

## APPLICATION BY OPTUS MOBILE PTY LIMITED & OPTUS NETWORKS PTY LIMITED

(2007) ATPR ¶42–137

Court citation: [2006] ACompT 8

### Australian Competition Tribunal

22 November 2006

*Trade practices — Telecommunications — Access — Review of decision of Australian Competition and Consumer Commission — Mobile terminating access service — Whether terms of access undertaking reasonable — Efficiency and allocation of costs — Whether terms of access undertaking are retrospective — Trade Practices Act 1974, s 4E, Pt XIC.*

Optus Mobile Pty Limited and Optus Networks Pty Limited (Optus) had given an ordinary access undertaking under s 152BU(2) of the *Trade Practices Act 1974* (TPA) to the Australian Competition and Consumer Commission (ACCC) setting out the price and non-price terms and conditions upon which Optus had undertaken to provide its domestic GSM terminating access service (DGTAS).

Pt XIC of the TPA provides for a telecommunications access regime in which the ACCC may declare carriage services and related services. The object of Pt XIC is to promote the long-term interests of end-users.

In June 2004, the ACCC had declared the mobile terminating access service (MTAS). The pricing principles determination made by the ACCC in respect of the MTAS indicated that the price of the MTAS should follow an adjustment path so as to provide for a closer association of the price and underlying cost of the service. The ACCC used a total service long-run incremental cost of supplying the service, with a mark-up to enable the recovery of costs (TSLRIC+). The ACCC determined the likely TSLRIC+ cost of supplying the MTAS in Australia and used this in its pricing principles determination.

The DGTAS was Optus' provision of an MTAS. Optus had given its undertaking to the ACCC in December 2004.

In its access undertaking, Optus had used a forward-looking long-term incremental costs model plus a mark-up for fixed common costs based on specific pricing principles and a mark-up for a contribution to a mobile subscription network externality (FL-LRIC++).

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Section 152AQA of the TPA provides that the ACCC must have regard to the pricing principles determination if it is required to arbitrate an access dispute. However the determination is not binding in the event the ACCC is asked to accept or arbitrate an access dispute.

The ACCC had rejected the undertaking in a final decision made in February 2006 on the basis that it was not satisfied that the prices and certain non-price terms and conditions specified in the undertaking were reasonable pursuant to s 152BU(2) of the TPA. The ACCC found that while the TSLRIC+ and the FL-LRIC++ concepts were broadly comparable, the key difference was the mark-ups above incremental costs.

Optus applied to the Tribunal pursuant to s 152CE(1) of the TPA for a review of the decision to reject an ordinary access undertaking given by Optus to the ACCC.

**Held:** decision of ACCC to reject access undertaking affirmed.

1. The approach taken by Optus in its access undertaking was not controversial. The ACCC found that Optus had not adjusted its costs sufficiently or put forward material before the ACCC to satisfy it that the costs were no more than which an efficient operator would incur. Both the ACCC and the Tribunal on review had to be satisfied, having regard to the matters set out in s 152AH and the objectives set out in s 152AB of the TPA, that Optus' costs were efficiently incurred.

2. Having regard to the matters set out in s 152AH and the objectives set out in s 152AB, the Tribunal was not satisfied that it was not reasonable for Optus to use a mark-up for fixed common costs based on specific pricing principles and a mark-up for a contribution to a mobile subscription network externality in the FL-LRIC++ model.

3. The Tribunal was not satisfied that the price term given by Optus for the final year of the period covered by the undertaking did no more than to cover Optus' long-run incremental costs of supplying the DGTAS and the appropriate mark-ups. As such, the price term for the final year period of the undertaking was not in the long-term interests of end-users having regard to the matters set out in s 152AH and objectives set out in s 152AB of the TPA.

[Headnote by the CCH TRADE PRACTICES EDITORS]

T Bannon SC and S Balafoutis (instructed by Gilbert & Tobin) for Optus Mobile Pty Limited and Optus Networks Pty Limited.

J Beach QC and M Borsky (instructed by Corrs Chambers Westgarth) for the Australian Competition and Consumer Commission.

Dr J Griffith SC (instructed by Mallesons Stephen Jaques) for Telstra Corporation Limited.

N Hutley and R Beech-Jones (instructed by Gilbert & Tobin) for Vodafone Network Pty Limited and Vodafone Australia Limited.

N Murray (instructed by Allens Arthur Robinson) for Hutchison 3G Australia Pty Limited and Hutchison Telecommunications (Australia) Limited.

J Arnott (instructed by Allens Arthur Robinson) for AAPT Limited.

Before: Goldberg J, R Davey and R Shogren

**Goldberg J, Mr R Davey and Mr R Shogren:**

## 1. INTRODUCTION

1. Optus Mobile Pty Limited and Optus Networks Pty Limited (together "Optus") have applied to the Tribunal pursuant to s 152CE(1) of the *Trade Practices Act 1974* (Cth) ("the Act") for a review of a decision of the Australian Competition and Consumer Commission ("the Commission") to reject an ordinary access undertaking given by Optus to the Commission under s 152BU(2) of the Act.

2. The access undertaking sets out the price and non-price terms and conditions upon which Optus undertakes to provide its domestic GSM ("global system for mobiles") terminating access service ("DGTAS"). The DGTAS is Optus' provision of a mobile terminating access service ("MTAS"), a service that was declared by the Commission under Pt XIC of the Act on 30 June 2004. The undertaking was given by

Optus on 23 December 2004. The Commission rejected the undertaking in its Final Decision made on 3 February 2006 on the basis that it was not satisfied that the prices and certain non-price terms and conditions specified in the undertaking were reasonable. [46635]

3. The application for review was filed by Optus on 23 February 2006. The issues before us are whether the prices and certain non-price terms and conditions in the undertaking are reasonable having regard to certain statutory matters to which we shall refer. Annexure A contains a glossary of terms and abbreviations used in these reasons.

## 2. PARTIES TO THE APPLICATION

4. The following parties were granted leave to intervene in the proceeding:

- the Commission;
- Telstra Corporation Limited ("Telstra");
- Vodafone Network Pty Ltd and Vodafone Australia Limited (together "Vodafone")
- AAPT Limited ("AAPT");
- Hutchison 3G Australia Pty Limited and Hutchison Telecommunications (Australia) Limited (together "Hutchison");
- Macquarie Telecom Pty Limited ("Macquarie");
- PowerTel Limited ("PowerTel"); and
- Primus Telecommunications Pty Ltd ("Primus").

Telstra, Vodafone, AAPT, Hutchison, Macquarie, PowerTel and Primus all currently acquire the DGTAS from Optus. Vodafone also has an application for review pending in this Tribunal with respect to the Commission's rejection of its access undertaking in relation to its supply of an MTAS on its 2G network.

## 3. THE LEGISLATIVE REGIME

5. Although the telecommunications access regime under Pt XIC of the Act was explained recently by the Tribunal in *Telstra Corporation Limited* [2006] ACompT 4, it is helpful to refer to the salient parts of the legislation to provide a context for the submissions of the parties and our reasoning and conclusions.

6. Part XIC sets out a telecommunications access regime, described in simplified form in s 152AA, in which the Commission may declare carriage services and related services. The object of Pt XIC is expressed in s 152AB(1) of the Act as being "to promote the long-term interests of end-users of carriage services or of services provided by means of carriage services". A carriage service is defined in s 7 of the *Telecommunications Act 1997* (Cth) as "a service for carrying communications by means of guided and/or unguided electromagnetic energy". A service can be declared by the Commission under s 152AL of the Act if, after following a specified procedure, the Commission is satisfied that the making of the declaration will promote the long-term interests of end-users of carriage services or of services provided by means of carriage services. Once a service is declared, an

access provider (which is a carrier or carriage service provider) must, if requested, supply the service to an access seeker in accordance with the standard access obligations set out in s 152AR of the Act which include, in particular, supplying an active declared service to the access seeker so that it can provide carriage services and/or content services to end-users.

7. The carrier or carriage service provider may submit an ordinary access undertaking to the Commission under which the carrier or provider undertakes to comply with the terms and conditions specified in the access undertaking in relation to the applicable standard access obligations: s 152BS(1). If the terms and conditions are specified in writing in the undertaking, the undertaking must specify the expiry time of the undertaking: s 152BS(7).

8. The acceptance and coming into operation of an access undertaking is significant because it has an impact upon the extent to which the Commission may determine an access dispute between an access seeker and a carrier or provider in accordance with the procedure set out in Div 8 of Pt XIC of the Act. Section 152CGB provides that a determination made by the Commission in respect of an access dispute under Div 8 has no effect to the extent to which it is inconsistent with an access undertaking that is in operation.

9. The Commission must accept or reject the undertaking: s 152BU(2), but it must not accept the undertaking unless it (and the Tribunal when reviewing a decision of the Commission) is affirmatively satisfied that, *inter alia*, the undertaking is consistent with the applicable standard access obligations and that the terms and conditions specified in the undertaking are

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reasonable: s 152BV(2)(b) and (d). When we say that the Commission and the Tribunal must be "affirmatively satisfied" we are not seeking to impose any particular onus of proof upon the party submitting the undertaking. Rather, we are identifying the fact that the Commission and the Tribunal must be satisfied, based on all the material placed before it, that the terms and conditions specified in the undertaking are reasonable. This is no more than a recognition of the opening words of subs (2)(d) of s 152BV that the Commission "must" not accept an undertaking unless it is "satisfied" that the terms and conditions specified in the undertaking are reasonable.

10. Section 152AH(1) sets out the matters to which regard must be had by the Commission (and by the Tribunal on review) in determining whether particular terms and conditions are reasonable:

- "(a) whether the terms and conditions 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 the carrier or carriage service provider concerned, and the carrier's or provider's investment in facilities used to supply the declared service concerned;
- (c) the interests of persons who have rights to use the declared service concerned;
- (d) the direct costs of providing access to the declared service concerned;
- (e) the operational and technical requirements necessary for the safe and reliable operation of a carriage service, a telecommunications network or a facility;
- (f) the economically efficient operation of a carriage service, a telecommunications network or a facility."

Section 152AH(2) provides that subs (1) does not, by implication, limit the matters to which regard may be had.

11. Section 152AB(2) provides, relevantly, that in determining whether the terms and conditions of an undertaking promote the long-term interests of end-users of carriage services or services supplied by means of carriage services ("listed services"), regard must be had by the Commission (and by the Tribunal on review) to the extent to which the terms and conditions are likely to result in the achievement of the following objectives:

- "(c) the objective of promoting competition in markets for listed services;
- (d) the objective of achieving any-to-any connectivity in relation to carriage services that involve communication between end-users;
- (e) the objective of encouraging the economically efficient use of, and the economically efficient investment in:
  - (i) the infrastructure by which listed services are supplied; and
  - (ii) any other infrastructure by which listed services are, or are likely to become, capable of being supplied."

Section 152AB(3) provides that subs (2) is intended to limit the matters to which regard may be had.

12. In determining whether the terms and conditions of an undertaking are likely to result in the achievement of the objective of promoting competition in markets for listed services, regard must be had by the Commission (and by the Tribunal on review) to the extent to which the terms and conditions will remove obstacles to end-users of listed services gaining access to listed services: s 152AB(4). Section 152AB(4) does not, by implication, limit the matters to which regard may be had: s 152AB(5).

13. In determining whether the terms and conditions of an undertaking are likely to result in the achievement of the objective in s 152AB(2)(e), namely encouraging the economically efficient use of and investment in infrastructure, pursuant to s 152AB(6)

regard must be had by the Commission (and by the Tribunal on review) to:

"(a) whether it is, or is likely to become, technically feasible for the services to be supplied and charged for, having regard to:

(i) the technology that is in use, available or likely to become available; and

(ii) whether the costs that would be involved in supplying, and charging for, the services are reasonable or likely to become reasonable; and

(iii) the effects, or likely effects, that supplying, and charging for, the services would have on the operation or

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performance of telecommunications networks;

(b) the legitimate commercial interests of the supplier or suppliers of the services, including the ability of the supplier or suppliers to exploit economies of scale and scope;

(c) the incentives for investment in:

(i) the infrastructure by which the services are supplied; and

(ii) any other infrastructure by which the services are, or are likely to become, capable of being supplied."

Section 152AB(7) provides that subs (6) does not, by implication, limit the matters to which regard may be had. Section 152AB(7A) provides that for the purposes of determining incentives for investment, regard must be had to the risks involved in making the investment.

14. Section 152AB(8) provides, in relation to any-to-any connectivity, that:

"... the objective of any-to-any connectivity is achieved if, and only if, each end-user who is supplied with a carriage service that involves communication between end-users is able to communicate, by means of that service, with each other end-user who is supplied with the same service or a similar service, whether or not the end-users are connected to the same telecommunications network."

15. It is important to note that where we are determining whether terms and conditions of access are reasonable and whether underlying costs are reasonable, there are no absolute answers, nor is there necessarily only one correct approach. In *Telstra Corporation Limited* [2006] ACompT 4, the Tribunal had to consider whether the price for monthly access in Telstra's access undertaking was reasonable. The Tribunal said at par [63]:

"In this area of analysis there is no one correct or appropriate figure in determining reasonable costs or a reasonable charge. Matters and issues of judgment and degree are involved at various levels of the analysis. In considering whether Telstra's estimates of its costs are reasonable we are not driven to considering whether the Commission's or other parties' views or assessment of those costs are more reasonable. Nor do we enquire whether Telstra's method or approach in estimating its costs is the correct or appropriate approach. If Telstra's method or approach in estimating its costs is reasonable having regard to the statutory matters set out in ss 152AH and 152AB then the matter rests and a comparison with the \$9.00 monthly charge is then to be made: *Application by GasNet Australia (Operations) Pty Ltd* (2004) ATPR 41-978 at [29]."

Later at par [67] the Tribunal said:

"In a number of respects we are operating in areas where there is no one specific regulatory, economic, accounting or financial answer, and where there may be a number of approaches to the determination of relevant costs or their allocation which may be regarded as reasonable. Our inquiry is directed to whether Telstra's \$9.00 monthly charge in its access undertaking is reasonable having regard to the statutory matters set out in of ss 152AH and 152AB of the Act."

16. This application for review is made pursuant to s 152CE(1) which provides that a person whose interests are affected by a decision of the Commission under, *inter alia*, s 152BU(2) may apply in writing to the Tribunal for a review of the decision. The functions and powers of the Tribunal are set out in s 152CF which provides relevantly:

"(1) On a review of a decision of the Commission under subsection 152BU(2), ... the Tribunal may make a decision:

(a) in any case – affirming the Commission's decision; or

...

(c) in the case of a review of a decision of the Commission under subsection 152BU(2) or 152CBC(2) to reject an undertaking – both:

(i) setting aside the Commission's decision; and

(ii) in substitution for the decision so set aside, to accept the undertaking; or

...

and, for the purposes of the review, the Tribunal may perform all the functions and exercise all the powers of the Commission."

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17. A decision by the Tribunal is taken, for the purposes of the Act, to be a decision of the Commission: s 152CF(2). Significantly, the Tribunal may only have regard to:

"(a) any information given, documents produced or evidence given to the Commission in connection with the making of the decision to which the review relates; and

(b) any other information that was referred to in the Commission's reasons for making the decision to which the review relates."

(section 152CF(4)). The parties are not limited to the submissions made and contentions advanced before the Commission: *Telstra Corporation Limited* [2006] ACompT 4 at [21].

18. Accordingly, the function of the Tribunal is to review the matter on the merits, standing in the shoes of the Commission, but only on the basis of the information, documents and evidence before the Commission. The Tribunal's role is not to identify any error in the Commission's decision, but rather to consider the matter afresh.

19. From time to time in these reasons we refer to the "reasonableness of the price" and the "reasonableness of the costs" and the "reasonableness" of particular costs methods or structures. We use these expressions as shorthand expressions to describe and explain the task that is committed to us by ss 152AH and 152AB of the Act. That is to say, we are considering whether a particular price, cost or method of calculating and determining a cost is reasonable having regard to the matters set out in s 152AH and the objectives in s 152AB. We are not considering the reasonableness of such price, cost or method in the abstract, unrelated to the matters set out in s 152AH and the objectives in s 152AB.

20. The principal issue for determination is whether Optus' price term of 17 cents per minute ("cpm") for 2007 is reasonable having regard to the matters set out in s 152AH and the objectives in s 152AB of the Act. Optus has contended that that price is reasonable because it does no more than recover the forward-looking long-run incremental costs of its supply of the DGTAS, a mark-up to reflect the recovery of its fixed and common costs and a mark-up to include a network externality surcharge. That has therefore led to an inquiry whether Optus' costs and its method or approach in estimating those costs are reasonable having regard to the matters set out in s 152AH and the objectives in s 152AB.

#### 4. THE DOMESTIC GSM TERMINATING ACCESS SERVICE

21. It is of assistance to explain, in simplified form, the basic workings of the MTAS and DGTAS.

22. A telephone call made between users of telephone networks involves two general elements, origination and termination. Origination is the carriage of a call from the end-user who makes, or originates, the call over the network to which that end-user is connected. Termination refers to the carriage of the call to the person receiving the call over the network to which the person receiving the call is connected. Where the originator of the call and the receiver of the call are connected to different networks, the point at which origination ends and termination begins is called the point of interconnection ("POI"). The MTAS is the service provided by the receiving mobile network for the carriage of the call from the POI to the person receiving the call.

23. The MTAS was declared under s 152AL of the Act with effect from 1 July 2004. It was described by the Commission in its Final Decision to declare the MTAS as:

"... a wholesale input, used by providers of calls from fixed-line and mobile networks, in order to complete calls to mobile subscribers connected to other networks."

The MTAS covers voice termination on all digital mobile networks in Australia.

24. In Australia the fixed and mobile networks have adopted a 'calling party pays' model. The network operator (whether fixed or mobile) that originates a call to a mobile network pays the mobile network to which the person receiving the call is connected for the use of its MTAS, that is, it pays for the termination of the call. For example, Telstra may purchase access to Optus' DGTAS in order to enable a call from a Telstra fixed-line end-user to be connected to an Optus mobile end-user. Telstra would then bill its directly-connected customer, the calling party, for the call and recover its costs of originating the call together with the amount it pays Optus for

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terminating the call. A similar arrangement occurs when, for example, a customer of Vodafone makes a call from his or her mobile handset to an Optus mobile network customer. In that case Vodafone purchases the DGTAS from Optus and bills its own customer, the calling party. In each case the calling party's network operator does not disaggregate its call charges to show the cost of the MTAS, and the calling party is generally unaware of the amount of that charge.

25. The actual way in which network operators charge customers is complex and is discussed later in the context of market definition (pars [74]–[75]).

## 5. THE COMMISSION'S MTAS PRICING PRINCIPLES DETERMINATION

26. Where, as here, the Commission declares a service, it must (s 152AQA of the Act) determine principles relating to the price of access to the declared service and on 30 June 2004 the Commission made a pricing principles determination for the MTAS ("Pricing Principles Determination"). In its Pricing Principles Determination the Commission indicated that the price of the MTAS should "follow an adjustment path such that there is a closer association of the price and underlying cost of the service". The Commission's preferred pricing principle was the total service long-run incremental cost ("TSLRIC") of supplying the service, with a mark-up to enable the recovery of organisation-level common costs, based on an equi-proportionate mark-up ("EPMU") approach. This was described as a TSLRIC+ approach.

27. The Commission determined that the TSLRIC+ of supplying the MTAS in Australia was likely to fall within the range of 5 to 12 cpm and it selected the upper bound of this range, 12 cpm for its MTAS Pricing Principles Determination.

28. The Commission determined a three-year adjustment path to this price of 12 cpm over the period 1 July 2004 to 30 June 2007, as follows:

Time period	Price related terms and conditions (cpm)
1 July 2004 – 31 December 2004	21
1 January 2005 – 31 December 2005	18
1 January 2006 – 31 December 2006	15
1 January 2007 – 30 June 2007	12

29. While the Commission must have regard to the Pricing Principles Determination if it is required to arbitrate an access dispute, the Determination is not binding on the Commission if it is asked to accept an access undertaking or to arbitrate an access dispute: s 152AQA(6) and (7A).

## 6. OPTUS' UNDERTAKING

30. Optus' undertaking was, relevantly, in the following terms:

### "2. COMMENCEMENT AND DURATION

2.1 This Undertaking takes legal effect, subject to clauses 2.3 and 2.4, immediately after this Undertaking is accepted by the ACCC under Division 5 of Part XIC of the TPA and continues until the earlier to occur of:

(a) 31 December 2007; or

(b) termination, withdrawal or replacement of this Undertaking in accordance with the TPA.

2.2 For the avoidance of doubt, this Undertaking (including, without limitation, any prices in this Undertaking) has no effect in respect of the supply of the Optus DGTA Service by Optus to an Access Seeker under an existing agreement on the date on which the Undertaking is accepted by the ACCC, for as long as that agreement remains on foot.

2.3 If an agreement under which the Optus DGTA Service is being supplied by Optus expires on or before 31 December 2004 and Optus continues to

supply the Optus DGTA Service, the prices set out in Schedule 2 will apply in respect of the continued supply of the Optus DGTA Service supplied on and from 1 January 2005. [46640]

2.4 If an agreement under which the Optus DGTA Service is being supplied by Optus expires after 31 December 2004, the prices set out in Schedule 2 will apply in respect of the supply of the Optus DGTA Service from the date of expiry of that agreement.

### 3. UNDERTAKING TERMS AND CONDITIONS

3.1 Optus undertakes to the ACCC that during the period this Undertaking is in effect pursuant to clause 2.1, it will, in relation to the Applicable Standard Access obligations, supply the Optus DGTA Service:

(a) specified in Schedule 1;

(b) at the prices specified in Schedule 2; and

(c) on the terms set out in Schedule 3."

31. The DGTAS specified in Schedule 1 was described as:

"... an access service for the carriage of voice calls from a Point of Interconnection, or potential Point of Interconnection,

to a B-Party [the end-user to whom a telephone call is made] directly connected to the Optus GSM [Global System for Mobiles as defined by ETSI and the GSM Memorandum of Understanding (or any successors) and as applied in Australia] Network."

A "Point of Interconnection" was described in Schedule 1 as a location which:

- "(a) is a physical point of demarcation between the Access Seeker's Network and the Optus GSM Network; and
- (b) is associated with (but not necessarily co-located with) one or more gateway exchanges of the Access Seeker's Network and Optus GSM Network."

The prices specified in Schedule 2 were, relevantly:

Year	Option 1	Option 2
2005	19.25 cpm	\$x per number of audited services in operation as at the relevant date + 14.25 cpm
2006	18 cpm	\$x per number of audited services in operation as at the relevant date + 13 cpm
2007	17 cpm	\$x per number of audited services in operation as at the relevant date + 12 cpm

The calculation of \$x required consideration of a number of provisions in Schedule 2. There were a number of terms and conditions in Schedule 2 and Schedule 3 which are not relevant for present purposes.

32. Optus' price options were calculated by reference to a forward-looking long-run incremental costs ("FL-LRIC") model plus a mark-up for fixed and common costs ("FCCs") allocated according to Ramsey-Boiteux ("R-B") principles and a mark-up for a contribution to a mobile subscription network externality called a Network Externality Surcharge ("NES"). This costs model is referred to as FL-LRIC++. Optus' price options were calculated by reference to a forward-looking long-run incremental costs ("FL-LRIC") model plus a mark-up for fixed and common costs ("FCCs") allocated according to Ramsey-Boiteux ("R-B") principles and a mark-up for a contribution to a mobile subscription network externality called a Network Externality Surcharge ("NES"). This costs model is referred to as FL-LRIC++.

33. The prices in Optus' undertaking were based, primarily, on a costs model prepared on its behalf by Charles River Associates (Asia Pacific) Pty Ltd (the "CRA model"). Optus engaged CRA to estimate the economically efficient level of costs that should be recovered from mobile termination services in Australia. The CRA model estimated the FL-LRIC++ in 2004-2005 as 17.03 cpm. This was made up of three distinct elements:

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- (a) the FL-LRIC of Optus supplying its DGTAS - [X cpm];
- (b) a mark-up over FL-LRIC to reflect the recovery of Optus' FCCs - [Y cpm] allocated according to R-B principles; and
- (c) a mark-up over FL-LRIC to include an NES - 2.12 cpm.

The CRA model was a top-down model, that is it was based on Optus' actual network design but asset values were adjusted to reflect modern equipment prices.

34. Optus also relied upon an international benchmarking analysis prepared on its behalf by CRA. CRA considered cost estimates for the MTAS by regulators in Sweden, Malaysia and the United Kingdom and determined that once appropriate adjustments were made, a reasonable range for the cost of supplying the MTAS in Australia was 9.99 cpm to 20.07 cpm. This was said to support Optus' welfare-maximising estimate for its price for access to the DGTAS.

35. The R-B principles approach was described by the Commission in its Final Decision in the following terms:

"The Ramsey-Boiteux approach determines an efficient pricing structure across a carrier's services where prices are marked up above attributable cost in order to raise funds to cover a given amount of unattributable or common costs. For efficiency, these mark-ups should be set in inverse proportion to the price elasticities of demand for the various services, with more price-insensitive services bearing greater proportionate mark-ups."

We accept this description as an appropriate description of the aim of R-B principles contended for by Optus.

36. The concept of an NES was described by the Commission in its Final Decision in the following terms:

"A 'NES' is an addition to the access price to raise funds to allow the mobile network operator to subsidise subscription to its network (handset subsidies and/or below-cost subscription charges). This is based on the argument that additional subscribers to a mobile network generate benefits to existing subscribers to fixed and mobile networks, as they now have an additional mobile subscriber whom they can make calls to (and receive calls from). It is argued that given individuals do not take account of the benefits they generate for others when they subscribe to a mobile network, they may chose

[sic] not to subscribe when the combination of the benefits they would enjoy themselves and the benefits they would generate for others would make such subscription desirable from a social welfare perspective. In this context, it is argued a subsidy to mobile subscription – funded out of above-cost prices for other services (including the MTAS) – can be used to push mobile subscription to socially optimal levels. Because it is a surcharge on an access price to subsidise the price of subscription services below cost, the NES is closely analogous to the access deficit contribution (ADC) that has been added to the price of PSTN Origination and Termination services to contribute to losses from providing fixed-line subscription below cost as a consequence of retail price controls."

We accept this description as an appropriate description of an NES contended for by Optus.

## 7. THE COMMISSION'S REASONS FOR REJECTING THE UNDERTAKING

37. The Commission said in its Final Decision that the key differences between the TSLRIC+ concept it proposed and the FL-LRIC++ concept Optus proposed were the mark-ups. The Commission considered that TSLRIC and FL-LRIC were 'broadly comparable "attributable" cost concepts' but said that Optus had proposed different forms of mark-up above incremental costs.

38. In relation to the FL-LRIC concept, the Commission was of the view that the conceptual approach would, at the very best, tend towards generating an upper bound on the forward-looking efficient costs of supplying the MTAS in Australia. The Commission said further that even if CRA's conceptual modelling approach was accepted, the assumptions and inputs used by CRA would tend to suggest that it overstated the efficient costs. The Commission also had concerns about the magnitude of the FCCs.

39. When considering the mark-up to reflect recovery of FCCs, the Commission noted that:

"... in principle the efficiency properties of R-B pricing for the recovery of common

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costs have been well recognised in the economics literature and regulators of the MTAS in overseas jurisdictions.

Despite this, the Commission is not aware of any other regulator using R-B principles to allocate relevant common costs when determining an appropriate price for the MTAS. Largely, this is because the significant information demands (especially in relation to estimating relevant elasticities of demand for services) and strict conditions needed to properly apply this principle, and the potentially significant detrimental effects of misapplying R-B principles.

In the Commission's view, Optus's proposed R-B framework does not satisfy any of the necessary conditions which are required in order for R-B pricing to necessarily generate a socially-optimal configuration of prices...Overall, therefore, the Commission believes that the R-B framework proposed by Optus will tend to overstate what would be an appropriate mark-up above FL-LRIC to recover Optus's FCCs."

The Commission believed that allocating Optus' FCCs on an EPMU basis was a more reliable estimate of the welfare maximising price for the DGTAS.

40. The Commission considered that the relative importance of "network externalities" was likely to be low in a highly mature mobile market such as Australia. The Commission said:

"At an empirical level, the Commission considers that, even if the framework developed by CRA to determine a price for a 'NES' on Optus's DGTAS was deemed appropriate, the Commission has concerns with the actual inputs and assumption used by CRA to calculate the magnitude of the NES. In the first instance, the Commission notes that the NES calculated by CRA is not based on any empirical Australian data. Moreover, in calculating the NES, CRA assumes that 'calling externalities' are fully internalised, that the subsidy cannot to any extent be targeted to marginal subscribers (which necessitates a greater subsidy). These concerns lead the Commission to the view that there is no certainty that the NES calculated by CRA is socially-optimal, and in fact, is likely to be overstated and contrary to the efficient use of infrastructure by which telecommunications services are provided."

41. The Commission's conclusion was that the price terms and conditions in the undertaking were not reasonable and that it had significant doubt about the reasonableness of some of the non-price terms and conditions in the undertaking. It was therefore not satisfied that the terms and conditions specified in the undertaking were reasonable.

## 8. IS THE OPTUS UNDERTAKING AN ORDINARY ACCESS UNDERTAKING?

42. Telstra submitted that an undertaking which contained a provision which had retrospective effect was not a valid ordinary access undertaking capable in law of being accepted. Telstra contended that the Optus undertaking did not conform with the requirements of s 152BS(10) of the Act and was therefore not an "ordinary access undertaking" capable of acceptance by either the Commission or the Tribunal. Section 152BS(10) provides:

"The terms and conditions specified in an undertaking may be expressed to come into effect:

(a) immediately after the undertaking is accepted by the Commission; or



(b) at a later time ascertained in accordance with the undertaking."

Telstra contended that s 152BS(10) did not permit an ordinary access undertaking to be expressed to take effect prior to the date of its acceptance by the Commission or the Tribunal. It contended that the operation of clause 2.1 in conjunction with clauses 2.3 and 2.4 of the undertaking (par [30] above) had the effect that the undertaking came into effect prior to the date of its acceptance by the Commission or the Tribunal. Telstra argued that in order for the Tribunal to accept an undertaking pursuant to s 152CF(1) (c)(ii) of the Act in the review of the decision under s 152BU(2) of the Act it was a precondition that the undertaking be given to the Commission in accordance with s 152BS and s 152BU(1) of the Act.

43. It followed from Telstra's submission that the undertaking given to the Commission was not an "ordinary access undertaking" within the meaning of that expression

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in s 152BU(1) and that it was not then open to the Commission or the Tribunal to accept it.

44. Telstra submitted that s 152BS(10) admitted of only two alternatives in respect of the point of time at which the terms and conditions specified in an undertaking could be expressed to come into effect and that there was no recognition of the possibility of any other option including retrospectivity being adopted. Telstra found support for its construction in s 152DNA(1) which relates to the final determination by the Commission of an access dispute. Section 152DNA(1) provides:

"Any or all of the provisions of a final determination may be expressed to have taken effect on a specified date that is earlier than the date on which the determination took effect."

Telstra relied upon this section to demonstrate that where the Parliament intended there to be a backdating or retrospectivity in relation to the effect of a provision then it expressly provided for it. Telstra noted that there was no equivalent provision dealing with ordinary access undertakings.

45. We do not regard the existence of s 152DNA(1) as being of much assistance in respect of the matter under consideration. Section 152BS was introduced into the Act in 1997 and s 152DNA was introduced into the Act in 1999. As we note later in these reasons, we consider a distinction needs to be drawn between the expression in an undertaking as to when terms and conditions come into effect and the operation of any particular term or condition prior to the expression of such a point of time.

46. Section 152BS(10) provides two alternatives for the commencement of the operation of the undertaking which are mirrored in s 152BX(2)(a) of the Act in relation to the time at which an undertaking can come into operation. Section 152BX(2)(a) provides:

"If the Commission accepts the undertaking:

(a) the undertaking comes into operation:

- (i) if the terms and conditions specified in the undertaking are expressed to come into effect immediately after the undertaking is accepted by the Commission – at the time of acceptance; or
- (ii) if the terms and conditions specified in the undertaking are expressed to come into effect at a later time ascertained in accordance with the undertaking – at that later time;"

47. The relevant provisions of the Act do not contemplate that an undertaking may commence to operate retrospectively.

48. Telstra therefore argued that any undertaking which involved retrospective operation could not be an "ordinary access undertaking" within the meaning of the Act and was incapable in law of acceptance irrespective of whether the balance of its terms and conditions were otherwise reasonable.

49. Telstra's submission depends upon acceptance of the proposition that the terms of s 152BS(10) are definitional of an "ordinary access undertaking". We do not consider that the provisions in s 152BS(10) are definitional of an "ordinary access undertaking" in the sense that if that subsection is not complied with in the terms of an undertaking then the undertaking does not answer the description of an "ordinary access undertaking".

50. We consider that the definition of an "ordinary access undertaking" is found in subs (1) of s 152BS which provides:

"For the purposes of this Part, an 'ordinary access undertaking' is a written undertaking given by a carrier or a carriage service provider to the Commission under which the carrier or provider undertakes to comply with the terms and conditions specified in the undertaking in relation to the applicable standard access obligations."

Subsequent subsections of s 152BS contain provisions which deal with the content and form of the ordinary access undertaking, but failure to comply with any of those provisions does not negate the proposition that the undertaking is an "ordinary access undertaking" for the purposes of Pt XIC of the Act.

51. The jurisdiction of the Commission and the Tribunal to consider an undertaking for the purposes of ss 152BS and 152BV is dependent upon an undertaking being given which conforms with the description in subs (1) of s 152BS. If the undertaking does not comply with other provisions in s 152BS, or other provisions

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in the Act, that does not negate the jurisdiction of the Commission or the Tribunal to deal with the undertaking; rather such failure will result in the Commission and the Tribunal dealing with the undertaking in accordance with the relevant provisions of the Act.

52. An undertaking by a carrier or carriage service provider will be entitled to be described as an "ordinary access undertaking" for the purposes of ss 152BS(1), 152BV, 152BU and 152CF and fall within the definition of that expression in subs (1) of s 152BS if it is a document in which the carrier or provider undertakes to comply with the terms and conditions specified in the document in relation to the standard access obligations, which are applicable to it and which are found in s 152AR of the Act. It remains an ordinary access undertaking notwithstanding that it also contains terms and conditions which do not relate to the applicable standard access obligations.

53. As we have jurisdiction to consider the undertaking, we must decide whether the undertaking should be rejected on the grounds that it fails to accord with the requirements of s 152BS(10). We do not consider that the undertaking offends s 152BS(10). A distinction is to be drawn between the point of time at which an undertaking comes into effect, that is to say the point of time at which it becomes operative and legally binding, and the operation of particular terms and conditions after that point of time is reached. The fact that a term or condition may operate in respect of a period of time prior to the undertaking becoming operative does not mean that the term or condition has been expressed to come into effect prior to the undertaking being accepted by the Commission. Put shortly, once an undertaking has been given legal effect and has become operative, it can contain provisions which apply to a point of time earlier than the point of time at which it comes into effect without offending s 152BS(10). Of course, the Commission (and on review the Tribunal) still has to be satisfied that such terms and conditions are reasonable for the purposes of s 152BV(2)(d).

54. Clause 2.1 of the undertaking (par [30] above) conforms with s 152BS(10)(a) notwithstanding that it takes effect "subject to clauses 2.3 and 2.4". Those clauses do not provide that the undertaking "takes legal effect" at a point of time prior to the acceptance of the undertaking by the Commission. Rather, they provide that upon the undertaking coming into legal effect, the prices set out in Schedule 2, in the circumstances specified, will apply in respect of an earlier point of time. That does not alter the point of time at which the terms and conditions of the undertaking come into effect.

55. Optus relied on the Tribunal's reasoning in *Telstra Corporation Limited* [2001] ACompT 4 in support of its interpretation of s 152BS(10). That decision must be approached with care as the Tribunal was concerned with the interpretation of provisions in Div 8 of Pt XIC relating to the resolution of access disputes rather than Div 5 which relates to access undertakings. Further, notwithstanding that by the time the Tribunal came to consider the matter the *Telecommunications Legislation Amendment Act 1999* (Cth) ("the 1999 Legislation") had come into force on 5 July 1999, the Tribunal determined that as a result of the operation of ss 8 and 8A of the *Acts Interpretation Act 1901* (Cth) provisions of Pt XIC which had been repealed by the 1999 Legislation were still operative for the purpose of the Tribunal's determination. The 1999 Legislation introduced s 152DNA(1) into the Act which provides:

"Any or all of the provisions of a final determination may be expressed to have taken effect on a specified date that is earlier than the date on which the determination took effect."

However the 1999 Legislation included Item 74 in Schedule 1 in the following terms:

**"Transitional – backdating of final determinations**

A final determination made by the Commission under Division 8 of Part XIC of the Trade Practices Act 1974 has no effect to the extent (if any) to which any provision of the determination is expressed to have taken effect on a date earlier than the date of commencement of this item."

Item 74 therefore denied the Commission the power to make a determination containing any provision expressed to have  
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effect on a date earlier than the commencement date of Item 74.

56. The Tribunal decided that the operation of the former, now repealed, provisions of Pt XIC of the Act were preserved by ss 8 and 8A of the *Acts Interpretation Act 1901* (Cth). The Tribunal decided that the earlier provisions of Pt XIC enabled the Commission and the Tribunal to determine a dispute which had arisen before the 1999 Legislation by making a determination that had retrospective effect so as to cover the whole period of the dispute. In its form which existed before the 1999 Legislation repealed it, s 152DN provided:

"(1) If none of the parties to the arbitration applies to the Tribunal under section 152DO for a review of the Commission's determination, the determination has effect 21 days after the determination was made.

(2) If a party to an arbitration applies to the Tribunal under section 152DO for a review of the Commission's determination, the determination is of no effect until the Tribunal makes its determination on the review."

The Tribunal rejected Telstra's submission that this section should be construed to mean that a determination operated only prospectively. The Tribunal said at par [27]:

"Generally speaking, an arbitration to determine a pre-existing dispute will be an exercise intended to fix terms and conditions to operate over the period in dispute. In the absence of any express provision in the former Part XIC to indicate that the power of the Commission or Tribunal to backdate the operation of a determination to the commencement of an access dispute notified under s 152CM, we consider that the former s 152DN should be understood as referring to the time when a determination comes into force and becomes legally binding on the parties, and not as a restriction on power to determine terms and conditions to operate retrospectively over the period of the dispute once the determination is in force."

57. We consider that the distinction drawn by the Tribunal, in its interpretation of the former s 152DN, between the point of time when a determination comes into effect and becomes legally binding on the parties and the operation of particular terms and conditions retrospectively once the determination has come into force and effect, is a distinction which applies in the interpretation of s 152BS(10) in the manner to which we have referred.

58. In *Telstra Corporation Limited* [2001] ACompT 4 the Tribunal explained the manner in which it took the 1999 Legislative amendments into account in the following terms:

"The 1999 amendments introduced new and different powers exercisable in the course of the arbitration process initiated by the notification of an access dispute under s 152CM. When the amended provisions are understood as introducing new powers and procedures, in our opinion, they do not indicate anything about the scope of the old powers and procedures, other than that they were different. They do not compel the construction of the former provisions for which Telstra contends. Even if the new provisions provide an indication in support of such a view, the countervailing consideration that such a construction would leave a gaping hole in the telecommunications access regime described in s 152AA dispels the suggestion."

59. It is then necessary to consider whether clauses 2.3 and 2.4 of the undertaking are reasonable having regard to the matters set out in s 152AH and the objectives in s 152AB of the Act. Telstra made a number of submissions in relation to the validity of the undertaking, which we have not accepted, which also bear on the issue whether clauses 2.3 and 2.4 of the undertaking are reasonable. Telstra submitted that clauses 2.3 and 2.4 are expressed in terms which seek to force the applicable prices on an access seeker automatically by virtue of the undertaking being accepted. It was contended that this goes beyond the scope of an undertaking which, in its nature, is a formal promise by one party to do, or not to do, something. It was said that the act of one party giving an undertaking cannot, on its own, create and impose obligations on a third party.

