



Comments on the Draft Reconsideration of D582 (Public Version)

This note comments upon the Draft Reconsideration of D582 issued on 21 February 2007. It refers to NZ-Reconsideration-VA.xls which contains some TNZRI data.

NZ-Reconsideration-VA.xls contains two spreadsheets: one for June and one for October. In both cases, input assumptions are highlighted in light blue (ie change these and they ripple through wherever they are used). Red highlighted numbers are TNZRI confidential data. The top half of each sheet shows the derivation of the UBS price under the regression method and the bottom half of the sheets for June and October show the derivation of the UBS price using the new basket method. Note that we do not have customer numbers for October and actual usage by plan is not known for either month.

This document does not contain restricted information.

1 The Basket Approach

The Draft Reconsideration is a significant improvement in methodology over both the WARP Update Methodology and the Regression Model approaches.

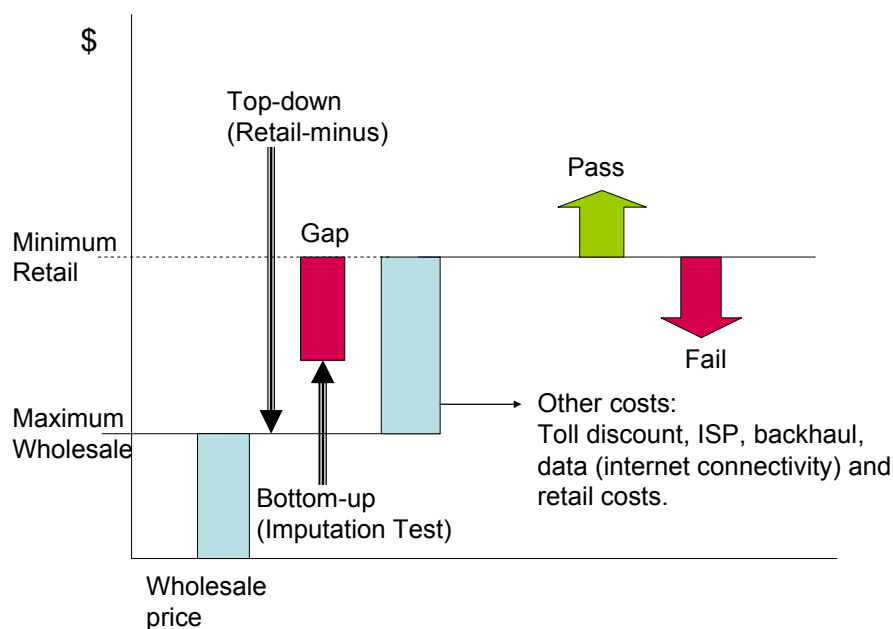
- The use of customer connections to weight plans is better than taking a simple average of plans, undertaken in the Regression Model approach. It automatically takes account of migration between plans and inhibits Telecom from gaming the approach.
- As suggested in May 2006 (Section 2.4, de Ridder, 9 May), applying the cost of data directly to usage is an alternative to the regression method.
- The proposed method (and the regression model) guarantees the UBS price will pass an imputation test compared with the prices from which it is derived; which the WARPed Update did not do.
- The new method can be applied directly at any time (ie it does not need to be linked to previous calculations, as it did with the Update Method).

The Commerce Commission's direction that Telecom should apply imputation tests to planned price changes internally and submit these to the Commission when seeking

pricing approvals is also welcomed. This is what should happen in any prudent organisation trying to stay on the right side of the law. For example, having spent a decade building and overseeing Telstra’s internal pricing approvals process, I can say that Telstra ran foul of Competition Notices for anti-competitive broadband pricing only when its business case assumptions proved to be incorrect or when it ignored the approvals process.¹

The nature of the test that Telecom should apply is clear. It is the mirror image of the process for setting the UBS price – getting from retail to UBS and from UBS to retail follow the same steps in reverse order (see spreadsheets). This is illustrated below.

