Congestion and Telstra's retail pricing plans

NOTE PREPARED FOR KING & WOOD MALLESONS AND TELSTRA

Introduction and instructions

In March 2013, the Australian Competition and Consumer Commission (ACCC) released a Draft Report on the making of a final access determination (FAD) for the Wholesale ADSL service.

In section 3.5.2 of that report, the ACCC provided its 'draft views on congestion'. Its concluded view was that the FAD should not take account of network congestion issues, but that this position may be reconsidered in future FAD inquiries if pricing structures were implemented that 'actively' managed congestion at a retail level.

One of the ACCC's arguments against accounting for network congestion was that congestion management was not a primary objective of retail service providers, including Telstra.

The ACCC stated that:

> "Telstra and other RSPs offer plans where the 'cost per gigabyte' substantially decreases as data allowances in retail plans increase. The ACCC considers that such retail pricing encourages high data use, which in turn increases traffic on the network." (p. 22)

King & Wood Mallesons has engaged me, Warwick Davis[1] to prepare an expert report concerning this passage. In particular, I have been asked for my opinions on the following questions[2]:

(a) Do Telstra's retail pricing plans encourage end-users towards high data usage, thereby increasing traffic on the network?

(b) If so, does this affect congestion on the network?

At page 23 of the Draft Report, the ACCC further stated that it:

> "…does not accept Telstra's contention that a 'higher' wholesale ADSL price alone would necessarily make a significant contribution to managing network congestion".

I have also been instructed to provide my opinion on the extent to which adopting a retail minus retail costs (RMRC) approach to wholesale ADSL pricing would be effective in addressing the problem described in this extract.

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1 My Curriculum Vitae is attached at Annexure 1.

2 The instruction letter is attached at Annexure 2.

Summary of responses

I first provide a summary of my responses to the questions asked, before setting out my responses in further detail below.

- Do Telstra's retail pricing plans encourage end-users towards high data usage, thereby increasing traffic on the network?

The ACCC considers that Telstra's plans, by incorporating a declining (average) cost per gigabyte as data allowances in retail plans increase, encourages more use of its network than would alternative plans that did not have this feature. I find that the ACCC's argument is incorrect. Offering retail plans with a constant or inclining cost per gigabyte would have quite uncertain effects on total data use. It would likely imply lower monthly prices for current low users of data, but higher monthly prices for current high users of data. How these effects would balance would depend on the numbers of customers in each category and the relative sensitivity of the different customer groups to changing usage prices – and the result could well be higher total data use, not lower.

- If so, does this affect congestion on the network?

Network congestion is a function of data use at specific times. If Telstra's plans are said to increase congestion, then the plans must increase use relative to some alternative. It follows from my response to the first question that as Telstra's plans cannot be said to encourage more data use than the alternative which the ACCC seems to have in mind, then Telstra's plans also do not encourage network congestion.

- Would adopting RMRC make a more significant contribution towards congestion management?

The ACCC argues that higher wholesale ADSL prices alone would not necessarily make a significant contribution to managing network congestion, and that a higher wholesale price would put access seekers at a competitive disadvantage as Telstra's retail prices would not have increased. I find that this argument is in fact a strong reason to adopt a RMRC pricing approach to wholesale ADSL services. Under that approach, higher wholesale prices could only follow from higher Telstra retail prices – ensuring a competitively neutral approach to management of congestion.

1(a) Do Telstra's retail plans encourage high data use?

The ACCC states that Telstra's current retail pricing for ADSL services encourages 'high' data use. 'High' is a relative, rather than absolute, term. The ACCC's argument therefore invokes a hypothetical comparison between Telstra's retail pricing plans and an *alternative* set of plans that would encourage 'low', or at least lower, data use.

The alternative the ACCC has in mind appears to be pricing that does not incorporate decreases in 'cost per gigabyte', on average. An example of this pricing would appear to be of the form of a constant price per gigabyte – say $1 per gigabyte additional usage allowance purchased.[3]

The structure of Telstra's existing retail plans

Before turning to the specific question of whether Telstra's plans encourage high data use compared with the ACCC's alternative, I consider it is helpful to first set out how Telstra's plans are structured and the likely signals these structures send to consumers about their data usage.

Telstra's retail ADSL offers vary in different dimensions, including in the different usage limits available. Telstra's basic home broadband ADSL plans have the following structure:[4]

- Four plan types, which offer different usage limits at 5GB, 50GB, 200GB and 500GB at incrementally higher monthly prices (an additional $20 per customer per month).
- Discounts for a 24 month contract and for bundling ADSL with telephony and other services.

There are two salient features of the pricing plans.

The first feature is that consumers do pay more for higher data use. Of itself, this should discourage usage relative to a structure which allowed for no monthly usage charges (a pure fixed charge). Telstra also does not offer an unlimited usage plan. The price structure for Telstra's retail ADSL plans, including the additional charges for higher usage allowances, is highlighted in Figure 1. This shows the steps in the monthly charges – where the marginal price in each case of an additional gigabyte of data allowance is $20 (i.e. between 5 and 6 gigabytes, 50 and 51 gigabytes, 200 and 201 gigabytes). Evidence supplied to me by Telstra