60. That is correct, in the sense that the terms of an undertaking by one party cannot impose an obligation on another party unless the other party accepts the undertaking on the

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basis that it is incorporated into a contract into which they enter inter partes.

61. The relevant question, in the context whether clauses 2.3 and 2.4 are reasonable, is not whether clauses which may have a retrospective operation or which may apply to a period anterior to the date upon which the undertaking comes into effect are reasonable, but rather whether it is reasonable for Optus to specify that the prices set out in schedule 2 of the undertaking will apply in respect of the continued supply of its DGTAS after an agreement entered into by Optus and an access seeker prior to 31 December 2004 expires.

62. Clauses 2.3 and 2.4 must be read in the light of clause 2.2. Clause 2.2 provides that the prices in the undertaking have no effect in respect of the supply by Optus of its DGTAS "under an existing agreement on the date on which the undertaking is accepted by the ACCC for as long as that agreement remains on foot". By virtue of clause 2.3, if an agreement under which Optus supplies its DGTAS expires on or before 31 December 2004 and Optus continues to supply this service thereafter, the prices set out in Schedule 2 of the undertaking will apply in respect of the continued supply of the service on and from 1 January 2005. But, if Optus continues to supply the service on and after 1 January 2005 it must be doing so pursuant to some agreement with the access seeker. An agreement may have expired on or before 31 December 2004, but if there is supply by Optus thereafter it must be on the basis of either some over-holding or continuous supply provision in the expired agreement or on the basis of some agreement actually reached between, or to be constructed from the conduct of, Optus and the access seeker after 31 December 2004. In such circumstances, for the purposes of clause 2.2 of the undertaking, there will be supply under "an existing agreement" on the date the undertaking is accepted by the Commission or the Tribunal. The result is that clause 2.2 applies so as to deny the application of any prices in the undertaking in respect of any supply of Optus' DGTAS under an agreement which is operative on the date the undertaking is accepted by the Commission or the Tribunal. No issue of retrospective operation of those prices therefore arises.

63. The same analysis applies to the relationship between clause 2.2 and clause 2.4 which applies to an agreement which expires after 31 December 2004. Consequently taking clauses 2.2, 2.3 and 2.4 together, we consider they are reasonable having regard to the matters set out in s 152AH and the objectives in s 152AB of the Act.

64. Our conclusion on the proper construction of clauses 2.2, 2.3 and 2.4 results in the rejection of Telstra's submission that the operation of clause 2.1 in conjunction with clauses 2.3 and 2.4 has the effect that the undertaking came into effect prior to the

date of its acceptance by the Commission or the Tribunal and therefore had retrospective operation or effect. Accordingly, the issue of the reasonableness of clauses 2.3 and 2.4 because of their retrospective operation having regard to the matters set out in s 152AH and the objectives in s 152AB, does not arise for determination.

65. It is also apparent that our conclusion does not result in the construction of clauses 2.3 and 2.4 for which Optus contended. Optus submitted that were the Tribunal to accept the undertaking as reasonable, Optus would be substantially prejudiced if the prices in its accepted undertaking could not apply to the period prior to its acceptance by the Tribunal. Optus intended its undertaking to have retrospective effect in the terms of clauses 2.3 and 2.4, but that intention is not implemented in the terms of clauses 2.2, 2.3 and 2.4 for the reasons to which we have referred.

66. If that intention had been implemented so that clauses 2.3 and 2.4 gave retrospective operation to the prices set out in schedule 2 of the undertaking, we would have considered those clauses to be unreasonable having regard to the matters set out in s 152AH and the objectives in s 152AB. The fact that the undertaking was lodged on 23 December 2004, prior to the dates specified in clauses 2.3 and 2.4 does not alter our conclusion in this respect.

67. If clauses 2.3 and 2.4 are given effect on the construction for which Optus contended, then an access seeker who has entered into an agreement falling within those clauses is denied the opportunity to negotiate the price of access to Optus' DGTAS in respect of its supply during the period from the expiry of the

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agreement up to the time it enters into an agreement for the prospective supply of the service. Notwithstanding the acceptance of the access undertaking by either the Commission or the Tribunal, it is open to the access seeker to attempt to negotiate terms of access which include terms covered by the access undertaking. However, if it seeks to negotiate terms which are inconsistent with the terms of the access undertaking, such as, for example, the price of access, it runs the risk of Optus notifying the Commission that an access dispute exists, in which case the outcome of any arbitration by the Commission cannot be inconsistent with the price of access contained in the undertaking.

68. We do not consider that this outcome would be reasonable having regard to the matters set out in s 152AH and the objectives in s 152AB. It is integral to the telecommunications access regime laid out by Pt XIC of the Act that the terms of access be the subject of agreement or arbitration. Section 152AA of the Act, which sets out a simplified outline of Pt XIC provides, in part:

- The terms and conditions on which carriers and carriage service providers are required to comply with the standard access obligations are subject to agreement.
- If agreement cannot be reached, but the carrier or carriage service provider has given an access undertaking, the terms and conditions are as set out in the access undertaking.
- If agreement cannot be reached, but no access undertaking is in operation, the terms and conditions are to be determined by the Commission acting as an arbitrator."

69. It is not in the long-term interests of end-users that their access provider not have the opportunity to negotiate the terms of access for any period during which end-users are given access to the Optus DGTAS. Nor is it in the interests of the access seekers. Further, we do not consider that it is in the legitimate business interests of Optus that it be in a position to impose charges on an access seeker in respect of a period of supply of the DGTAS prior to the approval of an access undertaking in circumstances where the access seeker is precluded from negotiating the price of such access. That consequence appears to flow from the operation of clauses 2.3 and 2.4 if construed in accordance with Optus' submissions.

## 9. MARKET DEFINITION

70. Optus and the Commission accepted that it was not necessary for the Tribunal to take a definitive stance on market definition in relation to the markets for listed services. However, a number of submissions were made in relation to the definition of the market in which Optus supplied its DGTAS and it is necessary to give some consideration to those submissions.

71. Optus submitted that there were two key markets which were relevant to an assessment whether its DGTAS promoted competition in markets for listed services. These were:

- the mobile services market; and
- the market in which fixed-to-mobile services were provided.

Optus also submitted that there was a national mobile services market in which competing mobile service providers offered a bundle of services comprising origination services, termination services and subscription services.

72. The Commission submitted that there were three relevant markets:

- the wholesale market for the supply of Optus' MTAS (that is, its DGTAS). It was said that only Optus could supply MTAS in relation to calls terminating on its mobile network and that no other service was "substitutable for, or otherwise competitive with" (s 4E of the Act) the MTAS supplied by Optus;

- a national market for retail mobile services including mobile call origination and mobile subscription services. It was said that this market was not effectively competitive and was highly concentrated with high barriers to entry in the form of large sunk costs and the pre-requisite of national coverage;
- a national retail market for the pre-selected bundle of fixed-to-mobile national long-distance and national calling services.

73. The key difference between Optus and the Commission is whether there is, as submitted by the Commission, a separate market for termination services or whether, as submitted by Optus, termination services are supplied and consumed as part of an overall retail market for mobile services.

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74. There are presently in Australia four mobile network operators or carriers, namely, Telstra, Optus, Vodafone and Hutchison. There are also thirteen mobile service providers including AAPT, Macquarie, PowerTel and Primus. These carriers and providers compete for end-user customers by offering networks or platforms that provide subscribers with both the facility to place calls and the facility to receive calls. They thus provide a bundle of services including access to a network, the making of calls and the receipt of calls. None of the services is supplied separately to a customer, nor are they separately produced by a carrier or provider. They charge for this bundle of services through a wide variety of often complex plans that combine, in various ways, charges for connecting to the network, charges for access to the network and charges for making calls. Setting aside any one-off connection charge, the charges for access and for making calls may be described as subscription charges and origination charges, respectively. But that runs the risk of being misleading. The charge for making a call is not related to the service of origination as described above, which is merely the carriage of a call from the calling party to a point of interconnection. Rather, as noted in par [24] above, the origination and termination components of a call are billed as a single charge for the whole end-to-end call.

75. Moreover, charges that are not levied in terms of individual calls, for example, monthly charges that may be described as "subscription" charges, often include a number of "free" calls (and possibly other services such as the sending of text messages). There is no end to the number of combinations of access and call charges into multi-part tariffs involving fixed (for example, monthly) and variable (for example, per call) components. In these circumstances it is often difficult or meaningless to say what is "the price of a call". At best one may be able to specify the price of an additional call over and beyond some number of calls that is chosen in advance by the customer in accepting a particular plan. In addition, there are different approaches for pre-paid, as opposed to subscription, customers. A further complication is that subscription (monthly) charges typically include the recovery over a period (for example, a contract period of two years) of the cost of a handset. Thus the charges may combine not only charges for services but a charge for a physical device.

76. As will be seen later, Optus bases the prices in its undertaking on modelling involving the costs of four services: subscription and three calling services (mobile outbound, mobile off-net and fixed-to-mobile, see [105] below). This requires the unbundling of charges so as to ascribe charges to subscription and to calls (also described as usage).

77. Where does termination, Optus' DGTAS, fit into this picture? When an Optus mobile network customer makes a call to a customer of another network operator, Optus is not supplying any sort of termination service to its customer. Rather, termination is a service provided in conjunction with the subscription service Optus provides to its customers that enables its customers to receive calls. Accordingly, Optus does not charge its customer for receiving calls. It charges the calling party's carrier or provider for providing the DGTAS to the carrier or provider. The calling party's carrier or provider recovers the DGTAS charge from the calling party without disclosing its amount (see par [24] above).

78. Thus mobile termination (MTAS and in Optus' case DGTAS) is a service provided to other (fixed and mobile) network operators. Optus similarly pays other network operators when one of Optus' customers makes a call to a customer of another operator.

79. It is in the nature of telephone calls (and for that matter text messages) that both the calling party and the receiving party receive and consume services provided by two different network operators (except where both are customers of the same operator). When Optus enables its customers to receive calls, that is, when it terminates calls on its mobile network, it receives revenue from other network operators. When it enables its customers to make calls, it receives revenue from the customers. Clearly, it takes account of all sources of revenue in setting both its retail charges to end-user customers and its wholesale charges to other network operators. That this is so says little, if anything, about whether the various services are all supplied in a single market. Similarly, the fact that calling parties

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ultimately pay for the termination charges associated with calls they make (the termination charges being passed on to them by their network operator) says nothing about the termination service being provided in the market for the provision of calls. After all, the calling party's network operator presumably also passes on its cost of equipment and power, but that does not make the markets for the purchase of equipment and power part of the market for the provision of calls.

80. Accordingly, we lean towards the Commission's view of the appropriate market definitions. It is correct to identify a

wholesale market for the supply of Optus' MTAS. There are no substitutable products and the relevant market transaction is a wholesale transaction provided by one network operator to another. To the extent to which there is substitutability of products or services it is the bundle of services which is substitutable; one of the services is not substitutable for another of the services. However, it would be somewhat artificial to use this wholesale market for the purpose of identifying and analysing Optus' conduct and that of its competitors, and the effect of Optus' pricing of its DGTAS on its customers and its competitors, both mobile network and fixed-line operators, independently of the national market for retail mobile services. Nor, indeed, did the Commission suggest such an approach. Such conduct and effect is only meaningfully analysed and understood in the context of the wider markets identified by Optus and the Commission: see *Power New Zealand Ltd v Mercury Energy Limited and Commerce Commission* [1996] 1 NZLR 686 at 705.

81. The important thing is to note and seek to understand the interactions between the relevant markets, however they are defined.

82. When competing with each other, mobile service providers take into account all their sources of revenue. It is a feature of the Australian market that providers offer retail customers a bundle of services in which usage charges subsidise charges for handsets and for access to the network (where access means connection and thus the ability to make and receive calls, while usage is the actual making and receipt of calls). Thus some components of the mobile service provided to the customer may be supplied below cost and some components above cost. If Optus' DGTAS is supplied at a price which exceeds the efficient costs of supply of that service, it does not necessarily follow that such price is unreasonable. The interactions between the provision of the DGTAS and of the retail services need to be examined. Such a price may not be unreasonable where the overall charge for all the relevant services does not exceed the efficient costs of supply of those services.

83. Market definition is potentially relevant to several matters:

- the so-called "waterbed effect". The waterbed effect is the extent to which subscription and origination prices to mobile customers might rise in response to a reduction in termination charges;
- possible windfall gains to Telstra as a fixed-to-mobile provider from lower mobile termination charges; and
- the derivation of termination charges from estimated charges for fixed-to-mobile calls.

However, it is more correct to say that understanding what happens in the various related markets is relevant to those matters. In no case does market definition, as such, play a decisive role. The existence of markets for retail mobile services and a market for fixed-to-mobile services is not in contention. We consider each of the three matters and refer to them again later where needed.

84. Optus' argument that its DGTAS was supplied in the retail mobile services market was made in support of its claim that any profits flowing to Optus from its DGTAS being priced above TSLRIC or FL-LRIC would be competed away in the retail mobile services market because that market is effectively competitive. This was described as the waterbed effect. The Commission challenged this line of reasoning. First, the Commission submitted that Optus' analysis did not address the fixed-to-mobile services market which was not effectively competitive. Secondly, the Commission contended that the DGTAS was not supplied in the retail mobile services market. Thirdly, the Commission argued that there was no effective competition in the retail mobile services market. The Commission's concern about DGTAS being priced above TSLRIC was

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more its effect on the fixed-to-mobile market than on the retail mobile services market.

85. We do not consider that the DGTAS is provided in the retail mobile services market. Nevertheless, in determining the price it will charge its customers for making calls, Optus must factor into its calculations the price it will have to pay other network operators for having its customers connected into their networks so that its customers' calls can be so connected and the calls terminated and the revenue it will receive from supplying its DGTAS to other network operators. Even if the retail mobile services market were effectively competitive we do not consider that Optus would be strongly constrained in setting its DGTAS price by competition in the retail market. The mobile operators could set their termination charges on a reciprocal basis at above cost while still competing vigorously in the retail market. Indeed, it was accepted that that is what they do.

86. Among other things, this would bring into question why the MTAS service has been declared. It is no part of our task to consider the merits of the declaration. However, we can observe that if, as the material before us indicated, Optus is able to use its market power in the provision of the DGTAS to charge sufficiently far above cost to allow it to cross subsidise its retail mobile services, that market power could simultaneously allow it to make above normal profits from the termination of fixed-to-mobile calls.

87. Accordingly, so far as this part of Optus' argument is concerned, we need not come to a definitive conclusion about market definition nor about whether the retail mobile services market is effectively competitive. On the latter issue, we note that the mobile services operators do appear to compete vigorously through the provision of differentiated packages. This characteristic of the bundled services provided, and the methods of charging for them, suggests that each bundle is different from those provided by other operators. Of course the various bundles are highly substitutable.

88. We have already adverted to the impact of termination charges on the fixed-to-mobile market. We do not consider that

market to be effectively competitive. According to Professor Hausman, whose evidence was provided by Optus, Telstra accounts for approximately 89% of fixed telephone services in Australia and also accounts for 65% of all fixed minutes terminated. In order to compete in the fixed-line market, in particular in the fixed-to-mobile market, any competitor has to face Telstra's dominance resulting from its ownership of the only ubiquitous local loop. Further, there are significant barriers to entry to the fixed-line market which include high sunk costs and the existence of Telstra's legacy position as the incumbent.

89. The consequence of this is that operators in the fixed-to-mobile market – and in particular Telstra – may obtain some degree of windfall gains from lower mobile termination charges. (It might be expected that Optus' DGTAS charges would ultimately be lower as a result of Optus' undertaking not being accepted.) This is not sufficient in itself to justify DGTAS charges higher than those based on efficient costs. Even if Telstra were in a pure monopoly position in the fixed-to-mobile market, it would pass on to its customers some (it was argued at least half) of any lowering in its costs, for example, from lower payments to Optus for purchases of its DGTAS. This would result merely from profit-maximising behaviour: it can easily be shown that failure to pass on part of a cost reduction would result in lower sales and hence revenues more than offsetting the reduction in costs.

90. The parties also made a number of submissions on the issue that Optus supplied its DGTAS in a two sided market. Telstra described the operation of a two sided market in the following terms:

"In these [two-sided] markets, users on each side derive some benefit from being able to interact with, or be on the same platform as, users from the other side of the market – the more users of the opposite type, the greater the benefit to being on the same platform. For example, buyers value a Yellow Pages directory that will be used by lots of advertisers and businesses value a Yellow Pages directory that will be used by lots of buyers. Similarly, mobile telecommunications platforms are used by two kinds of users (calling parties and called parties), each of whom obtains value from

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interacting with users of the opposite type over a common platform."

We do not consider it necessary to address the submissions on two-sided markets in any detail having regard to the conclusion we have reached in relation to Optus' costs model. It is sufficient for present purposes to note that any consideration of the reasonableness of the pricing of a mobile network operator's terminating access service must take into account the pricing of the bundled retail services and the market within which the bundled service is supplied.

## 10. OPTUS' COSTS

91. As noted earlier (par [32]), Optus' proposed prices have been calculated on the basis of allowing Optus to recover:

- FL-LRIC of Optus supplying the DGTAS;
- a mark-up for FCCs allocated according to R-B principles; and
- a mark-up for a mobile subscription network externality called an NES.

FL-LRIC are the long-run costs incurred by an operator or a producer in supplying an increment of output of a service adopting a forward-looking approach to estimate the costs that would be incurred by a new entrant in supplying the service. Optus submitted that the recovery of the FL-LRIC of supplying the DGTAS was reasonable having regard to the matters set out in s 152AH and the objectives in s 152AB of the Act.

92. The prices in the undertaking in Option 1 were set out on a price path reducing from 19.25 cpm in 2005 to 18 cpm in 2006 and finally to 17 cpm in 2007. We have focused our consideration, as the parties did in the course of argument, on the final and lowest price on the basis that our conclusions in relation to the 2007 price of 17 cpm will apply, *mutatis mutandis*, to the higher prices in 2005 and 2006 and to the Option 2 pricing.

93. Optus submitted that a consideration of the prices which it would obtain in the absence of acceptance of the undertaking was fundamental to determining whether its proposed pricing was reasonable. We do not accept that this is the correct approach for us to take. It is no part of our task to determine whether there is an alternative price other than that propounded by Optus which, in all the circumstances, is more reasonable or less reasonable than Optus' price. Rather the inquiry is focused upon Optus' price alone and whether it is reasonable having regard to the matters set out in s 152AH and the objectives in s 152AB. Optus submitted that a consideration of the prices which it would obtain in the absence of acceptance of the undertaking was fundamental to determining whether its proposed pricing was reasonable. We do not accept that this is the correct approach for us to take. It is no part of our task to determine whether there is an alternative price other than that propounded by Optus which, in all the circumstances, is more reasonable or less reasonable than Optus' price. Rather the inquiry is focused upon Optus' price alone and whether it is reasonable having regard to the matters set out in s 152AH and the objectives in s 152AB.

94. We are not, as Optus submitted, considering the relative merits of R-B pricing and EPMU pricing. What we are considering is whether the application and use of R-B principles to determine an appropriate mark-up on Optus' incremental costs to account for, and cover, its FCCs is reasonable having regard to the matters set out in s 152AH and the objectives in s 152AB. We are not considering, as Optus contended, whether EPMU is correct or preferable to R-B pricing.

95. The undertaking itself does not refer to the three components of Optus' price. They have no separate identity in the terms and conditions of the undertaking. We must decide whether the price in total, that is, as provided for in the undertaking, is reasonable. Nevertheless, much of the argument before us was in terms whether the individual components of Optus' price, or methodologies and underlying assumptions for estimating those components, were reasonable. Indeed, it is convenient to examine the components of the price in terms of how they match up to the requirements under the Act for prices to be reasonable. Care must be taken when applying this approach. Often arguments were put in a way that implied that, if we were not satisfied that some element of Optus' costs was "reasonable", then the prices in the undertaking must not be reasonable and the undertaking must not be accepted. These arguments must, however, be viewed with caution. It may be that having regard to the

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matters set out in s 152AH and the objectives in s 152AB, we might view:

- one component in Optus' costs building exercise as resulting in a cost that is not reasonable;
- another component as resulting in a cost that would offset the unreasonableness in the first component; and
- the ultimate price arrived at as reasonable.

96. Ultimately it is the reasonableness of the price terms in the undertaking, having regard to the matters set out in s 152AH and the objectives in s 152AB of the Act, which has to be determined although in reaching that conclusion, it is necessary to examine some cost methodologies adopted by Optus by reference to the same criteria.

97. Optus urged on us that what it claimed to be the conservative nature of some of the assumptions and elements of its methodology in estimating the three components of its total costs, should result in a finding that its DGTAS price is reasonable. However, as will become clear, we have reached the conclusion that we are not satisfied that the method and manner by which Optus determined the mark-up for the recovery of its FCCs and the NES mark-up are reasonable having regard to the matters set out in s 152AH and the objectives in s 152AB. Thus to the extent to which Optus' price has been calculated so as to recover those FCCs and NES mark-ups, we are not satisfied that its price is reasonable having regard to the matters set out in s 152AH and the objectives in s 152AB.

98. Optus submitted that the recovery of each of the three components of the DGTAS prices set out in the undertaking is reasonable. As the prices are cost-based we are therefore put on an inquiry whether the method used by Optus in determining the three components of the costs of the supply of the DGTAS is reasonable having regard to the matters set out in s 152AH and the objectives in s 152AB.

99. Consistently with previous authority, we consider generally that the undertaking prices should reflect and not exceed forward-looking efficient economic costs: *Telstra Corporation Limited* [2006] ACompT 4.

100. As to the costs that should be embraced by our inquiry in the circumstances of this matter where only one of three inextricably intertwined services has been declared, it may be, having regard to the matters set out in s 152AH and the objectives in s 152AB, permissible to look beyond the costs of the declared service, the DGTAS. This may justify a DGTAS price that reflects some degree of "cost-shifting" between the declared DGTAS and the two services with which it is inextricably intertwined.

101. This is analogous to a multi-product firm, in an unregulated, effectively competitive market, pricing its individual products however it chooses (subject to prohibitions on anti-competitive conduct), even to the point of selling a product at below cost if it believes this is conducive to maximising its overall profit. Similarly, it may be appropriate for the regulated price of an individual declared service that is inextricably intertwined with other non-regulated services to depart from being based strictly on the costs unambiguously attributable to the declared service. Where Pt XIC applies, this will only be the case when it is demonstrated to the satisfaction of the Commission (or on review, the Tribunal) that the "cost-shifting" results in a price to end-users that is reasonable having regard to the matters set out in s 152AH and the objectives in s 152AB.

102. Thus, to anticipate a later discussion, we would not rule out, purely on the grounds that it is not part of the costs of providing the DGTAS, the possibility that, in an appropriate case, an NES might be recovered.

103. It needs to be repeated that considering any of the components of the prices in terms of their consistency with being reasonable is only a step towards the ultimate task of deciding whether the price itself, as a term of the undertaking, is reasonable.

## 11. THE FL-LRIC COMPONENT OF OPTUS' COSTS

### 11.1 The CRA FL-LRIC model

104. Optus justified the FL-LRIC component of its DGTAS on the basis that the costs conformed with, and were verified by, the CRA model. CRA's approach was to model costs using an economic model of the mobile market that calculated prices given appropriate cost inputs and demand parameters. The model was developed by Dr J H Rohlf on



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behalf of the United Kingdom telecommunications regulator, Oftel now Ofcom.

105. The CRA model was constructed on the basis of the following factors:

- it estimated the costs that would be incurred by a stand-alone mobile operator operating a 2G GSM network with the minimum share and scale necessary to be competitively viable in the long-run;
- it was a top down model based on Optus' actual network design and costs identified by Optus relating to its GSM business for 2003/2004, with certain adjustments to which we shall refer;
- it modelled increments of network traffic costs, subscriber acquisition costs and subscriber servicing costs to derive incremental costs separated from FCCs;
- it estimated a set of welfare maximising prices for four services, namely, mobile subscription, mobile outbound calls (including on-net mobile-to-mobile, mobile-to-fixed), off-net calls and fixed-to-mobile calls;
- adjustments were made to the cost base so that asset values reflected current equipment prices rather than historical costs;
- it used a vanilla weighted average cost of capital ("WACC") of [A%], equivalent to a post-tax nominal WACC of [B%];
- it used a tilted annuity formula to determine a stream of cashflow required to recover the cost of Optus' network assets in each year to 2007 taking into account changes in replacement costs over time;
- it adjusted Optus' 2003/2004 costs by identifying those costs categories that were shared between Optus' fixed line and mobile business and by adjusting the proportion of those costs allocated to Optus' mobile business in order to derive an estimate of Optus' costs in providing the DGTAS on a stand-alone basis;
- it used call routing factors estimated by Optus' engineers which identified the extent to which each service used particular network elements based on Optus' network configuration. Non-network costs were similarly allocated to services to the extent to which the services (mainly subscription) gave rise to those costs. This enabled estimation of the long-run incremental costs of the major types of services. CRA scaled up Optus' actual FCCs to market scale using Optus' market share of subscribers;
- it allocated incremental costs of mobile data services which were then removed from the model to estimate the costs of voice related services;
- it identified FCCs comprising network costs, information technology ("IT") and non-network costs and incorporated estimates of those costs;
- it used volumes of traffic and subscribers and estimates of growth based on factors including Optus' own volumes for 2003/2004; and
- it assumed a complete or near complete waterbed effect.

106. Optus contended that the CRA model understated the estimate of the FL-LRIC of Optus' supply of the DGTAS because:

- it did not include an inflationary adjustment of Optus' operating costs incurred after 31 March 2004 for the supply of the DGTAS;
- it did not use an economic depreciation approach to determine the stream of cashflow required to cover Optus' network assets for the supply of the DGTAS which would have taken into account changes in their usage over time;
- it was not adjusted to reflect the costs that would be incurred by a mobile operator operating a 2G GSM network with the minimum share and scale necessary to be viable competitively in the long-run;
- it estimated network related FCCs necessary to provide coverage at a level which was less than that necessary to be competitively viable in the long-run.

107. As we noted earlier, the CRA model was based on an FL-LRIC++ approach. In earlier decisions the Tribunal had expressed its approval for TSLRIC pricing. In *Re Seven Network Limited (No 4)* (2004) 187 FLR 373, the Tribunal said at 410:

"In our view, in the general case where access prices need to be regulated, unless pricing is on a TSLRIC basis, efficient investment is unlikely to be encouraged. ...

This discussion should not be taken to suggest that TSLRIC pricing should be

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imposed at every opportunity. It will often be the case that regulation, including regulated pricing, is not appropriate in given circumstances. It does mean, however, that, in our view, it would generally not be in the LTIE to depart from TSLRIC pricing where access is regulated."

108. As the Tribunal observed in *Telstra Corporation Limited* [2006] ACompT 4 at par [63]:

"In this area of analysis there is no one correct or appropriate figure in determining reasonable costs or a reasonable charge. Matters and issues of judgment and degree are involved at various levels of the analysis."

Thus, a price for access to a telecommunications service based on an FL–LRIC approach depending upon the construct of that approach may be reasonable having regard to the matters set out in s 152AH and the objectives in s 152AB of the Act.

109. Having regard to the conclusions we reach in relation to the R–B and NES mark–ups, the outcome of the application does not turn on whether the FL–LRIC determined by the CRA model are reasonable. It is nevertheless apposite to assist the consideration of like matters to:

- summarise the Commission's and other parties' submissions on five issues arising in relation to the model and Optus' responses to them; and
- set out some conclusions we reach on those issues, stressing that the conclusions are tentative only and if the issues were to come before us again the conclusions must be re–visited having regard to:
  - the material then available to us; and
  - the submissions founded on that material that may be put to us.

The five issues are whether:

- (a) Optus' costs are efficient costs;
- (b) the FL–LRIC should be determined as if Optus were a stand alone mobile network operator;
- (c) it is reasonable for Optus to rely on 'anchored' costs and volumes;
- (d) the routing factors used to allocate Optus' capital costs and its network OPEX costs are reasonable;
- (e) the non–allocation of network costs to SMS and data services is reasonable.

#### 11.2 Are Optus' costs efficient costs?

110. The Commission accepted that a model based on a FL–LRIC approach could produce a reasonable price for the supply of Optus' DGTAS provided it was reasonably designed and accurately populated with reasonable inputs and assumptions. However, the Commission submitted that the specific implementation of the FL–LRIC approach applied in the CRA model, and relied on by Optus, was not reasonable and did not produce a reasonable price, that is, a price demonstrably reflective of the forward–looking efficient economic costs of supplying the DGTAS.

111. The matters and objectives to which we must have regard in determining whether Optus' price terms are reasonable and whether they promote the long–term interests of end–users, as set out in ss 152AH and 152AB of the Act, lead to a consideration whether Optus' costs of supplying its DGTAS are efficient costs. In this respect we draw particular attention to s 152AH(1)(f) which requires us to have regard to "the economically efficient operation of" the DGTAS and s 152AB(2)(e) which requires us to have regard to the extent to which the price term is likely to result in the achievement of "the objective of encouraging the economically efficient use of, and the economically efficient investment in", the infrastructure by which the DGTAS is supplied.

112. In *Telstra Corporation Limited* [2006] ACompT 4 the Tribunal said at par [46]:

"Having regard to the conclusions which we have reached it is not necessary to determine whether Telstra's costs were established as efficient costs. However, we would point out that whenever an access provider seeks approval of an access undertaking from the Commission which involves a consideration of a price term by comparing it with costs, it would be necessary, in order to satisfy the statutory framework, that the access provider establish that its costs are efficient costs. An access provider should also recognise that if the Commission decides against accepting the access undertaking and rejects it and the provider wishes to seek review of the Commission's decision before the Tribunal, it would be

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necessary to establish before the Tribunal that its costs are efficient. It is apparent from the statutory framework that the Tribunal is limited in respect of the material to which it may give consideration as it is limited to the material which was before the Commission and any material referred to in the Commission's decision. Put shortly, if an access provider wishes to establish before the Commission, or needs to establish before the Tribunal, that its costs are efficient, it will need to have put material to that effect before the Commission."

It was particularly important in that case that Telstra establish that its costs were efficient costs as Telstra was supplying the line sharing service in issue in a substantially monopolistic environment. There was, in substance, no effective competitive constraint on Telstra.

113. The Commission and Telstra submitted that Optus had not placed sufficient material before the Commission to establish that its historical costs, upon which the CRA model was based, were efficient. Optus submitted that it was reasonable for the Tribunal to assume that the costs it incurred, when making its investment decisions, were incurred on an efficient basis. As its

investment decisions had been made reasonably recently and in a highly competitive market, it was reasonable for the Tribunal to assume that its costs were incurred on an efficient basis.

114. In its report on Optus' DGTAS costs, CRA noted that it had been engaged by Optus in June 2004:

"... to estimate the economically efficient level of costs that should be recovered from mobile termination services in Australia."

CRA stated that its basic approach had been to model efficient prices:

"... using an economic model of the mobile market that calculates efficient prices given appropriate costs inputs and demand parameters."

However, there was no evidence before the Commission, or before us, that the cost inputs provided by Optus to CRA were efficient costs. Optus had identified costs relating to its GSM mobile business for 2003/2004 but there was no evidence before us that the costs so identified were "efficient". The Commission was also critical of the cost inputs used as they did not take into account economies of scale and the growth in economies of scale over time.

115. CRA recognised that consideration had to be given to whether the costs developed as a result of its modelling approach were efficient costs. CRA's view can be seen from the following passage in its report:

"In developing an approach to regulate fixed incumbent operators, regulators were concerned that the costs of the incumbents may include significant inefficiencies given the age of the network and the fact that much of the design and investment in their networks were undertaken at a time when they were operating free from competitive constraints. To exclude the potential for the actual costs of the incumbents to harbour significant inefficiencies, regulators have often developed 'bottom-up' models of an efficient hypothetical operator. These, however, can be protracted exercises and prone to inaccuracy given the scope for the theoretical exercises to miss actual constraints on network design.

In contrast to the networks of fixed incumbents, a substantial proportion of investment in the Australian mobile networks has been undertaken relatively recently and in a competitive environment. Thus it is unlikely that the actual networks deployed by Australian mobile operators would exhibit any significant inefficiencies. This suggests that the efficient costs of supplying mobile termination in Australia can be reasonably estimated by the use of a top-down model based on actual operators' network design."

CRA noted that its model was not entirely based on actual network costs as asset values had been adjusted to reflect modern equipment prices. For this purpose Optus provided CRA with information on changes in its mobile network equipment prices over time. CRA's modelling approach was said to be forward-looking in the sense that it measured the costs that would be incurred by a new entrant supplying the GSM services rather than the historical costs of Optus' past equipment purchases.

116. This modelling approach relieved Optus, to a certain extent, from establishing the efficiency of the costs of the assets used in its

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network design but it still left open the need to establish the efficiency of the network design and configuration itself.

117. The approach taken by Optus to present, through CRA, a top-down model was not controversial. The Commission was content to accept Optus' top-down exercise. It appeared to be accepted, and we accept, that a bottom-up model based upon a hypothetical efficient operator may not, having regard to the time and costs involved, be feasible. The Commission's complaint was that Optus had not adjusted its costs sufficiently, or put forward material, to satisfy the Commission that Optus' costs were costs that an efficient operator would incur, based on TSLRIC or FL-LRIC formulations.

118. Although there is merit in the proposition that a firm in a competitive market has an incentive to be efficient and to incur its costs efficiently, there is still a need for the Commission (and, on review the Tribunal), to be satisfied, having regard to the matters set out in s 152AH and the objectives in s 152AB of the Act, that the firm's costs are efficiently incurred. In general terms, an operator in a competitive market should have more of an opportunity to establish the efficiency of its recently incurred costs by reference to its actual costs than a monopolist or dominant operator, such as Telstra in *Telstra Corporation Limited* [2006] ACompT 4.

### *11.3 Should the FL-LRIC be determined as if Optus were a standalone mobile network operator?*

119. The next issue which arose in relation to Optus' costs model was the nature of the mobile operator whose costs were to be determined. Optus submitted that it was reasonable to estimate the FL-LRIC of supplying the DGTAS based on the efficient costs that would be incurred by a stand-alone mobile operator. Optus had estimated its FL-LRIC on this basis. The Commission challenged this proposition and submitted that in determining its costs Optus should take into account the efficiencies and economies of scope achieved by Optus as an integrated fixed-line mobile network operator. In providing the cost inputs to the CRA model, Optus adjusted the inputs to remove the impact of the efficiencies and economies of scope that resulted from Optus owning and operating both a fixed-line and a mobile network. Optus removed the impact of its economies of scope by allocating a greater portion of its "transmission", "switching" and "IT" operating costs to its mobile service business than it does in the

normal course of its financial reporting allocations. Specifically, Optus adjusted its operating expenses allocated to the mobiles business service upwards by [C%] and revised upwards the gross book value of its mobiles business unit by [D%].

120. The Commission submitted that it was not reasonable for Optus, in estimating the FL–LRIC of its supply of DGTAS, to adjust its own costs upwards so as to remove any efficiencies it might achieve by owning and operating both a fixed–line and mobile network. The Commission contended that these adjustments would allow Optus to make a windfall gain by charging access–seekers more than was necessary to recover the costs it actually incurred in supplying the DGTAS. Put shortly, the Commission submitted that Optus' modelling of a stand–alone operator was not reasonable.

121. Optus submitted that there was support for its view that it was reasonable to estimate the FL–LRIC of supplying its DGTAS based on the efficient costs that would be incurred by a stand–alone mobile operator in a report which the Commission had obtained from an independent consultant Analysys Consulting Limited ("Analysys"). Analysys said:

"Presenting a standalone operator cost can be considered consistent with the prices that would occur if the market were competitive, since competing operators would be required to incur those standalone costs. The benefits that Optus gains from operating as an integrated fixed and mobile provider would be realised at its retail level rather than the wholesale termination level. Therefore it would not seem appropriate to reflect Optus's fixed and mobile economies of scope in its directly regulated mobile termination rate...

The focus on the standalone costs of a mobile operator coincides with the approach taken by the regulator, PTS, in Sweden when modelling the costs of terminating calls for the major fixed and mobile operator TeliaSonera."

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122. We consider that determining the costs of a stand–alone mobile operator, for the purpose of determining whether the price terms of the undertaking in relation to Optus' DGTAS are reasonable, is more consistent with the matters set out in s 152AH and the objectives in s 152AB than requiring Optus to take into account the cost consequences of it being an operator of a fixed–line network and a mobile network. If the objective of regulating a particular industry is to replicate, as far as possible, the environment of a competitive market, then it is desirable to use as a benchmark criteria or principles which would exist in a competitive market, such as determining the costs of an operator operating in that market.

123. Determining Optus' DGTAS costs as a stand–alone mobile operator would, all things being equal, be likely to result in the achievement of the objective of promoting competition in markets for listed services: s 152AB(2)(c). That is, in competing with mobile operators who do not operate a fixed line network, Optus may gain a competitive advantage by having access to economies of scale and scope. And Optus will not be at a disadvantage when it is competing against an integrated operator such as Telstra.

124. Further, s 152AB(2)(e) requires us to have regard to the extent to which Optus' price is likely to result in the achievement of the objective of encouraging the economically efficient use of, and the economically efficient investment in, the infrastructure by which listed services are supplied. In turn, in determining the achievement of this objective, s 152AB(6)(b) requires us to have regard to the legitimate commercial interests of Optus, including its ability to exploit economies of scale and scope. Determining Optus' DGTAS costs on a stand–alone mobile operator basis promotes these objectives.

#### *11.4 Is it reasonable for Optus to rely on anchored costs and volumes?*

125. The Commission accepted that the CRA model's use of Optus' 2003/2004 costs data was a reasonable starting point as this was the most recent data available to Optus prior to its submission of the undertaking to the Commission. However, the Commission submitted that it was not reasonable for the CRA model not to have made any adjustment to this data (for example, by defining and applying cost–volume ratios) to reflect the fact that, during the period from 31 March 2004 to 31 December 2007 (the date on which the undertaking would expire), Optus' traffic volumes were likely to increase and therefore, because of economies of scale, Optus' costs (per unit of traffic) were likely to fall. In this respect, it is relevant to note that in its report CRA observed:

"The supply of mobile termination services involves significant fixed costs, and as a result implies the presence of significant economies of scale."

In support of its submission the Commission contended that:

- notwithstanding this observation, the CRA model assumed away the impact of economies of scale on the costs of supplying the DGTAS during the period of the undertaking; and
- the CRA model was not configured to take account of increasing traffic volumes over the period of the undertaking which were likely to reduce the unit costs of supplying the DGTAS.

We consider there is merit in the Commission's submission.

126. Optus contended that the CRA model had taken into account increases in traffic data with a linear relationship with increases in subscriber numbers in relation to its estimate of the FL–LRIC. Optus submitted that the CRA model captured the

impact of scale economies by assuming no increase in FCCs and assuming increasing call volumes over time and that the recovery of the FCCs over larger call volumes gives rise to scale economies. Optus put to the Tribunal that it was not required to take into account economies of scale when calculating its FL-LRIC as s 152AB(6)(b) allows it to exploit both economies of scale and scope. We were not persuaded that the impact of increasing traffic volumes was adequately taken into account.