Figure 1: Schematic of Imputation Test



The figure is adapted from NERA’s January 2003 report for the ACCC. It shows the symmetric relationship between bottom-up imputation testing and the top-down legislated retail-minus pricing principle. These top-down and bottom-up approaches guarantee prices are not anti-competitive if the maximum/minimum conditions are met. It is, of course, important however to undertake the test using methodologies such as those applied by ACCC and Ofcom. For example, imputation tests might use Telecom’s own cost of data or the wholesale price of data or both. Unless the same choice is made to determine the UBS price as would be used for imputation testing (ie symmetry in approach as illustrated above), there is no guarantee that the UBS price and passing of an imputation test are mutually compatible.

¹ See J de Ridder “Does Telstra’s left-hand know what its right-hand is doing?” in Exchange, 25 June 2004

2 Further Improvements Required

While the Draft Reconsideration is a step forward, there are some further changes to assumptions and/or the model which are needed to meet the legislated objectives:

2.1 Backhaul

Previous submissions argued that the Regression Model over-looked the provision of backhaul because it was common to all plans and so it got bundled into the constant term and consequently should have been removed². The Draft Reconsideration (para 100) dismisses this argument on the basis that backhaul is not a minus cost component (ie to be extracted from the imputed retail price) but a plus cost component (ie incurred as a result of providing a wholesale service). This is not correct.

When Telecom provides UBS there are significant elements of backhaul that it no longer provides. As described in the 9 May Submission, there are three legs to backhaul:³

1. from the (Telecom) DSLAM to the 1st Telecom ATM switch – which is included in the UBS port price. This leg forms part of both the retail and UBS services so it does not need to be removed.
2. from the 1st ATM switch to the handover ATM switch – this must be removed because the retail service would carry traffic beyond the first ATM switch to its international point of presence. Telecom avoids this leg of costs when it sells UBS but it charges access seekers for this leg based on a stepped rate card; so it is double-dipping. Based on one ISP's customer distribution, we estimated \$0.80 per customer is charged to access seekers for this leg. Either this estimate should be deducted from the UBS price as a proxy for Telecom's costs or the actual costs avoided by Telecom should be deducted. (This assumes that the cost approach is used as set out in the Draft Reconsideration). The fact that Telecom uses Ethernet rather than ATM transmission will not materially affect costs (ie the customer profile may be a more important difference).
3. from the handover ATM switch to the ISP's server – which is currently paid for separately by access seekers as an STM-1 or STM-4 and estimated as \$1.12 per customer.

The Commission argues that this leg is an interconnection link that would not form part of a retail service so that it is an add-on cost; not an avoided cost [Para 100 Draft Reconsideration]. But, on the avoided cost argument, at least the port charge should be excluded as a retail service would have to include

² Backhaul costs are not driven by volumes of data but by customer numbers so an unweighted (Regression) basis the backhaul component is the same for all plans and drops into the estimated constant.

³ Note that the \$1.92 per customer estimate does not include Telecom's overage charge which has now been removed.

the port connecting to Telecom's international point of presence.⁴ And, on a cost based approach, excluding only the port charge may be an underestimate as it excludes other necessary components such as the transport of traffic to another server.

Telecom argues that backhaul is part of the ISP service fee [Para 23, Telecom, 20 December 2006] and so backhaul should be ignored to avoid double-counting. However, the costing of ISP service is highly uncertain.

Frontier Economics has suggests that even if this third leg is considered as an interconnection link, it should be deducted given the Commission's objective that,

"An equally efficient competitor should be able to use the bitstream access service to effectively compete with Telecom..." [Para 52, Draft Reconsideration].