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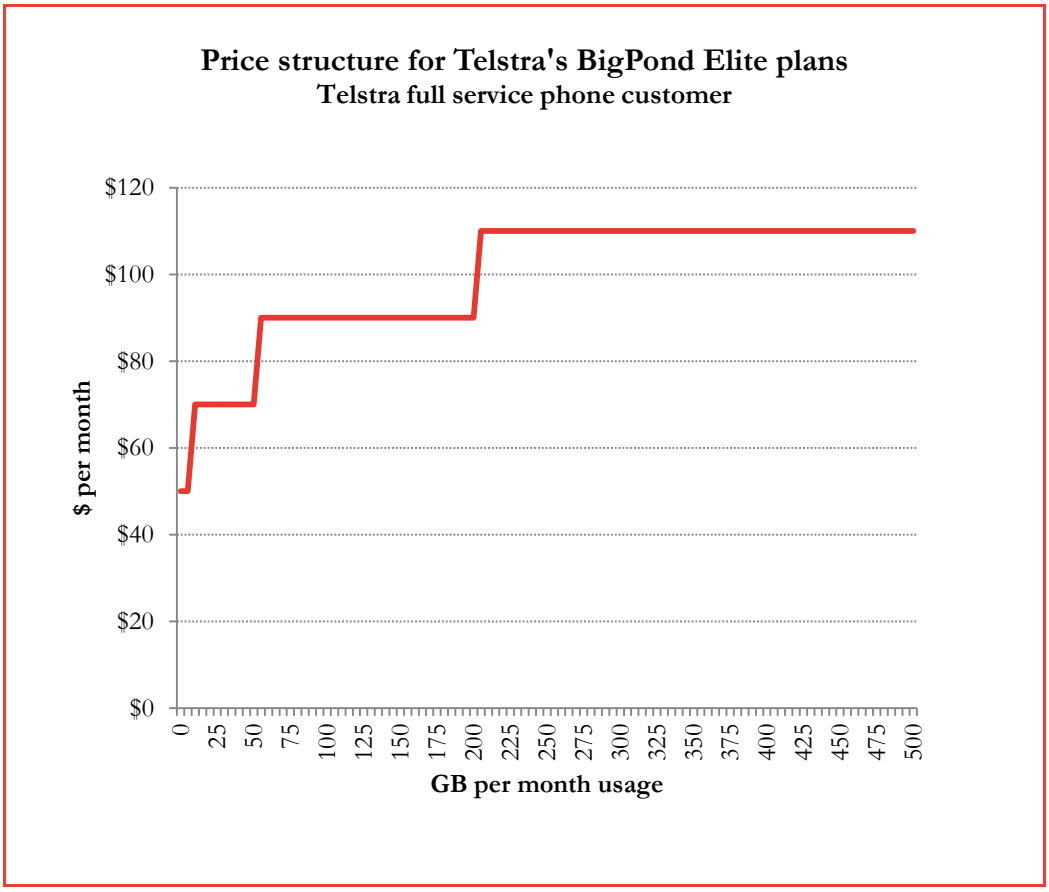
3 Any plan which has a fixed component to the price will have a declining average cost per gigabyte unless there is also a marginal price of usage which actually increases to offset this.

4 Sourced from: http://www.telstra.com.au/internet/home-broadband-bigpond-elite-plans/, accessed 26 March 2013.

indicates that this form of pricing demonstrates that consumers are sensitive to the higher usage prices.[5] [c-i-c information redacted]

The second feature of Telstra's prices is that the *average* price per gigabyte of data use is falling, which appears to be the ACCC's primary concern. This is shown in Figure 2. Note, however, that this feature of a declining average price is common to *any* pricing plan which has a fixed component incorporating or including a set amount of data use[6] – because the fixed component can be spread over higher amounts of data use without any variation in price.

Figure 1: Increasing usage prices in Telstra's retail ADSL plans

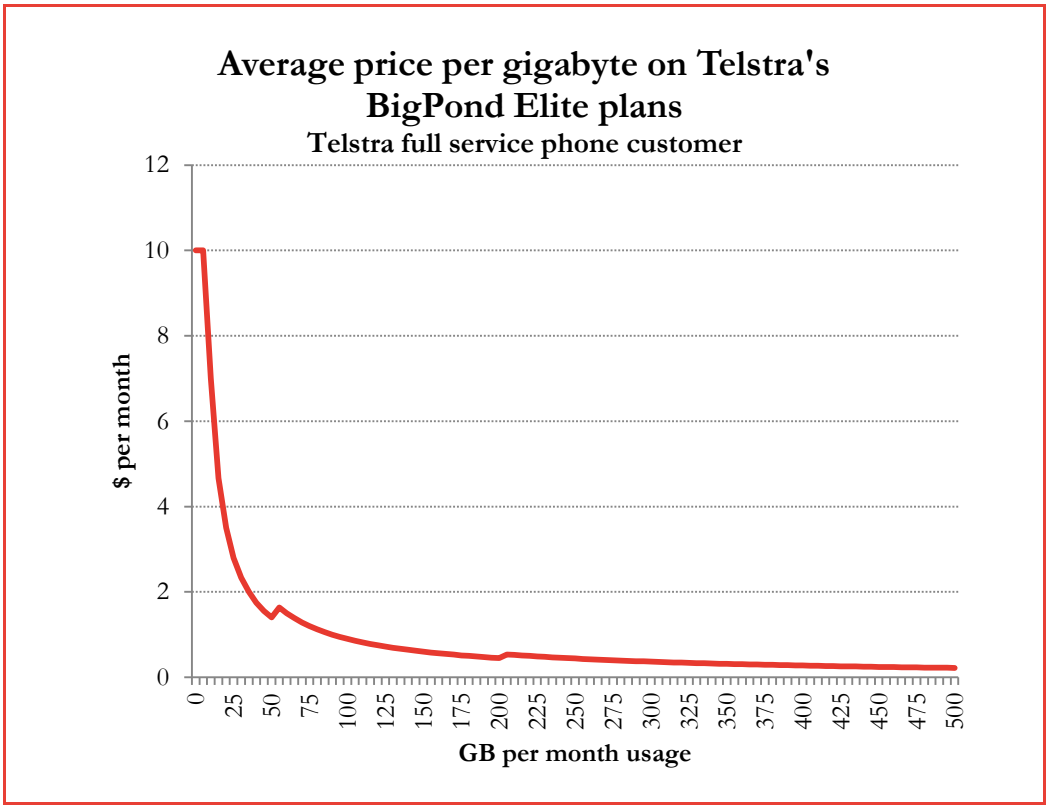


Source: Frontier Economics based on data from http://www.telstra.com.au/internet/home-broadband-bigpond-elite-plans/index.htm, full service phone customer