#### 11.5 Are Optus' routing factors reasonable?

127. The CRA model allocated Optus' capital costs and its network operating expenses ("OPEX") between "inbound" (which includes the DGTAS), "on-net" and "outbound" call services based on a set of

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routing factors. These factors are used to reflect the likelihood of different mobile services using Optus' network elements with different intensities. The Commission submitted that certain routing factors applied in the CRA model overstated the costs of Optus supplying the DGTAS in two respects. First, the routing factors did not take into account the fact that a proportion of incoming calls are not answered and therefore do not use network elements associated with the "base station system". The report of the consultant Gibson Quai-AAS estimated this proportion at 30%. Secondly, the routing factors for "transmission" did not allow for any portion of those costs to be allocated to the "outbound" service. The Commission submitted that given the likelihood that outbound mobile calls would use these network elements, the application of an "outbound" routing factor of zero overstated the amount of transmission-related costs attributed to the DGTAS. In fact Optus provided a revised set of routing factors to the Commission addressing these issues but some of the routing factors were reformulated as "ranges of factors" rather than by reference to "point estimates" as had been done in the original formulation. The Commission submitted that the precise impact of the revised set of routing factors on the cost calculations in the CRA model was impossible to derive.

128. Optus rejected the Commission's criticisms regarding the routing factors used in the CRA model. In response to the Commission's criticism that the routing factors did not take into account the fact that a proportion of incoming calls are not answered, Optus relied on Analysys which stated:

"Resolving detailed and accurate BSS routing factors is a significant task. In reality BSS elements support signalling and traffic services – signalling for control event and SMS communication, traffic channels for communication. A large number of complicating factors add to the problem:

- effect of ringing time for answered and unanswered calls of different types
- the radio network load for immediately diverted calls of different types
- the method by which SMS messages are delivered
- channel reservations for CCH vs TCH
- channel reservations (dynamic or fixed) for GPRS

For this reason, simple 1:2:1 routing factors are often adopted for the allocation of radio resources to voice services, particularly when the charging structure to be regulated does not include per-call attempt or per-successful-call tariffs. In our opinion, **this 1:2:1 approach is entirely reasonable in the context of regulatory price settings**, and only the most detailed service costing model would attempt to break down into specific radio channel effects to determine various event and conveyance based service costs."

129. However Analysys goes on to note that:

"... the incremental cost of termination (in the Optus model) reduces by more than 7% from AUD[E] to AUD[F] as a result of reducing inbound and on-net routing factors. We would expect additional costs of bounced-back calls to be significantly less than a 7% increase in costs, therefore an overall reduction in DGTAS incremental cost is expected."

It is likely that the routing factors used by Optus have overstated the cost of supplying the DGTAS in this respect.

130. In relation to the Commission's criticism that the routing factors for "transmission" did not allow for any portion of those costs to be allocated to the "outbound" service, Optus contended that for all Telstra bound calls no transmission is involved. For mobile-to-mobile calls, Optus hands over the call to the other mobile service provider at the nearest point and hence there is little transmission involved. For mobile-to-fixed calls to non-Telstra fixed lines, Optus accepted that there may be some transmission involved, however this is unlikely to be significant given the relatively few non-Telstra fixed subscriber terminations. Analysys concluded that the routing factors were "broadly consistent with factors used in other regulators' mobile LRIC models", and were not outside expected bounds. It is not necessary to reach a concluded view on this issue, having regard to our conclusions on the reasonableness of the FCC and NES mark-ups.

#### 11.6 Is the non-allocation of network costs to SMS and data services reasonable?

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131. Telstra submitted that the exclusion of data services from the calculation of the FL-LRIC overstated the cost of the DGTAS

by excluding mobile data services from the pool of services to which FCCs are allocated. The amount the CRA model allocated in incremental costs to mobile data services represented [G%] of the total incremental costs allocated in the CRA model. By way of contrast Optus' revenue for mobile data services in 2003/2004 represented 14% of Optus' total mobile services revenue in that financial year. The Commission submitted that the incremental costs allocated to mobile data services were likely to be understated. It noted that no costs associated with the signal transfer point switches, transmission or radio network resources had been allocated to mobile data services, notwithstanding that SMS services use these network components. This, it submitted, had the effect of overstating the incremental costs allocated to mobile voice services (including the DGTAS).

132. Optus submitted that the modelling of costs associated with mobile data services did not have any material impact on the reasonableness of the price of the DGTAS specified in the undertaking. Optus relied on Analysys' observation that:

"Given SMS is often carried in the control channel reservation it may be true that the incremental cost of the total SMS service (SMS TSLRIC) is small or zero in the presence of a voice-supporting radio network."

However, Analysys also noted that:

"However such a costing approach neglects the fact that control channels account for a measurable proportion of radio channel capacity, and other regulators' models (e.g. PTS, Ofcom) have recognised this through a material allocation of radio network costs to SMS services."

133. Optus produced material which it submitted demonstrated that although SMS and data services were excluded from bearing an allocation of FCCs, the marginal or incremental costs for those SMS and data services (Optus did not use FL-LRIC in respect of these services) was relatively very small \$[H million] and that the elasticity of demand in relation to SMS and data services was "something like zero".

134. There are some difficulties with the manner in which Optus relied on this conclusion to justify the exclusion of SMS and data services from the costs model. It scaled up the SMS and data services costs to the industry level and then divided the resulting industry costs by the per minute incremental cost of outbound voice calling to derive the appropriate equivalent minutes which it added to the total outbound voice minutes so that each additional minute had the same per minute incremental cost as outbound voice minutes. Optus then derived an allocation of FCCs by allocating these costs using the increased incremental costs associated with outbound voice calls via the Rohlfs model.

135. Telstra relied upon a report from Analysys to demonstrate that Optus' allocation of costs to mobile data services did not include all relevant network elements and also submitted that the share of traffic attributed to mobile data services was conservative having regard to the forecasted growth in SMS volumes over the undertaking period. What is more significant is that Optus' approach in this context modelled the impact of increasing the output of voice minutes on the allocation of costs. But there was no evidence that SMS and mobile data services had the same demand characteristics as voice minutes or that the own-price elasticity of SMS and mobile data services bore any relationship to the own-price elasticity for voice minutes. Indeed there was some evidence to the contrary, namely that the demand for data services was significantly inelastic.

136. Further, Optus had not run its costs model on the basis of including the SMS and data services' costs for the purpose of determining an allocation of FCCs to be attributed to them. As the relative allocation of FCCs by reference to R-B principles depends upon elasticities of demand rather than absolute marginal or incremental costs, we are unable to be satisfied that the exclusion of SMS and data services from the costs model does not have a significant effect on the allocation of FCCs.

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## 12. THE R-B COMPONENT IN OPTUS' PRICES

### 12.1 The nature of fixed and common costs (FCCs) and the case for a mark-up

137. It was not in issue that Optus was entitled to recover in its pricing not only the incremental costs of supplying the DGTAS but also a contribution towards its FCCs. The critical issue, however, was whether it was appropriate to recover these FCCs on the basis of R-B principles. In determining whether Optus' terms as to price are reasonable and, in turn, whether the methodology by which it determines its costs is reasonable, s 152AH(1)(d) requires us to have regard to "the direct costs of providing access" to the DGTAS. We consider that the "direct costs" referred to in s 152AH(1)(d) include not only the incremental costs of supplying the DGTAS but also a mark-up on those costs for a contribution to the FCCs of Optus to be apportioned to the supply of the DGTAS. Optus submitted, without elaboration, that the "direct costs" in s 152AH(1)(d) did not include "indirect costs" such as FCCs. We disagree. We consider that the "direct costs" referred to in s 152AH(1)(d) do not exclude a mark-up on incremental costs to cover the FCCs of supplying the DGTAS. Those direct costs are a reference to the total costs of providing access to the relevant declared service which ordinarily include an appropriate allocation of FCCs because without the existence of the assets in respect of which the FCCs are incurred, the relevant access could not be provided.

138. The specific reference in s 152AH(1)(d) to "the direct costs of providing access to the declared service concerned" is intended to exclude the consequential costs which the access provider might incur as a result of increased competition as a result of access in any relevant market. This was stated in the Explanatory Memorandum to the Trade Practices Amendment

(Telecommunications) Bill 1996 which introduced Pt XIC into the Act:

"Consistent with Pt IIIA of the TPA, the references here to the 'legitimate' business interests of the carrier or carriage service provider and to the 'direct' costs of providing access are intended to preclude arguments that the provider should be reimbursed by the third party seeking access for consequential costs which the provider may incur as a result of increased competition in an upstream or downstream market."

139. Although Optus' right to recover FCCs was not in issue, it is useful to examine the basis on which it may be said that it is reasonable for Optus to do so. Optus provides a range of subscription, origination and termination services. Some of Optus' costs can be directly attributed to individual services. Some cannot, but may nevertheless be efficiently incurred in providing the full range of services. These are common costs. In the case of Optus, these include not only administrative overheads but also network costs associated with providing coverage (as opposed to being associated with providing calls).

140. It was generally agreed that common costs need to be recovered and that Optus is entitled to recover a proportion of its common costs through revenue obtained by providing its DGTAS. Thus, in constructing or justifying a DGTAS price, some mark-up on the incremental cost of providing the service is justified. The questions are:

- what mark-up is appropriate, or how should common costs be allocated across the range of services provided; and
- what proportion should be allocated to the DGTAS?

141. The CRA/Rohlf's model used by Optus allocated both fixed and common costs as mark-ups. Fixed costs are those that do not vary with the level of output of a service. They may or may not be attributable to the provision of a particular service.

142. Where there are economies of scale, for example, because a firm's fixed costs are large in relation to the level of output, operating at the point where marginal cost equals marginal revenue will not recover fixed costs and the firm will make a loss. It is this fact that justifies a mark-up over marginal costs to recover fixed costs. Again the questions are:

- what mark-up is appropriate, or how should fixed costs be allocated across the range of services provided; and
- what proportion should be allocated to the DGTAS?

143. In their submissions the parties generally did not distinguish between:

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fixed costs which do not vary with the level of output of a service and which were not attributable to the provision of a particular service; and

- common costs that were not directly attributable to an individual service.

Indeed, the distinction between fixed costs and common costs in the CRA model is not at all clear. Accordingly, in our consideration of this matter the distinction between fixed costs and common costs is not made, both being considered together under the rubric FCCs.

144. In regulated utility pricing, recognising the existence of economies of scale and the need to recover both fixed costs and common costs, prices are generally based on the long-run incremental costs of production. This is the case with both TSLRIC and FL-LRIC formulations. It is said that in the long run no costs are fixed. (That is one definition of the long run namely, the period, which depends on the cost characteristics of the particular industry, in which all factors of production can be varied.) In this sense, all attributable costs (but not common costs) are incremental in the long run, and thus should be included in FL-LRIC.

145. However, with the exception of AAPT, the parties appeared to accept in principle the recovery through a mark-up of both fixed costs and common costs efficiently incurred in the long run and not attributed to the FL-LRIC of any particular service. Moreover, they appeared to accept CRA's proposition that:

"Where fixed and common costs are related to the same set of products they are typically treated together, as the economic problem of how to efficiently mark-up prices above marginal cost to recover either type of cost is identical."

146. We accept this approach. We consider that it is in the long-term interests of end-users of the DGTAS and in the legitimate business interests of Optus that Optus recover an appropriate mark-up on its incremental costs of supplying the DGTAS to cover the contribution to its FCCs. Consistently with s 152AB(2)(e) of the Act, the recovery of such FCCs is likely to result in the encouraging of the economically efficient use of, and the economically efficient investment in, the DGTAS.

### 12.2 Allocating FCCs

147. How then should FCCs be allocated across the various services? It is useful to step back briefly to reflect on the purpose of allocating FCCs (as opposed to the necessity for recovering them).

148. In an unregulated industry a multi-product firm may allocate FCCs to individual products so that, for example, work in progress and cost of goods sold can be determined. The allocation may also be for other reasons including, possibly, external

financial reporting requirements.

149. However, it is generally accepted by accountants and economists that any allocation is arbitrary in the sense that it provides no useful information for decision-making within the firm. Decisions about levels of production and the pricing of individual products are determined by incremental costs and revenues and by the production process (for example, the fact that mobile origination and termination largely use the same network elements). The allocation of FCCs is irrelevant.

150. In a regulated industry, the allocation of FCCs proceeds on the basis that in setting a regulated price some degree of mark-up on incremental costs is necessary, as discussed above, otherwise the firm would operate at a loss.

151. This is the context in which Optus appeals to R-B principles. The basic premise is that prices should be cost-based, as the Tribunal has said in previous cases. The price can then be built up from the incremental cost – in this case FL-LRIC – plus a share of FCCs (and possibly a network externality surcharge, discussed below).

152. Optus stated that it allocated its FCCs across the following services:

- subscription;
- on-net mobile calls;
- off-net mobile-to-mobile calls;
- mobile-to-fixed calls;
- the termination leg of an off-net mobile-to-mobile or a fixed-to-mobile call; and
- SMS and data services.

However, costs and revenues attributable to SMS and data services were not included by CRA in the modelling process.

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153. Optus adopted the Commission's summary of the effect of R-B pricing in the following terms:

"Under a Ramsey configuration, the structure of prices across a collection of services sharing common costs would ensure higher proportionate mark-ups above attributable costs for those services with relatively inelastic demands."

154. Optus contended that it was reasonable for the price of the DGTAS to make allowance for Optus to recover FCCs based on R-B principles because:

- it needed to recover its FCCs to remain financially viable;
- welfare would be maximised by recovering FCCs in the manner that minimised distortions to demand;
- pricing based on R-B principles provided for the recovery of FCCs;
- the allocation of FCCs in the CRA model was based on the Rohlfs model developed on behalf of the United Kingdom telecommunications regulator but calibrated with Australian market parameters;
- the use of R-B principles to allocate FCCs was reasonable because Optus was earning normal economic profits in a competitive mobile services market;
- the Rohlfs model reasonably allocated FCCs to the DGTAS because it estimated a set of welfare maximising prices for mobile subscription, mobile-to-mobile on-net, mobile-to-mobile off-net, mobile-to-fixed and termination of calls from other mobile and fixed operators services;
- the Rohlfs model did not include an allocation of FCCs to mobile data services as data services were not included in the Rohlfs model developed for Ofcom and any such allocation to mobile data services would have a negligible effect on the price for DGTAS; and
- the Rohlfs model used own and cross-price elasticities of demand for each of the services in respect of which estimates were prepared based on the average of a range of estimates from publicly available elasticity studies and, for some cross-price elasticities, assumptions made in the Rohlfs model for Ofcom. The adoption of these elasticities was controversial and the subject of significant criticism. According to CRA they were the best estimates available for the Australian market.

155. Optus contended that recovery of its FCCs according to R-B principles was reasonable having regard to the matters set out in s 152AH and the objectives in s 152AB because:

- it was in the long-term interests of end-users because it allocated costs in a way which least distorted demand across the particular services in respect of which the FCCs were incurred in a similar way to that which would occur in a competitive market;
- it promoted competition in markets for listed services by maximising consumption of the jointly produced services;



- it was an efficient use of, and investment in, infrastructure because it maximised use of the infrastructure and return on that investment and promoted investment in related infrastructure by minimising distortions in demand;
- it was consistent with the legitimate business interests of providers of the DGTAS by permitting the recovery of FCCs legitimately incurred in the conduct of Optus' business and allowed Optus to earn normal economic profits in a competitive mobile services market;
- it had appropriate regard to the interests of access seekers because the price of the DGTAS allowed access seekers to acquire the DGTAS and compete in the provision of listed services in the least distortionary manner; and
- it was consistent with the direct costs of providing access to the DGTAS by permitting the recovery of costs incurred by Optus in conducting its business in connection with the supply of the DGTAS.

156. The Commission and the other parties levelled a number of criticisms at the use of the R–B approach and principles to determine the mark–up over FL–LRIC to recover common costs. They may be summarised as follows:

- R–B pricing should be applied to all services that contribute to common costs. CRA excluded SMS and certain other mobile data services from its model for the

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purpose of allocating FCCs in accordance with R–B principles;

- CRA's framework was based upon an erroneous assumption that Optus would only earn normal economic profits across the relevant markets. The probability was that Optus would most likely earn some level of above–normal profits in the relevant markets over the undertaking period so that the R–B mark–up was likely to be too high;
- R–B pricing requires detailed current information about own–price and cross–price elasticities of demand across all relevant services. Such information was unavailable and CRA's elasticity estimates covered too wide a range. It was not reasonable to use in Australia the elasticities derived from other jurisdictions and markets and in respect of considerably earlier periods of time because the inputs and assumptions which one has to make do not necessarily reflect Australian conditions;
- no regulator had set access prices in accordance with R–B principles;
- the CRA model assumed that Optus would impose single–part linear prices for the relevant mobile services when, in fact Optus, like other mobile network operators, determined sophisticated non–linear multi–part pricing strategies in the retail market;
- traditional R–B pricing analysis assumed one monopoly producer. In competitive markets where company specific elasticities of demand differed from total market elasticities of demand R–B pricing was not likely to be sustainable;
- R–B pricing in the context of the DGTAS should only be applied where every component price was regulated. In the situation before us, only the MTAS is regulated;
- the computation of R–B prices required a great deal of information about both demand and costs including elasticities of demand and cross–elasticities of demand for all the services in question; and
- the derivation of the application of R–B principles related to a monopolist supplying the entire bank of services or goods to the whole market so that the demand elasticities facing the firm were the same as the demand elasticities for the whole market. However, where, as in the present case, there are a number of individual firms, the elasticity of the demand curve for each individual firm is different from the overall elasticity of the demand curve for the market as a whole.

Rather than dealing with all these contentions individually, we discuss the most significant of them under a number of headings.

### 12.3 Efficiency costs of mark–ups

157. Any mark–up on the incremental costs of a product distorts the market for a product and causes a less than optimal amount of the product to be produced and consumed resulting in deadweight loss. At the marked–up price, additional units of the service could be produced at a cost less than the benefit that would be obtained by consumers from consuming additional units of the product. This comes about because some consumers still value the product at (that is, would be prepared to pay) more than its marginal cost of production, while only the marginal cost is incurred in producing the additional units. The excess of what consumers in aggregate would be prepared to pay for a product over what they actually pay for that product is called consumer surplus. The loss of consumer surplus that occurs when less than optimal amounts of the product are produced and consumed due to the mark–up is the deadweight loss.

158. R–B pricing seeks to minimise this deadweight loss by allocating mark–ups across products such that the overall reduction in the consumer surplus is minimised. This is done by applying higher mark–ups on the prices for products where demand is least responsive to a price increase, that is to those with the lowest (absolute value of) price elasticity of demand. (The elasticity is negative, reflecting the fact that a price increase causes a reduction in demand, and vice versa.) In fact, the minimisation

occurs when the lost consumer surplus is equalised across products (intuitively, when the product of a small price increase and a large demand response equals the product of a large price increase and a small demand response). In this framework minimising deadweight loss is the same as optimising social welfare. Using R–B pricing thus seeks to optimise social welfare.

159. The intuition appealed to thus far only applies where demand for the various products

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is independent, not where some products are either complements or substitutes. This topic is returned to below.

160. CRA on behalf of Optus applied R–B pricing using the Rohlfs model. As noted in par [104] above, this was a model developed by Dr Rohlfs on behalf of the United Kingdom telecommunications regulator. This model seeks to determine the mark-ups over the FL–LRIC estimates of the costs that maximise overall social welfare in the mobile market. In doing so it not only applies R–B pricing but also imposes a network externality surcharge at the same time.

161. Thus, the way in which R–B pricing was applied is far from a simple matter of allocating an identified pool of FCCs in inverse proportion to the elasticities of demand. Such a calculation could be easily set out and understood. It would result in mark-ups on the FL–LRIC of each of the six services listed in par [152]. However, the modelling proceeded quite differently, and dealt with somewhat different services, as will be explained. Indeed, the inner workings of the Rohlfs model were never exposed during the hearing, which essentially proceeded on an acceptance that the model had the effect of implementing R–B pricing, although parties expressed a range of disagreements (often significant) with the details of how it does so.

#### *12.4 R–B pricing in a competitive market*

162. It may be thought somewhat incongruous that a firm should explicitly seek to set its prices in a way that maximises social welfare. It is no part of the normal conduct of a firm, seeking to pursue the interests of its private owners, as it is entitled to do, to be concerned with minimising deadweight loss (except to appropriate as much consumer surplus as it can, for example, by price discrimination).

163. However, economics teaches that in a competitive environment, and subject to certain conditions, the pursuit of private interests does tend to lead to socially optimal pricing. In a regulated environment, the objective is broadly to replicate competitive outcomes precisely because they have socially desirable properties. That is why regulation generally seeks to base prices upon forward-looking efficient costs. It can therefore be part of the logical playing out of sensible economic regulation to try to estimate what prices would be welfare-maximising.

164. Nevertheless, the apparent incongruity gives some pause for thought where, as in this matter, Optus is operating in markets that have multiple players and that it argues are highly competitive.

165. The theory of R–B pricing was developed in the context of a single service provider, that is, a monopoly. The concept of optimising social welfare by using R–B pricing only makes sense in the context of the overall market where consumers purchase services. That is the market faced by a monopolist. However, once there are multiple players and some degree of competition, the picture becomes more complicated.

#### *12.5 Is R–B pricing broadly accepted?*

166. Optus submitted that R–B pricing has been accepted in industries by regulators and it used the examples of rail and the Aviation Rescue and Firefighting Services ("ARFF services") at airports. However, it does not appear that regulators have accepted R–B pricing in competitive market situations. Optus relied upon a statement of the National Competition Council to the effect that it had made a recommendation in support of R–B pricing in relation to the regulation of rail services. However, the statement relied upon noted that:

"Ramsey Pricing offers an efficient approach to recover costs in instances, such as the provision of natural monopoly services, where competitive market pricing will fall short. The complex matters relating to Ramsey pricing will need to be taken into account in relevant arbitrations."

167. Similarly, Optus' reliance upon R–B pricing of the ARFF services at airports does not take into account the fact that those services are supplied in a monopoly situation. It is interesting to note that where R–B principles have been applied it has been in the context of the costs or charges of a monopolist or regulated railways with rate ceilings. We consider later in these reasons the application of R–B principles where, as in this case, there is one regulated price, the MTAS, and where everything else such as subscription and

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origination charges are set freely without regulation.

168. Optus submitted that the proposition that where the MTAS price is regulated it should be regulated in accordance with R–B principles had been accepted by a number of expert commentators and that even those who did not apply it accepted it as appropriate as a matter of principle. The weight of the evidence before us was to the contrary. The evidence before us was that R–B pricing had never been applied in the telecommunications industry by any regulator. Dr Rohlfs, in a discussion paper written in January 1979, noted that R–B pricing provided a way of recovering the deficit that would result from marginal cost

pricing but nevertheless noted that the direct calculation of R–B prices was very difficult because elasticities undoubtedly changed as prices changed.

169. Optus relied upon a paper prepared by Martin Cave and Charles Chambers in June 2005 (commissioned by Competition Carriers' Coalition Inc) which was a commentary on the Optus and Vodafone undertakings in relation to the MTAS. Those commentators were somewhat guarded in their acceptance of the proposition that R–B pricing was appropriate to apply in determining the costs of an MTAS. In any event, they predicated their approval for the use of R–B pricing in this context on two conditions, namely that there are no excess profits in mobile markets and that the regulator is confident about the relevant elasticities of demand.

170. Optus contended that the Commission had accepted that the application of R–B pricing was intuitively the correct approach to apply in determining the costs by reference to which its MTAS price was to be determined. The Commission's outline of submissions, upon which Optus relied in support of this contention, did not support the contention. In the passage relied upon, the Commission was explaining the theoretical origins of the R–B pricing rule and the manner in which it could be implemented. We reject the proposition that the Commission has accepted that the application of R–B pricing is intuitively the correct approach to take in the context of determining the price of access to the MTAS.

171. A considerable body of material was placed before us which questioned the validity of R–B pricing for telecommunications services. We refer to a number of the reports and expert opinions which were provided. It will be recalled that Oftel, the United Kingdom telecommunications regulator, had commissioned the Rohlfs model which was designed originally to calculate the R–B mark–up for FCCs. Oftel ultimately decided not to apply R–B pricing principles and instead applied an EPMU approach to allocating FCCs to telecommunications services. Oftel considered that for practical reasons R–B prices were unlikely to provide a reliable basis for setting regulated charges.

172. Oftel recognised the difficulties associated with the use of econometric estimates for the purpose of determining elasticities. Oftel was of the view that econometric estimates were likely to be unreliable. Oftel said:

"This is not only because past behaviour may not represent future behaviour. Robust econometric estimates are usually extremely difficult to derive, because of a variety of factors including data deficiencies, complexity of the underlying relationships etc."

Oftel stated in its publication *R–B Prices and Network Externalities: Dr Rohlfs' Analysis*, 23 May 2002:

"In Oftel's view the informational requirements are too onerous for any particular estimate of Ramsey pricing to provide a reliable basis for regulated terminated charges. For example, to carry out a full–blown calculation of Ramsey prices would require a model that had a large number of services: fixed to mobile calls, mobile subscription, mobile to fixed calls, on–net calls, off–net calls, text messaging, international calls, international roaming, mobile internet access etc."

More significantly, Oftel noted:

"There is a serious danger of over–reliance on particular elasticity estimates. This is especially the case where it is being argued that a large mark–up should be added to the cost of termination."

173. It is interesting to note that ultimately Oftel rejected the application of R–B principles

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but accepted a limited externality mark–up for MTAS prices although the mark–up was not based on a R–B pricing framework.

174. The Commission obtained a report from Wik–Consult which was, in substance, critical of the use of R–B pricing in the context of telecommunications services. Wik–Consult accepted that the welfare–maximising property of R–B pricing was well established in economic theory but noted that this statement said little about the practical applicability of R–B pricing principles.

175. Wik–Consult's conclusion on the conceptual applicability of R–B pricing principles to MTAS was:

"Boiteux–Ramsey [sic] pricing principles refer to welfare–maximising prices subject to a viability constraint on the regulated firm or sector. They are in principle the correct starting point for the regulation of MTAS charges. However, they have not been explicitly applied anywhere yet. The main arguments for the rejection include the perceived uncertainty about the relevant demand elasticities, the capture of fixed costs and part of the externality effects through non–linear pricing and other forms of price discrimination and the deviation of prices for other mobile services (and FTM prices) from their respective B–R levels."

176. In their text *Towards Competition in Local Telephony* (1994) W Baumol and J Sidak are also doubtful about the use of R–B pricing in the telecommunications area. The authors state:

"Where some of the firm's products are complements, substitutes, or a mixture of the two, in addition to the own–price elasticities of demand, the cross–price elasticities also become pertinent. ... Therefore, to use the full Ramsey analysis to calculate second–best optimal prices, one needs information on the marginal cost of, and the own–price elasticity of demand for, each of the products in question. One probably needs to know the full set of cross–price elasticities as well.

This data requirement is one reason why most regulators and consulting economists have rejected the use of the Ramsey

formulas even to provide approximations for the prices that the regulated firms should be permitted to charge for its products. Marginal-cost figures are difficult enough to come by, although reasonably defensible approximations have been provided by firms to regulatory bodies. But up-to-date estimates of the full set of pertinent elasticities and cross-elasticities are virtually impossible to calculate, particularly in markets where demand conditions change frequently and substantially. As a result, an attempt to provide the regulator with an extensive set of Ramsey prices is likely to be beset by inaccuracies, by obsolete demand data, and by delays that will prevent the firm from responding properly and appropriately to evolving market conditions.

Rather, regulators have accepted the usefulness of Ramsey theory as a source of general qualitative guidance rather than as a generator of precise and definitive prescriptions for pricing."

177. In March 2003 CRA prepared a report for Bell South International entitled "Economic Analysis of Fixed-To-Mobile Call Termination Charges". In that report CRA noted that R-B prices are typically used to obtain economically efficient prices for a multi-product monopoly whose revenues must cover its costs. The report went on to state:

"The computation of Ramsey prices involves a significant amount of data collection, or the adoption of assumptions that seem reasonable to the modeler. The calculation of Ramsey prices is likely to be difficult and costly, and the results of the exercise will be only as reliable as the data on which they are based. To the extent that the shared nature of telephone calls (especially unwanted calls) is neglected, the resulting prices might well be less efficient than the prices produced in a competitive market for retail mobile services.

Even if Ramsey prices can be accurately calculated, they may not be appropriate in the dynamic and competitive environment. It has long been known that Ramsey prices may not be sustainable when economies of scope and scale are present. That is, Ramsey prices may not be equilibrium prices in markets where competitors are free to compete for customers by offering different prices. ... Since mobile markets are served

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by more than one provider, and new providers may enter as additional spectrum is made available for traditional and 3G services, prices derived by the Ramsey rule may not be appropriate for mobile markets."

178. In June 2004 Ofcom, the successor to Oftel, published a statement on "Wholesale Mobile Voice Call Termination". In that review Ofcom considered that the most appropriate and economically efficient basis for regulatory charge controls of mobile voice call termination services was FL-LRIC. Ofcom also considered it appropriate for regulated services to contribute towards the recovery of relevant common costs through a mark-up in addition to long-run incremental costs to allow for full costs recovery. Ofcom considered that it was appropriate for these costs to be recovered by an EPMU approach rather than in accordance with R-B principles. Ofcom stated:

"In theory, Ramsey prices minimise the loss in economic efficiency introduced by the departure from marginal cost pricing due to the presence of common costs. However, OfCom has concluded that the derivation of Ramsey prices, or more generally of welfare-optimal prices, raises complex conceptual and practical issues which do not allow for sufficiently reliable optimal prices to be estimated. OfCom believes that EPMU achieves a more appropriate balance between practicality and efficiency than the Ramsey methodology."

179. We consider EPMU in more detail below.

#### 12.6 CRA/Rohlf's modelling of R-B prices

180. The R-B mark-ups derived from the CRA/Rohlf's model require the input of various own-price and cross elasticities of demand. An own-price elasticity measures the percentage by which demand for a good changes with a one per cent change in its own price. Where demands for goods are independent, only own-price elasticities come into play. However, where goods are complements or substitutes for each other, cross elasticities of demand are also relevant.

181. As CRA explained:

"... as new mobile subscribers join a network they can be expected to make calls and so increase the number of mobile outgoing calls. This complementarity between subscription and mobile outgoing calls needs to be recognised ..."

The complementarity is reflected in a negative cross elasticity of demand between the two services. A mark-up increasing the price of subscription will have the effect of reducing the demand not only for subscription but also for outgoing mobile calls. This is accounted for by adding to the (negative) own-price elasticity an amount to reflect the (negative) cross elasticity, the result being called a super-elasticity that is larger in absolute terms than the own-price elasticity. Thus the mark-up applied (in proportion to the inverse of the super-elasticity) is lower than it would be in the absence of the complementarity.

182. By comparison, where services are substitutes the cross elasticity is positive. If fixed-to-mobile calls are to some degree a substitute for mobile-to-mobile calls, an increase in the price of fixed-to-mobile calls will increase demand for mobile-to-mobile calls. The super-elasticity of demand for each service will be less in absolute terms than the own-price elasticity because the demand response of fixed-to-mobile calls is partly offset by the demand response of mobile-to-mobile

calls. (Arithmetically, the positive cross elasticity effect is added to the negative own-price elasticity, resulting in a smaller absolute value for the super-elasticity than for the own-price elasticity.) We return to the significance of cross elasticity effects below.

### 12.7 Estimates of elasticities

183. Optus argued that it was not possible to calculate elasticities of demand for Australian markets. We do not know whether there are studies available which enable this task to be carried out. But even if they are not available, it is no answer to apply by default elasticities derived from other markets and other regions without knowing whether they are applicable to current Australian conditions. Optus responded by saying that it was not necessary to be concerned about the absolute values of elasticities because what was relevant was relative differences. It is true that relative differences are significant and important but it is still necessary, in order to apply R-B principles, to determine the magnitude of the relative differences.

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184. Optus responded to the criticism of the elasticity estimates used in the CRA model and, in particular, that they were derived from foreign markets and involved averaging, by submitting that there could be no serious dispute that fixed subscriptions were more inelastic than mobile subscriptions. Leaving to one side the accuracy of that proposition, it says nothing about the extent or level of elasticity of demand for either type of subscription. Also there was controversy as to the extent of the development of fixed-to-mobile substitution in Australia and the relative elasticity of demand for both of them.

185. Optus relied upon a report prepared by Marsden Jacob Associates (commissioned on behalf of Hutchison) in relation to Optus' undertaking in support of the proposition that the elasticities used in the CRA model were either verified, confirmed or supported by Marsden Jacob Associates. In some respects Marsden Jacob Associates supported some of the elasticity estimates adopted and used in the CRA report but not in every case. For example, Marsden Jacob Associates agreed with CRA on the elasticity point for subscription own-price, but disagreed in respect of mobile outgoing own-price, fixed-to-mobile own-price and subscription fixed-to-mobile cross-price. We would also view with some caution the Marsden Jacob Associates' estimates having regard to the fact that a number of them were based on the averaging of estimates in a number of econometric studies.

186. Optus also relied upon the report prepared for Vodafone by Frontier Economics in September 2005 which opined that CRA's method of determining the elasticities:

"... is probably an acceptable way of making use of the best available information."

Frontier Economics believed that the studies which CRA had included were appropriate given what was available and considered that CRA's own-price elasticities appeared to be within reasonable ranges given the secondary sources that were available.

187. The Frontier Economics report provides some support for the use of the CRA elasticities but, nevertheless, does not answer the criticism that the elasticities used, given that they came from other markets and jurisdictions and related to earlier periods, were not necessarily reflective of current Australian conditions.

188. The own-price elasticities and one of the cross elasticities – that between the price of subscription and demand for fixed-to-mobile calls – used in the CRA/Rohlf's model were chosen by CRA based on a range of econometric studies.

189. The own-price elasticities are for mobile subscription, mobile outbound calls, off-net calls and fixed-to-mobile calls. Mobile outbound calls comprise mobile-to-mobile calls between a caller and a called party who are both Optus customers (that is on-net calls) together with mobile-to-fixed calls. Off-net calls are calls from an Optus customer to a customer of a different mobile network operator.

190. It is noteworthy that there is no mobile termination own-price elasticity used in the modelling. This is somewhat confusing, especially as the motivation for R-B pricing, as summarised above, was put by Optus in terms of the inelasticity of demand for mobile termination services, which is, after all, the service to which the undertaking refers.

191. On the one hand, it was put to us by the Commission that it was an implicit assumption of the CRA model that the elasticity of demand for fixed-to-mobile calls may be used as a proxy for the elasticity of demand for mobile termination. This was said to be a failing in that fixed-to-mobile calls account for only a fraction of all mobile terminations.

192. Optus itself said that the elasticity of demand for fixed-to-mobile calls is the same as the elasticity of demand for termination of fixed-to-mobile calls. CRA, in response to the Commission's concerns about elasticity estimates expressed in its MTAS declaration decision, stated that:

"In terms of elasticity estimates, there are bounds for the estimates that are commonly accepted. To the best of our knowledge, no one has suggested that termination services are more elastic than outgoing services."

This again places the focus on the elasticity of demand for termination, and incidentally emphasises the difference between the elasticity of demand for termination and the elasticity of demand for fixed-to-mobile calls, which are, of course, a type of outgoing call.

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193. Adding to the confusion about which elasticities are in question, Optus also claimed that "there can be no serious dispute that fixed subscriptions are more inelastic than mobile subscriptions", but the elasticity of demand for fixed subscription does not appear to enter into the modelling. The relevance of comparisons between elasticities of demand for fixed and mobile subscriptions appears to lie in a consideration of substitution between fixed-to-mobile and mobile-to-mobile calls.

194. On the other hand, as discussed below, there are good reasons why the CRA/Rohlfs model deals with the elasticity of demand for fixed-to-mobile calls and not the elasticity of demand for mobile termination.

195. Returning to the own-price elasticities required as inputs to the model, the elasticity of demand for off-net calls is assumed to be the same as that for mobile outbound calls, so that there are only three own-price elasticities separately estimated. The estimate in each case is said by CRA to be the average of the identified econometric studies representing the most reliable sources:

- for mobile subscription, six estimates ranging from -0.3 to -0.54 are averaged to a figure of -0.43;
- for mobile outbound calls, estimates of -0.62 and -0.55 are averaged to -0.59;
- for fixed-to-mobile calls, estimates of -0.43 and -0.18 are averaged to -0.31.

196. Many questions were raised as to the reliability and/or robustness of the estimates, including the appropriateness of averaging and the studies included in the averaging process. The criticisms with most force were that most of the estimates related to overseas experience and that some were rather dated in a fast-moving market. We were left with doubts as to the overall reliability of the estimates of the own-price elasticities of demand used as inputs to the modelling.

197. In particular, the elasticity estimate for fixed-to-mobile calls stands out as relying on two studies that reach substantially different results, one of which, -0.43, is in fact identical to the average of the elasticity estimates for subscription. This immediately raises questions as to whether the elasticity estimate for fixed-to-mobile calls can reliably be taken to be substantially smaller than for subscription. The Commission had arrived at an estimate of -0.6 by including in an averaging process, among others, estimates made by industry analysts. Optus was dismissive of these estimates, suggesting that they were intrinsically not reliable. Without being treated to a detailed exposition of the expertise behind any of the estimates, we are prepared to take into account figures used by industry analysts, presumably making calculations, the accuracy of which is of value to their clients.

198. For mobile outbound calls, again an average was taken of only two estimates. Moreover, the mobile outbound category comprises two types of calls, on-net and mobile-to-fixed, that may well have significantly different demand characteristics. The assumption that the elasticity of demand for off-net calls is the same as that for mobile outbound calls has the same deficiency.

199. It will be recalled that the CRA/Rohlfs model requires super-elasticities, which are own-price elasticities that are adjusted for cross-price effects. The cross elasticities used in the CRA/Rohlfs model were arrived at by different approaches.

200. First, for the elasticity of demand for fixed-to-mobile calls with respect to changes in the price of mobile subscription, estimates of -0.12 and -0.24 were averaged to arrive at -0.18. The symmetric elasticity of demand for mobile subscription with respect to changes in the price of fixed-to-mobile calls was assumed to be zero.

201. The other cross-price elasticities of demand were then calculated from existing elasticity estimates together with additional assumptions regarding usage and the internalisation of externalities (considered below in relation to the NES). This process resulted in the cross-price elasticity of demand for mobile outgoing calls and for off-net calls, with respect to changes in the price of fixed-to-mobile calls, both being zero.

202. We consider that there is substantial uncertainty surrounding the cross-price elasticity estimates used as inputs to the modelling. (This is touched on later in our consideration of the proposed NES). Where it becomes important in the present context is in the effect of the cross-price adjustments to the own-price elasticities, which are subject to

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considerable uncertainty. Optus argued that it is the relativities in the (super) elasticities of demand that matter, not the absolute numbers.

203. However, adjusting own-price elasticities of demand for cross-price effects could change the relativities, and perhaps even the order of the absolute magnitudes. That is, the ranking of the super-elasticities could differ from that of the own-price elasticities. At the least, the uncertainty surrounding the super-elasticity estimates appears to be somewhat higher than that attached to the own-price elasticity estimates. We consider that the failure to deal clearly with the issue of substitutability between fixed-to-mobile and mobile-to-mobile calls detracts from the confidence that can be placed in the CRA modelling.

### *12.8 Uncertainties regarding the implementation of the modelling*

204. Our lack of confidence in the elasticity estimates used as inputs to the modelling is exacerbated by aspects of the modelling process.

205. First, the CRA/Rohlf's model assumes linear demand curves, which imply elasticities that vary with the level of demand (and with the price). Different arguments can be put about the desirability of using linear demand curves or curves with constant elasticity of demand. The former is more analytically tractable and using it is thus tantamount to assuming that the real world conforms sufficiently well to what are admitted to being simplifying assumptions. On the other hand, constant elasticity of demand over the whole range of demand implies infinite consumer surplus, which is also unrealistic.

206. However, in practice, elasticities may not be expected to vary substantially across a range of demand that is consistent with changes in prices brought about by regulatory decisions – or at least not as substantially as implied by movements along a linear demand curve. On the other hand, constant elasticity of demand over such a range of demand need not imply zero increase in elasticity as demand becomes very small, and therefore need not imply infinite consumer surplus.