As Frontier Economics puts it,

"All ISPs must interconnect with Telecom to provide retail services, so all ISPs *must* face a cost disadvantage compared with Telecom i.e. as they incur costs of interconnecting with Telecom... we believe that the CC should not ignore the cost disadvantage of interconnecting ISPs. It is important to note that the disadvantage is not a result of Telecom's superior efficiency, and that allowing the disadvantage to persist would only limit the competitive intensity between Telecom and entrants. By placing Telecom on an equal footing as competitors (much as would be the case if it was vertically-separated or genuinely operationally-separated), the CC will better achieve its overall objective of promoting the long-term benefit of end-users." [from correspondence with the author]

We do not know Telecom's cost of providing backhaul. We have suggested orders of magnitude based on the customer profile of one access-seeker and Telecom's wholesale rates. Unless, Telecom provides contrary data, the \$1.92 per customer estimated for backhaul should stand (and is used in Options A to D discussed below).

Again, it could be argued that deducting cost is not consistent with the approach in Determination 568, which requires calculation of the value of the backhaul component. I do not have information on which to calculate this value (as it is Telecom information) but note that the \$1.92 is at least a proxy which can assist in assessing value.

⁴ Also, this will constrain any temptation by Telecom to raise the port charge if access-seekers replace leased transmission capacity with their own transmission. These issues will need to be considered in designing operational separation.

2.2 Data Cost per GB

The Draft Reconsideration (para 97) has a “placeholder” cost of \$1.50 per GB and invites comments:

1. \$1.50 is lower than the slope coefficients estimated using Telecom’s plans for December 2005, June 2006 and October 2006 (which is how the Commission first estimated the data cost). This is because the estimated slopes are used to infer a value that Telecom places on the data caps; ie the slope coefficient represents the implicit retail price of data built into the plans rather than a cost.

It can be argued that Decision 568 used the retail value of caps inferred from the regression model to remove transmission charges⁵. Options C and D discussed further below are consistent with the retail price of data caps in Decision 568.

2. I cannot comment on the cost of data to Telecom as that is information held by them. At this stage, I understand that the cost per GB could be nearly double the Commission’s assumption with full cable protection (eg dual routes for back-up). While it is common practice not to have full protection, the \$1.50, on this basis, would be at the lowest end of the spectrum.
3. Telecom has quoted a wholesale price for providing international connectivity which is not much different from the Commission’s assumption and consistent with the use of “prevailing market rates” [Para 96, Draft Reconsideration]. The market for providing international connectivity is competitive so wholesale prices are a reasonable proxy for cost.

I suspect that Telecom may have lower costs per GB based on its own costs as a major customer of Southern Cross Cables. However, to the extent that Telecom’s lower costs derive from some legacy, incumbency advantage, or from market power in the supply of data transmission, or they are not “arms-length” prices in view of the relationship between Telecom and Southern Cross, there is even more reason to prefer prevailing market rates. For imputation tests, one might look at what Telecom charges customers and impute that to Telecom. This is precisely what happened in Australia with the first Competition Notice served against Telstra on broadband pricing. In that case, Telstra followed Optus with un-metered plans while not taking proper account of increased customer downloads and the fees it charged for customer downloads.

I also suspect that the difference between domestic and international costs will not be very large and the latter kind of traffic accounts for 80 to 90 percent of traffic. I am not familiar with peering and transit arrangements in New Zealand, but if Telecom

⁵ “The y-intercept of the linear regression was the monthly price for Bitstream access, which is independent of any price component associated with the transmission of data” [Para 389, D-568] and a data cap of zero “reflects an imputed retail price of bitstream access of ..” [Para 417, D-568] That is, the regression model unbundled the access and transmission components of the retail service.

recognizes no “peers” in New Zealand, its domestic costs would be lower than for any other domestic carrier.