5 See Figure 8, Telstra, *Response to the Commission's Issues Paper (a second discussion paper) into the public inquiry to make a final access determination for the wholesale ADSL service): Confidential Version, 24 August 2012, p. 17.*

6 See the qualification at footnote 3.

Figure 2: Declining average prices per gigabyte of data use



Source: Frontier Economics based on data from http://www.telstra.com.au/internet/home-broadband-bigpond-elite-plans/index.htm, full service phone customer

While Telstra's plans offer declining *average* prices per gigabyte, it is important to note that consumers cannot actually purchase at these average prices. Rather, consumers must first choose a plan – which incorporates a charge for more usage allowance above the lowest included usage plan (5 gigabytes) – and then choose their usage within the constraints of that plan. Consumers pay the monthly (fixed) charge regardless of how much data they actually use within their usage limit, and therefore within the plan consumers face a marginal data usage price of zero. Once customers reach their plan usage limit, there are no additional usage charges but speed slows once usage allowances are reached. At this point, the marginal price of additional data becomes high due to either (a) data throughput restrictions or (b) the consumer electing to shift to a higher value and usage plan.

The effects of alternative pricing constructs on data use

There are a number of different kinds of retail pricing that Telstra (and other retail service providers) could implement. Each kind of pricing would have very different implications for data use.

An illustrative list of examples are:

- A monthly fixed charge, with no specific usage prices
- A usage charge based on data downloaded (e.g. $x per gigabyte downloaded)
- A combination of fixed charges and usage charges for data downloaded
- A combination of fixed charges and usage caps for data downloaded

Within these options, there are many sub-options. Notably, the usage price could either incline[7] or decline based on the amount of data use, or indeed vary based on *when* the data is used.

Regardless of the specific type of plan adopted, it would be conventional economics to expect that usage would be lower the higher is the *marginal* price of usage. This reflects standard economic theory that consumers make decisions at the margin – in this case, by comparing the marginal benefit of more use with its marginal cost (the marginal price).[8]

Consequently, plans that offer entirely fixed charges (such as 'unlimited' plans) with marginal prices of zero are likely to encourage higher data use on a *per user* basis. It also follows that plans that charge for every gigabyte used and with no fixed charges would encourage lower data usage per user, other things equal.[9]

As I have discussed, Telstra's plans incorporate both fixed charges, which allow for zero marginal prices within the plan limit, and substantial marginal usage prices at the plan usage limits. This suggests that within plans, there will be strong incentive to use (zero-priced) data, but also strong incentive to manage use to stay within the use limit. So, for example, I would expect to see consumer usage patterns within plans that show data use 'bunching' at the plan limits, for example, at close to 5 gigabytes, 50 gigabytes, 200 gigabytes and 500 gigabytes, but very few users using 6, 51 and 201 gigabytes.

Comparing Telstra's plans with the ACCC's alternative

I now turn to the specific question of whether Telstra's retail pricing encourages more data use than the alternative pricing construct which the ACCC appears to have in mind. This construct would have a non-declining average data price,

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7 Inclining tariffs tend to be used in industries where there are explicit social goals to restrict consumption. Examples are the water industry, where the overuse of water is seen as a 'social bad'.

8 Equating marginal benefit with marginal cost is a condition of utility maximisation for a consumer, and this condition can be found in most microeconomics textbooks. See for example, Pindyck and Rubinfeld, *MicroEconomics*, MacMillan Publishing, 2nd Ed, 1992, p. 75.

9 It is much more difficult to predict what this means for total data use. This is because different plans will attract *different numbers of users*, even at the same average price per gigabyte. For example, a consumer on a $40 monthly plan including 10 GB will probably use more data on average in a month than consumers on a plan charging $4 per GB. However, there may be many more users attracted to the second kind of plan, meaning that total usage could be higher if this plan was offered.