207. We are consequently not persuaded that the modelling approach used by CRA, which has the effect of substantially changing the elasticities from those purportedly used as inputs, leads to realistic results. Alternative calculations made by WIK–Consult (on behalf of the Commission) indicate that this aspect of the modelling approach by CRA alone increases the termination price by some [Z cpm]. It should be noted that in saying this we do not express a firm view that a constant elasticity of demand approach is correct; rather that the implementation of a linear demand assumption has not given reliable results in this case.

208. A second concern is with the relationship between the welfare–maximising prices calculated by the model and the price proposed for Optus' DGTAS.

209. Whatever the relevant markets may be, mobile termination is not a service that is purchased directly by consumers. It is an intermediate input purchased at a wholesale level by one operator from another operator. How the prices of intermediate inputs relate to the prices of final goods purchased directly by consumers is somewhat unclear.

210. As discussed above, the concept of welfare–maximising prices makes sense only in final consumer markets where consumer surplus is created by the difference between consumers' willingness to pay and the actual prices required to be paid to acquire a service, that is, by part of the area under the industry demand curve.

211. As we understand it, the Rohlf's model does indeed deal with final services purchased by consumers. One of these is fixed–to–mobile calls. The Rohlf's model calculates a welfare–maximising price for such calls, along with welfare–maximising prices for the other services. The price of mobile termination is then found by subtracting the cost of fixed origination and retail costs from the price of a fixed–to–mobile call.

212. The mobile termination service is also an input to the provision of mobile–to–mobile calls. However, the Rohlf's model does not calculate an off–net termination charge (that is the price one mobile operator pays another mobile operator for terminating a call) as Dr Rohlf's puts it because "the Ramsey optimum does not depend on how off–net revenues are divided between originating and terminating MNOs" (mobile network operators).

213. In short, whether the price of termination derived in the CRA/Rohlf's model can be considered welfare–maximising is not at

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all clear, even if all other aspects of the CRA/Rohlf's modelling are accepted. It may be that if all links in the provision of mobile and fixed–to–mobile services were at least effectively competitive, then one could have confidence that input prices derived from welfare–maximising output prices were themselves welfare–maximising. But that would beg the question of why mobile termination is regulated. In any case, as explained above, we are not satisfied that mobile termination, considered as a wholesale service provided by an MNO to other MNOs and fixed operators, is effectively competitive. Nor are we satisfied that the provision of fixed–to–mobile services is effectively competitive.

214. Absent effective competition through each stage of the production chain, it is unclear whether high mark–ups on the termination price are efficient or, alternatively, would be conducive to inefficient over–investment, for example, in network coverage.

215. Consequently, we are not satisfied as to the inherent ability of the CRA/Rohlf's' approach to demonstrate the reasonableness of mobile termination charges.

216. In addition, the derivation of the termination charge by subtracting other costs from the modelled cost of a fixed–to–mobile call introduces further uncertainty as to the reasonableness of the termination charge. As AAPT pointed out, we had little or no evidence before us as to the appropriateness of those other costs.

217. A third concern is that there was some uncertainty over whether the modelling should have used industry elasticity estimates, as it did, or estimates of the elasticities actually facing Optus as a firm. Baumol and Sidak (supra) take the latter view, with which we agree. They state:

"One final aspect of Ramsey analysis merits attention. In a competitive market, the own–price elasticity of demand is considerably smaller for a product than for a firm. If a firm unilaterally raises its price for a product, it will lose customers to other sellers, even if those customers are not lost to the industry. Which of these two elasticity figures should be used in the Ramsey formula? The industry elasticity is often assumed to be the appropriate one, but that is not

generally correct. The purpose of the Ramsey calculation is to bring to the firm the addition to total revenue that it needs to cover its costs, and to do so with minimal deviation of prices from marginal costs. The way to do so is to focus upon changes in those prices for which a given percentage increase contributes most to the firm's revenues. But the prices that will accomplish this objective are those for which the firm's demand elasticity is lowest, regardless of what the own-price elasticity of demand may be for those products for the entire industry. This observation is important. It means that Ramsey markups on competitive products will be lower, because they are appropriately guided by the firm's elasticity of demand; to compensate for this, Ramsey markups on monopoly products will be higher than they would be if the pertinent demand elasticity for each of the firm's products were that of the industry."

218. In markets such as subscription where Optus unarguably faces at least some degree of competition, a rise in its prices would drive some of its potential customers to its competitors rather than out of the market. Thus the elasticity of demand for subscription facing Optus is greater than that facing the industry as a whole. If mark-ups were to be calculated directly from inverse elasticities applied to the incremental costs of the range of services supplied by Optus, it would appear correct to use Optus-specific elasticities. The Optus-specific demands for subscription and outgoing calls, where Optus competes in the retail market, are likely to be proportionately more elastic, compared to the market demand, than the demand for termination. This would bolster Optus' case that at least the relativities work in its favour, even if the specific values of the elasticities are in doubt.

219. But, as has already been remarked, the calculation of welfare-maximising prices by CRA necessarily takes place in the context of the overall industry and the total markets for services purchased by consumers. The elasticity of demand for termination does not explicitly enter into the calculation. Rather it is the elasticity of demand for fixed-to-mobile calls that is relevant.

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220. This point essentially returns us to the conundrum of R-B pricing in a multi-firm industry. It makes little sense to speak of the welfare-maximising prices charged by Optus without regard to all the other prices in the market.

221. Optus relied upon a paper prepared by Mr Jonathan Sandbach, the Head of Regulatory Economics at Vodafone Group Services Ltd in the United Kingdom entitled "Ramsey Pricing -vs.- EPMU for Regulation of Firms Operating in Competitive and Non-Competitive Markets". Optus contended that this paper supported the proposition that regulation of only one of a number of telecommunications services would produce R-B results provided that the other services were provided in a workably competitive market or markets. Optus contended that what Mr Sandbach was saying was that in an effectively competitive market, firm elasticities will tend towards market elasticities. However the material before us was to the contrary, which we would expect. W Baumol and J Sidak (supra) observed that:

"In a competitive market, the own-price elasticity of demand is considerably smaller for a product than for a firm. If a firm unilaterally raises its price for a product, it will lose customers to other sellers, even if those customers are not lost to the industry."

222. Fourthly, and related to the previous point, it is unclear what can be said about the social optimality of Optus' regulated termination price when the retail prices it charges in the market are unregulated.

223. The CRA/Rohlfs model produces estimates of welfare-maximising prices for subscription, mobile outbound calls, off-net calls and fixed-to-mobile calls. However, these prices bear no relation to the estimated initial prices used by CRA. The estimated welfare-maximising price of subscription is approaching three times the estimated initial prices, the modelled price of mobile outgoing calls is little more than half that of the estimated initial price used and that of off-net calls is one-third of the estimated initial price used. Among other things the modelled prices imply a huge reduction in mobile subscriptions from actual levels.

224. We are not satisfied that this means merely, as Optus claimed, that the full benefit of R-B pricing would not be obtained. Rather, we consider that it calls into question the validity of the CRA/Rohlfs modelling as a means of implementing R-B pricing. The CRA/Rohlfs model assumes that the regulator controls all the relevant prices.

225. This can be thought of more easily in the simpler framework of direct allocation of the common costs of a multi-product monopoly in inverse proportion to elasticities of demand. If a set of R-B mark-ups were calculated but only one was applied, leaving the monopolist to choose its own mark-ups on the other products, there is no guarantee that the overall result would be welfare-optimising, even if the mark-ups were constrained to ensure that the monopolist obtained no excess profits. In part this is because mark-ups will in general change elasticities by shifting demand.

### *12.9 Commercially negotiated prices as a benchmark*

226. In support of its submission that its undertaking price was reasonable, Optus submitted that it had earlier negotiated a price for access to its DGTAS with access seekers which was, in substance, a competitive price negotiated in a competitive market. According to Optus, this negotiated competitive price reflected all of the relevant elasticities of demand and therefore reflected R-B prices and any relevant network effects. Optus noted that its undertaking access price was less than the negotiated



competitive price.

227. We consider that it does not inexorably follow that, because the undertaking price is less than the negotiated price, the undertaking price is therefore reasonable having regard to the matters set out in s 152AH and the objectives in s 152AB. The fact that the undertaking price may be less than the negotiated price tells us nothing about the reasonableness of that price having regard to the matters and objectives to which we have referred. We have no material before us which bears upon the issues which arose in the negotiations nor do we know, for example, what pressures were in existence which may have compelled a particular negotiated outcome. We should point out that we had no direct evidence of what that negotiated access price was or the circumstances surrounding the negotiations which resulted in it being agreed.

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Also as we observed in par [85], it was accepted that mobile operators could set their termination charges on a reciprocal basis at above cost while still competing vigorously in the retail market.

228. Optus' proposition was that willingness to pay a price is reflective of elasticity of demand. Optus then contended that a negotiated price informs one as to the relevant elasticity of demand. Optus contended that as the price in the proposed undertaking was less than the price which had been earlier negotiated that meant that the elasticity of demand which Optus used, relying on foreign studies, must be reasonable. However, this does not follow and certainly does not validate *ipso facto* the elasticities used in the CRA model. This contention was inconsistent with its written submissions. In its written submissions in reply filed prior to the hearing, Optus submitted that:

"... its assessment of the relevant elasticity measures is reasonable, based on published elasticity measures."

229. We should point out that none of the economic material or economic experts relied upon by Optus supported its contention.

230. It is true that an unregulated multi-product firm will mark up its incremental costs in a way that has the least impact on demand. Thus it will apply proportionately greater mark-ups on products with inelastic demand. That is to say, it will voluntarily apply something like R-B pricing. Optus argued that it operated in effectively competitive retail markets where it could not make above-normal profits, so that its observed prices essentially were R-B prices. Since its proposed DGTAS price is no more than the price it is already charging, using R-B principles, that proposed price can be taken to be reasonable. More precisely, the R-B element of its proposed prices can be taken to be consistent with reasonableness having regard to the matters set out in s 152AH and the objectives in s 152AB.

231. There are several difficulties with this line of argument. First, as observed earlier, the ability to mark up prices above incremental cost implies some degree of market power. This is hard to reconcile with the claim that Optus is constrained not to achieve above normal profits and to suffer a 100% waterbed effect.

232. Indeed, the argument is most clearly presented in the case of an unregulated monopolist who, it is said, will have the same price relativities as in the regulated R-B case (that is, higher mark-ups on services with less elastic demand), but with prices higher than in the R-B case so as to extract some monopoly rent. This claim is made by CRA referring to Laffont and Tirole.

233. However, this result generally only holds where own-price elasticities are constant and demand is independent (cross elasticities are zero). If own-price elasticities are not constant across all levels of demand, the elasticity for a particular service in the regulated case will differ from the elasticity in the unregulated case, because the level of demand will be different (because prices will be higher in the unregulated case).

234. Moreover, with non-zero cross elasticities it also becomes possible also that the magnitude of the super-elasticities of the various products varies in order from lowest to highest between the regulated and the unregulated cases. Then the mark-ups would vary in order as well. In other words, it is possible that a profit-maximising monopolist would mark up termination proportionately more than subscription while the welfare-maximising R-B mark-up on termination would be proportionately less than on subscription. One cannot say this without knowing all the own-price and cross elasticities at all the relevant levels of demand.

235. This effect of cross elasticities on super-elasticities is similar to the problem that adds to uncertainties regarding the values of the super-elasticities discussed above.

#### 12.10 R-B pricing v EPMU

236. Optus argued that rejecting R-B pricing necessarily meant embracing the use of equi-proportional mark-ups (EPMU). The Commission has preferred EPMU in setting pricing principles for MTAS, and so have other regulators.

237. It is true (and obvious) that if all super-elasticities were equal, R-B pricing would result in equi-proportional mark-ups. From this Optus argued that rejecting its proposed R-B pricing was equivalent to deciding consciously that all super-elasticities were equal. That conclusion does not follow.

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238. A regulator who accepts and wishes to apply the principle of R-B pricing must first determine relative elasticities. If there is insufficient information to determine that elasticities differ but the regulator still wishes to apply R-B pricing, then the

regulator has to assume, by default, that the elasticities are the same, resulting in the application of EPMU. Even if the regulator is confident that elasticities differ, it is necessary to know the relativities. One needs to know at least the ranking of the (absolute values of the) elasticities of demand in order to depart from EPMU.

239. Even then, if there was confidence about the rankings, some assumption would need to be made about the actual relativities. Determining that one elasticity was relatively small compared to the others would result in a large mark-up on the corresponding incremental cost, and thus a large increase in price over what would be applied using EPMU. If this relativity was wrong, and demand was rather more elastic than assumed (compared to demand for the other services), the consequential loss of consumer surplus could be large.

240. It is therefore incorrect to say that applying EPMU is an over-cautious reaction to uncertainty regarding elasticities. It may well be prudent.

241. Of course, the decision facing us is not whether to apply EPMU but whether Optus' proposed prices are reasonable. The more limited topic of this part of the analysis is whether the R-B component of costs to be recovered in Optus' proposed prices is reasonable having regard to the matters set out in s 152AH and the objectives in s 152AB. It is not inaccurate to characterise our view of the material before us in this matter as leading us to reject R-B in practice while accepting its in-principle attraction in appropriate circumstances. We accept that such a position could in practice lead to the application of EPMU. We accept that outcome while emphasising that it implies no preference for EPMU in principle.

### *12.11 Conclusions regarding R-B pricing*

242. The body of expert economic material to which we have referred is persuasive of the proposition that, consistent with accepted economic theory and principles, it is not appropriate to use R-B pricing principles to determine the allocation of FCCs to an MTAS such as Optus' DGTAS. More relevantly, for the reasons advanced in the expert economic material, we cannot be satisfied that it is reasonable, having regard to the matters set out in s 152AH and the objectives in s 152AB, to adopt and use R-B pricing principles to determine the component of the FCCs to be allocated to Optus' FL-LRIC which are used as the reference point by which to determine Optus' prices for access to its DGTAS.

243. It is not in the long-term interests of end-users or in the interests of access seekers that a term as to price is determined by reference to Optus' costs, a substantial component of which ([Y cpm] out of a total of 17.03 cpm) is calculated by reference to a methodology which is inapplicable or inappropriate for the reasons advanced by the experts to whom we have referred. Nor is it in the legitimate business interests of Optus to obtain a price for access to its DGTAS based on such an inapplicable methodology of determining its underlying FCCs. Further, we are unable to be satisfied that the R-B methodology provides a reliable or appropriate method to determine whether Optus is recovering only a sufficient amount to cover that component of its direct costs of providing access to its DGTAS, being its FCCs.

244. Our lack of satisfaction is exacerbated by the specific criticisms of the manner in which CRA developed its R-B methodology to which we have referred. We refer, in particular, to the elasticities CRA adopted and used.

## **13. THE NETWORK EXTERNALITY SURCHARGE (NES) COMPONENT OF OPTUS' PRICE**

245. Optus submitted that it was consistent with a reasonable termination price for that price to include a component described as an NES. Like the R-B component, the NES mark-up of 2.12 cpm to the FL-LRIC of Optus' DGTAS was estimated by the application of the CRA/Rohlf's model.

246. Optus justified the NES by reference to the following reasoning – new mobile subscribers benefit from their subscription through their ability to make and receive calls. Other subscribers to fixed and mobile networks

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also receive a benefit from additional mobile subscriptions due to the ability to contact the newly connected mobile subscribers. This benefit, described as a mobile subscription network externality, is to be assessed and, if appropriate, a charge for it is to be recovered from existing fixed subscribers.

247. Optus contended that it was reasonable for the price of its DGTAS to allow for the recovery of the NES because:

- the contribution reflected the benefit that other subscribers received when an additional subscriber joined the mobile network that was not reflected in that additional subscriber's decision to join the network;
- network externality contributions were taken into account in efficient pricing in competitive two-sided markets;
- a rejection of an NES mark-up in the price for its DGTAS would not be reasonable as it would result in higher than efficient charges for mobile subscription and mobile origination leading to less efficient consumption of mobile subscription services and reduced consumer welfare;
- the CRA model estimated the external benefit of the addition of a mobile subscriber, using a Rohlf's-Griffin factor of 1.5 consistent with the value accepted by Ofcom; and

- the CRA model used the conservative assumption employed in the Rohlfs model that the marginal subscriber only generates a third of the volume of calls of the average subscriber.

248. Optus submitted that a mobile subscription NES sought to provide a mechanism for others to contribute to the costs of the marginal subscriber's mobile subscription and reflected a value to those others of that mobile subscription. It noted that the inclusion of the network externality contribution would result in higher termination rates being paid by the operators of fixed networks for fixed-to-mobile calls which, in turn, were likely to be passed on to fixed subscribers in the form of higher prices for fixed-to-mobile services.

249. Optus pointed out that mobile subscribers also receive an externality benefit from the addition of a new mobile subscriber but argued that it would be a "zero-sum game" to recover the externality benefit received by mobile subscribers through higher termination charges. Higher termination charges would be passed on to mobile subscribers through higher charges for origination, but origination services are highly elastic and higher origination charges would result in less calling and less mobile subscriptions. Thus, the externality benefit associated with the addition of the mobile subscriber would be lost.

250. Optus also submitted that it was reasonable to allow for a mobile subscription network externality in the DGTAS price because:

- it promoted the long-term interests of end-users because such a contribution placed a value on the mobility of a customer that minimised distortions in demand;
- allocative efficiency was maximised by ensuring that those who benefited from additional subscriptions contributed to the cost;
- it promoted competition in markets for listed services, by attracting subscribers who would not otherwise subscribe to mobile services to subscribe up to socially optimal levels; and
- it encouraged efficient use of and investment in infrastructure by ensuring a socially optimal number of mobile subscribers.

251. The inclusion of an NES in Optus' cost structure was controversial and was rejected by the Commission and the other parties. What they emphasised was that mobile penetration rates in Australia suggested that the mobile services market was so mature that any network externality in that market was likely to be minimal. It was also argued that to the extent that Optus was seeking to raise the price of the DGTAS by reference to a non-cost based integer, its price was inherently unreasonable because it resulted in a price which was above the efficient costs of supply of the DGTAS. Put shortly, the existence of the externality was in issue, as was the method by which Optus had calculated it.

252. The limited extent of the network externality was regarded as significant by a number of the expert commentators. For example, Cave and Chambers (*supra*) said:

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"Given the current high penetration levels of mobile telephony in Australia, it is unlikely that the addition of a marginal mobile subscriber would alter the calling behaviour of most subscribers to the fixed networks. In other words, the marginal network externality is probably very small in magnitude at present (if it exists at all)."

There was also criticism of the NES on the basis that Optus had ignored other externalities which might have the effect of reducing the DGTAS price and that the value of the surcharge set by Optus by reference to the Rohlfs-Griffin factor was inappropriate.

253. Telstra challenged the need for an NES on the basis that mobile network operators such as Optus were in a position to internalise the network benefits which Optus claimed justified the surcharge through the development of targeted pricing arrangements. Marsden Jacob Associates considered that the ability to target potential subscribers in Australia was the same as that ability in the United Kingdom. They relied upon the following explanation by Ofcom in 2004:

"[Mobile Operators] are likely to be able to internalise a substantial proportion of the total externality, and in particular the positive benefit which accrues to existing mobile customers. They can internalise this benefit by capturing the additional benefit that accrues to existing mobile subscribers through price discrimination. This may have a further effect in reducing the size of the subsidy to be recovered from the surcharge on mobile termination."

254. Wik-Consult expressed the matter this way:

"If externalities are internalised totally or partially by market participants there is no need for corrective pricing to generate the welfare effects associated with externalities. Internalisation reduces the remaining magnitude of the externality. Competitive pressure can spur MNOs to internalise external benefits that accrue to mobile subscribers. Also consumers can develop a behaviour and activities that result in internalisation."

Wik-Consult observed that consumers internalise network externalities themselves when they share certain costs of subscription and that the most important instrument of MNOs to internalise network externalities is to offer a broad set of non-linear,

multi-part or optional retail tariffs.

### 13.1 *The nature of externalities*

255. We accept, and adopt, the description of a network externality given in Appendix D to the Commission's Outline of Submissions as one which:

- arises when existing subscribers (fixed and mobile) attribute some value to a new subscriber joining a telecommunications network; but
- the private value placed on subscribing by a new subscriber (that is, the new subscriber's willingness to pay the price of subscription) does not take into account this external benefit to existing subscribers.

Existing subscribers are generally thought to place a value on the ability to call and receive calls from a new subscriber, whether or not that ability is exercised.

256. Expressed in terms of economic efficiency, the *raison d'être* of the NES mark-up on the termination charge is that the addition of that new subscriber to the mobile network would bring a benefit to society (or the community of telephone users) greater than the cost, because the benefit to existing subscribers is not factored into the decision of the new subscriber. Thus, there would be a welfare gain (benefit exceeding cost) to society if the potential new subscriber did in fact join the network. There would be a welfare benefit if the potential subscriber's unwillingness to pay more for what he or she would personally obtain could somehow be overcome.

257. Optus proposed in its undertaking that the price of the DGTAS be higher than it would otherwise be so as to provide additional revenue which it would use to lower the price of mobile subscription below what it would otherwise be. This is the NES measured per minute of the use of the termination service for a call.

258. To the extent such a mobile subscription network externality exists, we accept the logic of the argument.

259. There is also a potential fixed subscription network externality, analogous to the mobile subscription network externality, arising from the benefits to existing fixed and

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mobile subscribers of an additional fixed subscriber.

260. CRA also mentioned a potential calling externality, which arises when a called party experiences a benefit (or cost) from receiving a call, whereas only the calling party pays for the call. An externality exists to the extent that the calling party's willingness to pay for the call does not take account of the called party's benefit (or cost). Calling externalities could arise in respect of any type of call.

261. This is separate from the mobile subscription network externality. In fact it is not a network externality (it does not depend on the notion of marginal subscribers) and arises from the fact that any call is jointly consumed by two parties. It is necessary to consider these additional potential externalities in assessing the modelling of the NES.

262. We use the term "potential externality" to acknowledge the fact that it is an empirical question whether in each case there is in fact an external benefit (or cost). If the potentially arising external benefit is in fact taken into account in the willingness to pay of the relevant party, the externality is said to be internalised. An internalised externality is extinguished, that is, it does not exist; it no longer arises, or did not arise in the first place, except as a theoretical possibility.

### 13.2 *CRA/Rohlf's modelling of the NES*

263. As explained earlier, the CRA/Rohlf's model seeks the welfare-optimising prices of four services, (mobile subscription, mobile outbound calls, off-net calls and fixed-to-mobile calls) taking account of both R-B pricing and the existence of a mobile subscription network externality.

264. It does not take account of a potential fixed subscription network externality and assumes that any potential calling externalities are zero. The effect of assuming no fixed subscription externality and no calling externalities is to make the estimated welfare-maximising price of:

- fixed-to-mobile calls higher; and
- mobile subscription lower,

than they would otherwise be.

265. It is worth emphasising the different impacts of the R-B mark-up and the NES. The R-B mark-up increases the prices of the four services by varying amounts over and above the incremental costs of each. The NES, by contrast, shifts costs between services and prices being based on costs, the price of the declared service, the DGTAS, is further increased above its R-B marked-up level. The price of subscription, by contrast, is reduced to below its incremental cost (that is, the effect of the NES on the DGTAS, applied as a cross subsidy to subscription, more than offsets the R-B mark-up on the incremental cost of

subscription).

### 13.3 Modelling assumptions

266. In the modelling by CRA, the existence of a mobile subscription network externality is mainly accounted for in the cross elasticity effects described earlier.

267. However, the modelling applies a raft of additional assumptions about:

- the ratio of the total value of mobile subscription to the private value placed on it by a mobile subscriber;
- the degree to which the externality is able to be internalised by mobile network operators; and
- the calling patterns of marginal subscribers compared to average subscribers.

We consider each of these in turn.

268. CRA stated that:

"... it is likely that on average both parties to a call receive the same benefit from the call so that the total social benefit generated by a call is twice that of the private benefit. Hence, when an additional subscriber joins a network and results in additional calls being made by, and to, existing subscribers the benefit to the existing subscribers in aggregate could be expected to be the same as the benefit to the new subscriber from joining."

This reasoning would lead to the ratio of the total value of mobile subscription to the private value placed on it by a mobile subscriber being 2.

269. CRA adopted a ratio of 1.5 for the net externality factor, which Optus argued was conservative. It essentially assumed some internalisation of the externality by users, for example, parents paying for their children's subscriptions. While no empirical

[46678]

support is given, we do not see this estimate as being unrealistically high.

270. Internalisation of the externality by mobile network operators, the second additional assumption above, refers to their ability profitably to reduce the price of subscription because enough profitable additional customers are attracted to make up for the unprofitable customers that are attracted and/or because the unprofitable customers become profitable due to the network externality. Dr Rohlfs recognised this internalisation in his paper, *A Model of Prices and Costs of Mobile Network Operators* (May 22, 2002) in which he developed for OfTel a model of prices and costs of MNOs. Dr Rohlfs said:

"I believe that MNOs largely internalize externalities that accrue to mobile subscribers. They have great ability to use their multi-part pricing structures to do so. The mobile industry as a whole has an incentive to do so. And competitive pressures lead to substantial internalization of externalities."

271. The model assumes greater internalisation of the benefits accruing to mobile subscribers (80%) than to fixed subscribers (40%). It also assumes that the internalisation is not targeted. Targeting is considered below.

272. While some parties, for example, the Commission, contended that in many cases network external effects associated with mobile subscription are likely to be internalised by both existing subscribers and MNOs, we consider that the degree of internalisation assumed in the CRA/Rohlfs model is not inappropriate.

273. The modelling was indirectly attacked, particularly by the Commission, through the argument that in a highly mature mobile market such as in Australia, the network externality was intuitively likely to be small. Although this may be true, the logic behind the externality would appear to hold regardless, since it applies to both:

- marginal subscribers who are just at the point of not valuing their subscription sufficiently to maintain it; and
- potential subscribers who value subscription not quite enough to pay for one.

274. Furthermore, the argument needs to be translated into a specific objection to some aspect of the modelling, for example, that some parameter is unrealistic in the light of market maturity. That was not done. It could simply be that in a less mature market the estimate of the network externality mark-up would be higher.

275. Similarly, the Commission argued that the marginal social benefits from the addition of each new subscriber are likely to be declining, because marginal subscribers will make and receive fewer calls on average than existing subscribers.

276. However, the modelling assumed that marginal subscribers make one-third of the calls of average subscribers – the third category of additional assumptions noted above. Optus regarded this as highly conservative. Again, we do not regard these objections as providing any additional basis for rejecting the modelling.

277. We do note, however, that our concerns regarding the reliability of the elasticity estimates, set out in the discussion of R-B pricing above, are repeated as concerns about the modelling of the NES.

278. The assumptions discussed so far relate to the cross-price elasticity of demand effects. An additional amount is factored

into the estimate to account for a so-called option externality component of the mobile subscription network externality. This relates to the assumed value placed by existing mobile subscribers on the ability to call a new subscriber even if no call is actually made, for example, the ability to call in an emergency. The theoretical existence of this option externality did not appear to be disputed by any of the parties, but the modelling of it was disputed.

279. This dispute involves problems of achieving consistency between exceedingly arcane elements of the modelling. They appear to arise from differences between the elasticities used by Dr Rohlfs and those used by CRA in applying the Rohlfs model. The problems are sufficient to raise significant in-principle concerns about the reliability of the estimates. However, the amount said by the Commission to be involved – that is the amount by which it claims the mark-up is overestimated – is not of itself sufficient to cause us to put significant weight on claimed deficiencies in this aspect of the modelling.

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280. As mentioned above, Dr Rohlfs assumed no targeting of subsidies to marginal mobile subscribers. It would appear that targeting could substantially reduce the amount required to be raised through a mark-up on termination. Optus submitted that it could not target marginal subscribers to a significant extent. We have difficulty in accepting that claim having regard to the range of products, mobile services and pricing plans offered by Optus and its competitors.

#### 13.4 Ignoring other possible externalities

281. The CRA/Rohlfs model makes no allowance for a fixed subscription network externality, analogous to the mobile subscription network externality, due to existing fixed line subscribers getting a benefit when an additional subscriber joins the fixed network that is not included in the additional subscriber's private valuation of subscription.

282. Dr Rohlfs believes that:

"... the primary goal in taking account of network externalities should be to ensure that potential external benefits to fixed subscribers are not lost through the absence of appropriate corrective pricing".

283. While the CRA/Rohlfs model does provide for the existence of calling externalities, it assumes they are fully internalised, that is, extinguished. Because a call generally involves only two parties, any benefit accruing to the called party could be internalised by, for example, the parties each agreeing to call the other half the time, the use of toll-free numbers, and businesses recovering call costs from customers in prices charged for goods and services.

284. Nevertheless, the Commission argued that, to the extent that call externalities are not internalised, there is a case for subsidising termination rather than marking it up above cost. It cited WIK-Consult as claiming that call externalities are not efficiently internalised. Dr Rohlfs did examine the impact of a small calling externality (that is, allow for a small proportion of the externality not to be internalised) as a variant in his UK modelling and found that this significantly reduced the welfare optimising termination charge. He considered, however, that call externalities are largely internalised. CRA, applying the Rohlfs model with its choice of elasticities, found that the impact of allowing for a small calling externality was very small. However, this result depends on acceptance of the other modelling parameters, including the elasticities.

285. The Commission also argued that the NES would be likely to reduce the number of fixed-to-mobile calls due to their price being increased. This would reduce the demand for fixed lines. If there is a fixed subscription network externality, this would reduce welfare.

286. CRA addressed this concern by saying that:

"... the empirical evidence is that fixed subscription is extremely inelastic even with respect to fixed subscription charges and would be expected to be even more inelastic with respect to the price of one particular type of call",

and also that:

"... the case for a subscription subsidy is stronger in light of empirical findings that mobile subscription is substantially more price elastic than fixed subscription ..."

CRA stated that externalities between the fixed and mobile networks do not balance out.

287. Other parties argued that this ignores an increasing trend to substitute mobile services for fixed line services including customers becoming more willing to give up fixed line subscriptions in favour of having only a mobile subscription.

288. Much of the argument was somewhat speculative and to the extent that hard evidence was presented, it was far from conclusive in either direction. It is hard to see how the degree of internalisation of externalities could be estimated with great empirical accuracy, so it is not surprising that reliance is placed on reasoning about likely behaviour.

289. We have come to the view that if externalities are to be considered in pricing services, they need to be surveyed with some degree of thoroughness. It is not sufficient to include some externalities in the analysis and ignore others purely on an *a priori* basis that they matter less. This is especially the case where the possibility of countervailing effects is being ignored, and where major changes in the telephony market are likely to be altering demand patterns and levels of substitution between services.

[46680]

290. That said, in any consideration of the effects of price changes on markets beyond the most immediate one where the price is charged, a line must be drawn. Not everything can be taken into account. We regard the Rohlfs model as helpful in making explicit what were seen as relevant market interactions in the UK in 2002. It does so in a fair and balanced manner. However, weighty doubts have been raised as to whether the CRA implementation of the model capably deals with the Australian market in 2005. To some extent this is inevitable in changing market conditions.

### *13.5 Conclusions regarding the NES component*

291. We are not satisfied that the NES component of Optus' costs which it is seeking to recover from the price for access to its DGTAS is reasonable having regard to the matters set out in s 152AH and the objectives in s 152AB. The consequence is that we are not satisfied that Optus' overall price is reasonable having regard to the matters set out in s 152AH and the objectives in s 152AB. We do not rule out the possibility that taking account of externalities may be a valid part of coming to a reasonable price. However, we do not have confidence that the particular approach adopted in the CRA/Rohlfs modelling leads to a well-based outcome, and in particular an outcome which is reasonable having regard to the matters set out in s 152AH and the objectives in s 152AB.

## **14. INTERNATIONAL BENCHMARKING**

292. Optus requested CRA to undertake an international benchmarking analysis for the purpose of supporting the reasonableness of its DGTAS price. CRA took into account and made adjustments for differences for cost factors between Australia and the benchmark countries, namely the United Kingdom, Sweden and Malaysia. The result was that CRA came up with a range of benchmarks for MTAS based on LRIC with an EPMU for FCCs of a range from 9.99 cpm to 20.07 cpm. These figures did not make any allowance for, or take into account, any externalities. The CRA range of prices may be contrasted with the research undertaken by the Commission which led it to conclude in its mobile services review in June 2004 that:

"... no country has produced a reliable cost estimate above the equivalent of 12 cpm, and that cost estimates as low as 5 cpm have been made."

This conclusion was based, in part, upon a report received from Analysys in June 2004.

293. There were a number of criticisms made of the CRA report and its relevance for present purposes. In its report CRA had made a number of adjustments for those factors that were significantly different between Australia and the selected countries such as the exchange rate, cost of capital, geographic terrain and network coverage. However, a number of other additional factors relevant to cost differences between the countries were not taken into account by CRA. These included spectrum allocations, network purchasing power, vertical/horizontal integration, network usage and scale, population density, land and labour costs, the use of different technology, retail prices, scope of services offered and the quality of services offered. The Commission submitted that the effect of CRA making only selective adjustments to its international cost benchmarks resulted in a distorted and unreliable analysis.

294. It was also submitted, in particular by Telstra, that CRA's analysis was only partial in its scope as it did not consider cost estimates from a number of jurisdictions where bottom up cost models had been developed. It was submitted that a consideration of those jurisdictions yielded a range of cost estimates significantly below those adopted in CRA's report.

295. CRA's international benchmarking report was considered by Marsden Jacob Associates. They concluded that there were other countries which should have been included in the analysis, such as Israel, South Korea and the United States. They undertook a simple benchmarking approach by calculating standard per minute charges in a common currency and came up with a comparison whereby only a few estimates exceeded 12 cpm. Their benchmarking approach did not take into account any of the adjustments made by CRA or the other adjustments which Telstra and the Commission said should be taken into account. Nevertheless, this demonstrates that a benchmarking analysis of other countries tells us little about the reasonableness of prices charged in the Australian regulatory environment.

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296. We do not consider that the international benchmarking analysis proffered by Optus is of any assistance to us in determining the issue as to the reasonableness of Optus' price. The range of prices derived by CRA is so broad as to be of little assistance. Further, the nature of the adjustments made by CRA and the adjustments to which it gave no consideration, render the figures derived an inadequate comparator for Australian conditions.

297. In any event, the nature of the international benchmarking exercise was such that it teaches very little, or nothing at all, as to whether Optus' price terms are reasonable having regard to the matters set out in s 152AH and the objectives in s 152AB. In order to place any reliance upon the international benchmarking analysis it would be necessary to know much more about the regulatory environment within which they were determined, the state of the relevant markets and the socio-economic environment in which the mobile services were operative.

## **15. NON-PRICE TERMS AND CONDITIONS**

298. A number of the parties, principally Telstra and the Commission, submitted that a number of the non-price terms and conditions contained in Optus' undertaking were not reasonable having regard to the matters set out in s 152AH and the objectives in s 152AB. Particular reference was made to the provisions contained in schedule 2, clauses 3.2.2(d), 4.3(g), 4.3(h) and schedule 3 clauses 5.1, 6.2(a), 6.2(b), 6.5 and 6.10(g). Little attention was paid to these provisions in the course of submissions. Having regard to the conclusions we have reached in relation to the price terms and conditions of the undertaking, it is not necessary to form a concluded view about the reasonableness of the non-price terms and conditions to which we have referred.

## 16. CONCLUSION

299. As noted earlier, we have reached the conclusion that we are not satisfied, having regard to the matters set out in s 152AH and the objectives in s 152AB that it is reasonable for Optus:

- to adopt and use in the manner it has R-B pricing principles to determine the FCC component, or
- to determine in the manner it has the NES component,

to be added to its FL-LRIC to determine its DGTAS price.

300. It follows that we are not satisfied, having regard to the matters set out in s 152AH and the objectives in s 152AB of the Act that:

- the FCCs mark-up of [Y cpm];
- the NES mark-up of 2.12 cpm,

on Optus' FL-LRIC is reasonable.

301. The FCCs mark-up is a substantial component of the costs that Optus seeks to recover from the price for its DGTAS. The consequence is that we are not satisfied having regard to the matters set out in s 152AH and the objectives in s 152AB that Optus' DGTAS price of 17 cpm for 2007 is reasonable. We are similarly not satisfied that its DGTAS prices for 2005 and 2006 are reasonable.

302. As we are not satisfied that it is appropriate for a mark-up over FL-LRIC to recover Optus' FCCs by reference to R-B principles, we do not consider that it is in the legitimate business interests of Optus or in the interests of access seekers that Optus set a price term for access without knowing the extent to which such price recovers no more than Optus' costs however incurred or whether it recovers amounts in excess of those costs. We reach a similar conclusion having regard to the economically efficient operation of the DGTAS.

303. It follows that, overall, we are not satisfied that Optus is entitled to recover a mark-up for its FCCs by reference to R-B pricing principles in the manner it has propounded or that it is appropriate for it to recover an NES by reference to the methodology which it has used.

304. This result has led us to the conclusion that we are not satisfied that Optus' price term of 17 cpm for 2007 does no more than cover its long-run incremental costs of supplying its DGTAS and an appropriate mark-up for its FCCs and an NES. That leads us to the conclusion that we are not satisfied that Optus' price term of 17 cpm for 2007 for the supply of its DGTAS is in the long-term interests of end-users having regard to the matters set out in s 152AH and the objectives specified in s 152AB of the Act.

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305. In these circumstances it is unnecessary to reach a conclusion whether the FL-LRIC of the DGTAS are reasonable.

306. The result is that the decision of the Commission rejecting Optus' access undertaking will be affirmed.

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## APPLICATION BY VODAFONE NETWORK PTY LTD & VODAFONE AUST LTD

(2007) ATPR ¶42–150

Court citation: [2007] ACompT 1

### Australian Competition Tribunal

11 January 2007

*Trade practices — Telecommunications — Access — Application for review of decision of the Australian Competition and Consumer Commission (ACCC) to reject access undertaking in relation to mobile terminating access service — Whether terms of undertaking reasonable — Whether price terms reasonable — Whether terms for pass-through safeguard reasonable — Experts' reports in tribunal proceedings*

*Trade Practices Act 1974, s 103(1)(c), s 152AB, 152AH, 152AR, 152BS, 152BU(2), 152BV(2), 152CE(1), 152CF, Pt XIC.*

Vodafone had lodged an ordinary access undertaking in relation to its supply of the domestic mobile terminating access service (VMTAS) on its second generation (2G) global system for mobiles (GSM) with the ACCC.

The access undertaking set out the price and non-price terms, and conditions upon which Vodafone undertook to provide the VMTAS service. Vodafone had engaged PriceWaterhouseCoopers (PwC) to develop two models to enable Vodafone to determine the price for calls terminating on its VMTAS.

The ACCC had rejected the ordinary access undertaking given to it by Vodafone in relation to its proposed pricing for terminating calls on its 2G network on the basis that it was not satisfied that the price and certain non-price terms and conditions specified in the undertaking that related to credit management and security, termination and suspension, limitation of liability and confidential information were reasonable. It considered that the use of a top-down fully allocated cost model based on historic data was likely to overstate the cost that would be incurred by an efficient provider if there were no adjustments to reflect cost volume trends.

The tribunal was principally required to determine whether Vodafone's price terms and the terms for the pass-through safeguard to undertaking were reasonable, having regard to the matters set out in s 152AH and the objectives set out in s 152AB. This required an inquiry into whether Vodafone's costs and its methods and approach to estimating those costs, were reasonable having regard to the matters set out in s 152AH and the objectives set out in s 152AB.