2.3 Usage

In the Draft Reconsideration, data costs are subtracted on the basis that they are costs avoided. But using actual usage (Option A in the illustrative diagram below) by plan understates avoided costs. This is because the imputed retail prices include a “budgeted” usage which is likely to be greater than actual usage. That is, prudent retail pricing would build-in a “risk premium” for usage larger than is reported. Under the current proposal in the Draft Reconsideration, this risk premium (or profit from low use relative to budget) would be passed on to wholesale customers who cannot pass on their own similar risk. Access-seekers should not have to bear their own risks and Telecom’s too when the latter’s risk is not relevant to a wholesale service.

We do not know what usage has been planned or budgeted but we do know that Decision 568 relied in data caps rather than actual usage. This looks like it is a good estimate of the avoided cost of usage when the weighted average cap (K29 and J28 in the June and October sheets) is sanity-checked with the average download figures reported for Australia (Box 1). Based on Australian data, the average download for broadband customers in New Zealand could reach just under 3GB; so this would be a prudent number to budget plans on. Although the proportion of high speed customers is higher in Australia than New Zealand, the new Zealand ratio is only for December 2005 and will have increased significantly as download speed restrictions have been removed. So, Options B, C and D discussed below all use data caps (with assumptions for Go Large) rather than actual usage.

Box 1	Australia	New Zealand
Broadband penetration (OECD, Dec 2005)	13.78	8.1
Broadband customers, 000s	3908	279 (Dec'05)
Download per Qtr, Million GBs	33.93	
Download per customer per month, GB	2.89	
Download per HH customer per month, GB	2.73	
Broadband exceeding 512kbps, %	66.0%	34.7%

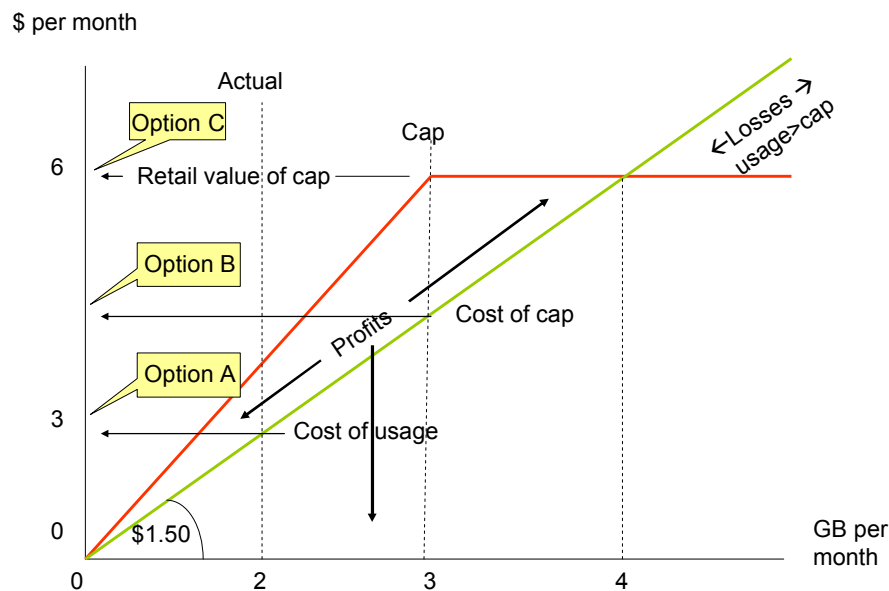
Sources: ABS Cat. No. 8153.0 for September 2006 and Commission 2 Feb. 2006

Option B prices the data-cap at cost; following the Draft Reconsideration except in relation to actual usage (and backhaul). As noted above, the calculations for Options B, C and D in the October sheet depend on the assumed usage budgeted for the unlimited Go Large plan. This can be tested for sensitivity at cell F28.

If Decision 568 is applied both with respect to the use of data caps and the implied price of data, this leads to Options C (using weighted averages) and D (using simple averages) which are consistent with Decision 568. The implied retail value of the caps can be inferred from the pricing structure of the plans using the regression approach (rows 31 and 30 in the June and October sheets). The simple average of the data caps (Option D) is higher than the weighted average of the caps (Option C) so D is greater than C. Also, the

simple average of the imputed broadband price is higher than the weighted average (rows 23 and 22 in June and October sheets respectively).