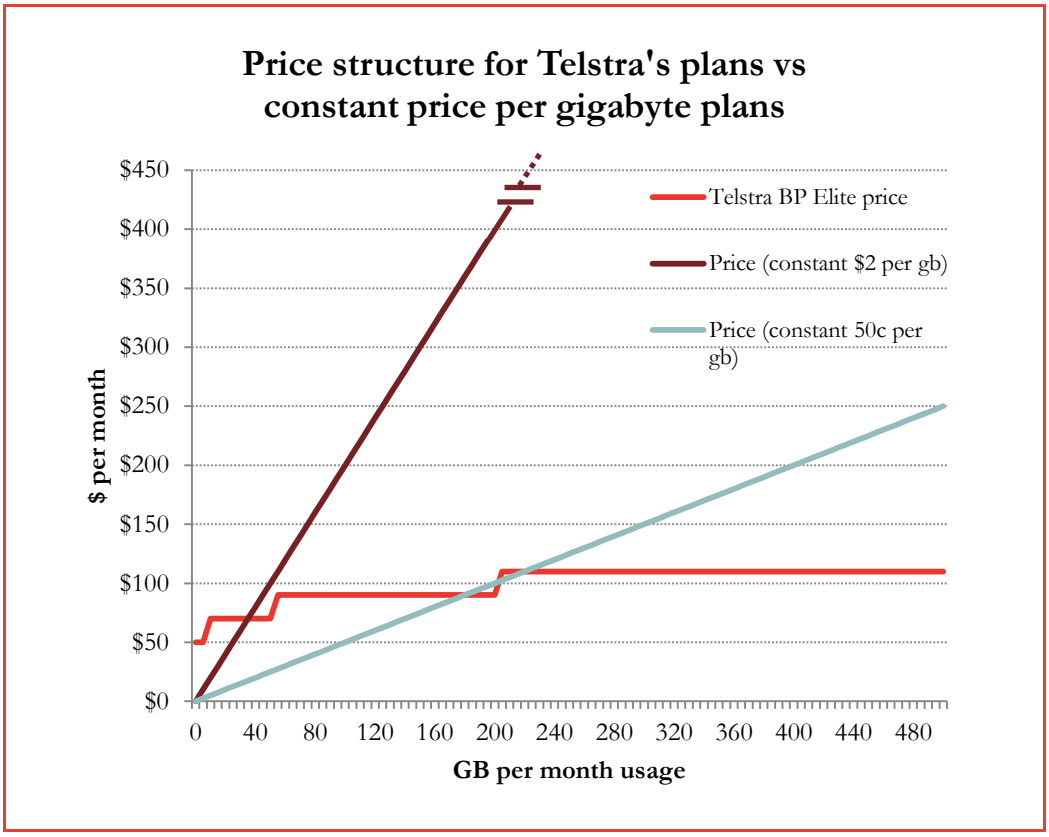
meaning that each additional gigabyte of data used would cost the consumer no less than the previous gigabyte. I find that whether this alternative results in higher or lower use per user critically depends on the marginal data price (which, in this case, is also the average data price):

- A relatively low per gigabyte price – say the level at which a customer of Telstra currently pays on average on its 500 gigabyte plan – could induce higher data usage than Telstra's current plans
- A relatively high per gigabyte price – say the level at which a customer of Telstra currently pays on average on its 5 gigabyte plan – could induce lower data usage than Telstra's current plans
- A price is that is relatively lower for some customers – say below what customers on Telstra's 5 gigabyte plan might pay on average, but above what customers on its 500 gigabyte plan pay on average – will have unclear effects on usage. Consumers currently on lower-use plans will use more data, and consumers on higher use plans will use less data.

I demonstrate some of the these complications in Figures 3 and 4. Purely as an example, I look at the pricing impact of constant per gigabyte charging, at $2 per gigabyte and 50 cents per gigabyte.

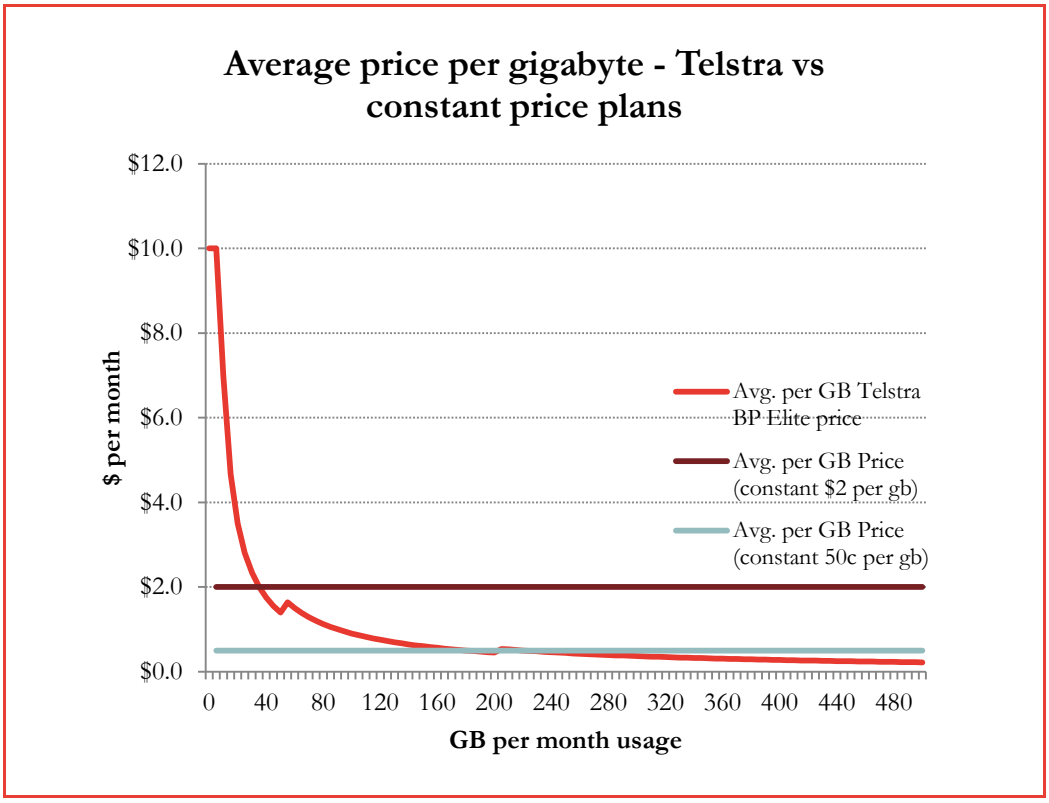
In both cases, the total and average price lines intersect the current plan pricing lines, meaning that some customers will face lower marginal charges, and are likely to use more data at these prices, and some would face higher charges and use less. One might conclude that at $2 per gigabyte, total use would be lower, and at 50 cents per gigabyte, total use would be higher. Ultimately, however, this will depend on (a) how many customers are on each pricing plan, and (b) how sensitive customers are to the change in marginal prices for data use. Such an (empirical) analysis is beyond the scope of this note, but the key point is that changing the structure of prices in a dramatic way is likely to have highly unpredictable effects on total network usage – and it is by no means clear than lower total usage would result from this change.