**Held:** the appeal was dismissed. The tribunal was not satisfied that the undertaking was reasonable.

1. The tribunal was not satisfied that the price terms were reasonable, as it was not satisfied that:

- (a) Vodafone's proposed pricing was efficiently incurred
- (b) the costs produced in the model prepared for Vodafone by its consultants generated an accurate cost of providing the VMTAS, and
- (c) Vodafone's proposed pricing would do no more than cover Vodafone's costs of supplying the service, in terms of the matters set out in s 152AH and the objectives set out in s 152AB.

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2. The pass-through safeguard imposed an obligation on a fixed-to-mobile operator seeking access to the VMTAS to reduce its retail price for a fixed-to-mobile call that terminated on Vodafone's mobile network so that it was equal to, or less than, the specified price.

3. The tribunal was not satisfied that the terms for the pass-through safeguard in the undertaking were reasonable as:

- (a) it was not satisfied that the specified target average retail prices was reasonable, as there was no evidence before the tribunal to prove that it represented an efficient cost
- (b) a failure to comply with the Transit Traffic conditions resulted in the exclusion of access seekers from sending any transit traffic from all transit carriage service providers, which unfairly penalised end-users
- (c) it limited opportunities for access seekers to determine the form in which any reductions they may have received in the supply of the VMTAS could be passed through to the retail fixed-service market. This deprived access seekers of the flexibility to determine the individual price elements for services supplied within the fixed-to-mobile market on a competitive basis, and the form in which the pass-through will take place. This retarded allocative and dynamic efficiency, inhibited competition and was not in the long term interests of end users
- (d) it was not satisfied that the pass-through obligation could be implemented in a manner that would be clearly and precisely laid out for access seekers, in terms of the matters set out in s 152AH and the objectives set out in s 152AB.

4. The tribunal noted that there were no absolute answers, nor necessarily one correct approach, in determining whether terms and conditions of access were reasonable and whether underlying costs were reasonable.

5. The tribunal did not consider that Vodafone's cost model was itself unreasonable. However, it had not adduced any evidence that its costs were efficiently incurred. It cannot be assumed that costs are efficiently incurred because they may be incurred in a competitive market, as scope still existed for inefficiencies. The tribunal also noted that competition could be constrained, and pricing sustained above marginal cost, if services have been differentiated by strong brand names and advertising appeal. Merely revaluing network assets was insufficient evidence, in light of changes in technology such as the increasing use of optic fibre and digital processing.

#### *Use of experts' reports*

6. The tribunal did not have the opportunity to test or evaluate the experts' evidence by hearing them or through cross-examination, as it was reviewing the decision made by the ACCC. Therefore, the expert's qualifications, background and experience should form part of the report, and relevance of the qualifications, background and experience should be linked directly to the subject matter of the report. Pro forma statements did not assist the tribunal's considerations in determining whether one opinion should be preferred over another.

7. The factual foundation for an expert's opinion should also be laid prior to the expert expressing his or her opinion, such as statements from relevant personnel on past events such as asset lifetimes.

8. An expert's opinion is more likely to be preferred to the opinion of another expert if it is free from ambiguity and expressed positively. The phrases "may not be unreasonable" and "is not unreasonable" were regarded as negative statements. The phrase "[X] years would appear to be rather a short asset life for sites and 15 years would be much more typical" was regarded as being tentative and having more than one interpretation.

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9. It was also crucial for a party seeking to advance or rebut an expert's opinion to focus on the exact words and expressions used by the expert and not ignore, substitute or otherwise vary them, if the tribunal is to determine a matter on the basis of expert opinion without the benefit of testing and assessing them.

#### *Other issues relating to the PwC models*

10. The tribunal was of the view that the empirical flaws in the models meant that it was not satisfied that the costs estimate was reasonable.

##### *(a) Asset lifetimes for radio site equipment and buildings*

— The tribunal was not satisfied that the estimates of asset lives were reasonable, as the opinion was expressed somewhat tentatively and negatively. Vodafone's other expert, NERA, also offered an opinion that, in the tribunal's view, was open to more than one interpretation.

##### *(b) Error in tilted annuity calculation*

— There had been an overstatement of Vodafone's network capital costs, which resulted in the VMTAS target price in the undertaking being overstated. The tribunal could not regard it as *de minimis* and noted the possibility that an aggregation of empirical flaws may have inflated the price.

##### *(c) "Incorrect" routing factor voicemail*

— The tribunal considered whether Vodafone was correct in treating incoming calls the same as outgoing calls in its determination of the proportion of costs attributed to each network element that should be allocated to incoming calls.

While Vodafone had noted that another regulator had adopted the same routing factors, it did not provide the tribunal with sufficient information to evaluate the relevance of the other regulator's decision, such as:

- the structural and regulatory framework of the industry in the regulator's country
- the criteria used by the regulator in reaching the decision
- the trade-offs that may have been made in reaching the decision.

##### *(d) Incorrect allocation of short message service (SMS) costs*

— There had been an incorrect allocation of SMS centre costs as network indirect costs rather than as a direct cost to the SMS centre. While the error had been acknowledged and accepted, the tribunal was of the view that treating the error as a single issue ignored the possibility that an aggregation of some or all of the flaws may have resulted in an inflation of the target price.

##### *(e) Inaccurate splits of non-network assets and operating costs, and revised splits of non-network asset costs and non-network indirect costs*

— The tribunal was not satisfied that the models developed by Vodafone’s expert were correct in their allocation of indirect non-network costs associated with the totality of its business between Vodafone’s retail operations and its network operations. The costs of computers, billing and furniture and fittings were particular subjects of review, and costs in the context of these issues included:

- Capital expenditure (capex) (expenditure on the acquisition of assets), and
- Operating expenditure (opex) (expenditure on operating or maintaining the assets).

The tribunal was not satisfied that the allocations in relation to furniture and fittings, computer and other opex allocations were reasonable, as Vodafone had not demonstrated that its expert’s opinion was to be preferred. For example, it had not prepared an estimate of staff time or produced a headcount. While the subsequent cost

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model reworked opex allocations and acknowledged the original error, Vodafone had not rebutted the continuing concerns expressed by other experts in order to prove that its target price was reasonable to incorporate in its proposed undertaking.

*(f) Price trends and changes*

— The tribunal was not satisfied that the price trends used in the subsequent model were reasonable. Expert evidence was that some of the price trends were out of expected bounds, and Vodafone failed to produce the price trend assumptions used by its engineering department for the tribunal’s consideration and testing.

*(g) Contingency costs*

— The tribunal was not satisfied that the contingency for actual expected replacement costs was reasonable. There was no material for the tribunal to assess the reasonableness and magnitude of the contingency, or to confirm that the contingency was applicable to Vodafone’s actual operations.

*(h) Inclusion of a return on assets in the course of construction*

— While Vodafone was entitled to recover the holding costs for assets in pre-deployment, the model could not be regarded as a static model. This resulted in an inconsistency in the treatment of interest in assets in the course of construction.

It was also possible that the pricing in the model could be reduced by other empirical flaws that had already been revealed.

*(i) Exclusion of acquisition and retention costs from non-network indirect cost mark-ups*

— The tribunal was of the view that it was not reasonable for Vodafone to exclude subscriber acquisition and retention costs from non-network indirect costs on the basis that they did not generate any meaningful support activities. It was of the view that such costs contributed to the structural costs of a business that was driven by the number of retail subscribers. Retail providers would also continue to incur non-network indirect expenditures, such as overheads, even in the absence of network services.

*The Pass-Through Safeguard*

11. There was no provision in the agreement that allowed for the exclusion or excision of the pass-through safeguard so as to exclude it from the undertaking. The tribunal was only empowered to either affirm the Commission’s decision or to set that decision aside and accept the undertaking.

[Headnote by the CCH TRADE PRACTICES EDITORS]

N Hutley SC with R Beech-Jones (instructed by Gilbert + Tobin) for Vodafone Network Pty Limited and Vodafone Australia Limited.

J Beach with M Borsky (instructed by Corrs Chambers Westgarth) for the Australian Competition and Consumer Commission.

J Griffiths SC (instructed by Mallesons Stephen Jaques) for Telstra Corporation Limited.

T Bannon SC with S Balafoutis (instructed by Gilbert + Tobin) for Optus Mobile Pty Limited and Optus Networks Pty Limited.

N Murray (instructed by Allens Arthur Robinson) for Hutchison 3G Australia Pty Limited and Hutchison Telecommunications (Australia) Limited.

J Arnott (instructed by Allens Arthur Robinson) for AAPT Limited.

Before: Goldberg J (President), Mr R Davey and Mr R Shogren

**Justice Goldberg (President), Mr R Davey and Mr R Shogren:**

**THE TRIBUNAL DECIDES THAT:**

1. The decision of the Australian Competition and Consumer Commission on 31

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March 2006 rejecting the ordinary access undertaking given to it on 23 March 2005 by Vodafone Network Pty Ltd and Vodafone Australia Limited is affirmed.

**Justice Goldberg (President), Mr R Davey and Mr R Shogren:**

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## ANNEXURE A GLOSSARY AND ABBREVIATIONS

### THE TRIBUNAL: JUSTICE GOLDBERG (PRESIDENT), MR R DAVEY and MR R SHOGREN

#### 1. INTRODUCTION

1. Vodafone Network Pty Ltd and Vodafone Australia Limited (together "Vodafone") have applied to the Tribunal pursuant to s 152CE(1) of the *Trade Practices Act 1974* (Cth) ("the Act") for a review of a decision of the

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Australian Competition and Consumer Commission ("the Commission") to reject an ordinary access undertaking given by Vodafone to the Commission under s 152BU(2) of the Act. The application for review was filed on 21 April 2006.

2. The access undertaking sets out the price and non-price terms and conditions upon which Vodafone undertakes to provide its domestic digital mobile terminating access service on its 2G/2.5G GSM network ("VMTAS"). The VMTAS is Vodafone's provision of a mobile terminating access service ("MTAS"), a service that was declared by the Commission under Pt XIC of the Act on 30 June 2004. The undertaking was given by Vodafone on 23 March 2005. The undertaking proposed a target price of 16.15 cents per minute ("cpm") for access to its VMTAS from 1 January 2007. The Commission rejected the undertaking in its Final Decision made on 31 March 2006 on the basis that it was not satisfied that the price and certain non-price terms and conditions specified in the undertaking were reasonable.

3. The hearing of the review was held immediately following the conclusion of the hearing of the review sought by Optus Mobile Pty Limited and Optus Networks Pty Limited (together "Optus") in respect of the decision by the Commission to reject an ordinary access undertaking given by Optus to the Commission under s 152BU(2) of the Act. The Tribunal affirmed the decision of the Commission to reject Optus' undertaking and its reasons are to be found in *Application by Optus Mobile Pty Limited & Optus Networks Pty Limited* [2006] ACompT 8. There were a number of issues that were common to the review in the Optus matter and to this review and submissions on these issues in the Optus matter were not duplicated but were taken to have been adopted in this review. These submissions related, for example, to the nature of the legislative regime, the nature of the MTAS, the function of the Tribunal and aspects of market definition.

4. Accordingly, these reasons do not repeat the analysis and reasoning of the Tribunal in relation to the legislative regime, the MTAS, the Commission's MTAS Pricing Principles Determination on 30 June 2004 and aspects of market definition. We incorporate that analysis and reasoning in these reasons which should be read in conjunction with that analysis and reasoning. Annexure A contains a glossary of terms used in these reasons.

#### 2. PARTIES TO THE APPLICATION

5. The following parties were granted leave to intervene in the proceeding:

- the Commission;

- Telstra Corporation Limited ("Telstra");
- Optus Mobile Pty Limited and Optus Networks Pty Limited;
- AAPT Limited ("AAPT");
- Hutchison 3G Australia Pty Limited and Hutchison Telecommunications (Australia) Limited (together "Hutchison");
- Macquarie Telecom Pty Limited ("Macquarie");
- PowerTel Limited ("PowerTel"); and
- Primus Telecommunications Pty Ltd ("Primus").

Telstra, Optus, AAPT, Hutchison, Macquarie, PowerTel and Primus all currently acquire the VMTAS from Vodafone.

### 3. THE LEGISLATIVE REGIME

6. The telecommunications access regime under Pt XIC of the Act was considered and explained recently by the Tribunal in *Telstra Corporation Limited* [2006] ACompT 4 and in *Application by Optus Mobile Pty Limited & Optus Networks Pty Limited* (supra). We adopt that consideration and explanation in these reasons. In summary, an access provider must, if requested, supply a declared service to an access seeker in accordance with the standard access obligations set out in s 152AR of the Act.

7. A carrier or carriage service provider may submit an ordinary access undertaking to the Commission under which it undertakes to comply with the terms and conditions specified in the access undertaking in relation to the applicable standard access obligations: s 152BS(1). The Commission must accept or reject the undertaking: s 152BU(2), but it must not accept an undertaking unless it is satisfied that the terms and conditions specified in the undertaking are reasonable: s152BV(2)(d).

8. The sections critical to the review are ss 152AH and 152AB. Section 152AH(1) sets out

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the matters to which regard must be had by the Commission (and by the Tribunal on review) in determining whether particular terms and conditions of an access undertaking are reasonable:

- "(a) whether the terms and conditions 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 the carrier or carriage service provider concerned, and the carrier's or provider's investment in facilities used to supply the declared service concerned;
- (c) the interests of persons who have rights to use the declared service concerned;
- (d) the direct costs of providing access to the declared service concerned;
- (e) the operational and technical requirements necessary for the safe and reliable operation of a carriage service, a telecommunications network or a facility;
- (f) the economically efficient operation of a carriage service, a telecommunications network or a facility."

Section 152AH(2) provides that subsection (1) does not, by implication, limit the matters to which regard may be had.

9. Section 152AB(2) provides, relevantly, that in determining whether the terms and conditions of an undertaking promote the long-term interests of end-users of carriage services or services supplied by means of carriage services ("listed services"), regard must be had by the Commission (and by the Tribunal on review) to the extent to which the terms and conditions are likely to result in the achievement of the following objectives:

- "(c) the objective of promoting competition in markets for listed services;
- (d) the objective of achieving any-to-any connectivity in relation to carriage services that involve communication between end-users;
- (e) the objective of encouraging the economically efficient use of, and the economically efficient investment in:
  - (i) the infrastructure by which listed services are supplied; and
  - (ii) any other infrastructure by which listed services are, or are likely to become, capable of being supplied."

Section 152AB(3) provides that subsection (2) is intended to limit the matters to which regard may be had. Subsequent subsections of s 152AB expand upon the manner in which the Commission (and the Tribunal on review) is to have regard to those objectives.

### 4. ISSUES

10. We repeat our observation in *Application by Optus Mobile Pty Limited & Optus Networks Pty Limited* (supra) that where we are determining whether terms and conditions of access are reasonable and whether underlying costs are reasonable, there are no

absolute answers, nor is there necessarily only one correct approach: *Telstra Corporation Limited* (supra) at pars [63]–[67].

11. The principal issues for determination are whether Vodafone's price term of 16.15 cpm for the period 1 January 2007 to 30 June 2007 and subsequent validity periods and the terms in "Part C — Pass Through Safeguard" of the Service Schedule to the undertaking are reasonable having regard to the matters specified in s 152AH and the objectives set out in s 152AB. Those issues have led to an inquiry whether Vodafone's costs, and its method and approach in estimating those costs, are reasonable having regard to the matters specified in s 152AH and the objectives set out in s 152AB. There are also issues relating to the reasonableness of certain non-price terms and conditions relating to credit management and security, termination and suspension, limitation of liability and confidential information. Ultimately, we must not accept the undertaking unless we are satisfied on the whole of the material before us that the terms and conditions specified in the undertaking are reasonable: s 152BV(2)(d).

12. From time to time in these reasons we refer to the "reasonableness of the price" and the "reasonableness of the costs" and the "reasonableness" of particular costs, methods or structures. We use these expressions as shorthand expressions to describe and explain the task that is committed to us by ss 152AH and 152AB. We are considering whether a particular price, cost or method of calculating

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and determining a cost, is reasonable having regard to the matters specified in s 152AH and the objectives set out in s 152AB. We are not considering the reasonableness of such price, cost or method in the abstract, unrelated to the matters specified in s 152AH and the objectives set out in s 152AB.

## **5. THE MOBILE TERMINATING ACCESS SERVICE AND THE COMMISSION'S MTAS PRICING PRINCIPLES DETERMINATION**

13. The basic workings of the MTAS and the Commission's MTAS Pricing Principles Determination are explained in *Application by Optus Mobile Pty Limited & Optus Networks Pty Limited* (supra) at pars [21] to [29].

## **6. VODAFONE'S UNDERTAKING**

14. Vodafone's undertaking was, relevantly, in the following terms:

### **"2. COMMENCEMENT AND DURATION**

(a) Provided that the Commission has not already accepted Vodafone's Access Undertaking submitted to the Commission on 26 November 2004 under Division 5 of Part XIC of the TPA, this Undertaking becomes effective immediately after this Undertaking is accepted by the Commission under Division 5 of Part XIC of the TPA, and either:

- (i) any applicable appeal period in relation to the acceptance by the Commission of this Undertaking has expired; or
- (ii) if an appeal is lodged, there is a final resolution of that appeal and any subsequent appeals in a way which permits this Undertaking to take effect.

### **(Commencement Date)**

(b) This Undertaking continues until the earlier of:

- (i) 3 years from the Commencement Date; or
- (ii) the withdrawal or termination of this Undertaking by Vodafone in accordance with the TPA; or
- (iii) the Commission's acceptance of Vodafone's Access Undertaking submitted to the Commission on 26 November 2004 under Division 5 of Part XIC of the TPA.

### **3. UNDERTAKING**

(a) Vodafone undertakes to the Commission that it will comply with the terms and conditions specified in Attachment A of this Undertaking in relation to the standard access obligations applicable to Vodafone in respect of the Declared Service.

(b) For the avoidance of doubt, this Undertaking:

- (i) ...
- (ii) ...
- (iii) only applies to the supply of the Declared Service in respect of voice calls on Vodafone's GSM network."

15. Attachment A comprised a form of "VODAFONE AGREEMENT FOR THE PROVISION OF MOBILE TERMINATING

ACCESS SERVICE" ("the Agreement") to be entered into between Vodafone and an access seeker. The Agreement set out the terms on which Vodafone agreed to supply the VMTAS which was described as:

"... an Access service for the carriage of voice calls from a Point of Interconnection to a B-party directly connected to the Vodafone Network (the Service)."

16. The charges for the VMTAS were set out in the Agreement in the following terms:

**"1 RATES**

1.1 The Rates payable by the Access Seeker for the Service comprise:

- (a) a Usage Charge as set out in this Service Schedule; and
- (b) a Network Conditioning Charge for Network Conditioning in Vodafone's Network beyond Vodafone's Interconnect Gateway Exchanges to enable the provision of the Service to the Access Seeker, which will be based on the labour, materials and incidentals involved in undertaking the work required. Such work will not commence until the Access Seeker has accepted a

quotation for such work provided to the Access Seeker by Vodafone.

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1.2 The Usage Charge payable by the Access Seeker for use of the Service during the applicable Validity Period is specified in Table 1 below:

<b>TABLE 1</b>	
<b>VALIDITY PERIOD</b>	<b>USAGE CHARGE</b>
1. 1 July 2004 – 31 December 2004	21 cpm
2. 1 January 2005 – 31 December 2005	19.38 cpm
3. 1 January 2006 – 31 December 2006	17.77 cpm
4. 1 January 2007 – 30 June 2007	16.15 cpm
Any subsequent Validity Periods	16.15 cpm

17. The Agreement contained a section entitled "PART C — PASS THROUGH SAFEGUARD" in the following terms:

**"1 PASS THROUGH PRINCIPLE**

The aim of this Part C is to ensure that end-users who make fixed to mobile calls realise the benefits of reductions in Usage Charges by ensuring those reductions are passed through to end-users or customers in the form of reduced retail rates for fixed to mobile calls. This benefits end-users or customers of fixed to mobile calls, since they will enjoy price reductions, as well as providers of fixed to mobile calls and providers of mobile termination services, since the volume of originated and terminated calls is likely to increase if the retail price falls (**Pass Through Principle**).

**2 PASS THROUGH OBLIGATION**

The Access Seeker must reduce its Average Retail Price (excluding GST) for calls which terminate on the Vodafone Network during each Validity Period so that it is equal to or less than the Target Average Retail Price specified in Table 2 below (**Pass Through Obligation**).

**3 TABLE 2**

<b>TABLE 2</b>	
<b>VALIDITY PERIOD</b>	<b>TARGET AVERAGE RETAIL PRICE</b>
1. 1 July 2004 – 31 December 2004	38.5 cpm
2. 1 January 2005 – 31 December 2005	32.72 cpm
3. 1 January 2006 – 31 December 2006	26.93 cpm
4. 1 January 2007 – 30 June 2007	21.15 cpm
Any subsequent Validity Periods	21.15 cpm



#### 4 COMPLIANCE AND PASS THROUGH DISPUTES

4.1 The Access Seeker must provide written notice to Vodafone within 20 Business Days of the end of each Validity Period, signed by a Director, stating whether and how the Access Seeker has complied with the Pass Through Obligation for that Validity Period (**Certification of Pass Through**).

4.2 Within 2 months following the end of each Validity Period, if Vodafone reasonably considers that the Access Seeker has not complied with the Pass Through Obligation, Vodafone may, by way of written notice, notify the Access Seeker of a dispute (**Pass Through Dispute Notice**).

4.3 On receipt of a Pass Through Dispute Notice, the Parties must use their

reasonable endeavours to resolve the dispute. In attempting to resolve the dispute in accordance with this clause 4.3, the Parties must act in good faith at all times. [46916]

4.4 If the Parties cannot resolve the dispute within 10 Business Days following the date of the Pass Through Dispute Notice, either Party may within 20 Business Days following the date of the Pass Through Dispute Notice refer the dispute for expert determination in accordance with clause 5 provided that Party has complied with its obligations under clause 4.3."

Clause 5 contained a dispute resolution clause which provides for expert determination of a dispute.

18. Clause 6 was headed "NON COMPLIANCE" and provided:

"6.1 If the expert determines that the Access Seeker has not complied with the Pass Through Obligation for a Validity Period, the Access Seeker must pay to Vodafone in accordance with the terms of this Agreement, the rebate calculated in accordance with clause 6.2 (**Pass Through Rebate**).

6.2 The Pass Through Rebate for a Validity Period will be an amount equal to the number of Conversation Minutes for that Validity Period, multiplied by the difference between:

- (a) the Usage Charge set out in Table 1 for that Validity Period; and
- (b) the Usage Charge for the earliest prior Validity Period in which the Access Seeker's Average Retail Price is less than the Target Average Retail Price for that Validity Period, as specified in Table 2.

6.3 If the Access Seeker does not provide sufficient information to the expert when requested, the Validity Period for the purposes of clause 6.2(b) is Validity Period 1."

19. Clause 7 related to "TRANSIT TRAFFIC" and provided:

"7.1 This clause 7 applies to traffic sent to Vodafone by the Access Seeker for which the retail price is set by a Carriage Service Provider other than the Access Seeker (Transit Traffic), if the total Transit Traffic being sent by the Access Seeker exceeds 750,000 minutes/month.

7.2 The Access Seeker must ensure that at any time at which this clause 7 applies, each Carriage Service Provider to which it supplies transit services (**Transit Carriage Service Provider**) complies with the Pass Through Obligation, including this Part C.

7.3 If the Access Seeker sends Transit Traffic to Vodafone for termination, then the Access Seeker must:

- (a) ensure that each Transit Carriage Service Provider:
  - (i) is also subject to an obligation to comply with the Pass Through Obligation; and
  - (ii) complies with that obligation; and
- (b) ensure that any disputes about the compliance of the Transit Carriage Service Provider with its Pass Through Obligation are:
  - (i) capable of resolution is [*sic*] a manner identical to that specified in clause 5; and
  - (ii) resolved in accordance with the procedure specified in clause 5; and
- (c) provide a separate Certification of Pass Through for each Transit Carriage Service Provider that:
  - (i) identifies each relevant Carriage Service Provider; and
  - (ii) specifies the volume of Transit Traffic of each Carriage Service Provider; and
- (d) co-operate and provide all reasonable assistance to ensure that each Transit Carriage Service Provider complies with the Pass Through Obligation and that Transit Traffic is not used as a means to avoid or circumvent the Pass Through Principle.

7.4 If the Access Seeker cannot or does not comply with this clause 7, the Access Seeker must not send any Transit

Traffic to Vodafone for termination."

The expression "Average Retail Price" was defined as meaning:

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"... an Access Seeker's revenues from fixed to mobile calls which terminate on the Vodafone network divided by that Access Seeker's total Conversation Minutes for fixed to mobile calls which terminate on the Vodafone Network during the relevant Validity Period."

20. Vodafone's final price of 16.15 cpm in its undertaking was based upon the output of a fully allocated cost modelling exercise undertaken by PricewaterhouseCoopers ("PwC") for Vodafone. The model used Vodafone's data for Vodafone's 2002/2003 financial year and the exercise was, according to Vodafone, verified by PwC using Vodafone's 2003/2004 financial year data.

21. Vodafone contended that the prices in its undertaking were reasonable because:

- although they were based on a fully allocated cost model, this model was the subject of a number of adjustments such that it represented a close approximation to a Total Service Long Run Incremental Cost ("TSLRIC") model;
- the PwC Cost Model allocated common costs on a basis similar to an equi-proportionate mark-up ("EPMU") basis and did not involve any mark-up for network externalities. Vodafone would have been entitled if it so chose to produce a model which allocated common costs according to Ramsey principles and which incorporated recovery of an amount for network externalities;
- when account was taken of the allocation of fixed and common costs according to Ramsey principles and the recovery of network externalities, it confirmed that the result of the PwC Cost Model represented a conservative estimate of the TSLRIC+ cost of supply of the MTAS by Vodafone.

## 7. BACKGROUND

22. Unlike its two main competitors, Telstra and Optus — which supply both fixed line and mobile services, Vodafone is a standalone mobile operator. It operates a 2G/2.5G GSM network and a 3G network. Its GSM network covers 93% of the Australian population. Vodafone was awarded the third Australian mobile telecommunications carrier licence in December 1992. By March 2004, Vodafone's share of the Australian mobile telecommunications market was almost 17%, the rest of the market at that time being held as to 45.7% by Telstra, 35.4% by Optus and 3.1% by Hutchison.

## 8. THE COMMISSION'S REASONS FOR REJECTING THE UNDERTAKING

23. At the conceptual level, the Commission considered that the approach adopted by Vodafone, using a top-down fully allocated cost model based on Vodafone's 2002/2003 data, was likely to overstate the costs that would be incurred by an efficient provider of the MTAS in Australia when compared with a TSLRIC+ model. The Commission was concerned that Vodafone had used data from 2002/2003 as a basis for estimating the forward looking efficient costs of the MTAS without adjustments to reflect cost volume trends. The Commission considered that the appropriate costs to recover in determining the costs of supplying the MTAS were likely to be those of an "efficient operator". (Vodafone objected to this standard.) The Commission did not accept that Vodafone's costs would be likely to represent those of an efficient operator. The Commission also had concerns at the empirical level with a number of the model inputs and assumptions that underpinned the PwC model. These inputs, assumptions and certain errors suggested to the Commission that even if PwC's conceptual modelling approach was considered appropriate, its price of 16.15 cpm was likely to overstate substantially Vodafone's "forward-looking efficient economic costs" of supplying the VMTAS on its GSM network.

24. The Commission considered that Vodafone's proposed Pass Through Safeguard was not necessary, given the likelihood that the pass through of lower regulated MTAS rates to retail fixed-to-mobile prices would occur, and was likely to increase over time, as a result of a regulated reduction in the MTAS rate alone. The Commission also had significant reservations regarding the specific terms on which Vodafone proposed to implement the Pass Through Safeguard.

25. The Commission reached the view that the price terms and conditions contained in the undertaking were not reasonable when assessed against the relevant statutory criteria in s

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152AH. The Commission considered that the undertaking price terms and conditions were above those required to meet the legitimate business interests of Vodafone and its investment in facilities used to supply the VMTAS.

26. The Commission also had concerns with some of the non-price terms and conditions because of the broad nature of some of the discretions given to Vodafone. These discretions generally applied in the areas of credit management and security, suspension and termination, limitation of liability and confidential information.

## 9. MARKET DEFINITION

27. Vodafone submitted that there were two relevant markets in which its VMTAS (as well as mobile origination services) was

provided. These were:

- the overall market for mobile telephony services which was a national market with both wholesale and retail components and which encompassed the provision of mobile access or subscription, mobile termination and mobile origination to customers as well as other outgoing call services. It defined this market as the "mobile services market"; and
- the market for fixed-to-mobile services.

28. The Commission submitted that there were three relevant markets:

- the wholesale market for the supply of Vodafone's VMTAS. It was said that only Vodafone could supply VMTAS in relation to calls terminating on its 2G/2.5G GSM network and that no other service was substitutable for, or otherwise competitive with the VMTAS supplied by Vodafone;
- a national market for retail mobile services, including mobile call origination and mobile subscription services. It was said that this retail mobile services market was not effectively competitive and was highly concentrated with high barriers to entry in the form of large sunk costs and the pre-requisite of national coverage; and
- a national retail market for the pre-selected bundle of fixed-to-mobile national long-distance and international calling services.

29. The key difference between the submissions of Vodafone and the Commission was whether there is, as submitted by the Commission, a separate market for termination services or whether, as submitted by Vodafone, termination services are supplied and consumed as part of an overall retail market for mobile services.

30. In *Application by Optus Mobile Pty Limited & Optus Networks Pty Limited* (supra) we considered the submissions of all parties in relation to the issues relating to market definition. We do not repeat our reasoning in that decision in these reasons, but simply incorporate by reference paras [74]–[90]. The observations and conclusions we reached in those paragraphs in relation to Optus apply equally to Vodafone in this review. It follows from those reasons that we do not consider that Vodafone's VMTAS is provided in the retail mobile services market. Nevertheless, in determining the price Vodafone will charge its customers for making calls, Vodafone must factor into its calculations the price it will have to pay other network operators for having its customers connected into their networks so that its customers' calls can be so connected and terminated, and the revenue it will receive from supplying its VMTAS to other network operators. It also follows from our reasoning in *Application by Optus Mobile Pty Limited & Optus Networks Pty Limited* (supra) that even if the retail mobile services market were effectively competitive, we do not consider that Vodafone would be strongly constrained in setting its VMTAS price by competition in the retail market. As we noted in *Application by Optus Mobile Pty Limited & Optus Networks Pty Limited* (supra), the mobile operators could set their termination charges on a reciprocal basis at above cost while still competing vigorously in the retail market. Again, as we noted in that decision, it was accepted that that is what they do.

31. For the reasons which we have set out in *Application by Optus Mobile Pty Limited & Optus Networks Pty Limited* (supra), we do not need to come to a definitive conclusion about market definition nor do we need to come to a definitive conclusion whether the retail mobile services market is effectively competitive.

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## 10. VODAFONE'S COST MODELS

32. In 2004 Vodafone engaged PwC to develop a top-down fully allocated cost model for the purpose of enabling Vodafone to determine the appropriate price for calls terminating on its VMTAS. On 22 March 2005, PwC provided a report entitled "The Fully Allocated Cost (FAC) of Services on Vodafone Australia's GSM Network". The model developed by PwC was based on a fully allocated top-down cost model built from Vodafone's accounting and operational data for Vodafone's financial year 2002/2003. (We call this "the First PwC Model" and PwC's report on it, "the First PwC Report"). The model was described as "forward looking" as Vodafone re-valued its network assets in current cost terms. The model allocated all the relevant network and non-network costs associated with Vodafone's GSM network for the financial year 2002/2003 to six services:

- incoming calls (termination);
- outgoing calls (calls originating on Vodafone's network and terminating on a different network);
- on-net calls (calls originating and terminating on Vodafone's network);
- SMS messages (Short Messaging Service — a facility to send text messages);
- GPRS (General Packet Radio Service) megabytes; and
- subscription.

Costs were allocated either directly to these services or indirectly across these services by way of an EPMU approach. PwC allocated Vodafone's network asset costs directly to services using routing factors which were provided by Vodafone. A tilted

annuity formula was applied to these network assets to calculate an annualised depreciation charge for these assets for 2002/2003.

33. The following features and components of the First PwC Model should be noted:

- the model was a top-down fully allocated cost model which used a mixture of Vodafone's accounting and operational data comprising input from the general ledger, the fixed asset register and call data recording systems;
- other inputs, including asset prices and routing factors were obtained directly from Vodafone;
- the model did not distinguish between costs that were incremental to the services being modelled and costs that were common across two or more services, that is costs which were fixed, common or joint;
- for network capital costs (depreciation and return on investment) the accounting based straight-line method of depreciation was replaced with a tilted annuity calculation which reflected changes in the value of assets over time and which was underpinned by a current cost valuation of the asset base based upon the actual deployment of Vodafone's network;
- the model allocated costs either directly to services or indirectly to services through secondary allocations. Indirect costs were broken down into network indirect costs and non-network indirect costs;
- SMS messages and GPRS megabytes were converted to minute equivalents to enable the allocation of network costs between the different conveyance services; and
- routing factors, reflecting the extent to which the different services drove network usage for the main network elements, were provided by Vodafone.

34. Based on the outputs from the First PwC Model, PwC concluded that a reasonable estimate of the average cost of terminating calls on Vodafone's GSM network was 16.15 cpm. It is on this price, derived from the First PwC Model, that Vodafone based its undertaking given to the Commission on 23 March 2005.

35. On 20 October 2005, PwC submitted a further report entitled "The Fully Allocated Cost (FAC) of Services on Vodafone Australia's GSM Network — Model update incorporating data for the financial year ended 31 March 2004". This report (which we call "the Second PwC Report") set out further modelling work performed using data for the financial year ended 31 March 2004. PwC said that the 2003/2004 model (which we call "the Second PwC Model") included further refinements and enhancements to allocation bases. It took into account comments received on the First PwC Model and corrected for

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model errors relating to the exclusion of some traffic, the uplift for working capital on network assets, the treatment of short message service (SMS) centre costs, the specification of the tilted annuity formula and the allocation of indirect network operating expenses.

36. PwC made the following observation in relation to the modelling approach in the Second PwC Report:

"The high-level cost model that was originally prepared has been updated with data for the financial year ended 31 March 2004. The nature of the model and its functionality remains unchanged. However, apart from changes to the inputs, there have also been changes to some of the allocation assumptions as a result of a more detailed interrogation of the underlying financial data."

We consider later in these reasons particular issues relating to the changes to the inputs, the changes to the allocation assumptions and the more detailed interrogation of the underlying financial data. In summary, the Second PwC Model produced a cost of termination of [X] cpm. What is significant is that the Second PwC Report stated:

"The 2003/04 model updates and replaces the 2002/03 model as the best and most recent estimate of the forward looking fully allocated cost of terminating voice calls on Vodafone's GSM network".

Notwithstanding this statement in the Second PwC Report, the target price in Vodafone's undertaking remained at 16.15 cpm derived from the First PwC Model. We return to the significance of the Second PwC Model and the Second PwC Report later in these reasons.

37. Vodafone also relied upon a report submitted by Frontier Economics entitled "Modelling Welfare Maximising Mobile Termination Rates: A Report Prepared for Vodafone".

38. The First PwC Model used Vodafone's 2002/2003 data to estimate the forward looking efficient costs of providing the VMTAS without any adjustments to the data to reflect costs-volume trends that might operate during the period post-2002/2003 to 1 January 2007. The Commission considered that the per-unit costs of supplying the VMTAS was likely to be lower, perhaps significantly lower, by 1 January 2007.

39. The modelling approach adopted by PwC gave rise to the following issues of principle and issues of detail:

- the use of a fully allocated cost model as distinct from a model based on a TSLRIC+ approach;

- whether Vodafone's costs are efficient costs, setting aside issues of scale and scope;
- the benchmark by reference to which Vodafone's costs are to be assessed. In particular whether, as the Commission contended, the benchmark is that of an "efficient operator";
- the recovery of network capital costs and the use of forward looking asset valuations;
- the use of 2002/2003 and 2003/2004 data;
- the use of 2G/2.5G costs as opposed to 3G costs; and
- what were claimed by the Commission to be empirical flaws in the model.

## 11. THE USE OF A FULLY ALLOCATED COST MODEL

40. Vodafone submitted that the use of a fully allocated cost model was reasonable having regard to the matters specified in s 152AH and the objectives set out in s 152AB. Vodafone relied upon a report dated 6 February 2006 from NERA Economic Consulting ("NERA") which it had retained to provide an independent assessment in relation to aspects of its undertaking.

41. NERA addressed the differences between a fully allocated cost model and a model based on TSLRIC+. NERA concluded:

"In most respects PwC's model of Vodafone's network bears a close resemblance to a top-down TSLRIC model. Where it differs significantly is that it does not use forward-looking valuations for non-network assets and does not distinguish between incremental and common fixed costs. For the reasons given in 8.1.2, the first of these differences may not lead to a material divergence between the cost estimates produced by the two models. The

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situation regarding the second difference is less clear."

In section 8.1.2, NERA noted that the PwC model had the characteristics of a top-down TSLRIC model in respect of its valuation of network assets but not in its valuation of non-network assets. PwC re-valued Vodafone's network assets on a current replacement cost basis rather than using historical cost asset values. Non-network capital items were not re-valued and historical cost values were used for them. NERA observed that Vodafone's view was that the distortion caused by not using forward looking asset values and depreciation for non-network assets was not likely to be material, bearing in mind that they accounted for only [X]% of the total net book value of assets. Vodafone's view in this respect, was supported by Analysys Consulting Limited ("Analysys") who carried out a review of the PwC models on behalf of the Commission. Analysys considered whether Vodafone's undertaking was based on a reasonable fully allocated cost top-down model.

42. Analysys stated:

"Inevitably, a FAC [*Fully Allocated Cost*] estimate relies on a degree of judgement. Alternative allocation rules to those applied by PwC might have yielded different FAC estimates. For the purposes of setting cost-based prices, the regulatory objectives may mean some approaches to FAC modelling are preferable to others. For example, the allocation rules for indirect costs that PwC has used bear resemblance to equi-proportionate mark-ups, sometimes used by regulators to adjust LRIC estimates. To the extent that the indirect costs in PwC's model correspond to common costs (as estimated within a LRIC framework), this may make the final outputs of the model attractive if the regulator favours prices based on LRIC plus an EPMU."

Analysys accepted Vodafone's contention that:

"... since non-network assets account for only about [X]% of net book value, the failure to convert the costs of these assets into a gross replacement cost is unlikely to significantly affect the final results of the model."

43. Telstra and the Commission accepted that a fully allocated cost model was not unreasonable and was capable of approximating the outcomes of a TSLRIC+ approach, thereby providing a reasonable estimate of efficient costs, so long as the fully allocated cost model made appropriate adjustments.

44. We do not consider that the use of a fully allocated cost model, as distinct from a TSLRIC+ model is, of itself, unreasonable having regard to the matters specified in s 152AH and the objectives set out in s 152AB. We accept that in *Re Seven Network (No 4)* (2004) 187 FLR 373 at 410, the Tribunal expressed the view that it would generally not be in the long-term interests of end-users to depart from TSLRIC pricing where access is regulated. However, we would repeat the observation of the Tribunal in *Telstra Corporation Limited* (supra) at par [63]:

"In this area of analysis there is no one correct or appropriate figure in determining reasonable costs or a reasonable charge. Matters and issues of judgment and degree are involved at various levels of the analysis."

Nevertheless, we still consider that in general terms the prices in access undertakings should reflect and not exceed forward looking efficient economic costs: *Telstra Corporation Limited* (supra) at par [46].

## 12. ISSUES RELATING TO VODAFONE'S COSTS

45. Vodafone distilled the Commission's and other parties' submissions against it into a number of issues. The other parties accepted that list and the hearing proceeded largely on the basis of argument under each of the headings in the list. Those issues are:

- the efficiency of Vodafone's costs, setting aside issues of scale and scope;
- whether efficient costs should be determined by reference to an efficient benchmark operator rather than by reference to a firm of Vodafone's actual size; that is, whether Vodafone's actual costs should be adjusted to reflect economies of scale and scope that could be achieved by such a benchmark operator; and
- what were described by the Commission as "empirical flaws" in the PwC models.