Figure 2: Schematic of Data Cost Recovery



3 Summary

The new basket approach aspect of the reconsideration is a significant improvement over the WARP Update method and a viable alternative to the Regression Method. The new method requires more data than the regression model but will be less susceptible to gaming by Telecom (eg by launching plans with few customers). However, some methodological questions need further debate and a few more adjustments are needed:

- If the Commission applies its conclusion at paras 369-371 of Determination 568, then it can be expected that Options A and B in the spreadsheets lead to a UBS price that is too high; as they are based on deducting cost rather than value.
- Backhaul cannot be ignored. There is significant backhaul component to the retail service which is avoided when UBS is provided. The second and third “legs” of backhaul need to be removed from the UBS price.
- The costing of data is subject to different interpretations. Decision 568 implicitly valued caps at their retail value while the Draft Reconsideration considers only cost. Even on the basis of the latter, the implications of choosing either Telecom’s wholesale rates or own costs for the consistency of UBS pricing and Telecom prices (ie by the imputation test) needs to be considered.

- Telecom's budgeted usage is important rather than actual usage because there is a risk-premium built into the imputed price that should not be transferred in the retail price. The data cap seems a reasonable proxy for budgeted usage.
- In the basket model, the UBS price is sensitive to assumptions about data caps, the valuation of data usage (whether actual or budgeted), the valuation of backhaul avoided and the distribution of customers across plans. The spreadsheets contain only best guesses on most of these. But, Telecom has the data to make the calculations more exact.

One of the reasons why Decision 582 had to be re-visited was because the WARP update method did not guarantee consistency between the UBS price and Telecom's retail prices. While the basket approach guarantees consistency between the UBS price and Telecom's broadband retail prices (ie the imputation test is passed), this is subject to symmetrical application of the methods to determine the UBS price and test for price squeeze.

Almost any combination of input assumptions will provide the UBS and retail pricing consistency just described. But, the Commission also has to have regard to its charter to promote competition for the long-term benefit of end-users. And, following the changes to legislation since May last year, the effect of UBS pricing on competition and investment will also depend upon where the UBS price will sit relative to other wholesale products (ie the "ladder of investment"); for example, Naked UBS will have to be set higher.

John de Ridder
13 March 2007

Biographical Note:

John de Ridder is a telecommunications economist who spent ten years in corporate and wholesale pricing roles at Telstra. This experience included Telstra's first Competition Notice for anti-competitive broadband pricing. Over eighteen years at Telstra he was:

- Chief Economist in Corporate Finance where he influenced the environment for competition with numerous studies on international price benchmarking, natural monopoly and universal service. These include the world's first costing of the universal service obligation where he led the Telstra team.
- The first Commercial Manager of Telecom's Interconnect Unit where he helped negotiate the commercial framework for interconnection with the Regulator (AUSTEL) and then the first comprehensive interconnect agreement with the new entrant (Optus).
- Manager Pricing Strategy in Telstra Corporate Marketing where he was directly involved in all aspects of retail pricing from the start of competition in fixed and mobile networks. This role included managing price caps, leading a pricing strategy study which set the direction for the pricing of Telstra's fixed, mobile and broadband services and optimising retail and wholesale prices across the company.
- Manager Data Pricing in Telstra Wholesale where he priced broadband access and data products to other service providers and provided internal advice on key regulatory issues.

John has also worked for economic and management consulting firms in the UK (DRI/McGraw-Hill) and Australia (IBIS) as well as in the planning departments of major corporations in both countries (Shell and ICI). He is now assisting corporations and government agencies (OECD and APEC) in countries grappling with competition issues in telecommunications. He is also the author of the column "Economuse" in the influential Australian newsletter, "Exchange".