Figure 3: Comparison of Telstra's retail plans with constant prices of $2 and 50c per gigabyte



Source: Frontier Economics, based on data from http://www.telstra.com.au/internet/home-broadband-bigpond-elite-plans/index.htm, full service phone customer

Figure 4: Comparison of Telstra's retail plans with constant prices of $2 and 50c per gigabyte



Source: Frontier Economics, based on data from http://www.telstra.com.au/internet/home-broadband-bigpond-elite-plans/index.htm, full service phone customer

In summary, what matters for network use is not whether the average price of usage declines as more data is used. Rather, it is marginal prices that matter for network usage. Telstra's retail plans do incorporate positive marginal prices for data, and when compared with the alternative pricing put forward by the ACCC (with non-declining marginal and average costs of usage), I find it is not possible to conclude that Telstra's pricing encourages relatively high network use and therefore traffic on its network.

1(b) Does the structure of Telstra's retail plans increase congestion?

The ACCC states that Telstra's retail pricing encourages high data and increased traffic on the network, and, by inference, network congestion.[10]

[10] This may be inferred from the first paragraph under 3.5.2, in which the ACCC does explicitly link increasing traffic on the network to network congestion.

Congestion causes networks to degrade in performance. Congestion is caused by demand approaching network capacity and overloading of the network *at certain times*. In this context, congestion is not simply a function of network use but, other things equal, higher network use is likely to be correlated with increased congestion.

If Telstra's plans are said to result in increased traffic and congestion, then the plans must result in higher data use than some alternative plan. It follows from my response to the first question that as Telstra's plans cannot be said to encourage more data usage than the alternative which the ACCC seems to have in mind, then the structure of Telstra's plans also cannot be said to encourage network congestion.

2. Linking wholesale and retail prices would better manage congestion

On page 23 of the Draft Report, the ACCC states that it:

> "…does not accept Telstra's contention that a 'higher' wholesale ADSL price alone would necessarily make a significant contribution to managing network congestion".

The reason given for this statement is that while a higher wholesale price might manage congestion caused by wholesale customers, it would not mitigate congestion caused by Telstra retail customers. Rather, the likely outcome would merely be to disadvantage access seekers.

The ACCC's discussion of this issue in section 3.5.2 of the Draft Report occurs within the confines of its decision to reject the use of RMRC and favour a 'cost based' methodology. The reason for this decision is given in section 3.6 of the Draft Report. Within these confines, the ACCC's argument that competitors could be disadvantaged might be correct if any congestion charge imposed exceeded the marginal social costs of congestion.[11] The marginal social cost is the opportunity cost, including the costs of congestion, that Telstra faces when pricing to its own retail customers. However, the ACCC's argument is entirely contingent on adoption of a cost-based pricing methodology. In fact, the ACCC's argument provides a strong reason for preferring a RMRC approach, and which is not fully reflected in its reasons for rejecting this approach (that is, in section 3.6 of the Draft Report).

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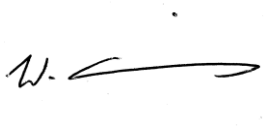
11 This is consistent with the propositions put forward by, for example, S. King and J. Gans, "Competitive Neutrality in Access Pricing", *Australian Economic Review,* Volume 38, Issue 2, pages 128–136, June 2005.

Under a RMRC approach, the only way that Telstra could raise wholesale prices (to manage congestion, or for any other reason) would be to raise retail prices. As noted in an earlier expert report for Telstra prepared by my colleagues at Frontier Economics, a RMRC-based wholesale ADSL price would automatically reflect congestion charges imposed at the retail level.[12] It would therefore ensure that attempts to manage congestion would be competitively neutral between Telstra's retail operation and its wholesale customers. In particular, it would therefore help prevent free-riding by access seekers on Telstra's efforts to manage congestion, and thereby avoid distorting competition and undermining the benefits to customers overall. Under the ACCC's proposed approach, price or non-price changes to Telstra's retail plans to manage congestion will have no effect on wholesale ADSL prices and will therefore enable such free-riding to occur.

12 Frontier Economics, *ADSL network congestion pricing and use of RMRC: A Report Prepared For King & Wood Mallesons*, August 2012, p. 11.

Declaration

In preparing this report I have made all the enquiries that I believe are desirable and appropriate and no matters of significance that I regard as relevant have, to my knowledge, been withheld.



Warwick Davis

Annexure 1: Curriculum Vitae

NAME:	WARWICK DAVIS
Profession:	Economist
Nationality:	Australian

Warwick advises clients on competition and regulatory issues, and leads Frontier's telecommunications work in Australia. He has over fifteen years experience as an economist, with nine years in consulting and six years working for telecommunications and competition regulators in Australia and the United Kingdom.

He has particular expertise in the areas of pricing and market analysis, including the application of pricing and costing frameworks to regulated network industries such as telecommunications, airports, post, rail and stock exchanges. Warwick has also advised on anti-competitive conduct and structural reform issues across a wide range of industries.

Warwick's clients, which have included regulators, access seekers and access providers, value his ability to provide credible and independent economic analysis, and to manage complex projects under tight timelines.

KEY EXPERIENCE

A selection of Warwick's recent projects on telecommunications regulatory issues is supplied below.

Telecommunications Regulation

- ***Pricing of Wholesale ADSL Services:*** Provided advice to Telstra on the pricing of the wholesale ADSL service, including preparation of expert reports. (2012).
- ***Telstra's internal interconnect cable charges:*** Warwick prepared an expert report on behalf of a group of access seekers in an ACCC arbitration dispute with Telstra on the prices charged for housing interconnect cables in its exchanges (2012).
- ***Optus and NBN Co Customer Transfer Deal:*** Assisted with preparation of an expert report on Optus and NBN Co's agreement for NBN Co to pay Optus to migrate its customers to the NBN, and subsequently de-commission Optus' network. The parties sought authorisation of the agreement with the ACCC. (2012).