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### 13. ARE VODAFONE'S COSTS EFFICIENT COSTS?

46. As we observed in *Application by Optus Mobile Pty Limited & Optus Networks Pty Limited* (supra), the matters and objectives to which we must have regard in determining whether Vodafone's price terms are reasonable, and whether they promote the long-term interests of end-users, as set out in ss 152AH and 152AB, lead to a consideration whether Vodafone's costs of supplying its VMTAS are efficient costs. Section 152AH(1)(f) requires us to have regard to "the economically efficient operation of" Vodafone's VMTAS and s 152AB(2)(e) requires us to have regard to the extent to which the price term is likely to result in the achievement of "the objective of encouraging the economically efficient use of, and the economically efficient investment in", the infrastructure by which the VMTAS is supplied.

47. The Commission submitted that Vodafone had not put before it (and therefore, before us) sufficient material to establish that its historical costs, upon which the First PwC Model and the Second PwC Model were based, were efficient. It followed, submitted the Commission, that the undertaking could not be reasonable even if we were to decide that all of Vodafone's methodologies, inputs and assumptions by which it derived its costs of supplying its VMTAS were reasonable.

48. Vodafone submitted that there was no material capable of casting sufficient doubt on the efficiency of its inputs into the PwC models to affect any conclusion that the prices and terms in the undertaking were reasonable. In support of this submission, Vodafone relied upon the following matters:

- neither the Commission nor any of the intervenors had nominated any specific cost, item or aspect of Vodafone's business or network which was said to be inefficient;
- the preparation of the PwC models involved a revaluation of network assets to current day values and this would remove any suggestion that Vodafone's network assets were overpriced;
- Vodafone's network was developed, and its non-network costs incurred, in a highly competitive environment. It followed that Vodafone's costs were efficient because of the competitive market in which Vodafone operated; and
- the consultant Analysys considered that for the purposes of producing top-down fully allocated cost results, the use of Vodafone's actual costs was reasonable.

49. We do not consider that Vodafone's submission poses the correct question. As we observed in *Application by Optus Mobile Pty Limited & Optus Networks Pty Limited* (supra) at par [118]:

"Although there is merit in the proposition that a firm in a competitive market has an incentive to be efficient and to incur its costs efficiently, there is still a need for the Commission (and, on review the Tribunal), to be satisfied, having regard to the matters set out in s 152AH and the objectives in s 152AB of the Act, that the firm's costs are efficiently incurred."

We repeat the observation in *Telstra Corporation Limited* (supra) at par [46]:

"...we would point out that whenever an access provider seeks approval of an access undertaking from the Commission which involves a consideration of a price term by comparing it with costs, it would be necessary, in order to satisfy the statutory framework, that the access provider establish that its costs are efficient costs."

It is not to the point that there is no material before us capable of casting sufficient doubt on the efficiency of Vodafone's inputs into the PwC models. Rather the point is whether we are satisfied, having regard to all the material placed before us, that Vodafone's costs are efficiently incurred.

50. Further, we do not accept Vodafone's submission that Analysys considered that for the purposes of producing top-down fully allocated cost results, the use of Vodafone's actual costs was reasonable. The passage in the Analysys report relied on by Vodafone for this submission related to a different issue. What Analysys in fact said was:

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"Apart from the historic-to-current-cost adjustment, the model is based on Vodafone's actual costs rather than the costs of a hypothetical efficient operator. Vodafone argues that it is efficient in the costs it incurs and there is no need to make further adjustments to the costs in the model. For costing purposes, PwC has utilised 2G costs, 2G demand and assumed

traffic levels that are constant (at 2002/03 levels) without any future migration to 3G services. The model does not have the functionality to consider how costs might vary if Vodafone carried a different traffic load or offered coverage over a different area. For the purposes of producing top-down FAC results these modelling decisions are reasonable. However, this means that the model cannot indicate the implications should the ACCC decide that the undertaking should be based on the costs of a hypothetical operator, e.g. one with 25% market share carrying a proportion of its traffic using 3G technologies."

This passage does not support the proposition that Analysys accepted that Vodafone's costs were, in fact, reasonable or efficiently incurred.

51. It is significant that Analysys also observed that the fully allocated cost model does not make adjustments to eliminate inefficient costs. Vodafone's response to this observation was that there was no basis for assuming that its relevant architecture and operating expenditure were inefficient given that it incurred these costs in a competitive environment. Putting to one side whether the retail mobile services market is competitive, we do not accept that an assumption that costs are incurred efficiently can be made simply upon the basis of the nature of the market within which the costs are incurred.

52. We also note that Vodafone's independent consultant, NERA concluded that:

"Whether Vodafone is efficient or not is also an empirical question, the answer to which cannot be assumed without further analysis. In our view some kind of efficiency assessment of Vodafone is needed before any definitive conclusion can be reached."

53. The Commission and the intervenors raised a number of specific arguments regarding the efficiency of Vodafone's costs which can be summarised as follows:

- the PwC models were based on Vodafone's existing architecture and technology which was not forward looking;
- the use of cost inputs to the PwC models from 2003, which were unadjusted, was not an appropriate basis for prices that could apply until 2010. No allowance was made for increases in traffic over the life of the undertaking;
- whether Vodafone had invested in an inappropriately large network coverage;
- whether Vodafone's costs should have been "optimised" to take account of newer and more efficient ways of designing and operating a mobile network than those applying at the time when Vodafone incurred its costs; and
- whether an efficient operator would have chosen to share infrastructure costs with another operator or operators, contrary to Vodafone's actual mode of investment.

54. Vodafone's principal response to these criticisms was that it was entitled to base prices on its actual costs since they involved no waste and its incentives were to minimise them. It also called into question the expertise of one of the consultants upon whose reports other parties relied. We consider this issue later in our consideration of empirical flaws in the PwC models.

55. We consider that the main conceptual issues in relation to whether we can be satisfied that Vodafone's costs were efficiently incurred to be:

- the weight that can be placed on the market environment and the degree of competition in which Vodafone operates;
- the degree to which the costs are sufficiently forward looking; and
- other matters relating to Vodafone's network configuration.

56. We do not accept the proposition that Vodafone's actual costs can be taken to be efficiently incurred simply because Vodafone operates in a competitive market. While that market certainly exhibits some evidence of

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vigorous competitive processes, for example, in the marketing of various pricing plans, it does not follow that no scope exists for inefficiency. The very nature of mobile termination, where calls to each operator's customers can only be completed by that operator, argues for caution in concluding that inefficiency is absent. Furthermore, taken to its logical conclusion, the proposition would also lead to the view that Vodafone's actual VMTAS prices must be reasonable and thus warrant no regulatory examination.

57. More specifically, with only three operators in the market during the period of Vodafone's initial investment and roll-out of infrastructure, economic theory does not support the contention that those firms will, *ipso facto*, have made efficient investments. Services provided in the market are far from homogeneous, and the operators appear to have made great efforts to differentiate their services, build strong brand names, and appeal to varying groups of consumers.

58. This differentiation to some extent may, as it is intended to do, constrain the effects of competition on prices. Prices may be sustained above marginal costs. The evidence was clear that operators shift costs between services as part of their strategies of expanding the market and maximising profits. This is unobjectionable. But in such a business environment, we cannot be satisfied that costs are automatically incurred efficiently.

59. It is relatively easy to suggest ways in which Vodafone's network may, at the conceptual level, differ from what would be put in place by a hypothetical efficient new entrant. In the absence of evidence to support suggestions that Vodafone invested in "too much" coverage or forwent opportunities for more efficient infrastructure sharing, we place no weight on such possibilities. On the other hand, we are inclined to accept that changes in technology, such as the increasing use of optic fibre and digital processing since Vodafone was awarded its licence in 1992, mean Vodafone's actual costs are unlikely to be forward looking in the absence of some adjustments. Merely revaluing network assets is insufficient.

60. We consider that Vodafone is obligated to adduce some evidence that its costs were efficiently incurred. In saying this, we have no wish to impose a requirement that the submitter of an undertaking to the Commission foresee every possible speculative criticism of its investment and other business decisions. There are limits to the second-guessing of an operator's basic strategic decisions regarding the size of its network, the geographical area it seeks to cover, the level of market demand it seeks to satisfy and the manner of its product development. Nevertheless, it cannot be sufficient simply to assert, without any supporting material, that costs were efficiently incurred.

61. We consider that, for the most part, the objections to Vodafone's costs made in the reports by Gibson Quai-AAS Pty Ltd ("Gibson Quai"), Analysys and Marsden Jacob and Associates ("Marsden Jacob") restate in-principle arguments rather than produce specific evidence of inefficiency. However, Gibson Quai did give some specific examples of how a modern network would differ from Vodafone's network. Vodafone did not respond to those specific points except in general terms. Taken together, and in the absence of material supporting Vodafone's contentions regarding the efficiency of its costs, the points raised are sufficient to add to our lack of satisfaction that Vodafone's costs were efficiently incurred.

62. We therefore conclude that we are not satisfied that Vodafone's costs were efficiently incurred. We have reached this conclusion having regard, in particular, to the matters specified in s 152AH(1)(f) and the objectives set out in s 152AB(2)(e) (summarised in par [46] above).

#### 14. THE BENCHMARK OF AN EFFICIENT OPERATOR

63. The Commission submitted that Vodafone's prices could not be reasonable if they exceeded those that would be incurred by an efficient operator with the scale and scope achievable by all mobile network operators ("MNOs"), namely the efficient costs of an operator with a 25% market share (there being four MNOs).

64. The Commission argued that to base the prices of an MNO for MTAS with a market share of, say, 1%, on its actual costs, would constitute a subsidy from access seekers for its

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inefficient costs. On the other hand, the Commission's position was that an operator's actual costs provide an upper bound as a basis for prices, so that an operator with more than 25% market share should not be able to adjust its costs upwards to take account of the lesser economies of scale and scope it would enjoy were it smaller; that is, were it the size of the benchmark operator. The Commission saw no inconsistency in arguing that the larger operator's legitimate business interests, relevant under s 152AH(1)(b), dictate that it receive no more than its actual costs.

65. There was little evidence before us as to the extent of any economies of scale and scope. In its assessment of Vodafone's undertaking, the Commission came to no firm conclusions, noting only that there were "probable" scale economies and "possible" scope economies. Argument generally proceeded on the assumption that a larger operator would have lower unit costs.

66. Vodafone submitted that basing prices on the costs of a benchmark operator would deter or prevent new entry by operators intending to provide mobile termination services. Such new entrants could not, immediately upon entry, have access to economies of scale, and possibly of scope, achievable by all MNOs. Vodafone quoted Frontier Economics to the effect that operators of lesser scale and operators that could not take advantage of economies of scope could be eliminated, to the detriment of competition. To some extent this was portrayed as undervaluing dynamic efficiency at the expense of overvaluing productive and allocative efficiency.

67. Vodafone also appealed to statements by Ofcom, the United Kingdom telecommunications regulator, and to the decision of the Full Court of the Supreme Court of Western Australia in *Re Michael; Ex parte Epic Energy (WA) Nominees Pty Ltd* (2002) 25 WAR 511 in relation to the pricing of the services provided by a gas transmission pipeline. While both the Ofcom statements and *Re Michael; Ex parte Epic Energy (WA) Nominees Pty Ltd* (supra) dealt with different regulatory schemes from that applying in this proceeding, much the same issues of principle arose.

68. The starting point in assessing the submissions on this issue is, as throughout this proceeding, the principle that prices should be based on the forward looking costs of an efficient operator. The basic objective is to set prices that promote economic efficiency, which is the outcome that could be expected in a competitive market. It is because mobile termination has been declared as a service that inherently lacks the discipline of competitive forces that it is subject to Pt XIC of the Act.

69. Of course, the basis of reasonable prices in terms of s 152AH must proceed from the terms of that section, and it is those terms that direct the assessment process towards considerations of efficiency and competitive outcomes.



70. What outcomes would eventuate in a competitive market? In such a market, pricing above the costs that would be incurred by a new entrant having access to the latest and most cost-effective technology would invite the entry of such an operator. Regardless of the actual costs, capital equipment and modes of operation of the incumbent operators, competition would force them to price as if they were using the latest technology. This would extend beyond the age and type of their capital equipment even to the design of their networks.

71. Moreover, no exemption would be given by the forces of competition to existing operators who might be smaller and consequently, or for other reasons, have higher costs than some other operators. For that matter, competitors would not allow a new entrant the luxury of charging in accordance with the higher unit costs associated with starting up a new venture.

72. These are the considerations that lead to the benchmark of the costs that would be incurred by an efficient, forward looking new entrant. However, it is relevant that an efficient new entrant — even, if realistic markets are envisaged, a hypothetical one — would not itself have immediate access to the economies of scale and scope that might be achievable over time.

73. It can be seen that, in seeking to emulate the outcomes realisable in a competitive

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market, some regard must be had to the actual process (the dynamics) by which operators compete and establish themselves in markets. It is not obvious that objectives of economic efficiency lead to basing prices on the costs that an efficient new entrant could achieve after some indefinite period. Similarly, the terms of s 152AH direct the assessment of reasonableness towards some aspects of market outcomes that go beyond over-simplified assumptions that could only be appropriate were perfect competition a realistic outcome.

74. As might be expected, this means that the task of deciding how to assess the efficient forward looking costs of a new entrant must involve some balancing of opposing considerations and must take account of the actual markets in which the relevant services are provided. This is difficult, not least because, for example — but typically for a regulated service — a competitive market in mobile termination services can only be hypothesised. That market lacks competition because it has structural, and perhaps institutional and regulatory, features that preclude effective competition. The lack of competition is not necessarily a temporary phenomenon, nor one that will be cured by any foreseeable changes in the market itself.

75. The Commission has dealt with this balancing requirement and the need to take actual circumstances into account by developing the idea of an efficient operator with the scale and scope achievable by all MNOs. In present circumstances that involves the efficient costs associated with a 25% market share. (We note that earlier in its assessment of Vodafone's undertaking, when it released a draft determination, the Commission took the harder position that costs should be assessed by reference to the "most efficient operator".)

76. As implied above, there is sense in benchmarking against the most efficient operator on the grounds that in a competitive market no operator would be able to charge more than the most efficient operator. However, whether this would occur in real-life markets, even those considered effectively competitive but subject to normal features such as product differentiation, is another matter. The most efficient operator may well be able to price somewhat above its costs. In the sort of highly competitive market often hypothesised it is difficult to see how any less efficient operators could survive. The question is how close prices would actually be to this benchmark.

77. But even if the most efficient operator were chosen as the benchmark, the other difficulty remains that that operator would not be forced to base its prices on the costs of a hypothetical network optimised for all-new design and technology. For that to happen the threat of new entry would have to be based on an ability, unrealisable in actuality under even the best of circumstances, to bring the new design and technology to bear immediately in a legacy-sized network.

78. It might therefore be thought that the concept of basing prices on the costs of an efficient operator with the scale and scope achievable by all MNOs represents a compromise between these somewhat offsetting elements of how a competitive market — even a hypothetical one — would operate and the outcomes that it would produce.

79. However, the question of how to estimate that achievable scale and scope needs to be answered. What size is achievable by all MNOs?

80. In the present proceedings, we do not consider that a convincing case has been made that "achievable" translates into a 25% market share. Whether each of four operators in a market could achieve a 25% market share ignores questions about how the market is defined. Do all operators aspire to serve the whole market? What if some prefer certain market niches? Why should a business plan based on serving only a particular geographic area be ruled out?

81. Moreover, it may be that, for example, an operator that did seek to serve only a limited geographic area would enjoy the absence of some diseconomies of scale faced by a firm operating nationally. That is, it might not suffer from a lack of economies of scale at all. Alternatively, government-imposed roll-out obligations, if there were any, could be relevant. No materials were before us on that matter.

82. Furthermore, no evidence was presented regarding the minimum efficient scale in this industry. It is possible that in the long run, four

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operators, each with a 25% market share, is not a sustainable outcome. But in any case, minimum efficient scale may be virtually impossible to determine. For example, it might itself vary for operators with differing business plans.

83. In proceedings where it was necessary to determine the issue of an appropriate benchmark operator in terms of scale and scope, that is, size or market share, materials supporting the proposed approach would be needed. It would be necessary to have regard to market realities.

84. Having regard to the conclusions we have reached in relation to other aspects of Vodafone's cost models and in relation to the Pass Through Safeguard, it is not necessary for us to reach a concluded view on what is the benchmark of an efficient operator by reference to which an MNO's costs are to be assessed for their efficiency.

## **15. SPECIFIC ISSUES RELATING TO THE COSTS DETERMINED FROM THE PwC MODELS**

### **15.1 Expert Reports**

85. A number of expert reports were included in the material placed before us and we wish to make some observations about how those reports came into existence, and the manner in which the parties used and relied on them.

86. On 14 April 2005, the Commission issued a Discussion Paper and invited interested parties to submit their views on Vodafone's undertaking and the supporting submissions.

87. Submissions in response to the Commission's invitation included two reports prepared for Hutchinson: one by Marsden Jacob dated 17 August 2005 ("the Marsden Jacob Report"), and the other by Gibson Quai dated August 2005 ("the Gibson Quai Report").

88. The Commission retained Analysys to examine the two PwC reports. Analysys produced two reports for the Commission, one on 23 November 2005 ("the First Analysys Report") and the other on 23 December 2005 ("the Second Analysys Report"). The First Analysys Report which records its examination of the First PwC Model also draws on:

- a set of questions sent to Vodafone by the Commission on 3 October 2005 and Vodafone's response, dated 17 October 2005;
- the Marsden Jacob Report; and
- the Gibson Quai Report.

The Second Analysys Report, which records its examination of the Second PwC Model, lists:

- specific concerns with revised aspects of the PwC model; and
- concerns presented in the First Analysys Report which "still apply".

89. Vodafone submitted to the Commission an evaluation, dated 6 February 2006, of PwC's modelling by NERA ("the NERA Report"). The NERA Report "... focused on the revised version of the [Second PwC] model as it corrects a number of errors in the first version and uses more up to date cost and input data." PwC responded to the Analysys reports on 8 February 2006 in a report entitled "Response to Analysys papers on PwC Models".

90. Vodafone put in issue the statement in a disclaimer appearing on page one of the Gibson Quai Report that in making the report Gibson Quai "... has used its professional skills and judgement to provide the conclusions contained in this report but makes no representation or gives any warranty in relation to the information, conclusions and statements included in this report."

91. Also, on the assumption that the author of the Gibson Quai Report was Mr Dominic Quai, Vodafone queried the weight that should be given to the report. Vodafone referred to Mr Quai's curriculum vitae and submitted that his practical experience appeared to have ended in 1987 (which was before the introduction in 1993 of GSM networks) and that the Gibson Quai Report was not one which would demand a great deal of consideration.

92. While a disclaimer of the kind put in issue by Vodafone may be somewhat incongruous in an expert's report relied upon before a tribunal or a court, its existence is not such an issue as to lead us to reject, or give less weight to, the report. Indeed, if it were, it might also lead us in that direction in respect of other reports before us. For example, the First PwC Report, which Vodafone advanced as the

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foundation of its 16.15 cpm target price, contained the disclaimer that "PricewaterhouseCoopers LLP does not accept any responsibility and disclaims all liability (including negligence) for the consequences of any person other than Vodafone Australia acting or refraining from acting as a result of the contents of this Report".

93. However, Vodafone's submission exposes an issue which arises where a tribunal in our position is reviewing a matter on the merits on the basis of the material which was before the Commission without the opportunity to test or evaluate the experts' evidence by hearing them or through cross-examination. In that situation, the qualifications and experience of the persons responsible for the expert reports assume greater significance.

94. It is instructive to consider Vodafone's submission with respect to the weight to be given to a report having regard to the author's experience in the context of our function in reviewing the matter. A party seeking to have the Commission accept or reject an undertaking should have in mind that if the Tribunal were required to review the Commission's decision, the Tribunal may have regard only to information given, documents produced or evidence given to the Commission in connection with the making of the Commission's decision to which the review relates: s 152CF(4)(a). Thus, where a party seeks to rely on an expert's report to advance its case, the expert's qualifications, background and experience should, ideally, form part of the report and the relevance of the qualifications, background and experience should be linked directly to the subject matter of the report. A statement prepared to demonstrate the relevance of an expert's qualifications, background and experience to the matter under consideration by the Commission (or, on review, by the Tribunal) is far preferable to what appear to be pro forma statements such as those submitted in connection with the First PwC Report, Second PwC Report, Gibson Quai Report, Marsden Jacob Report, NERA Report, First Analysis Report and Second Analysis Report.

95. Also, while it may be correct to say, as Mr Hutley QC did, that it appears from Mr Quai's curriculum vitae that he left the employ of Telecom Australia prior to the 1987 introduction of its analogue Advanced Mobile Phone System, it does not necessarily follow that his subsequent experience is irrelevant to the matter before us or that the Gibson Quai Report should be given no weight.

### 15.2 Summary of claimed Empirical Flaws in models

96. It is material to the issue whether we are satisfied that the target price is reasonable that the two modelling exercises produced different results. The target price of 16.15 cpm in Vodafone's undertaking is based on the First PwC Model, as outlined in the First PwC Report. The Second PwC Model, which Vodafone submitted "verified" the First PwC Model, included refinements and enhancements and corrected errors (see par [35] above) in the First PwC Model to arrive at a price [X] cpm above the target price in the undertaking.

97. It is also of significance that notwithstanding that the First PwC Model upon which the target price of 16.15 cpm is based contained five "errors" which were "corrected" in the Second PwC Model, Vodafone submitted we should accept the product of the First PwC Model, its target price of 16.15 cpm, as reasonable.

98. The Commission submitted that even if Vodafone's conceptual approach were accepted, empirical flaws in the First PwC Model, which the Commission was able to quantify, resulted in an overstatement in the cost of supplying Vodafone's MTAS of at least 4.76 cpm. The following table summarising the impact of correcting the First PwC Model for the empirical flaws the Commission quantified was put in support of the Commission's submission:

<b>Target price specified in Undertaking</b>	<b>16.15 cpm</b>
Correction for too short asset lifetimes	-0.65 cpm
Correction for error in tilted annuity calculation	-0.97 cpm
Correction for incorrect routing factors	-0.81 cpm
Correction for short message service centre costs	-0.07 cpm
Correction for inaccurate splits of non-network costs	-2.42 cpm
Correction for inclusion of subscriber direct assets	+0.16 cpm
<b>Corrected target price</b>	<b>11.39 cpm</b>

99. The Commission further submitted that while the Second PwC Model corrected the errors in:

- the tilted annuity calculation; and
- the allocation of SMS centre costs,

it introduced the following five new empirical flaws:

- unreasonable price trends;
- unsupported contingency costs;
- incorrect inclusion of a return on assets in the course of construction;
- incorrect exclusion of acquisition and retention costs from the non-network indirect costs mark-ups; and
- unsupported revised splits of non-network asset costs and non-network operating costs.

100. Mr Hutley QC provided an issues paper in his opening submissions on behalf of Vodafone listing the issues which had been raised in relation to Vodafone's pricing principles, its price and its methodology. It included, by reference to the First and

Second PwC Models, the items in the table provided by the Commission and the new empirical flaws the Commission submitted were introduced by the Second PwC Model. The list set out the following issues:

#### Methodology

- A. Efficiency of costs (other than scale or scope) — inefficiency in infrastructure configuration (capital costs) and/or operating costs.
- B. Economies of scale and scope — is Vodafone an "efficient" benchmark operator?

#### First PwC Model run 2002/2003 data

- C. Asset lifetimes for radio site equipment and buildings.
- D. Error in tilted annuity calculation.
- E. "Incorrect" routing factor — voicemail.
- F. Incorrect allocation of short message service costs.
- G. "Inaccurate" splits of non-network asset and operating costs.
- H. Incorrect inclusion of subscriber direct assets.
- I. Unaccounted for likelihood of decrease in per unit cost.
- J. "Incorrect" SMS and GPRS conversion factors.
- K. Price trends and changes.

#### Second PwC Model run 2003/2004 data

- L. Contingency costs.
- M. Inclusion of a return on assets in the course of construction.
- N. Exclusion of acquisition and retention costs from non-network indirect cost mark-ups.
- O. Revised splits of non-network asset costs and non-network indirect costs.
- P. Weighted Average Cost of Capital ("WACC") — the choice of asset beta.

We have already addressed Issues A and B.

101. The following reasons address items in the Commission's table at par [98] and what it described as the additional empirical flaws using the alphabetical identification attributed to them by Mr Hutley QC.

#### 15.3 Issue C: Asset lifetimes for radio site equipment and buildings

102. In order to calculate Vodafone's capital costs and a depreciation profile for an appropriate return of capital (as distinct from a return on assets which is the function of the WACC), both PwC models relied on an estimate of the useful economic life of each relevant Vodafone asset.

103. While the First PwC Report was silent on the basis for the estimate of the useful economic life of each relevant Vodafone asset, the Second PwC Report provided the following explanation:

"The expected economic life was also estimated by Vodafone's engineers. The process followed was to use the accounting lives as a starting point, and consider

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whether there were or were not any specific reasons why the accounting life would not be suitable for use in the model, given the requirement for the financial statements to fairly present the Net Book Value of Vodafone's assets. It was concluded that the accounting lives were suitable for all asset categories."

104. Hutchison, Telstra and the Commission put in issue the estimate of [X] years for the useful economic life of radio site equipment and buildings submitting that the estimate was too short. Hutchison submitted that an appropriate estimate of the useful life of such assets was 25 years, consistent with the approach adopted in other jurisdictions such as Sweden. Telstra submitted that such asset life should be at least 15 years. The Commission submitted that asset life should be at least 15 years, if not 25 years. A number of the expert reports supported the proposition that the useful economic life of these assets used in the PwC models was too short. Gibson Quai believed that:

"The economic lives of buildings such as switch buildings should be at least 25 years, not [X] years as suggested by PwC."

Marsden Jacob said:

"We have compared the asset lives in the PwC model with those in publicly available models. Our review indicates the asset lives in the PwC model are too short and hence will tend to overstate annualized costs."

Analysys in its First Report believed that a [X] year lifetime was short, and that 15–20 years was more appropriate. In its Second Report Analysys said under the heading "Concerns presented in our previous report which still apply" that the asset lifetime of [X] years for site acquisition was short.

105. Vodafone's consultant, NERA, did not expressly support the reasonableness of the estimate. NERA said:

"Based on NERA's experience of building mobile TSLRIC models, [X] years would appear to be rather a short asset life for sites and 15 years would be much more typical. However, Vodafone have argued that the [X] year lifetime is effectively an average of [X] years for the average site lease term and less than [X] years for ancillary costs such as power, cabinets and air conditioning. If that is the case, the use of a composite asset life of [X] years, which is broadly consistent with an average site lifetime of 15 years, may not be unreasonable."

106. The effect of adopting an unreasonably short life is to increase the cost of the VMTAS, all other things being equal. Analysys estimated adjusting this asset life would reduce the VMTAS cost estimate by 4%. The Commission submitted that the adjustment would reduce the VMTAS cost estimate by 0.65 cpm.

107. During the hearing, an issue arose whether the [X] year asset lifetime assumption for radio site equipment and buildings as calculated by Analysys related just to the lease or to all of the costs of establishing a site, that is, the lease and the equipment such as macrocells, microcells, and picocells. Having regard to all the material before us we do not consider that the assets in issue include base station receivers. Further, we do not consider that the lifetimes of similar assets adopted by Optus are relevant to our consideration.

108. In the course of its consideration of the undertaking the Commission on 3 October 2005 asked Vodafone to respond to a number of questions. One question was "Is the economic life really [X] years for radio and switch sites? What data is available to support a [X]% annual replacement of radio sites today?" Vodafone replied on 17 October 2005:

"The lives used in the model are Vodafone's accounting lives – they represent a view of economic value given uncertainty and risk. Vodafone considers that an economic life of [X] years for radio and switch sites is reasonable and appropriate for a number of reasons.

Vodafone believes it is appropriate to consider the nature of leases for radio sites when determining whether an economic life assumption is appropriate. Vodafone estimates that the average term of site leases is [X] years. The average lease term could be said to give an upper limit for the life of the site acquisition and preparation as some of the up-front capital spend would not necessarily last for the whole life of the lease, e.g. the cabinet, power equipment, air

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conditioning. Therefore, the weighted life of the site acquisition and preparation is below the average lease term.

Further, there is considerable risk to Vodafone that it will be required to relocate or remove its equipment from a site for a variety of reasons including:

- (1) when the lease of a site has expired, there is considerable risk that the landlord will not enter into a new lease;
- (2) in relation to rooftop installations, a landlord is typically able to terminate a lease within its term if the landlord wishes to renovate or demolish the building where the site is located;
- (3) the suitability of the site may alter during the term of the lease (e.g. interference) requiring Vodafone to terminate the lease and relocate to another site;
- (4) Vodafone anticipates, given its investment in a 3G network, that it will be seeking to decommission some 2G sites over the next three or so years;
- (5) Discussions are taking place with other carriers about network sharing for 2G assets. While these discussions are preliminary and would be subject to the necessary regulatory approvals, this also adds to the uncertainty regarding the life of Vodafone's 2G sites;
- (6) the community concerns regarding electromagnetic emissions (EME) also increase the risks to Vodafone that it will be required to relocate its equipment from existing sites (e.g. sites close to schools).

Based on all the above considerations, Vodafone has concluded that there is no reason to diverge from the accounting life which has been assessed by Vodafone's independent auditors who concluded that a life of [X] years is appropriate."

We note that Vodafone did not supply to the Commission any data to support its contentions, nor did it give any examples of the occurrences or circumstances to which it referred.

109. PwC, in a paper dated 8 February 2006, responded to the reports submitted by Analysys relating to the PwC models. In relation to the lifetime of assets for site acquisition, PwC made the following observation:

"PwC recognises that its assumption for the economic life of the site acquisition categories is below the assumptions that

Analysys has made when it has built models for regulators in other jurisdictions. PwC has discussed this issue with Vodafone's network engineers and believes an assumption of a [X] year life is reasonable for the reasons explained to Analysys in the letter dated 17 October 2005 [see par [108] above]. Vodafone's arguments are based on events for which a significant risk exists in the future, e.g. the removal of sites for health concerns. It is not possible to empirically test this argument, but PwC believes the threat should be factored into the forward-looking useful economic life and therefore an assumption below the average length of site leases is not unreasonable. Therefore, PwC believes that a useful life assumption that is consistent with Vodafone's statutory accounts is not unreasonable."

110. PwC's belief may not, on its own, be unreasonable having regard to the matters specified in s 152AH and the objectives set out in s 152AB, but it has to be considered in the light of the material and evidence from the other experts. In the light of that consideration the question arises whether we are satisfied, having regard to the matters specified in s 152AH and the objectives set out in s 152AB, that the estimate in the model of [X] years for asset lives for radio life equipment and buildings is reasonable.

111. As a general proposition, Vodafone submitted that many of what the Commission described as "flaws" in the model involved matters of legitimate disagreement between experts about the proper approach to modelling with none of them being either strictly wrong or right. The "flaws" were, it submitted, essentially matters of judgment as explained by the Tribunal in *Telstra Corporation Limited* (supra) at par [63]:

"In this area of analysis there is no one correct or appropriate figure in determining reasonable costs or a reasonable charge. Matters and issues of judgement and degree

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are involved at various levels of the analysis. In considering whether Telstra's estimates of its costs are reasonable we are not driven to considering whether the Commission's or other parties' views or assessment of those costs are more reasonable. Nor do we enquire whether Telstra's method or approach in estimating its costs is the correct or appropriate approach. If Telstra's method or approach in estimating its costs is reasonable having regard to the statutory matters set out in ss 152AH and 152AB then the matter rests and a comparison with the \$9.00 monthly charge is then to be made ... Put shortly, our inquiry is whether the method employed by Telstra at each level of determining the costs of its LSS [*Line Sharing Service*] is reasonable having regard to the statutory matters identified in s 152AH and the objectives set out in s 152AB."

112. We are faced with conflicting expert evidence with regard to these "flaws". As noted earlier we may have regard only to information given, documents produced or evidence given to the Commission in connection with the making of the Commission's decision. The limitation on the material to which we may have regard denies us the means of testing and assessing an expert's opinion which might be available in other proceedings. For example, we do not have the benefit of listening to oral evidence and cross-examination, or the exchange of views between experts in a "hot tub". Limited as we are, faced with experts' reports expressing divergent opinions, we must look at all the material before us to see whether there is anything in it which might properly lead us to prefer one opinion over another. In undertaking that exercise, we have in mind that an applicant seeking to have the Tribunal accept an undertaking has two tasks:

- first, satisfying the Tribunal that the applicant's expert's opinion is to be preferred; and
- secondly, satisfying the Tribunal that any term or condition in the undertaking based on that opinion is reasonable.

As we are not bound by the rules of evidence (s 103(1)(c) of the Act), an applicant's task should not be overly onerous. For example, hard information might be contained in the form of a statement from relevant personnel to which an expert may refer and draw on to lay the foundation for an opinion.

113. In relation to the issue of the estimate in the models of asset lifetime for radio equipment and buildings a statement could have been made by a suitably qualified officer or employee of Vodafone providing information on any examples in Vodafone's 13 years of operations in Australia of the occurrence of risks of the kind it identified (par [108] above). For example, material might be forthcoming as to the number of times:

- a landlord has not entered into a new lease when one has expired;
- a landlord has terminated a lease in relation to rooftop installations within its term because the landlord wished to renovate or demolish the building where the site is located;
- the suitability of a site has altered during the term of the lease (for example, because of interference) requiring Vodafone to terminate the lease and relocate to another site; or
- community concerns regarding electromagnetic emissions required Vodafone to relocate its equipment from existing sites (for example, a site close to a school).

Such a statement would be of more assistance to us in considering whether we are satisfied that the asset lifetimes used in the model are reasonable having regard to the matters specified in s 152AH and the objectives set out in s 152AB than the mere

assertion of the risk of those events occurring as was given in Vodafone's response to the Commission's questions (par [108] above).

114. Also, else a conclusion be drawn that a foundation for an expert's opinion is *ex post facto* or contrived, it is in an applicant's interest if it is to be transparent that the foundation is laid prior to the expert expressing his or her opinion, rather than (as is the case here) after the opinion is called into question. In this respect we note that the explanations extracted in pars [103], [108] and [109] above for the foundation of PwC's estimates were provided

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only after the estimates were called into question.

115. Furthermore, if an applicant is to satisfy the Tribunal that the applicant's expert's opinion is to be preferred to the opinion of another expert, the expert's opinion must be free of ambiguity and expressed positively rather than, as is the case here, being expressed:

- in the negative ("may not be unreasonable" and "is not unreasonable": PwC's Response to Analysys reports on PwC models and the NERA Report see pars [105] and [109] above); and
- in language that is open to more than one interpretation whether the opinion expressed supports a finding of reasonableness ("... [X] years would appear to be rather a short asset life for sites and 15 years would be much more typical": see par [105] above).

116. Here we are faced with considering whether we should make a determination that we are satisfied that Vodafone's target price is reasonable based on, amongst other things, whether we prefer Vodafone's experts' opinions (PwC and NERA) over contra expert opinions (Gibson Quai, Marsden Jacob and Analysys) as to the reasonableness of Vodafone's estimates of relevant asset lives.

117. Oral submissions did not go beyond the material to which we have referred above. Nor is there anything in the material before us by way of hard information or raw data which lays an a priori foundation for PwC's estimate or NERA's tentative endorsement of the estimate.

118. Explanations of the basis upon which the estimates are made are *ex post facto* and less than satisfactory in that they are based on mere assertion, rather than hard information or raw data. Furthermore, while PwC may be correct to say "It is not possible to empirically test ... [an] ... argument ..." in relation to future events, as indicated in par [109] above, a statement from a suitably qualified officer or employee of Vodafone providing raw data of the number of times other risks identified by Vodafone have materialised in its 13 years of operation in Australia, is not beyond the realms of possibility. We note that the First Analysys Report stated:

"... the various site deployment risks facing Vodafone, whilst undoubtedly real, are not valid reasons for reducing the effective lifetime of the investments. This might be considered prudent in an accounting audit, but only to the extent that such risks result in real events would they be relevant from an actual lifetime perspective."

119. The opinions of both PwC and NERA on the issue of the reasonableness of the asset lives are expressed somewhat tentatively and negatively and, in the case of NERA, in a manner that is open to more than one interpretation (see par [115] above).

120. In the light of the matters to which we have referred, we are not satisfied having regard to the matters specified in s 152AH and the objectives set out in s 152AB that PwC's estimates of assets lives is reasonable. PwC's estimates of asset lives is one element in a series of elements used:

- in the First PwC Model, to arrive at Vodafone's target price; and
- in the Second PwC Model, to arrive at a price which Vodafone submits verifies that a reasonable target price is at or around 16.15 cpm.

Vodafone's failure to satisfy us of the reasonableness of PwC's estimates of asset lives is a factor we must take into account in considering whether we can be satisfied that Vodafone's target price is reasonable.

#### **15.4 Issue D: Error in tilted annuity calculation**

121. The Commission submitted that the First PwC Model contained a coding error in the tilted annuity calculation which resulted in the overstatement of Vodafone's network capital costs for 2002/2003. The Commission submitted that correction of this error would result in a reduction of 6% or around 0.97 cpm in the cost of the VMTAS. The error was identified by Analysys and related to the part of the calculation used in the model which adjusted the cost profile to reflect the period between Vodafone paying for the asset and the asset commencing productive service.

122. Vodafone agreed that the error existed and said it was corrected when the 2003/2004

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data was run through the Second PwC Model. The Commission pointed out that Vodafone's price was based on the First PwC

Model which contained the error and not on the Second PwC Model which corrected the error. The Commission observed that the Second PwC Model was submitted by Vodafone merely to provide "verification" of the First PwC Model.

123. Vodafone challenged this characterisation of the Second PwC Model. Vodafone's proposition was that the price derived from the First PwC Model was verified using Vodafone's 2003/2004 financial year data rather than that the Second PwC Model provided verification of the First PwC Model. Vodafone relied on the outputs of the two PwC models as evidence that its cost of providing its VMTAS is at or around 16.15 cpm.

124. Vodafone submitted that the relevant question before the Tribunal was whether the price of 16.15 cpm was reasonable and that all the evidence that related to that price must be considered. It contended that the Second PwC Model could not be disregarded by a misreading of Vodafone's submission as to that model's significance.

125. There is no dispute between the parties that a coding error in the tilted annuity calculation in the First PwC Report resulted in the VMTAS target price of 16.15 cpm in Vodafone's undertaking being overstated by 0.97 cpm.

126. Vodafone's submission that the Second PwC Report verified the target price of 16.15 cpm might find acceptance if the overstatement brought about by the coding error in the tilted annuity calculation was *de minimis* and the output of the Second PwC Model arrived at a figure that cancelled out the overstatement. That is not the case. The [X] cpm higher price resulting from the Second PwC Model does not cancel out a 0.97 cpm overstatement of the price in the undertaking, and would, all things being equal, suggest that the target price in the undertaking is overstated by a percentage of approximately [X]% or an amount of [X] cpm.

127. Also, addressing the coding error in the tilted annuity calculation as a singular issue ignores the possibility that an aggregation of some or all of the eleven empirical flaws identified by the Commission (the six in the First PwC Model and the five in the Second PwC Model, see pars [98] and [99] above) may lead to a conclusion that the cost of providing the VMTAS is not, as Vodafone would have it, "... at or around 16.15 cents per minute ..." but an amount less than 16.15 cpm such as to preclude us from being satisfied that the undertaking is reasonable.

