economic principles and the relevant statutory criteria

Guidelines for preparing your report

The Guidelines for Expert Witness in the Federal Court of Australia are provided in Attachment B. Although your report is intended for use in the context of a regulatory decision making process, we request that you read and follow the Guidelines to the extent reasonably possible. Telstra may wish to rely upon your report in future legal proceedings, subject to the outcome of the current process.

In particular, please:

(a) identify your relevant area of expertise and provide a curriculum vitae setting out the details of that expertise;

(b) only address matters that are within your expertise;

(c) where you have used factual or data inputs please identify those inputs and the sources;

(d) if you make assumptions, please identify them as such and confirm that they are in your opinion reasonable assumptions to make;

(e) if you undertake empirical work, please identify and explain the methods used by you in a manner that is accessible to a person not expert in your field;

(f) confirm that you have made all the inquiries that you believe are desirable and appropriate and that no matters of significance that you regard as relevant have, to your knowledge, been withheld from your report; and

(g) please do not provide legal advocacy or argument and please do not use an argumentative tone.

Timing

Telstra requires a final report from you no later than 3 June 2011.

Materials

We will provide you with the ACCC Discussion Paper and other relevant primary materials to assist your understanding of the factual background. We will also provide you with a short note setting out the relevant history of Telstra and the regulatory regime. A list of materials provided to you should be attached to your final report.

We greatly appreciate your assistance with this project. If you have any questions, please do not hesitate to contact us.

Yours sincerely

Gilbert + Tobin

Luke Woodward
Partner
T +61 2 9263 4014
lwoodward@gtlaw.com.au

Geoff Petersen
Lawyer
T +61 2 9263 4388
gpetersen@gtlaw.com.au

ATTACHMENT A: LEGISLATIVE AND REGULATORY CONTEXT

Telstra's supply of wholesale fixed network services is subject to regulation by the ACCC under Part XIC of the *Competition and Consumer Act* 2010 (Cth) (**CCA**). This regulatory regime has been in place since July 1997, but has been amended a number of times, most recently in 2010.

The overarching object of the regulatory regime is to promote the long-term interests of end-users of telecommunications services (the **LTIE**), and this is a factor. In determining whether a particular thing promotes the LTIE, regard must be had to the extent to which it is likely to result in the achievement of the following objectives:[1]

(i) the objective of promoting competition in markets for listed services;

(ii) the objective of achieving any-to-any connectivity in relation to carriage services that involve communication between end-users; and

(iii) the objective of encouraging the economically efficient use of, and the economically efficient investment in, the infrastructure by which listed services are supplied.

Under Part XIC of the CCA, the ACCC may declare a particular service if it considers that declaration will promote the LTIE.[2] Declaration imposes certain obligations on providers of the declared service, including an obligation to supply to third parties, on request, on equivalent terms to that which the access provider provides to itself. The declared services that are the subject of the current ACCC inquiry are:

- the Unconditioned Local Loop Service (**ULLS**);
- the Line Sharing Service (**LSS**);
- PSTN Originating and Terminating Access (**PSTN OTA**);
- Wholesale Line Rental (**WLR**); and
- the Local Carriage Service (**LCS**).

Prior to the most recent amendments to Part XIC of the CCA, the ACCC was required to publish pricing principles to be applied to a service once it had been declared.[3] In July 1997, following the introduction of the new legislative regime, the ACCC published a set of general pricing principles for telecommunications services.[4] In the 1997 pricing principles, the ACCC considered that the LTIE would be best be promoted by cost-based access prices based on the total service long-run incremental cost of providing the service, including a mark up for common costs (**TSLRIC+**). The ACCC considered that TSLRIC+ pricing should be based on forward looking costs and a forward-looking valuation of assets. Pricing principles were not binding in themselves, however they become binding on the ACCC if it is required to determine prices in the context of an access dispute.[5]

---

[1] CCA, s152AB
[2] CCA, s152AL
[3] TPA, s152AQA (now repealed)
[4] ACCC, *Access Pricing Principles – Telecommunications: A Guide*, July 1997
[5] TPA, s152AQA(6) (now repealed)

Following the recent amendments to Part XIC of the CCA, the ACCC may now issue binding access determinations for declared services, which may (inter alia) specify prices.[6] The ACCC has issued interim access determinations for each of the declared services listed above and has now initiated a public inquiry into making final access determinations for the same services.

In making an access determination, the ACCC must take into account the following matters:[7]

(a) the long term interests of end users (as set out above);

(b) the legitimate business interests of Telstra and Telstra's investment in the facilities used to supply the relevant service;

(c) the interests of all persons who have rights to use the service;

(d) the direct costs of providing access to the service;

(e) the value to a party of extensions, or enhancement of capability, the cost of which is borne by someone else;

(f) the operational and technical requirements necessary for the safe and reliable operation of the network; and

(g) the economically efficient operation of the network and associated services.

Since 1997, the TSLRIC+ approach has been applied in the determination of prices for the ULLS, LSS and PSTN OTA, in the context of various access disputes, price undertakings and indicative pricing processes. Pricing for WLR and LCS have been determined on a Retail Minus Retail Cost (**RMRC**) basis, although the ACCC has expressed a preference for moving to a cost-based standard, once a suitable cost model for these services becomes available.

Each application of TSLRIC+ since 1997 has involved re-optimisation of Telstra's asset base and calculation of replacement costs, as a basis for determining the return on capital and depreciation. This approach has been applied in various TSLRIC+ pricing models constructed by Telstra (most recently the TEA model), the ACCC and its consultants (most recently the Analysys model constructed for the ACCC). In determining prices under the TSLRIC+ regime, the ACCC has used a positively tilted annuity to account for the upward trend in asset values. The effect of the positively tilted annuity has been to defer the recovery of depreciation.

As noted in the main body of this letter, the ACCC is now revisiting its approach to pricing for declared fixed line services. The ACCC is looking to shift away from TSLRIC+ and towards a building block model with a locked in value for the asset base. One of the key reasons for this shift is to reduce regulatory uncertainty resulting from periodic revaluations of the regulated asset base.

[6] CCA, s.152BC
[7] CCA, s.152BCA(1)

ATTACHMENT B: FEDERAL COURT GUIDELINES

EXPERT WITNESSES IN PROCEEDINGS IN THE FEDERAL COURT OF AUSTRALIA

1. General Duty to the Court[8]

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[9].

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[10]

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[11].

---

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

[9] 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]

[10] 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]

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

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 (see 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[12].

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.

M E J BLACK

Chief Justice

25 September 2009

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

Reference list

Material provided by Gilbert + Tobin
ACCC, *Access Pricing Principles – a guide*, 31 July 1997
ACCC, Fixed Line Services Model (FLSM) (Confidential version)
ACCC, FLSM User Manual
ACCC, *Public inquiry to make final access determinations for the declared fixed line services* - Discussion paper, April 2011
ACCC, *Review of the 1997 telecommunications access pricing principles for fixed line services* – Discussion paper, December 2009
ACCC, *Review of the 1997 telecommunications access pricing principles for fixed line services* – Draft report, September 2010
ACCC, *ULLS submissions made to the Australian Competition Tribunal*, 2009
ACMA, *Fixed-mobile convergence and fixedmobile substitution in Australia*, July 2008
Analysys Mason, *The Western European telecoms market: trends and forecasts 2010–2015*, 2010
Business Monitor International*, Australian telecommunications report Q3 2010*, July 2010
Citigroup, *Telstra Corporation Limited – On the Ropes,* Analyst Report, 5 September 2005
Credit Suisse, *ACCC cuts wholesale line rental by 14%*, Analyst Report, 3 March 2011
Gilbert + Tobin, *Note explaining cost allocation in the FLSM*, 31 May 2011
Gilbert + Tobin, *Comparison of previous pricing with the ACCC's current pricing,* 17 May 2011.
Grahame O'Leary, *Telstra Sale*, available at: http://www.aph.gov.au/library/pubs/online/telstrasale.htm (accessed 26 May 2011)
ITU World Telecommunication/ICT Indicators database, *Australia, Canada, East Asia and Pacific, Europe, South Asia, UK and USA*, 2000-2009
KPMG, *Confidential – Calculation of revenue impact from changing demand volumes*, 1 June 2011
Macquarie Research Equities, *Another tough year ahead for telcos*, Analyst Report, 17 January 2003
Merrill Lynch, *Regulatory settings back in focus in 2011*, Analyst Report, 10 January 2011
Merrill Lynch, *Wholesale price cut boosts access seekers*, Analyst Report, 4 March 2011

OECD, *Communications Outlook 2009*, August 2009
Ofcom, *Charge control review for LLU and WLR services – Consultation Pap*er, 31 March 2011
Ofcom, *Charge control review for LLU and WLR services – Annexes*, 31 March 2011
Ofcom, *Review of BT network charge controls – Consultation on proposed charge controls in wholesale narrowband markets*, 19 March 2009
Ovum, *A rise in the cost of unbundling the local loop in Europe*, May 2011
Royal Bank of Scotland, *ACCC relents a little on access*, Analyst Report, 3 March 2011
Telstra, *Calculation of DORC estimate*, October 2010
Telstra, *Calculation of DHIC estimate*, October 2010
Telstra*, Letter sent to ACCC with demand forecasts*, 18 May 2011
Telstra, *Pricing Principles for Fixed Line Services – Response to the ACCC's Draft Report*, October 2010
Telstra, *Pricing Principles for Fixed Line Services – Response to the ACCC's Draft Report*, Schedule 10 – Commercial in Confidence Information, October 2010
Telstra, *Pricing principles for Fixed Line Services – Supplementary Response to the ACCC's Draft Report*, November 2010
Telstra, *Public inquiry to make final access determinations for the declared fixed line services – Response to the Commission's Discussion Paper,* Schedule 3 – Historical background, **Draft**, May 2011
Telstra, *Sensitivity analysis related to cost allocation issue*, 31 May 2011
Telstra, *Share price data,* available at: http://www.telstra.com.au/abouttelstra/investor/my-shareholding/share-price-details/index.htm. (accessed 21 May 2011)
Telstra, *Measure of TEA Model Efficiency: ULLS Band 2*, September 2008
Telstra, *ULLS submissions made to the Australian Competition Tribunal*, 2009
UBS Warburg, *New regulatory regime kicks in*, Analyst Report, 9 January 2003