- ***Analysis of Trans-Tasman mobile roaming services***: Warwick managed a consultancy for the Department of Broadband, Communications and the Digital Economy analysing data supplied by mobile operators in Australia and New Zealand to assess whether the market for mobile roaming services between the two countries was subject to market failure. (2011)
- ***Advising NBN Co on its Special Access Undertaking***: Warwick led Frontier's team engaged by NBN Co to review and develop aspects of its first Special Access Undertaking lodged with the ACCC (2010-11).
- ***Submission to the ACCC on its Review of Fixed Line Access Pricing Principles:*** Frontier prepared a number of reports for the Competitive Carriers' Coalition (CCC) on the Australian Competition and Consumer Commission's review of fixed line access pricing principles. Our analysis included expert reports, which formed the basis of submissions by members of the CCC (2010).
- ***Advice on price discrimination in next generation access networks***: Warwick led Frontier's team advising a regulator on whether restrictions should be imposed on the ability of an access provider to price discriminate in the prices charged to access seekers. The advice covered circumstances in which price discrimination could be detrimental to efficiency, competition and equivalence of access. (2009)
- ***Economics of Telecommunications Transmission Capacity Services***: Warwick managed a consultancy for the ACCC on a 'first principles' review of the efficient pricing of transmission capacity services, a basic 'building block' for communications networks. Frontier drew on both economic theory and empirical evidence to deliver recommendations to the ACCC on efficient price structures for transmission capacity and how to set efficient price levels for these services where regulated access was required (2009).
- ***Advice on Vodafone's Submission on Part XIC Regulatory Reform***: The Australian Government released a discussion paper on telecommunications regulation in Australia. Vodafone sought Frontier's assistance to help with its submissions on the future of the Part XIC access regime. (2009).
- ***Advice to Vodafone New Zealand on Broadband Investment Scheme***: Frontier was asked by Vodafone to review the NZ Government's proposed Broadband Investment initiative and provide some strategic advice on the options available to Vodafone. These ideas were incorporated into Vodafone's submissions to the Government (2009).
- ***Advising the ACCC on Penalty Proceedings:*** Frontier was engaged by the Australian Competition and Consumer Commission (ACCC) to advise it on the quantum of penalties appropriate in a particular case in which the defendant had admitted certain breaches. Frontier analysed data on market

outcomes prior to and after the conduct to determine the likely effects of the conduct (2009).

- ***Advising the Australian Government on the National Broadband Network***: Warwick led a team from Frontier advising the Department of Broadband, Communications and the Digital Economy on the assessment of proposals to build a national broadband network (NBN). This advice included issues including:
  - access pricing
  - retail pricing, including the affordability of likely NBN services
  - structural arrangements, including mechanisms to ensure equivalence of access terms and conditions
  - potential regulatory changes to facilitate the NBN roll-out and operation
  - compensation that might be payable contingent on any regulatory changes. (2008-09).
- ***Exemption Application for Wholesale Line Rental and Local Call Services***: Telstra sought an exemption from regulations which required it to provide wholesale services to competitors. Frontier was asked by the Competitive Carriers Coalition to consider whether such an exemption should be granted, based on criteria relating to competition and efficiency (2007).

CAREER

2006 - present	Frontier Economics, Australia
2004-2006	Director, Telecommunications Group, ACCC
2002-2004	Economic adviser, Oftel / Ofcom (UK)
1999-2002	Senior Project Officer/Assistant Director, Telecommunications Group, ACCC
1997-1999	Consultant, Competition and Regulation Group, KPMG Consulting

EDUCATION

1998 – 2000	M.Commerce (Economics), with 1st class honours, University of Melbourne
1993 – 1996	B.Economics (Hons), with 1st class honours, Monash

University, Melbourne

RELEVANT PUBLICATIONS

Journal Articles

- "From Futility to Utility: Recent developments in fixed line access pricing in Australia", *Telecommunications Journal of Australia*, Vol 61, No 2, 2011.
- (With Philip Williams), "Structural separation in Australia, economic and policy issues", *Telecommunications Journal of Australia*, Vol 58, May 2008, 11.1-11.13.

Other

- *Vertical price squeezes – lessons from New Zealand*, Paper presented at 8th Australian Business Law Workshop, November 2009

Annexure 2: Letter of instruction

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26 March 2013

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Dear Mr Davis,

Final access determination in respect of the Wholesale Asymmetric Digital Subscriber Line Service (Wholesale ADSL Service) – Price terms and conditions: Expert Report

We act for Telstra Corporation Limited ("**Telstra**").

We are instructed to request that you prepare an expert report in response to the questions set out in section 2 below.

1 Background

1.1 Regulatory and legislative framework

In Australia, under Part XIC of the *Competition and Consumer Act 2010* ("**CCA**"), the Australian Competition and Consumer Commission ("**Commission**"), has the power to "declare" certain telecommunications services. Where a service has been declared, the standard access obligations set out under Division 3 of Part XIC of the CCA apply. Most importantly, an Access Provider is required to supply a declared service to an Access Seeker upon request.

Division 4 of Part XIC of the CCA allows the Commission to make written access determinations in respect of declared services. Access determinations *must* include price-related terms and conditions for access to the declared service, and *may* include non-price related terms and conditions. Where an Access Provider and an Access Seeker have agreed upon terms and conditions of access (via an "access agreement"), the terms of the access agreement prevail over the terms of the access determination. Access determinations are therefore a form of "safety net", applicable where parties are unable to agree upon terms and conditions of access.