#### **15.5 Issue E: "Incorrect" routing factor — voicemail**

128. Routing factors are used to reflect the fact that various services provided over the network will use the elements of the network with varying intensity. Routing factors are arrived at by examining the several network elements cost centres and, in respect of each element, determining the proportion of costs attributed to each centre that should be allocated to incoming calls. Because a number of incoming calls may go unanswered, and not use all the network elements they would if answered (in particular, base station controllers and base transceiver stations), an issue arose whether Vodafone was correct in treating incoming calls the same as outgoing calls in its determination of the proportion of costs attributed to each network element that should be allocated to incoming calls.

129. The Commission submitted that the direct cost allocation in the First PwC Model was based on routing factors that did not account for the fact that a proportion of incoming calls did not reach customers' mobile handsets. It contended that the routing factors used by Vodafone to allocate network asset costs were allocated equally between incoming and outgoing calls and that as not every incoming call was answered, the costs allocated to incoming calls, and therefore to the VMTAS, were overstated. Relying on the First Analysys Report, which stated the potential impact of a reduction of radio routing factors to reflect calls diverted to voicemail was a 5% reduction in the unit cost of termination (par [133] below), the Commission submitted correcting this error would reduce the cost of providing the MTAS by 0.81 cpm.

130. The First PwC Report stated:

"Routing factors, reflecting the extent to which the different services drive network usage for the main network elements, were

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provided by Vodafone. ... Some routing factors are universal — for example off-net calls will use one radio network per unit of output, whereas an on-net call will use two; others — for example backhaul transmission links — will reflect the network architecture in question. They are based on engineering measurements drawn from Vodafone's actual network as provided by Vodafone; where the necessary network engineering data have not been available, the figures have been estimated by Vodafone's network engineers."

131. In the course of its consideration of the undertaking, the Commission, on 3 October 2005, asked Vodafone to respond to the following question, among others:

"Why have incoming and on-net radio routing factors not been adjusted (downwards) for the proportion of incoming and on-net minutes which are diverted to voicemail or diverted to another number — therefore not utilising the radio network for call completion? What is the proportion of incoming and on-net minutes which are diverted?"

Vodafone replied on 17 October 2005:

"In addition to typical voicemail services where customers call their voicemail, Vodafone offers its customers a call back



option called RingAlert (which is free) whereby the customer's handset is called enabling the customer to listen to their voicemail messages. Under these circumstances, the incoming call is effectively in two parts, one of which does utilise the radio network. Vodafone does not have accurate data splitting the voicemail calls that are retrieved in this way vis-à-vis those retrieved by customers actively calling their voicemail. Vodafone does not also have accurate data for the number of minutes diverted to other numbers. Furthermore, PwC is not aware of any mobile cost model which seeks to adjust the routing factors for this effect (e.g. UK, Sweden, Greece, Israel, Tanzania)."

This issue was the subject of consideration by other experts. Analysys said:

"Although consistent with cost modelling approaches in other jurisdictions, using radio routing factors of [X] neglects the proportion of calls that are diverted to voicemail systems. This has been queried by GQ-AAS [*the Gibson-Quai Report*]. Vodafone has also noted that some incoming calls deposited on the voicemail system are automatically completed by a call-back – therefore effectively comprising a 'normal' incoming call in two parts.

Deciding whether or not to remove the cost of components of the radio resources which are avoided when incoming calls are left on voicemail effectively amounts to a decision for ACCC on which parties (incoming caller and/or mobile subscriber) benefit from incoming calls diverted to voicemail, and therefore whether these costs should be recovered in the MTAS charge."

132. Commenting on the First PwC Model, Gibson Quai said:

"The routing factors for incoming calls, which use the MTAS, are higher than we would expect, especially the routing factors for BTS [*Base Transmission Station*] and BSC [*Base Station Controller*] given that many incoming calls do not get answered by the called handset."

Having set out the routing factors used by PwC together with comments and variations that Gibson Quai believed would apply to a typical GSM network, Gibson Quai quantified this observation as follows:

"100. It would not be unreasonable to assume that more than 30% of incoming calls are not answered by the called service and thus do not use the BTS or BSC. This may be due to a number of reasons such as

- a Receiving party is on another call,
- b Receiving party is out of range,
- c Receiving party is cancelled or suspended, and
- d Call is diverted to voicemail or another number.

101. The incoming call routing factors for the BTS and BSC could therefore be reduced to say 0.7. About 60% of total costs of a mobile network can be attributed to the BTS and BSC systems. This is a

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conservative estimate. Thus a reduction in the routing factor for BSS [*Base Station Sub-System*] element for incoming calls would reduce the cost of providing the MTAS substantially.

102. We have previously noted that the Vodafone GSM technology is less traffic-efficient than other forward-looking technologies. Thus more traffic elements and BTSs are required to handle the traffic. Reducing the routing factor for these network elements for inbound calls would reduce the proportion of these costs allocated to the MTAS and so would substantially reduce the cost Vodafone incurs in providing this service."

Vodafone submitted that the Gibson Quai Report was not authority for the proposition that approximately 30% of incoming calls are not answered. However, it is the opinion of an expert which, as we have noted earlier, we are entitled to take into account.

133. Analysys was also concerned with the radio routing factors used in the First PwC Model. It observed in the First Analysys Report:

"The radio routing factors used do not take into account the proportion of incoming calls which are diverted to voicemail systems, and which therefore do not use significant radio layer resources. However, reducing the incoming call radio routing factor to account for this effect amounts to a specific exclusion of the recovery of voicemail deposit and retrieval costs from incoming callers."

Analysys estimated that 15% of incoming and on-net calls are diverted to voicemail and that the reduction of radio routing factors to reflect this diversion resulted in a consequent [X]% reduction in the unit cost of termination. Again, Vodafone submitted that Analysys' report is not authority for the proposition that 15% of incoming and on-net calls are diverted to voicemail. It is the opinion of an expert which we are entitled to take into account.

134. Analysys maintained its concerns about the radio routing factors in the Second Analysys Report but it did not include the [X]% reduction in the unit cost of termination attributable to the radio routing factors in a table summarising its views in that report. That table did not repeat the cost impacts which still applied as a result of its consideration of the First PwC Model but which had not been addressed by PwC in the Second PwC Model. NERA assumed that this exclusion occurred because

Analysys recognised that, if incoming call routing factors were adjusted downwards, voicemail deposit and retrieval costs would not be recovered from incoming callers. That assumption is erroneous and there is no basis for it to be found in the Second Analysys Report.

135. Vodafone contended that Analysys did not consider the radio routing factors used in the PwC models to be an error but had rather characterised its approach to the radio routing factors as a suggested revision. That contention understates the conclusion reached by Analysys which was that the radio routing factors failed to take account of a factor which had an impact on Vodafone's termination costs.

136. PwC responded to Analysys' concerns about the radio routing factors by observing that while Vodafone recognised that some calls terminated in the voicemail system, given that subscribers have a ring-back facility that allowed for free retrieval of voicemail messages, calls terminating on the voicemail system should be treated as two-part terminating calls and therefore no adjustment to the radio routing factors was necessary. PwC also observed that if the Commission wished to move to the next level of detail, for example, understanding how many incoming and on-net calls are terminated in the voicemail system which are not covered by the ring-back facility, it would be necessary to move to the next level of detail on all other network elements. PwC believed this would be extremely time-consuming to implement.

137. The Commission did not accept this proposition. While it accepted PwC's contention that it was important to strike the right balance between levels of accuracy and the time and effort that accuracy would require, it considered that an appropriate set of routing factors should, where possible, reflect relatively obvious differences in traffic patterns between different network elements. In the Commission's view, the fact that Vodafone, PwC, Analysys and Gibson Quai had accepted

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that a proportion of incoming calls will not use "radio" network elements supported the view that an appropriate set of routing factors should be used.

138. The Commission identified three problems with PwC's proposition (par [136] above) that calls terminating on the voicemail system should, because of the ring-back facility, be treated as a two-part terminating calls:

- first, Vodafone did not provide data as to the percentage of its customers who have access to the facility;
- secondly, Vodafone did not provide data as to the percentage of calls that are diverted to those customers' voicemail; and
- thirdly, if ten messages are diverted to a customer's voicemail, only one ring-back call is made to that customer to alert the customer to the messages.

139. The Commission submitted that the fact that Vodafone did not have the data available to make the appropriate adjustment (or even to estimate its magnitude) demonstrated that it could not satisfy the Tribunal of the reasonableness of this aspect of its undertaking. Telstra noted that Vodafone's approach made the inappropriate assumption that all incoming calls would be answered and that no such calls would be diverted to voicemail. Telstra noted that this assumption was known to be false and even after it was pointed out no alteration was made to the Second PwC Model to account for this fact.

140. Vodafone submitted that its records did not contain information separating out the percentage of unanswered calls retrieved by voicemail vis-à-vis its RingAlert service. It submitted that it did not have the data and that there was not a model anywhere that had ever applied this, and said that there were mitigating factors which apply which altered any effect, such as the RingAlert service.

141. Mr Hutley QC for Vodafone submitted that in those circumstances it was not unreasonable not to seek to adjust the routing factors and that it was a reasonable approach not to do so, having regard to the nature of the exercise in which the Tribunal was engaged.

142. The difficulty with that submission is that it is known and accepted that a percentage of calls are diverted to voicemail and this has not been taken into account in the routing factors used by PwC.

143. Vodafone relied on NERA's conclusion that:

"Given that incoming calls give rise to voicemail costs, and that it is not clear that the routing factors do in fact significantly overstate the use of radio resources by incoming calls, we do not believe that the costs from the PwC model should be adjusted in the way suggested in Analysys's first report."

144. Vodafone's response to the third problem identified by the Commission (par [138] above) was that:

"The critical value is not the number of terminating calls, but the volume of terminating call minutes. Therefore, the ring-back facility does mean that it is appropriate to characterise calls that are diverted to voicemail as two-part terminating calls because every minute of use involved in the depositing of the voicemail message by the caller is matched by the minutes of use involved in retrieving that message through the ring-back service."

145. Again, we are faced with considering whether we should make a determination that we are satisfied that Vodafone's target price is reasonable based on, among other things, whether we prefer Vodafone's experts' opinions (PwC and NERA) over contra

expert opinions (Gibson Quai and Analysys) as to the reasonableness of a critical element in the model used to derive the price and to verify it.

146. The weight that might be given to the NERA opinion is diminished because:

- it is tentative in its conclusion "... it is not clear that the routing factors do significantly overstate the use of radio resources by incoming calls ..." (see par [143] above); and
- as observed in par [134] above, its conclusion is reached after an erroneous assumption that a reduction in the cost of call termination of [X]% was not assessed by Analysys in relation to radio routing factors.

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147. As we previously extracted at par [130] above, the First PwC Report observed:

"Routing factors ... were provided by Vodafone ... **based on engineering measurements** drawn from Vodafone's actual network ... [and] ... where the necessary network data have not been available, the figures have been **estimated by Vodafone's network engineers.**" (emphasis added)

PwC accepted the routing factors provided by Vodafone and applied them in its modelling exercises without a critical assessment whether they were appropriate. Its view on their appropriateness is only provided *ex post facto*, once they have been called into question by the Commission and the two Analysys reports. Its view is not backed-up by hard data. Neither the raw engineering measurements, nor the network engineers' estimates, were in the material before us in a manner that allowed us to test whether they provided a proper foundation upon which the PwC models might derive a reasonable VMTAS target price.

148. When the routing factors are put in issue and a question asked by the Commission, Vodafone's answer (par [131] above) admits to not having accurate data to enable it to answer the question. Nor does it have its network engineers provide estimates of the kind described in the First PwC Report. Further, PwC's response (par [136] above) to the Analysys reports, to the effect that it would be extremely time consuming to provide the detail, is at odds with the fact that Vodafone's target price derived from the First PwC Model is, at least in part, founded on network engineers' estimates. Such estimates and the basis upon which they are made might be readily provided, tested and the issue resolved one way or the other.

149. In our view, Vodafone's submission that another regulator (Ofcom) had decided to adopt routing factors the same as those used by Vodafone and that we should therefore be satisfied that they are reasonable fails. Vodafone did not provide us with sufficient information to allow us to evaluate the relevance of the other regulator's decision: information about such matters as the structural and regulatory framework of the industry in the regulator's country, the criteria used by the regulator in reaching the decision and the trade-offs that might have been made in reaching the decision.

150. As we identified above in par [112], an applicant seeking to have the Tribunal accept an undertaking having its foundation in an expert's opinion has two tasks:

- first, satisfying the Tribunal that the applicant's expert's opinion is to be preferred; and
- secondly, satisfying the Tribunal that any term or condition in the undertaking based on that opinion is reasonable.

By not providing data or, in the absence of readily available data, transparent estimates by its network engineers, Vodafone fails the first task. Accordingly, we are not able to be satisfied that it was reasonable for Vodafone to treat incoming calls the same as outgoing calls in its determination of the proportion of costs attributed to each network element that should be allocated to incoming calls.

151. As with PwC's estimates of asset lives, the radio routing factors are one element in a series of elements used:

- in the First PwC Model, to arrive at Vodafone's target price; and
- in the Second PwC Model, to arrive at a price which Vodafone submitted verified that a reasonable target price is at or around 16.15 cpm.

Vodafone's failure to satisfy us of the reasonableness of the radio routing factors is a factor we must take into account in considering whether we can be satisfied that Vodafone's target price is reasonable.

#### **15.6 Issue F: Incorrect allocation of short message service (SMS) centre costs**

152. The First PwC Model incorrectly allocated \$[X] million in SMS centre costs as a network indirect cost (ie, a cost that is proportionately allocated to all mobile services, including the VMTAS) rather than as a direct cost to the SMS centre. This error was acknowledged and accepted by PwC. The error reduced the target price in Vodafone's undertaking by 0.07 cpm. The error was corrected in the Second PwC Model where the

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annual capital cost associated with the SMS centre was directly allocated by the model.

153. The Commission submitted that while the error was corrected in the Second PwC Model, the target price was based on the First PwC Model and the Second PwC Model was submitted by Vodafone merely to provide "verification" of the First PwC

Model. We note again, as we did in pars [122]–[126] above, that Vodafone challenged this characterisation of the Second PwC Model.

154. Vodafone submitted that Analysys did not include the re-allocation of SMS centre costs in its "suggested revisions", apparently accepting its immaterial nature. Vodafone relied on the outputs of the PwC models using 2002/2003 and then 2003/2004 data as evidence that the cost of providing the VMTAS was at or around 16.15 cpm, as opposed to mere "verification" as submitted by the Commission.

155. The relevant passage in the First Analysys Report which sets out Analysys' conclusion on the magnitude of unit costs and a summary of it in an attached table, does not support Vodafone's submission that Analysys accepted the error as immaterial. The passage presents a summary of Analysys' views on the magnitude of unit cost in a table noting that:

- it has not adjusted the model calculations to include all its suggested improvements in the table;
- all but two of the adjustments included in the table reduced the cost of providing the VMTAS;
- all were material in nature (ie greater than 1%); and
- it would expect that Vodafone's proposed model result materially overstated the result that would be achieved by adopting all Analysys' suggested revisions.

156. Analysys may not have included the SMS centre cost error adjustment in its table, but the error nevertheless contributed to what Analysys considered to be a material overstatement of the cost of providing the VMTAS. While in percentage terms (0.43%) or even in cents per minute terms (0.07 cpm) the error adjustment may not, on first glance, appear significant, in annual terms it involves an adjustment of some \$[X] million.

157. Also, as is the case with the tilted annuity calculation (par [127] above), addressing the empirical flaws identified by the Commission as single issues ignores the possibility that an aggregation of some or all of the flaws may lead to a conclusion that the cost of providing Vodafone's VMTAS is not, as Vodafone submitted "... at or around 16.15 cents per minute ..." but an amount less than 16.15 cpm such as to preclude us from being satisfied that the undertaking is reasonable.

158. We do not therefore exclude this error from our consideration whether we are satisfied that Vodafone's target price of 16.15 cpm is reasonable having regard to the matters specified in s 152AH and the objectives set out in s 152AB.

#### **15.7 Issue G: "Inaccurate" splits of non-network asset and operating costs and Issue O: Revised splits of non-network asset costs and non-network indirect costs**

159. Issues G and O focus on whether the First PwC Model and the Second PwC Model are correct in their allocation between Vodafone's retail operations and its network operations of indirect non-network costs associated with the totality of its business, in particular such costs of:

- computers;
- billing; and
- furniture and fittings.

Costs in the context of these issues include:

- capital expenditure ("capex") or expenditure on the acquisition of assets; and
- operating expenditure ("opex") or expenditure on operating or maintaining the assets.

160. The allocations determine those costs (retail) which are excluded from the PwC models and those (non-network) which are included. In an *aide memoire* the Commission explained the issue:

"The issue surrounds the allocation of non-network asset and operating costs in the PwC model, particularly how they have been allocated between 'retail' and network/non-network activities. These costs

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comprise approximately one-half of the total costs in the PwC model, so this issue is of quantitative significance.

...

Costs allocated to network and non-network feed through to the MTAS estimate. Costs allocated to 'retail' do not feed through to MTAS. Therefore, the greater the proportion of these costs allocated to 'retail' activities, the lower the MTAS estimate and vice versa."

161. The First PwC Report outlined a number of assumptions and caveats contained in the First PwC Model which included the following:

"The granularity of Vodafone's cost data is such that, in our experience, further disaggregation has been necessary in a number of specific instances, so as to prevent a biasing of results. In the absence of detailed data, the preferred alternative

was to rely upon a combination of our experience in other jurisdictions (and, specifically, information from costing modelling undertaken for Vodafone in the UK) and estimates provided by Vodafone. These further disaggregations, and the sources used in deriving such, are set out below:

- billing (capital costs) — split wholesale ( $[X]\%$ ) and retail ( $[X]\%$ ). Source: Vodafone UK cost model, with costs split consistent with the ratio of gross book value of assets.
- IT costs (to be used in allocating the hardware and software capex and opex) — split retail ( $[X]\%$ ) and non-network indirect ( $[X]\%$ ). Source: Vodafone UK cost model, with costs split consistent with the ratio of gross book value of assets.
- Furniture and fittings — split retail only ( $[X]\%$ ); network only ( $[X]\%$ ) and non-network indirect ( $[X]\%$ ). Source: Vodafone UK cost model, with costs split consistent with the ratio of gross book value of assets.
- 'other opex' — split between subscription related ( $[X]\%$ ) and non-network indirect ( $[X]\%$ ). Source Vodafone estimate."

162. The Second PwC Model retained the billing and IT allocations used in the First PwC Model, but it varied the furniture and fittings and the other opex allocations.

163. The furniture and fittings allocation as varied was described in the following passage in the Second PwC Report:

### "3.2 Furniture and fittings

In the 2002/03 model it was assumed that  $[X]\%$  of furniture and fittings assets were subscription related,  $[X]\%$  network related and  $[X]\%$  head-office related based on the split experienced in other jurisdictions. However, from the detailed review of the fixed asset source data, it appears that furniture and fittings comprise two TB [*trial balance*] codes, furniture and fittings and network furniture and fittings. The network furniture and fittings comprise  $[X]\%$  of the total of furniture and fittings. We have assumed the remaining  $[X]\%$  of furniture and fittings costs should be allocated to subscription and head-office in proportion to the  $[X]$  split previously assumed.

Whilst we have not undertaken a similar review of the 2002/03 data, there was no material investment in fixtures and fittings in 2003/04 and therefore the previously adopted assumption appears to be conservative and results in an understatement of the termination rate."

The Second Analysys Report noted that:

- the Second PwC Model split furniture and fittings into  $[X]\%$  retail,  $[X]\%$  network and  $[X]\%$  non-network;
- the split of furniture and fittings was a revised split; and
- its previous comments on the splits proposed by Vodafone still applied.

164. The other opex allocation was varied as a result of a more detailed review of the underlying accounting data described in the following passages from the Second PwC Report:

### "2.1 Operating cost data

A detailed review of the underlying operating cost data was performed to ensure

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the inputs to the cost model are consistent with Vodafone Australia's financial statements. ...

...

Apart from reviewing the total costs that have been included in the model, a review of the categorisation of costs has also been performed. This has been done by reviewing outputs by account code from Vodafone's accounting system, and reviewing how the costs for the different account codes were allocated. Whilst PwC have not been able to check on a code-by-code basis (it is not always apparent what the codes relate to), it appears that Vodafone have adopted a logical approach in categorising the costs, and that the summary costs shown in the table in Appendix 1, appear to be consistent with the underlying accounting data that has been sourced from Vodafone's accounting system.

Whilst no inconsistencies were found in the categorisation of costs, we have noted an inconsistency between the nature of the 'other opex' costs, and how they were treated in the original cost model with 2002/03 data. This is explained in more detail in section 3.1.

...

### 3.1 Other opex

In the 2002/03 model, there was a category of costs entitled 'other opex' that included a variety of costs which were not necessarily identified. In the absence of more detailed information at the time it was assumed that  $[X]\%$  of the costs were directly related to subscription and the remaining  $[X]\%$  were incurred to support all services. This assumption was based

on analysis undertaken in the UK to support the Vodafone UK model.

As a result of the more detailed review of the underlying accounting data undertaken for the 2003/04 model described in section 2.1, it has been subsequently possible to determine the main elements of the 'other opex' costs. The main items comprise the following cost categories: Public Policy Other; Head Office; HR Training & Learning and Managing Director. These 4 cost codes account for [X]% of the Other Opex category, and are all costs that are incurred to support the full range of services offered by Vodafone Australia. Therefore, for the 2003/04 model, other opex costs are treated [as] non-network indirect costs and recovered across all services."

165. Commenting on the manner in which the First PwC Model split the following non-network asset classes:

- furniture and fittings ("F&F");
- computers (hardware and software); and
- billing,

the First Analysys Report stated under the heading "4.12 Step 12: Split non-network asset categories" that:

"[the] ... splitting appears to recognise that non-network activities are classified broadly in Vodafone's internal systems, and comprise a number of distinct activities:

- retail activities
- mis-classified network activities
- business overhead activities
- retail billing.

The [X]% of billing costs identified as wholesale billing is stated to be a non-Australian Vodafone benchmark, and these costs are treated as a network indirect cost. No data on this percentage has been provided by Vodafone – although, given the indirect treatment of this cost, this does not appear to represent a significant concern.

Vodafone has explicitly classified its non-network labour costs as shown in Exhibit 18. [ie: Exhibit 18 to the First Analysys Report which is not reproduced here.]

...

It is evident from this classification – although Vodafone does not adhere to it — that explicit business overhead wages account for only [X]% of non-network staff costs. Therefore, we would question the allocation of [X]% and [X]% of F&F and computers, respectively, to network indirect costs (the equivalent of business overheads in the subsequent allocations). We believe it would be more accurate for Vodafone to identify a proportion of the [X]% and [X]% factors that relate specifically to business

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overhead activities compared to retail activities.

This refinement would include Vodafone subdividing the activities of the staff categorised as "Non-network staff" in order to identify staff time or headcount dedicated to the following two areas:

- **business overhead activities:** legal, regulatory, government affairs, human resources, Ericsson JV, wholesale activities
- **retail activities:** retail customer care, retail sales and retail marketing."

166. In commenting on the split of non-network opex categories, the First Analysys report stated:

"Two categories of non-network opex are split further:

- non-network (IT, buildings, fixtures) staff: [X]% retail, [X]% non-network
- other opex: [X]% non-network, [X]% retail.

The split of non-network staff is in the same proportion as was questioned in Section 4.12 above. As noted there, we believe it should be possible to more accurately separate the non-network staff cost into its component activities – in particular identifying business overhead activities separately from retail-related activities."

167. In the course of its consideration of the undertaking, the Commission, on 3 October 2005, asked Vodafone to respond to the following question:

"What is the [X]% "other opex" allocated to non-net indirect?"

Vodafone replied:

"It is not possible to isolate specific costs that are included in the [X]% of other opex that has been allocated to

non-network indirect. The other opex is the difference between the total opex and the opex that was able to be put into the other categories using a number of different data sources. The [X]% assumption was based on analysis from the Vodafone UK cost model. Given the efforts made by Vodafone in identifying all network related opex and general business overheads, it was assumed that the majority of the uncategorised opex should be treated as subscription related. However, it is very unlikely that all of the uncategorised opex related to subscription and therefore Vodafone decided to adopt the conservative assumption of [X]% of the uncategorised costs relating to subscription and [X]% relating to the whole range of services provided by Vodafone."

168. In summarising its views on the issues, the First Analysys Report stated:

"The allocation of non-network Computers and F&F assets does not appear to relate to a headcount breakdown of Vodafone's non-network staff. We suggest a material allocation of these assets should be made to Retail services. **The same criticism applies to the allocation of certain significant non-network operating expenditures.**" (emphasis added)

Analysys examined the effect of the revision of non-network asset and opex allocations and concluded that the effect depended on the proportions allocated to retail activities. It considered that the effect could be up to a 15% reduction in the unit cost of termination if significant costs were allocated to retail activities.

169. Under a heading "Concerns presented in our previous report which still apply" the Second Analysys Report stated:

"The allocation of non-network Computers and F&F assets does not appear to relate to a headcount breakdown of Vodafone's non-network staff. We suggest a material allocation of these assets should be made to Retail services."

This paragraph of the Second Analysys Report does not, however, conclude with the concern expressed in the First Analysys Report (par [168] above) that:

"The same criticism applies to the allocation of certain significant non-network operating expenditures."

170. In its response to the two reports by Analysys, PwC stated:

"Analysys claim that the treatment of non-network computer costs should be changed to allow more of the cost to be allocated to the subscription service. In the table that

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shows the impact of Analysys' proposed changes to the model, the effect of allocating more opex costs to retail services is estimated at up to 15%. PwC does not agree that this is the case. If all the costs relating to computers, furniture and fittings and other opex are allocated to retail services, the modelled cost of termination only decreases by 11% (once the tilted annuity formula has been corrected). However, this would imply that all these costs are borne exclusively in the provision of retail services. From discussions with Vodafone's financial department it is apparent that this is not the case. PwC in conjunction with Vodafone has reviewed the most material of these cost categories — non-network computers. The level of detail in the fixed asset register does not allow for a detailed summary to be prepared, e.g. many of the assets are described simply as "hardware" or "software". However, certain types of assets have been identified. A number of groups of assets were explicitly identified in this part of the fixed asset register, including billing, data warehousing and financial systems. PwC believes that these categories are consistent with the prevailing assumption that non-network computers will include some assets that are specific to the retail service and others which support the whole range of services offered by Vodafone. Therefore, the assumption, based on UK cost-modelling, that [X]% of non-network computer costs are retail-specific and the remainder is incurred in supporting all services, appears to be a reasonable approach to have adopted."

171. The Commission submitted, by way of an *aide memoire*, that:

- in arriving at its view that a revision of non-network asset and opex allocations could result in a reduction of up to 15% (or 2.42 cpm) in Vodafone's MTAS target price of 16.15 cpm, Analysys did not, as PwC did, in arriving at its 11% figure, restrict itself to "F&F", computers and other opex categories only;
- the upper bound (if all non-network costs were allocated to retail) is a [X]% or [X] cpm reduction. (A footnote to the Commission's *aide memoire* explained that:
  - the Commission calculated this potential reduction by allocating 100% of non-network capital and operating costs not already allocated to retail in the First PwC Model to retail; and
  - By way of comparison performing the same calculation in the Second PwC Model reduces Vodafone's MTAS target price by [X]% or [X] cpm); and
- while it is not reasonable that all of these costs should be allocated to retail, Analysys' estimate of a reduction of up to 15% or 2.42 cpm falls within the possible range.

172. The Commission's *aide memoire* also contained the submission that:

"One of Analysys's main concerns arises from the view that Vodafone should have been able to identify more accurately the proportions of these non-network cost categories (which related to asset and operating costs) that relate to retail versus business overhead activities.

Instead, Vodafone appears simply to rely largely on proportions taken from the cost model developed by Vodafone UK. Vodafone has provided no information to support the view that these proportions are reasonable in an Australian context, referring only to work done for it in the UK and the views of its own financial department."

173. Notwithstanding that Analysys found "The [X]% of billing costs identified as wholesale billing ... does not appear to represent a significant concern", the Commission took issue with that conclusion. On the basis that Vodafone would bill VMTAS to only a very small number of other mobile network operators whereas retail billing would involve potentially huge numbers, the Commission submitted that such a large percentage ([X]%) of billing costs to wholesale seemed unreasonable.

174. Vodafone's response to this submission was that wholesale billing did not just relate to billing MTAS to other mobile network operators but it also related to dealing with interconnect bills received from other mobile

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network operators. It said that the cost of wholesale billing is recovered across all services with an interconnecting leg.

175. The Commission challenged Vodafone's lack of methodological rigour which it submitted was illustrated by Vodafone's response to the Commission's question set out in par [167] above and, in particular Vodafone's statement that "It is not possible to isolate specific costs that are included in the percentage [X]% of other opex that has been allocated to non-network indirect". The Commission observed that:

"Vodafone argues that due to limitations in its fixed asset register it cannot provide a more detailed breakdown of these costs, although its 'financial department' and PwC did investigate a subset of these costs. However, its ultimate conclusion was to sustain the same position that was the subject of Analysys's principal criticism of the inconsistency and lack of detail in these allocations."

176. Relying on the First Analysys Report, the Commission submitted that:

- it should have been possible for Vodafone to separate more accurately its staff costs into different activities; and
- doing so could reduce Vodafone's MTAS by up to 2.42 cpm.

177. Referring to the passage quoted in par [168] above from the First Analysys Report to the effect that it would be more accurate for Vodafone to identify, by subdividing the activities of staff on the basis of time or a headcount, a proportion of the [X]% non-network "F&F" allocation and the [X]% non-network computers allocation that related specifically to business overhead activities compared to retail activities, Vodafone submitted that the level of detail in its fixed asset register did not permit a more detailed breakdown of non-network and operating costs.

178. Vodafone also submitted that it did undertake a detailed review of the most significant category of non-network asset costs which supported the assumption that [X]% of non-network computer costs were retail-specific and the remainder was incurred in supporting all services adopted by it.

179. Vodafone concluded that this assumption was supported by modelling in the United Kingdom and it relied on PwC's response, referred to in par [170] above, to the two Analysys reports.

180. Mr Hutley QC submitted that the First PwC Model's "F&F" split had been the subject of criticism by Analysys and had been dealt with in a manner which demonstrated that the first allocation was conservative. He referred us to the Second PwC Report as set out in par [170] above and indicated that Vodafone had taken up Analysys' issue with "F&F".

181. Vodafone took issue with the Commission's contention that it had not demonstrated the reasonableness of the undertaking, particularly in circumstances where Analysys considered that it should have been possible for Vodafone (or PwC) more accurately to separate the costs of Vodafone's retail activities. Vodafone submitted that Analysys did not state that it considered that it should have been possible for Vodafone or PwC to split out more accurately non-network assets and operating costs. Rather, Analysys believed it would be more accurate for Vodafone to identify a proportion of the [X]% and [X]% factors that related specifically to business overhead activities compared to retail activities.

182. Vodafone's reply noted that if all of the costs relating to computers, furniture and fittings and other operating costs were allocated to retail services, the modelled cost of termination would decrease by 11% or 1.78 cpm, not the 2.42 cpm contended by the Commission. Vodafone referred to PwC's response to the two Analysys reports (par [170] above).

183. Vodafone's concluding submission on these issues was that given that the level of detail in the fixed asset register did not permit exact identification of the split of non-network assets and operating costs between the six services between which the entirety of Vodafone's costs was allocated, the approach taken to divide these costs among the relevant services was reasonable.

184. Once again, we are required to determine issues on the basis of experts' opinions. As we have noted earlier, in

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circumstances where the Tribunal is to determine a matter on the basis of expert opinions without the benefit of testing and assessing them as we might in other proceedings, it is crucial that a party seeking to advance or rebut an expert's opinion focus on the words and expressions used by the expert and not ignore, substitute or otherwise vary those words. In addressing the allocation of billing, "F&F", computers and other opex both the Commission and Vodafone have failed in this respect.

185. The Commission's submissions on billing ignore:

- the fact that PwC's billing allocation was restricted to capital costs (see the passage from PwC's First Report set out in par [161] above); and
- what is said in the First Analysys report to the effect that PwC's [X]% wholesale billing allocation does not represent a significant concern.

Having regard to Vodafone's explanation of its wholesale billing operation (par [174] above), and what is said in the First Analysys report to the effect that PwC's billing allocation does not represent a significant concern, we are satisfied that PwC's allocation of billing (capital costs) [X]% to wholesale and [X]% to retail is reasonable.

186. It does not, however, follow from our finding that Vodafone's billing allocation is reasonable, that we reject the Commission's submission, based on Analysys' assessment, to the effect that a more accurate allocation could reduce Vodafone's target price by up to 15%, that is 2.42 cpm. Analysys' assessment was reached on the basis that Vodafone's billing allocation did not represent a significant concern to it.

187. Vodafone's submissions on "F&F" ignore the statements in the Second Analysys Report (par [169] above) to the effect that its concerns with the "F&F" split remain and should be based on a head count breakdown of Vodafone's non-network staff. Accordingly, we reject Vodafone's submission that it has taken-up Analysys' issues with "F&F".

188. While we accept Vodafone's submission that Analysys does not state that it considers that it should have been possible for Vodafone or PwC to split out more accurately non-network assets and operating costs, the submission ignores the gravamen of Analysys' opinion that what Analysys regards as a "refinement" might be undertaken by way of identifying staff time or a headcount. Thus, Vodafone's submission to the effect that the level of detail in its fixed asset register does not permit a more detailed breakdown is not an answer to the Commission's submission that it should have been possible for Vodafone to separate more accurately its costs into different activities.

189. This is another instance where Vodafone has not done all that it might have reasonably done (prepare an estimate of staff time or conduct a headcount) to demonstrate that its expert's opinion is to be preferred to that relied on by the Commission. Accordingly, we are not satisfied having regard to the matters specified in s 152AH and the objectives set out in s 152AB that the First PwC Model's "F&F", computer and other opex allocations are reasonable.

190. PwC's allocations are critical and significant elements used in the First PwC Model to arrive at Vodafone's 16.15 cpm target price in its undertaking. Vodafone's failure to satisfy us of the reasonableness of PwC's allocations is a factor we must take into account in considering whether we can be satisfied that Vodafone's target price is reasonable.

191. In the course of his address, Mr Hutley QC submitted that the Second PwC Model was a properly worked model which came to a figure that was greater than 16.15 cpm so that *ex hypothesi* a price of 16.15 cpm must be reasonable.

192. These submissions ignore the fact that while the Second PwC Model may have reworked the "F&F" and other opex allocations, the Second Analysys Report makes it clear that Analysys' concerns with the allocation of computers and "F&F" remain. Accordingly, we can not be satisfied that the outcome of the Second PwC Model verifies the proposition that notwithstanding that there is an error in the First PwC Model, it nevertheless produces a target price which we might be satisfied, having regard to the matters specified in s 152AH and the objectives set out in s

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152AB, is reasonable to incorporate in Vodafone's undertaking.

#### **15.8 Issue H: Incorrect inclusion of subscriber direct assets**

193. Analysys considered the First PwC Model incorrectly included subscriber direct assets, totalling \$[X] million, (which covered retail billing and other retailing assets) with network indirect operating expenses which formed part of the asset cost base for the VMTAS. PwC agreed that the subscriber direct assets should not have been included in the cost basis for the allocation of indirect network operating expenses. Analysys said that if those assets were so excluded the corresponding equi-proportionate mark-up percentage increased from [X]% to [X]%, which was 0.16 cpm.

194. This error was corrected in the Second PwC Model.

#### **15.9 Issue I: Unaccounted for likelihood of decrease in per unit costs**

195. This issue identified what the Commission submitted was an empirical flaw in the First PwC Model which was not quantified. The First PwC Model used accounting and operational data for the financial year to 31 March 2003. The Second PwC Model used accounting and operational data for the financial year to 31 March 2004. Vodafone submitted that this was a

reasonable approach. The Commission submitted that, on this basis, the models did not account for the likely decrease in per-unit costs of providing the VMTAS between 2002/2003 and 2007/2008. A number of the experts considered that decreases in Vodafone's capital and operating per-unit costs were likely over that period. Vodafone contended that possible increases in other cost inputs between 2002/2003 and 2007/2008 meant that there might not be any overall decrease in costs over the relevant period and that if there were to be a decrease it was likely to be small.

196. NERA was of the view that although some increases in productivity could be expected it was far from clear that these would completely offset the impact of general price inflation and the tendency for wage growth to outstrip the general rate of inflation. NERA considered that it was quite likely that non-capital costs would increase over time and it was possible that they might offset or even more than offset the reduction in capital costs. NERA accepted that without a much fuller analysis it was not possible to reach a definite conclusion.

197. None of the parties or the experts sought to quantify the effect or consequence of the likelihood of the decrease in Vodafone's capital and operating per-unit costs over the relevant period. Having regard to the conclusions we have reached in relation to the other issues in relation to Vodafone's costs, it is not necessary to consider this issue any further.

#### **15.10 Issue J: Incorrect SMS and GPRS conversion factors**

198. To enable the allocation of network costs between the different conveyance systems, SMS messages and GPRS megabytes were converted to minute equivalents in the First PwC Model. The conversion factors were applied to SMS and GPRS traffic at all layers of the model. Analysys considered that some layers of the model should have been allocated on a per-event basis as opposed to a voice-equivalent basis. Analysys said:

"... we suggest that some refinement could be made to the application of SMS and GPRS conversions for traffic – verses event-specific network element loading."

PwC considered that, based on its previous modelling experience, the proportion of costs allocated to the VMTAS would not change significantly if SMS was treated on a per-event basis.

199. Analysys considered that Vodafone should be in a position to supply more accurate information on how its network supported SMS and GPRS traffic. This information required specific areas to be explored in detail with Vodafone's network engineers but Vodafone pointed to time constraints in exploring this with its network engineers.

200. We note in particular, that Analysys said that the conversion factors applied by Vodafone to SMS and GPRS traffic were developed by Analysys in 2001 as part of its work for Ofcom's Sept 01 LRIC model. Analysys said that both these conversion factors were intended "to reasonably reflect the volume of traffic carried over the radio network, rather

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than reflect a pure incremental costing approach".

201. None of the parties or the experts sought to quantify the significance or consequence of this issue and having regard to our conclusions in relation to other issues relating to Vodafone's costs, we do not need to consider this matter any further.

#### **15.11 Issue K: Price trends and changes**

202. Price trends for network assets were used as inputs into the First PwC Model and the Second PwC Model. However, different price trends were adopted in the Second PwC Model. PwC explained the basis for the adoption of these trends as follows:

"The price trend assumptions included in the model have all been provided by Vodafone's engineering department and are based on their knowledge of cost trends both in 2003/04 and in subsequent years. Based on this knowledge, PwC still believes the price trend assumptions to be reasonable and does not think that Analysys' estimates based on non-specific assumptions from other countries is sufficient evidence to prove that the assumptions provided by Vodafone's engineers are not reasonable."

203. Price trends are applied by PwC in its tilted annuity calculation. The First Analysys Report noted that rapidly declining price trends resulted in a higher annuity cost in early years, but a lower annuity cost in later years. Both the Marsden Jacob Report and the Gibson Quai Report raised queries with the price trends used in the First PwC Model.

204. The Marsden Jacob Report stated:

"With regard to price trends, a potential complicating issue is that these should not just reflect price changes to the assets, but also price changes for labour input. While prices for equipment are generally falling, this is not true of labour costs."

The Marsden Jacob Report drew on figures from Optus which illustrated that:

"...while equipment prices have tended to decrease, build and acquisition and design which we presume have a significant labour component have been more or less constant."

The Marsden Jacob Report then noted:

"Further, it is interesting to note that build and acquisition costs constitute more than three quarters of base station costs

today compared to approximately half 10 years ago. Hence, it would result in a significant overstatement of annual costs if 'pure' equipment price trends were used in the tilted annuity formula to annualise the total cost of a base station.

In a modelling context such differences may be dealt with by estimating equipment installation costs separately from those of equipment costs. However, PwC seems to have bundled these costs together. No indication has been provided by PwC if such differences in price trends have been taken into account."

205. The Gibson Quai Report noted that the price changes for the network assets are not the parameters it would consider reasonable, nor match the parameters used in other jurisdictions such as Sweden.

206. In contrast to these reports, the First Analysys Report found that the price trends used in the First PwC Model in respect of the most material classes of assets appeared reasonable.

207. The Commission focused its attention on the price trends in the Second PwC Model. It did not indicate that it had any concerns in relation to the price trends used in the First PwC Model.

208. The Commission submitted that the revised price trends used for most of Vodafone's network assets in the Second PwC Model were unreasonable. Relying on the Second Analysys Report, the Commission submitted that the price trends for Transmission DXX and Microcell equipment were excessive and resulted in the Second PwC Model overstating its estimate of providing the VMTAS ([X] cpm by 2% or [X] cpm).

209. In support of its submission the Commission referred to a finding in the Second Analysys Report that the majority of price trends used in the Second PwC Model did not appear to be out of expected bounds but that the following price trends were materially different from those used in the First PwC Model:

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Equipment	First PwC Model Price Trend	Second PwC Model Price Trend
BSC	[-X]%	[+X]%
Transmission DXX	[-X]%	[-X]%
Microcell	[-X]%	[+X]%

Analysys would have expected a negative BSC and Microcell trend and a DXX trend less negative than [-X]%

210. The Commission noted that Vodafone provided no rationale for any of the price trend changes other than what was said in PwC's response to the two Analysys reports (par [202] above).

211. The Commission submitted further that the basis for the changes could not be tested and that the significant discrepancies between the original and revised price trends cast further doubt on the reasonableness of Vodafone's engineering estimates underlying both the First and Second PwC Models.

212. Telstra submitted that changes to assumptions between the PwC models suggested that the Second PwC Model was not comparable to the First PwC Model and should not be relied on in support of Vodafone's VMTAS cost estimate. Telstra referred in particular to the asset price trend adjustments set out in par [209] above and submitted that they appeared contentious due to the magnitude of the adjustments and that adoption of less extreme trends (as suggested by Analysys) would reduce the cost estimate for the VMTAS.

213. Vodafone relied on the statement in PwC's response to the two Analysys reports referred to above in par [202] to the effect that the price trends were provided by Vodafone's engineers. Vodafone also relied on the NERA Report which reworked Analysys' figures and arrived at a 1% reduction rather than Analysys' figure of 2%. NERA then stated:

"In our view, asset price trends vary substantially from one country to another and, if the asset price changes in the PwC model are those experienced recently by Vodafone, it would be appropriate to use them. In these circumstances, no adjustment to the model is required."

However this statement must be considered in the light and context of NERA's earlier observation that:

"Analysys has also questioned some of the asset price trends in the 2003/04 PwC model. In particular it argues that the [X]% increase for BSC equipment, the [X]% decrease for DXX transmission systems and the [X]% increase for microcell equipment look considerably out of line with expectations. **NERA's experience from other jurisdictions tends to support Analysys' view.**" (emphasis added)

214. Vodafone concluded its Submission in Reply on this issue by contending that:

"...its decision to base the price trends used in the PwC Cost Model when using 2003/04 data on the experience and knowledge of Vodafone's engineers was reasonable. To the extent that the predicted price trends diverge from actual price trends or, based on NERA's examination, Analysys' recommended adjustments were made to the relevant

equipment price trends, Vodafone contends that any such divergence would have an immaterial impact on the price of the MTAS ... and as such does not cast any doubt on the reasonableness of the price terms and conditions in the MTAS Undertaking."

215. Vodafone has not provided all the material that it might reasonably have provided on this issue. It could have produced for consideration and testing the price trend assumptions provided by Vodafone's engineering department referred to by PwC. Had Vodafone done so, there would have been before the Commission (and on review, before us) hard information which would enable the Commission (and on review, us) to test the critical "if" in its expert NERA's opinion that "... if the asset price changes in the PwC model are those experienced recently by Vodafone, it would be appropriate to use them". Vodafone's failure to produce the price trend assumptions provided by its engineering department means our guidance for determining whether the price trends used in the two PwC models are reasonable and, all things being equal, evidence that the cost of providing the MTAS on Vodafone's network is at or around

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16.15 cpm lies in the expert opinions available to us.

216. While the Marsden Jacob Report and the Gibson Quai Report (pars [204] and [205] above) raised queries about the price trends used in the First PwC Model, neither is conclusive; Marsden Jacob, because the issue whether PwC bundles installation costs with equipment costs is, on the material before us, left unresolved; Gibson Quai, because it fails to demonstrate why the price trend parameters used in the First PwC Model are not reasonable or why they fail to match parameters used in other jurisdictions. The First Analysys Report finds the price trends used in the First PwC Model reasonable. We are satisfied that price trends used in the First PwC Model are reasonable.

217. To guide our assessment of the reasonableness of the price trends used in the Second PwC Report, we have available the First Analysys Report, PwC's response to that report, Telstra's submission and the NERA Report. As may be seen from the quotation in par [213] above, while Analysys and NERA may differ about the magnitude of the reduction that may flow from the use of certain price trends in the Second PwC Model, they are *ad idem* in their views that some of the price trends used are out of expected bounds. Telstra's submission supports their views. While NERA'S conclusion may be read as qualifying its view, the conclusion is, as observed in par [213] above, dependent on a critical *if* which Vodafone failed to address. The failure to produce for consideration and testing the price trend assumptions provided by Vodafone's engineering department also taints PwC's response to the Second Analysys Report. As noted above, Analysys and NERA differ about the magnitude of the reduction that may flow from the use of certain price trends in the Second PwC Model. Analysys puts the consequential reduction in Vodafone's MTAS at 2%, NERA at 1%.

218. Having regard to the First Analysys Report, Telstra's submission, the NERA Report and what is said in the previous paragraph, we are not able to be satisfied, having regard to the matters specified in s 152AH and the objectives set out in s 152AB, that the price trends used in the Second PwC Model are reasonable. The price trends are but one element of many used in the Second PwC Model to arrive at the figure of [X] cpm which Vodafone contends evidences the reasonableness of the 16.15 cpm target price in its undertaking. Vodafone's contention must, however, be read in the light of the [X] cpm product of the second model being reduced by:

- either Analysys' 2% or NERA's 1%; and
- an aggregation of some or all of the product of other flaws which the Commission submitted exist in the Second PwC Model.

#### 15.12 Issue L: Contingency costs

219. The First PwC Model did not include any contingency costs. The Second PwC Report outlined the introduction of contingency costs into the Second PwC Model in the following terms:

"Where estimates have been constructed using bottom-up techniques, a contingency has been included to ensure that the estimates reflect the actual expected replacement costs rather than some 'perfect world' outcome. The maximum contingency included was [X]%."

220. Telstra challenged the inclusion of the contingency and submitted that its inclusion was likely to result in a material overstatement of the costs of supplying the VMTAS. Telstra was concerned to ensure that that the underlying unit cost did not already include such an allowance and that any allowance was only as great as was required to cover reasonably expected variances. Telstra contended that unit costs were based on Vodafone's global price book, and that it was not clear that this price book included an allowance for contingencies. If it did, the further inclusion of a contingency allowance might lead to an overstatement of the gross replacement cost. Telstra considered that construction of mobile network assets has a much higher degree of certainty than the construction of other network assets such as gas pipelines and, as such, any contingency should be of a lower order of magnitude.

221. The Commission submitted that Vodafone was entitled to a reasonable contingency if it could be supported, but

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concluded that the [X]% contingency could not be supported. It acknowledged that the Tribunal had accepted such a contingency in *Application by East Australian Pipeline Limited* [2004] ACompT 8; [2005] ACompT 3 (set aside in part on review by the Full Court [2006] FCAFC 127) but submitted that in that case there was material put before the Tribunal on the issue not only as to whether the contingency should be allowed but also as to its quantum.

222. PwC responded to the criticism that the contingency allowance had not been verified with either top-down or bottom-up data by stating:

"Whilst the estimate cannot easily be verified, it is based on the engineering department's experience of undertaking large capital expansion projects and the level of headroom that is always factored into the budgeting process, over and above the known cost of equipment to be deployed. Therefore, PwC remains of the view that this allowance is reasonable, and notes that Analysys do not recommend its removal without supporting evidence."

223. In its Second Report Analysys addressed the inclusion of the [X]% contingency allowance in the following terms:

"Vodafone asserts that bottom-up unit prices derived by its network engineers would be insufficient to cover all likely expenditures for network asset deployment. We agree that all necessary expenditures should be included in the model, assuming they are efficiently incurred.

The existence of real world contingencies is, of course, entirely plausible, and a [X]% uplift is not outside the bounds of our expectation. However, we have no **bottom-up** or **top-down** [*emphasis in original*] way of verifying what the exact uplift to bottom-up prices required by Vodafone in Australia should be — since the top-down comparison which Vodafone has supplied is high level and does not back-track the bottom-up calculated to network GRC [gross replacement cost] to reconcile with actual asset category investments over time. In our experience, contingencies can also be under-estimated as well as over-estimated. Therefore, we believe that top-down reconciliation of a bottom-up derived unit cost should be applied to verify the levels of contingency required. This top-down comparison is discussed in Section 3.5.

Vodafone's [X]% contingency effectively increases the network GRC, and therefore the annualised cost of network assets by the same percentage. Network assets contribute [X]% of the eventual marked-up cost of termination (since the GSM licence fee is not marked up for contingency) therefore the effect of including the [X]% contingency is approximately a 5% increase in the cost of termination.

The calculation of LRIC costs in other jurisdictions have, in our understanding, intended to include those contingency costs which have actually been incurred (e.g. by reconciliation against actual expenditures which would include such costs). However there are no explicit comparisons for this percentage. In another study carried out by Analysys, we applied a [X]% contingency, but later during detailed reconciliation it became apparent that this contingency was too generous (and unit costs were scaled back so that cumulative GBV [*gross book value*] reconciled to actual expenditures exactly)."

224. Section 3.5 of the Second Analysys Report, which contained the results of a high level top-down comparison of account codes supplied by Vodafone with corresponding costs in the Second PwC Model, stated:

"In this comparison:

- the network GRC to network asset GBV relationship reflects the historic steeper declines in GSM equipment prices, and appears reasonable. However, the GBV has not been reconciled against bottom-up unit prices, price trends and the assumed [X]% contingency — therefore, it cannot be confirmed whether the bottom-up revaluation is fully consistent with historic prices and price trends, or whether the additional [X]% contingency cost level is applicable to Vodafone's actual operation."

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225. Summarising its concerns with quantitative aspects of the Second PwC Model, the Second Analysys Report stated:

"Inclusion of a [X]% contingency to network unit costs is reasonable in principle, but cannot be exactly verified against detailed historic expenditures of Vodafone."

Analysys examined the effect of including the [X]% contingency on network asset replacement costs and concluded that if this contingency were removed the cost would decline by 4%. However, Analysys did not consider removal appropriate without detailed top-down justification for such an exclusion.

226. Commenting on the Second Analysys Report, NERA noted that Analysys stopped short of recommending the [X]% adjustment should be made and concluded that in its view such a contingency "is reasonable and that it would not be appropriate to remove it".

227. Vodafone submitted that its engineering department's experience also drew on the broader Vodafone Group experience as the world's largest mobile telecommunications company and that PwC added the [X]% contingency to the estimated replacement cost of Vodafone's network assets that were re-valued, which asset prices were sourced from the Vodafone Global

#### Price Book.

228. Vodafone also submitted that Analysys had stated that an uplift for network assets was appropriate. Analysys made no such statement. It did state that a [X]% uplift was not outside the bounds of its expectation but it then explained how the contingency needed to be verified. Vodafone contended that the [X]% allowance was reasonable and that NERA supported this view.

229. The question we have to answer in relation to this issue is whether it is reasonable, having regard to the matters specified in s 152AH and the objectives set out in s 152AB, for Vodafone to include in the calculation of its costs of providing the VMTAS, by reference to which its target price of 16.15 cpm is to be assessed, a [X]% contingency allowance.

230. Vodafone, PwC and NERA assert that it is reasonable to include that contingency but no material, hard information or verification of the type adverted to by Analysys is provided to support or justify these assertions. In this context, we also note that although PwC said that a contingency "is always factored into the budgeting process" it does not appear that there was such a contingency in the First PwC Model.

231. As the Analysys reports demonstrate, there is no material before us which enables us to form a view that the [X]% contingency is reasonable having regard to the matters specified in s 152AH and the objectives set out in s 152AB. Although Analysys expresses the view that it did not consider removal of the allowance appropriate without a detailed top-down justification for such exclusion, that is not the correct way to approach the issue. The issue is not whether the allowance should be removed from the cost model; rather the issue is whether it is reasonable, in the sense to which we have referred, for it to be included in the cost model.

232. Although Analysys said that inclusion of a [X]% contingency is reasonable in principle, it said, more significantly, that the contingency cannot be exactly verified against Vodafone's detailed historical expenditures and that it cannot be confirmed whether the [X]% contingency cost level is applicable to Vodafone's actual operation. Indeed PwC acknowledged that the [X]% contingency could not easily be verified and there was no Vodafone engineering department experience before us on this issue.

233. The inclusion of the contingency occurs only in the Second PwC Model and it involved a significant variation from the First PwC Model. It results in a material (4% or [X] cpm) increase in the total cost derived from the Second PwC Model.

234. Mr Hutley QC submitted that "the proper approach of the Commission should have been, and the proper approach of this Tribunal will be, to assess principally the second report of PwC". The absence of material to allow us to verify the reasonableness (in the sense to which we have referred) and magnitude of the contingency and to confirm that the contingency is applicable to Vodafone's actual operations means that we are unable to be satisfied that the product of the Second PwC Model is reasonable in the sense to which we have referred.

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235. As our task is to either accept or reject the undertaking there is no relevance in Vodafone's submission to the effect that a lower contingency (of, say, 7.5% or 5%), would have an immaterial (in the order of 3% and 2%, respectively) impact on the cost of providing its VMTAS.

#### **15.13 Issue M: Inclusion of a return on assets in the course of construction**

236. The Second PwC Report noted that:

- the First PwC Model did not make any allowance for network capitalised overheads or assets in the course of construction ("AICC");
- during the course of the fixed asset work performed in populating the Second PwC Model, it became evident that AICC were excluded from the First PwC Model; and
- an allowance for AICC was included in the Second PwC Model by marking up the annualised cost of assets in service to allow for a return on AICC as at 31 March 2004.

237. The Commission submitted that this allowance was incorrectly included in the Second PwC Model and that its removal would result in a reduction of 2% on the VMTAS cost estimate. Telstra submitted that this allowance appeared inconsistent with the tilted annuity approach adopted by PwC with respect to the [X] years time-to-service period.

238. Analysys exposed the issue in relation to the inclusion of a return on AICC, in its second report as follows:

"The value of AICC varies in each period, according to the amount of equipment being prepared. Therefore, we would have expected that the 2003/04 year average or year start book value of AICC would be applied in the model — since AICC at the beginning of the year are likely to be used to support demand in the year. Instead, Vodafone has used the year-end AICC value — which ultimately will support services in 2004/05 and beyond. Furthermore, we would expect that in 2003/04 Vodafone was embarking on a major 3G deployment schedule, therefore we believe the year-end AICC GBV [gross book value] may contain significant 3G assets. A detailed audit would be required to determine whether this was the case. Alternatively, Vodafone should be in a position to supply the 2003/04 year start AICC GBV which can then be applied to the model (as either year start or year average).

However, Vodafone already allows itself a return on assets for the period that they are under construction – in the [X] years time-to-service period, which is analogous to the AICC duration, but captured in a bottom-up fashion. Therefore, **there is a double counting** [emphasis added] of this allowance in the model. We do not believe it is appropriate to include both the bottom-up [X] years cost of time to service, and a top-down return on assets in the course of construction. The AICC uplift to network and non-network assets contributes [X]% of Vodafone's proposed termination cost (prior to the working capital mark-up). In previous bottom-up LRIC studies conducted by Analysys, we have excluded AICC from the reconciliation against active asset expenditures, included the equivalent of a 'time-to-service' cost, and not allowed a further return on top-down accountable assets under construction."

Analysys considered that the impact of the removal of the allowance for a return on AICC was a 2% reduction in the unit cost. 239. The Commission put to Vodafone a number of questions relevant to the issue of the AICC allowance. The questions and Vodafone's answers were as follows:

**"2. Does 'Units in operation'... refer to year start, year end or year average number of units in the network for what year? Does this include assets under construction — if so how many for each asset type?**

ANSWER

Assets include all assets that were used to convey the volumes carried in the year — and therefore represent a year average number of units in the network for that year. The 'units in operation' do not include assets under construction.

**3. What is the 'Time to service' [X] years meant to represent with respect to the network GRC and units in operation calculated above? Why does this apply to**

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**licence fee, and why does it not vary by asset type (some shorter, some longer to service)? Is capital really expended prior to the asset being bought into service (Analysys indicates it would expect some vendor contracts and network elements would be paid for on activation)? Does the useful economic life include or exclude the [X] years time to service?**

ANSWER

Vodafone has estimated that the average time between cash outlay on a capital investment and the investment coming into productive service is [X] years.

The time between paying for the asset and bringing it into productive service would vary according to the type of asset and the payment terms associated with the asset and equipment provider. The assumption of [X] years is an estimate of the average term (in the absence of a detailed assumption for each asset class) for the generality of assets and has therefore been applied to all asset classes.

As Analysys suggests, there can be instances where the term is zero – i.e. where the vendor accepts payment on activation but in such circumstances the vendor will charge a higher price compared to a comparable investment where payment is made earlier. There are also [sic] instances where the term is greater than six months; this is particularly the case where coverage is being installed and or extended. Access roads and power facilities may have to be constructed and paid for well in advance of service activation. Site location, lease negotiation, etc. typically involve cash outlays long before the site is brought into service.

The more significant the capital programme the more likely it is that cash outflows predate service activation by longer periods. For the forward looking cost estimates considered by the model it is major capital programmes which are relevant since it contemplates the rebuilding of the network at current prices. Further, Vodafone's recent experience with its 3G network rollout, a major capital build project, indicates that an average period between cash outlay and service activation of around six months is most likely to be optimistic — that is, the average time is probably longer than [X] years.

The useful economic life excludes the time between paying for the investment and bringing it into productive service.

**4. Why has the tilted annuity formula not been used to extract a 2008 unit cost? What would be the cost if the 5<sup>th</sup> year of the tilt formula were used?**

ANSWER

The model is prepared for a specific year and takes the quantity of equipment, operating costs and working capital

as exogenous inputs. The extrapolation of the tilted annuity into future years would therefore not produce a meaningful estimate of unit costs for future years without the inclusion of future operating costs, service volumes and future capital expenditure requirements. The simple extrapolation of the tilted annuity is inappropriate."

240. NERA considered Analysys' view and opined that the issue was not a simple matter of double counting but a potential time inconsistency problem. NERA reached this conclusion having observed that:

- the First PwC Model included an allowance for interest cost incurred on AICC. The interest cost on AICC was taken into account by capitalising the interest cost and increasing the gross replacement cost (GRC) of assets in the tilted annuity formula by an appropriate amount.
- the Second PwC Model also included direct recovery of the interest cost on AICC in 2003/2004 which Analysys believed amounted to double counting and should be removed, reducing the MTAS cost by 2%.

NERA then made the further observation that, in practice, the situation is different because the interest cost in PwC's model is applied to this

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year's assets in construction, whereas the adjusted tilted annuity formula takes account of interest on assets in construction in earlier years by capitalising it and recovering it over the lives of the assets concerned. This observation led to NERA's view that it was not a simple matter of double counting but a potential time inconsistency problem which it explained by stating that:

- if interest on this year's AICC is expensed this year, it cannot also be capitalised and recovered via the adjusted tilted annuity in future years;
- if PwC were to repeat the modelling exercise for 2004/2005, it would have to subtract the interest expense on AICC in 2003/2004; else it would then be double counting; and
- what PwC has effectively done is to accelerate the recovery of interest on this year's AICC — rather than it being amortised over the lives of the assets concerned, it is all being recovered in 2004/2005.

NERA concluded its consideration of the issue by stating that:

- in its view the recovery of interest on AICC should be treated consistently over time;
- given that interest on AICC in earlier years is being capitalised and recovered over the lives of the assets concerned, it would be appropriate for the same treatment to apply to interest on this year's AICC;
- this would mean not including interest on 2003/2004 AICC in 2003/2004 costs; and
- it ended up in the same position as Analysys, but for different reasons.

241. PwC responded to Analysys' assertion that the inclusion of AICC and a time-to-service allowance was double counting by saying that it appeared to reflect a misunderstanding of the Second PwC Model. PwC said that the time-to-service allowance was only applied to assets which were commissioned and in service to reflect the capital cost incurred in the past when they were being constructed. The time-to-service allowance was not applied to AICC. PwC concluded therefore, that there was no double counting.

242. Expanding on these observations, PwC's response made the following points:

- the bottom-up data provided by Vodafone's engineers was consistent with building a network to meet the demand carried on its network for the year ended 31 March 2004;
- the modelled network was the same size as Vodafone's actual network and did not include any assets that were not yet deployed and functional (that is, AICC);
- the time-to-service allowance reflected the fact that the assets deployed at 31 March 2004 were not deployed instantaneously;
- because the assets were not deployed instantaneously, two things needed to happen:
  - first, the price paid for them needed to be adjusted by the price change that would have been experienced in the time taken to bring them into service;
  - secondly, the capital costs relating to the investment in the assets prior to their deployment needed to be recovered.

243. PwC concluded its response to Analysys in the following terms:

"The time-to-service allowance is an adjustment to ensure that the total costs relating to the fully deployed assets at a point in time are recovered. However, at a given point in time, Vodafone will also have assets which are not yet fully deployed in the network. There will also be a cost associated with these assets which is not included in the time-to-service allowance. The costs relating to [AICC] are entirely separate from those relating to assets fully deployed



in the network. The costs associated with [AICC] (return on capital only as there is no depreciation of [AICC]) must be added to the cost base to ensure all the costs associated with a mobile network are included in the model."

244. Mr Beach QC for the Commission submitted that the NERA analysis was to be preferred to that of Analysys and that one did not avoid duplication or double counting because it is a one-year model. He submitted that because the tilted annuity is looking, as he put it, "right out", it was not in a sense a

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one-year model. He went on to submit in this regard that while the model used figures for March 2004, the figures were derived from the use of the tilted annuity so it was not valid to say it is a one-year model. Putting to one side the question of double counting or duplication, the Commission focused on NERA's view that there should be consistency which avoided duplication or double counting. It contended that if a consistent approach was taken to the capitalisation of AICC interest costs, there was no need to do something idiosyncratic in the year ending March 2004 and that Vodafone should have provided a tilted depreciated profile for 2006/2007 that would capitalise all interest, including the interest incurred in the year ending March 2004 for the AICC.

245. Vodafone relied on PwC's response to Analysys' consideration of this issue and responded to NERA's views as follows:

"Vodafone agrees that if a multi-year approach to modelling is undertaken, then the cost recovery in relation to [AICC] would need to be removed from the cost recovery relating to those assets in later years. However, as the PwC Cost Model is a single-year model, Vodafone is entitled to seek an appropriate return on all its assets that are in place at that time. Therefore, Vodafone contends that its inclusion of the allowance for [AICC] is reasonable."

246. Mr Hutley QC expanded this submission by submitting that Vodafone only applied the allowance to assets in respect of which it had not applied the allowance for delay between assets being in place and in production. Vodafone accepted that if there were a multi-year model, an allowance for AICC would have to be brought into account in subsequent years in respect of assets for which an allowance was sought where there was a delay between being in place and in operation. Vodafone contended that in a one-year model no such problem arose because one was only dealing with one year, and the assets covered by AICC is a class which is wholly different to the class covered by the allowance for delay between being in place and in operation. Mr Hutley also relied on Vodafone's answer to question 2 set out in par [239] above in submitting that Vodafone was dealing with separate assets.

247. We accept that Vodafone is entitled to recover the holding costs for assets in pre-deployment. However, we are not satisfied that the Second PwC Model is a truly static model. The inclusion of the tilted annuity formula to produce prices out to 2007 results in its metamorphosis from a static 2004 model to a hybrid static/dynamic 2004/2007 model in which, for reasons stated by NERA and elaborated on by Mr Beach QC (par [244] above), there is inconsistency in the treatment of interest on AICC.

248. We also accept Analysys' and NERA's views to the effect that PwC's treatment of interest on AICC results in a 2% or [X] cpm overstatement in the [X] cpm product of the Second PwC Model. Mr Hutley QC's submission to the effect that even if the Second PwC Model were adjusted to reflect Analysys' and NERA's views the adjustment leaves a figure above Vodafone's MTAS of 16.15 cpm which we might, notwithstanding the errors in the First PwC Model, be satisfied is reasonable, again ignores the possibility that the product of the Second PwC Model is also being reduced by other flaws which the Commission submitted existed in the Second PwC Model.

#### **15.14 Issue N: Exclusion of acquisition and retention costs from non-network indirect cost mark-up**

249. The First PwC Model allocated non-network indirect general overhead costs in an equi-proportionate manner across all services, both network and non-network. The costs were allocated in proportion to the total costs of each service as the allocation of non-network indirect costs is the final layer of cost allocation.

250. As a result of what PwC described as a more detailed interrogation of the underlying financial data, the Second PwC Model allocated non-network indirect general overhead costs in proportion to total costs minus the cost of sales (costs of acquiring and retaining customers). This, PwC stated:

"...is to ensure that cost of sales, e.g. interconnect payments and dealer commissions which do not generate any meaningful support activity in the business do not inappropriately absorb general overheads."

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251. The Commission submitted that the acquisition and retention (sales) costs were incorrectly excluded from the non-network indirect costs mark-ups and that the effect of this exclusion was a 5.6% increase in the cost of the VMTAS.

252. Analysys observed in its second report that, based on the preferences of other regulators, the exclusion of subscriber acquisition and retention costs was questionable. Analysys noted Vodafone's submission that these costs did not generate any meaningful support activities and responded as follows:

"This may at first sight appear to be the case, however, it cannot be disputed that the large acquisition and retention costs contribute a significant structural cost of the business that is driven by the number of retail subscribers and in the absence

of network services, a retail provider would still incur non-network indirect (i.e. overhead) expenditures."

253. Analysys also noted that:

- regulators in the United Kingdom and Sweden had specifically included acquisition and retention costs in the equivalent of non-network indirect cost mark-ups on the grounds that non-network indirect costs support all the services of the network, including the provision of retail services with its associated gross expenditures for subscriber acquisition and retention;
- the Second PwC Model represented a departure from these regulatory benchmarks; and
- excluding acquisition and retention costs from the mark-up contributed [X] cpm (or 5.6%) to the [X] cpm product of the Second PwC Model.

254. PwC did not agree with Analysys' view that subscriber acquisition and retention costs did generate meaningful activity and should be included in the cost base for the purposes of the non-network indirect mark-up. Responding to Analysys' view, PwC stated:

"These activities are largely pass-through in nature (as is the case with outpayments to other operators which are also excluded) and a dollar of cost in these type of activities does not generate any meaningful activity within the support departments. Therefore, in the context of a FAC [*Fully Allocated Cost*] model that uses total cost to allocate the non-network indirect costs, it is appropriate to exclude costs which do not generate meaningful support activities."

255. NERA's response to Analysys' view was to the effect that:

- allocation of non-network indirect costs proportionately across all services, including subscriber acquisition and retention, would have the result of reducing the product of the Second PwC Model by [X]%, not the 5% claimed by Analysys;
- noting PwC's views that the cost of subscriber acquisition and retention included items such as dealer commissions where the related overheads would not be significant, it would more appropriate to count only half the cost of subscriber acquisition and retention in the cost base to which non-network indirect costs were allocated; and
- if its conclusion were adopted, it would result in a [X]% (or [X] cpm) reduction in the [X] cpm product of the Second PwC Model.

256. Having regard to the view expressed by Analysys and, in particular, the view expressed by Vodafone's own expert NERA, that it would be appropriate to count half the cost, (which we prefer to Analysys' view to the effect that all the cost should be counted), we do not accept Vodafone's submission that it is reasonable, having regard to the matters specified in s 152AH and the objectives set out in s 152AB, to exclude subscriber acquisition and retention costs from non-network indirect costs.

257. Accordingly, we are of the opinion that the [X] cpm product of the Second PwC Model is not reasonable, having regard to the matters specified in s 152AH and the objectives set out in s 152AB, because it overstates Vodafone's costs of providing its VMTAS by [X]% (or [X] cpm). *A fortiori*, when this overstatement is aggregated with other overstatements resulting from flaws in the Second PwC Model identified by the Commission as outlined above.

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### 15.15 Issue P: WACC — the choice of asset beta

258. Hutchison submitted that Vodafone's estimated post-tax nominal WACC of [X]% was inappropriate and resulted in an overstated estimate of the VMTAS costs. It submitted that Vodafone's WACC estimate did not take into account the lower level of risk posed by providing mobile termination services as opposed to mobile services at large. Hutchison relied upon the analysis of its consultant Marsden Jacob which Hutchison contended yielded a vanilla WACC of 9.24% and a post-tax nominal WACC of 7.91%.

259. Vodafone used an asset beta of [X] as an input into its WACC calculation. Marsden Jacob's conclusion on the appropriate asset beta for a mobile operator to use in Australia was as follows:

"Based on the available evidence we estimate that a reasonable range for the asset beta for a mobile operator in Australia is 0.7–1.1. We note that the asset beta for the MTAS will be lower than the mobile business as a whole. In the absence of sufficient data to make an explicit adjustment to the asset beta, we propose to use a beta value for the MTAS of 0.7 [i.e. the minimum]."

260. Marsden Jacob may have used a different asset beta from that used by Vodafone, but the asset beta used by Vodafone was within the "reasonable range" referred to by Marsden Jacob.

261. In such circumstances, we reject Hutchison's submission in relation to Vodafone's WACC as on the evidence before us we can only conclude that it is a reasonable figure.

### 15.16 Conclusion on specific issues in relation to the PwC models

262. The end result of our analysis of what have been described as the empirical flaws in the two PwC models is that we are not satisfied that the costs produced by either model generate a total cost of providing the VMTAS of 16.15 cpm. Indeed, for the reasons we have outlined we are not satisfied, having regard to the matters specified in s 152AH and the objectives set out in s 152AB, that the target price of 16.15 cpm is reasonable. Our analysis shows that the total cost of providing the VMTAS is at least 4 cpm less than 16.15 cpm. If Vodafone were to be allowed to charge its target price of 16.15 cpm to access seekers it would recover significantly more than its costs of providing the VMTAS, which is not reasonable in the sense to which we have referred.

## 16. PASS THROUGH SAFEGUARD

263. As may be seen by reference to par [17] above, the Pass Through Safeguard would impose, on a fixed-to-mobile operator seeking access to the VMTAS, an obligation to reduce its retail price for a fixed-to-mobile call which terminates on Vodafone's mobile network so that the price is equal to or less than an average retail price specified in Table 2 of Part C of the undertaking's Service Schedule extracted at par [17]. Table 2 takes a fixed-to-mobile price for 2004 of 38.5 cpm as the starting point of a price path along which a fixed-to-mobile operator seeking access to the VMTAS must reduce its retail price to arrive at a 21.15 cpm price for 2007 and any subsequent validity period of the undertaking (that is, a 5 cpm mark-up on the undertaking's 16.5 cpm target price). The 5 cpm mark-up is based on an estimate of the cost of originating, transmitting and retailing a fixed-to-mobile call made by the Commission in its June 2004 report *Mobile Services Review: Mobile Terminating Access Service*.

264. The provisions relating to the Pass Through Safeguard were challenged on a number of grounds. The challenges may be summarised as follows:

- the provisions were invalid as they were not provisions "in relation to" the standard access obligations applicable to a declared service. Rather they were provisions in relation to another service (a retail service) which had its own pricing regime and pricing controls. There was in existence a Ministerial Price Control Determination in relation to that service, with which the Pass Through Safeguard conflicted;
  - price regulation in respect of retail telecommunications services was not properly the function of Pt XIC of the Act — rather it was properly the function of the responsible Minister;
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- the Safeguard was predicated on the existence of the fixed-to-mobile market not being competitive and there was no evidence that that was the fact. Vodafone accepted that if the fixed-to-mobile service market was competitive then the Safeguard was not reasonable;
  - it was not necessary to have such a mandatory and inflexible Pass Through Safeguard, as pass through could be expected to occur in any event. Economic theory suggested that at least 50% of a price reduction would flow through to retail prices;
  - the target average retail price would need to have regard to the costs of providing fixed-to-mobile calls. Vodafone had fixed on 5 cpm as the cost of fixed origination and transmission but that figure had not been verified and was challenged, in particular by Telstra and Optus;
  - it was not reasonable because pass through could occur in a number of ways, such as in the quality of the service provided, but the Safeguard only operated in one way, by reducing the amount of the retail price;
  - pass through of the MTAS price reduction would be more appropriately achieved by instituting price controls at the downstream level applied to a broad-based basket of services such as all the services supplied in the retail fixed line services market.
  - the Safeguard operated so as to give the rebate to Vodafone and not to access seekers or end-users. It did not appear that the rebate would be passed on to end-users which would not be in the long-term interests of end-users. This consequence did not fit in with any of the matters specified in s 152AH and the objectives set out in s 152AB. Vodafone contended that it provided an incentive to access seekers to pass through a price reduction to end users;
  - the reductions in fixed-to-mobile retail prices required by the Safeguard were disproportionate to the reductions in the VMTAS price that Vodafone undertook to make. The Pass Through Safeguard required year-on-year reductions in fixed-to-mobile retail prices of 15%, 18% and 21% as compared to the year-on-year reductions Vodafone undertakes to apply to the MTAS price of 7.7%, 8.3% and 9.1%;
  - the transit traffic provisions were unreasonable because:
    - they extended the Pass Through Obligation not only to the access seeker but also to any other carriage service provider who used the access seeker's carriage services and had fixed line calls terminated on Vodafone's network;
    - they required the access seeker to ensure and certify each transit provider's compliance with the Pass Through Obligation and required the disputes regarding a transit provider's compliance with the Pass Through Obligation to be

resolved in the manner specified in the undertaking;

the access seeker would, in effect, be forced to renegotiate existing supply arrangements with transit providers (which may or may not be possible) or else to cease to terminate transit traffic on Vodafone's network;

if only one transit provider did not comply with the Pass Through Obligation or the access seeker could not ensure the compliance of transit providers, the access seeker must not send any transit traffic to Vodafone for termination;

- there were difficulties in implementing the Safeguard having regard to the definitions and scope of the expressions "average retail price", "validity period" and "earlier usage period";
- the implementation of the obligation was practically unworkable and unreasonable for a number of reasons;
- prima facie it contravened ss 45A and 46 of the Act; and
- price regulation in respect of retail telecommunications services is not properly the function of an undertaking which relates to the terms on which an access seeker supplies a wholesale service.

265. Vodafone submitted that the Pass Through Safeguard was reasonable as the market in which fixed-to-mobile services are provided is not effectively competitive.

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Vodafone's argument was that if suppliers of fixed-to-mobile services were charged prices for the VMTAS that were less than the prices set out in the undertaking, then it was unlikely that the savings from these reduced charges would be passed on in full, or at all, to customers acquiring fixed-to-mobile services as a result of the absence of competition in the market in which fixed-to-mobile services were provided.

266. Vodafone contended that suppliers had both the ability and the incentive not to pass through to end-users any reduction in the VMTAS. Vodafone said that if providers of fixed-to-mobile services were unlikely to pass through price reductions then a reduction in the price of the VMTAS would not increase investment in infrastructure or increase quality of services. Vodafone submitted that without the Pass Through Safeguard the evidence suggested that end-users in the fixed-to-mobile market would hardly benefit at all from regulated reductions in the VMTAS price.

267. Vodafone maintained that in the absence of the Pass Through Safeguard the reduction in the VMTAS price would simply result in a wealth transfer from Vodafone to fixed-to-mobile service providers, which was likely to have negative impacts on competition in the market for telephony services. Vodafone contended that in the absence of a pass through mechanism, a reduction in the price of the MTAS would inhibit Vodafone's ability to compete in the provision of retail services to which the MTAS was an input.

268. The Commission submitted that if the undertaking were accepted, the Pass Through Safeguard would deprive access seekers of the flexibility to determine competitively the form in which the reductions in the VMTAS would be passed through to the retail fixed services market. It submitted that this would retard allocative and dynamic efficiency, would not be in the long-term interests of end-users and was therefore not reasonable. The Commission submitted that Vodafone's contention that in the absence of the Pass Through Safeguard a reduction in the VMTAS would result in a wealth transfer from Vodafone to fixed-to-mobile service providers, failed to take into account the fact that a reduction in the price of the VMTAS would promote competition in the retail fixed services market and reduce prices paid by end-users of fixed-to-mobile services and other fixed line services, thereby increasing demand for fixed-to-mobile services and consequently for the VMTAS. This was likely to increase the total number of termination minutes on mobile networks which might increase the total revenue Vodafone received from the supplier of the VMTAS.

269. AAPT challenged the manner in which the Pass Through Safeguard was implemented. It drew attention to the following issues:

- Vodafone's formula does not permit a supplier of fixed-to-mobile calls to make any revenue from fixed-to-mobile calls above the actual costs of supply, at least with respect to calls to Vodafone customers. If this formula was replicated in all agreements between access seekers and the four MTAS providers, this would have a significant effect on the ability of access seekers to recover common costs incurred in supplying fixed line services and achieve a return from the supply of fixed-to-mobile calls. This would not be in the long-term interests of end-users; and
- the pass through requirement allowed Vodafone to make profits above its own estimate of its costs of supplying the MTAS and penalised access seekers who chose to use reductions in the wholesale price of the MTAS to compete in other ways such as an increase in the quality of services provided or reductions in the price of other services provided in the bundle of preselected fixed line services.

270. Hutchison agreed in principle that a pass through mechanism was necessary given that the fixed-to-mobile market was not effectively competitive but submitted that the particular Pass Through Safeguard proposed by Vodafone was unreasonable. It was unclear to Hutchison what the proposed fixed-to-mobile retail rates were benchmarked against.

271. Telstra contended that the Pass Through Safeguard was unreasonable because it provided for Vodafone to receive a revenue windfall unrelated to the direct costs of supplying the VMTAS which might result in access seekers being charged an amount for the

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supply of the VMTAS as high as 21 cpm for all conversations terminated on Vodafone's network during the given validity period.

272. As to the first challenge to the Pass Through Safeguard summarised in par [264] above, we do not accept that the inclusion of the Pass Through Safeguard raises any issue of the invalidity of the undertaking or deprives the undertaking of the character of an "ordinary access undertaking" as defined in s 152BS(1) of the Act. Vodafone is entitled, and indeed required, by s 152BS(1) to set out in the undertaking that it will comply with the terms and conditions "specified in the undertaking" in relation to the applicable standard access obligations. Those obligations are found in s 152AR(3) and include the obligation "to supply an active declared service ...": s 152AR(3)(a). It follows that it is entitled to set out in the undertaking the manner in which it will supply that service, including any terms and conditions of supply. That will include, for example, the price at which it will supply the service although one does not find any reference in s 152BS(1) or s 152AR(3) to the carrier or access provider being obliged or entitled to specify in the undertaking the price at which it will supply the service. Nevertheless, the price is a term and condition "specified in the undertaking" in relation to the standard access obligation in s 152AR(3)(a). It is one of the terms in the undertaking which relates to its obligation to supply the service.

273. So are the Pass Through Safeguard provisions. