



**Submission by AAPT Limited  
to the Australian Competition and Consumer Commission**

***Vodafone's Allocated Cost Model***

**August 2005**

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### *Vodafone's Allocated Cost Model*

#### 1. Introduction

AAPT Ltd (**AAPT**) has prepared this submission as part of a response to the consideration by the Australian Competition and Consumer Commission (the **Commission**) of the Vodafone undertaking in relation to the domestic digital mobile terminating access service.

This submission is a commentary on aspects of the Fully Allocated Cost model prepared for Vodafone by PriceWaterhouseCoopers (PWC). This is a preliminary submission and AAPT reserves its rights to make further more complete submissions.

The model prepared by PWC is not a true TSLRIC model, but is the basis on which Vodafone seeks to rely for the determination of its prices. PWC describes the model as “essentially a top-down fully allocated cost (“FAC”) model, using a mixture of Vodafone’s accounting and operational data comprising inputs from the following sources: (i) the general ledger; (ii) fixed asset register; (iii) call data recording systems; other inputs – including asset prices and routing factors – have been sourced directly from Vodafone.”<sup>1</sup>

This submission makes two claims about this model. The first is that the model has coding errors that inflate the cost of mobile termination (covered in Section 2). The second is that the choice of base year 2003-04 and the approach to calculating the tilted annuity results in an inflated cost of mobile termination (covered in Section 3). No comment is made in relation to the work of Frontier which AAPT notes has not been relied upon by Vodafone in establishing the undertaking access price. Finally, the submission concludes that the Commission should reject the undertaking and, on the basis of the submissions by

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<sup>1</sup> PriceWaterhouseCoopers “*The Fully Allocated Cost (FAC) of services on Vodafone Australia’s GSM network*” P4.

Vodafone for review in the Federal Court revise its pricing principles to accept that termination prices should be set on the basis of TSLRIC using a top-down fully allocated cost model as a suitable proxy and that there be no glide path applied.

## 2. Coding Errors in the PWC model

The PWC model includes two coding errors. The first is the process for calculating the “tilted annuity” value for depreciated assets. The second is a much more minor, though significant, error in allocating indirect network costs.

### *Tilted annuity*

The PWC supporting submission states that the tilted annuity formula used is

$$C_{t-1} = I_{t-0} \left( \frac{1+r}{1+i} \right)^u \frac{(r-i)}{1 - \left( \frac{1+i}{1+r} \right)^n}$$

C = Annualised cost for a given time period (A\$)

I = Replacement cost of network element (A\$)

r = Cost of Capital (%)

u = period from payment to commencement of productive service (years)

i = Annual asset price change (%)

n = Useful life of asset (years)

However, AAPT notes that the formula entered in the relevant column of the “assets\_network” worksheet in the “Inputs” workbook is

$$((F5*((1+\$J\$3)/(1+C5)^I5))*(\$J\$3-C5))/(1-(((1+C5)/(1+\$J\$3))^D5))$$

This can be represented in mathematical notation as

$$c2 = j * \frac{(1+r)}{(1+i)^u} * \frac{(r-i)}{\left(1 - \left(\frac{1+i}{1+r}\right)^n\right)}$$

Where

c2 = Annualised cost for a given time period

j = F5 = gross replacement cost

r = \$J\$3 = WACC (from cell \$J\$3 and hence from the WACC model)

$i = C5$  = annual price change  
 $u = L5$  = time to bring asset into useful life  
 $n = D5$  = useful economic life

This has a significant effect in the conversion of the replacement asset values to annualised cost. Neither this comment nor the comment below is an acceptance of the validity of the term allowing for the asset being brought into productive use.

#### *Allocating indirect network costs*

The PWC submission states that indirect costs are allocated on the following basis;

*Indirect costs have been allocated in proportion to the directly allocated costs or as discussed further below.*

*There are two different types of indirect costs:*

*i. **Network indirect costs:** these are costs which are network-based, and therefore should be allocated to network (conveyance) services only, but for which there are no clear routing factors that allow for a direct allocation of the costs, e.g., the test network and the Network Management System (NMS);*

This allocation is performed on the “Asset Calculation (2)” worksheet of the Model” workbook using weighting factors derived from the “Route factors & drivers” worksheet. However the relevant row references row 139 of the “Asset Calculation (2)” worksheet which is the total cost line (direct plus allocated indirect cost) line instead of row 137 which is the total direct cost line. This creates a circular reference which Excel resolves, but does not result in the same allocation as apportioning indirect network costs in proportion to direct network costs.

#### *Effects*

The effect of correcting for these two apparent errors is to reduce the Fully Allocated Cost of terminating access to 15.52 cpm (compared to the Vodafone figure of 16.15 cpm).

### **3. Choice of base year**

The PWC model has been prepared using data for the 2002-03 year. In doing so Vodafone is likely to be over-estimating the unit prices of services as (1) they will be over-estimating the replacement cost of their

network as most prices are declining and (2) the network will be serving a greater number of customers and calls hence changing the unit volumes.

*Replacement cost*

Vodafone has modelled its network using replacement costs and determined the FAC at 2005 and then argued that should be the target price for 2007. Adjusting the Vodafone model to reflect the effect of the asset price changes over a further two years has the effect of reducing the FAC for termination to 15.13 cpm. This is not a full reflection on the effects as there would be other relevant price changes in both capex and opex.

*Customer volumes*

The Vodafone model has also been calculated on the basis of 2002-03 subscriber and calling volumes. The table below has been derived from two IDC reports<sup>2</sup>.

**Industry and Vodafone Growth Forecasts**

Year	2002	2003	2004	2005 (forecast)
Total Subscribers (M)	13.35	15.438	17.869	19.2
Total Subscribers GSM (M)	12.413	14.180	15.875	
Percentage Non-voice Revenue	8.8	12.6	14.4	17.6
Industry voice minutes (M)		14,869	16,080	17,288
Industry Number of SMS sent		4,683	5,690	6,688
Vodafone				
Subscribers	2.454	2.676	2.805	
Percentage Non-voice	8.9	13.7	16.7	

It is not possible to reach definitive conclusions about the effects of these volume changes, merely to note that they would have a significant effect in terms of calendar 2005, and that certainly the prices for calendar 2007 should reflect further price changes. A simple analysis that allows for reasonable changes

<sup>2</sup> IDC *Australian Cellular 2004 - 2008 Forecast and Analysis: Upwardly Mobile* and *Australian Cellular 2005 - 2009 Forecast and Analysis: No Strings Attached*

in volume to 2007 and allows for further changes in the replacement value of assets produces a price approaching 13 cpm for mobile termination using the highly imperfect Vodafone FAC approach.

#### **4. Conclusion**

AAPT believes that the errors that it believes have been made in the Vodafone model covered in Section 2 are a sufficient basis to reject the Vodafone undertaking. AAPT further believes that the Commission should require Vodafone to provide a model that uses the most up to date data that Vodafone has available on costs and volumes and include in the model projections to 2007.

Finally, AAPT notes that Vodafone has now twice sought judicial review of the Commission's approach to pricing the MTAS. In both these matters Vodafone has argued that the Commission should base its pricing on the Commission's own TSLRIC principles.

AAPT argued in response to the Commission's draft decision that the Commission should commence building a bottom-up model and that the Commission should not apply a glide path.

AAPT believes that Vodafone is using legal proceedings to attempt to frustrate the benefits to consumers of cost-based termination prices, and that therefore the consideration that the Commission extended to Vodafone's business interests of the consideration of a glidepath should be withdrawn.

AAPT therefore not only requests that the ACCC reject the undertaking, but that the ACCC issue new price guidance in relation to the MTAS that the price should be 15.52 cpm from 1 January 2005 to reflect Vodafone's costs and that the price should be 15 cpm from 1 January 2006 and that the Commission will build a bottom-up model to assess prices from 2007.