Pursuant to section 152BCA of the CCA, the Commission must take the following matters into account in making an access determination:

(a) whether the determination will promote the long-term interests of end-users of carriage services or of services supplied by means of carriage services;

(b) the legitimate business interests of a carrier or carriage service provider who supplies, or is capable of supplying, the declared service, and the carrier's or provider's investment in facilities used to supply the declared service;

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

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

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

(f) the operational and technical requirements necessary for the safe and reliable operation of a carriage service, a telecommunications network or a facility; and

(g) the economically efficient operation of a carriage service, a telecommunications network or a facility.

(together, "**statutory criteria**").

In deciding whether a thing is likely to have the effect of promoting the long term interests of end users, the Commission must have regard to three objectives:

(a) promoting competition in markets for carriage services or services supplied by means of carriage services;

(b) achieving any-to-any connectivity; and

(c) encouraging the economically efficient use of, and investment in, infrastructure by which listed services are supplied, or are likely to become capable of being supplied.

(See section 152AB of the CCA).

Where the Commission proposes to make a final access determination ("**FAD**") in respect of a declared service, it is required to hold a public consultation. Where the Commission considers that there is an urgent need to make an access determination in respect of the relevant service, it may make an interim access determination ("**IAD**"). An IAD prescribes terms and conditions for access to the relevant service prior to the publication of a FAD.

Compliance with the terms of a FAD is a condition of a service provider's carrier licence. Failing to comply with the conditions of a carrier licence attracts severe consequences.

A copy of the relevant provisions in Part XIC of the CCA is attached.

1.2 Wholesale ADSL Service

In Australia, Telstra owns and operates a customer access network ("**CAN**") from the exchange building to end-users' premises. Telstra and other service providers use the CAN to supply a range of fixed-line services, including Digital Subscriber Line ("**DSL**") services (i.e. high bandwidth services), to end-users' premises. Asymmetric DSL services have a high downstream data rate

coupled with a lower rate upstream and are typically used by residential or small business consumers[1]. In addition:

- The service is provided over the existing copper wire infrastructure. The use of legacy copper networks limits the data rates that DSL can support and the maximum data rates that can be provided fall as the distance between the end-user and the exchange building increases;
- The service is always "on", that is, no dial-up is required (allowing the end-user to maintain a permanent connection to the network, enabling real time delivery of services such as email);
- Uses of the service can involve the use of both voice and data services simultaneously; and
- The service enables faster upstream and downstream data rates than dial-up internet.[2]

Wholesale ADSL is used as an input into the supply of retail ADSL services to end-users. Internet service providers ("**ISPs**") can supply ADSL services in a number of ways:

- Acquiring wholesale ADSL from Telstra, which provides a path from the customers to one of 5 points of interconnect in capital cities of Australia;
- Use of the Unconditioned Local Loop Service ("**ULLS**") or Line Sharing Service ("**LSS**") in conjunction with the ISPs own digital subscriber line access multiplexers ("**DSLAMs**") and backhaul networks. Both ULLS and LSS are declared services.[3] The ULLS provides access to the entire unconditioned local loop between the customer and the exchange building connecting that customer, whereas the LSS allows access to the high frequency spectrum of the local loop. If ISPs wish to supply ADSL using ULLS or LSS, they can purchase ULLS or LSS from Telstra and invest in their own DSLAMs, other switching equipment and backhaul networks; and
- Acquiring wholesale ADSL from alternative providers.[4]

In each of these potential supply models, the service provider must combine the relevant access service (ULLS, LSS or wholesale ADSL) with additional transmission services, internet connectivity and downstream applications support in order to supply a retail end-user service.[5]

In addition to ADSL, other broadband access network infrastructure includes hybrid fibre-coaxial ("**HFC**") cable, optical fibre and wireless broadband networks.[6]

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[1] Commission, *Declaration of the wholesale ADSL service under Part XIC of the Competition and Consumer Act 2010, Final Decision, February 2012* ("**Declaration Final Decision**"), p 4.
[2] Commission, Declaration Final Decision, Appendix B, p 68.
[3] The Commission has determined that the price for acquiring the ULLS and LSS from 1 July 2011 to 30 June 2014. The price for ULLS is $16.21 per service per month (for Bands 1, 2 and 3) and $48.19 per service per month for Band 4. The price for LSS is $1.80 per service per month. A "Band" refers to the geographic classification of an exchange service area (ESA). Band 1 refers to specific ESAs in the central business districts in the States of New South Wales, Queensland, South Australia, Victoria and Western Australia. Band 2 refers to an ESA with more than 108.4 services in operation in a square kilometre. Band 3 refers to an ESA with more than 6.56 but less than 108.4 services in operation in a square kilometre. Band 4 refers to an ESA with 6.55 or less services in operation in a square kilometre.
[4] See Commission, Declaration Final Decision, Appendix B, p 68.
[5] Commission, Declaration Final Decision, p 4.

Telstra currently supplies wholesale ADSL services at some 2800 ADSL-enabled exchanges nationally.[7]

On 14 February 2012, the Commission declared the wholesale ADSL service. The service description outlines the scope of the declared service and covers both a local access component from the network termination point at the end-user's premises to the local exchange, and a backhaul transmission component between the local exchange and the point of interconnection with the access seeker's network, which is typically a CBD exchange in the relevant State. In acquiring a wholesale ADSL service an access seeker must pay both a 'port charge' for the local access component and a variable 'AGVC charge' for the backhaul component.[8]

A copy of the Commission's Declaration Final Decision is attached.

On 14 February 2012, the Commission also made an IAD in respect of wholesale ADSL which set price terms for the supply of wholesale ADSL. The price terms were based on a Retail Minus Retail Cost pricing methodology.[9]

Copies of the IAD and the Commission's IAD Statement of Reasons are attached.

Following the IAD, the Commission has released two discussion papers in respect of making a final access determination for the wholesale ADSL service.[10] The FAD First Discussion Paper called for submissions as to which methodology should be used to develop price terms for the FAD. The FAD Second Discussion Paper does not address price terms and conditions.

Copies of the FAD First and Second Discussion Papers are attached.

On 12 March 2013, the ACCC released a Draft FAD and Draft Report with respect to the wholesale ADSL service for public comment. Submissions in response to the draft report are due by 5pm on 5 April 2013.

Copies of the Draft FAD and Draft Report are attached.

1.3 Congestion constraints

Telstra has experienced increased backhaul demand on its ADSL network, particularly for "real time" applications such as video streaming. Accordingly, Telstra's backhaul network experiences congestion at peak times.

For example, Telstra measures occupancy and congestion by dividing traffic at peak times by capacity. Different transmission/DSLAM technologies have different occupancy thresholds at which point end-users are impacted by congestion. Telstra has calculated the number of retail and wholesale ADSL services that are served by infrastructure with occupancy greater than the threshold level as at June 2012. Twenty-three per cent of retail and wholesale ADSL services are served by infrastructure that exceeds the occupancy threshold. By June 2013, if there is no further

[6] Commission, Declaration Final Decision, p 4.
[7] Commission, *Public Inquiry to make a final access determination for the wholesale ADSL service, Issues Paper (a Second Discussion Paper), July 2012,* ("**FAD Second Discussion Paper**"), p 2.
[8] Commission, FAD Second Discussion Paper, p 2.
[9] Commission, *Interim access determination for the wholesale ADSL service, Statement of Reasons, February 2012* ("**IAD Statement of Reasons**"), Section 7.1.
[10] Commission, *Public inquiry to make a final access determination for the wholesale ADSL service, Discussion Paper, February 2012* ("**FAD First Discussion Paper**") and FAD Second Discussion Paper.

expansion of capacity and peak traffic grows at over 100%, then 42% of retail and wholesale ADSL services would be served by infrastructure that exceeds the occupancy threshold.

In order to address congestion issues, Telstra has, for example, over the past eight quarters, upgraded backhaul to over 2,500 DSLAMs.

More information relating to congestion issues is set out in the confidential document entitled "The Supply of ADSL Services in Australia – Additional Material", a copy of which is attached.

2 Instructions

2.1 At page 22 of the Draft Report, the ACCC states that "Telstra and other RSPs offer plans where the 'cost per gigabyte' substantially decreases as data allowances in retail plans increase. The ACCC considers that such retail pricing encourages high data use, which in turn increases traffic on the network".

2.2 With reference to this quote, we are instructed to request that you prepare a report providing your opinion on the following questions:

(a) Do Telstra's retail pricing plans encourage end-users towards high data usage, thereby increasing traffic on the network?

(b) If so, does this affect congestion on the network?

2.3 At page 23 of the Draft Report, the ACCC states that it "does not accept Telstra's contention that a 'higher' wholesale ADSL price alone would necessarily make a significant contribution to managing network congestion". We are also instructed to request that you provide your opinion regarding the extent to which adopting a RMRC (retail minus retail costs) approach to wholesale ADSL pricing would be effective in addressing the problem described in this extract.

3 Documents

3.1 We enclose copies of the following documents:

(a) A copy of Part XIC of the CCA;

(b) A copy of the Draft FAD and Draft Report;

(c) A copy of the Commission's Declaration Final Decision;

(d) A copy of the Commission's FAD First Discussion Paper;

(e) A copy of the Commission's FAD Second Discussion Paper;

(f) A copy of Telstra's confidential response to the Commission's FAD Second Discussion Paper relating to Non-Price Terms;

(g) A copy of Telstra's confidential response to the Commission's FAD Second Discussion Paper relating to Price Terms;

(h) A copy of the document entitled "The Supply of ADSL Services in Australia – Additional Material";

(i) A copy of the IAD; and

(j) A copy of the IAD Statement of Reasons.

4 Purpose

4.1 Telstra may provide a copy of your expert report to the Commission. Please assume that your report (or certain aspects of it) will be accessible to the public.

4.2 As mentioned above, the primary purpose of your report is to provide an expert opinion which may be provided to the Commission as part of further consultation into these issues. However, depending on the circumstances, Telstra may require your report to be adduced as evidence in review proceedings before the Federal Court of Australia.

5 Confidentiality

5.1 This retainer and any information or documents that Telstra provides to you in relation to this retainer are confidential. To maintain confidentiality, we request that you:

(a) use Telstra's confidential information only for the purposes of this retainer;

(b) not disclose Telstra's confidential information to anyone without Telstra's written consent;

(c) if requested by Telstra, destroy or return to Telstra all records containing Telstra's confidential information; and

(d) address all of your communications to King and Wood Mallesons.

6 Correspondence

6.1 Please direct all correspondence in this matter to King and Wood Mallesons, for the attention of Agata Jarbin.

7 Presentation of your report

Please include the following with your report:

(a) a copy of your curriculum vitae including qualifications, experience in the field and any publications;

(b) our letter(s) of instruction to you;

(c) any other facts, matters, documents or assumptions upon which you rely in preparing your report;

(d) any plans, calculations, analyses, measurements or other material that you refer to in your report; and

(e) any enquiries you make that are necessary to respond to the questions we ask you to consider and also the results of any such inquiries.

KING&WOOD MALLESONS

If you require any further instructions or material to prepare your expert report please contact Agata Jarbin on +61 3 9643 4165.

Thank you for agreeing to assist Telstra in this matter.

Yours sincerely

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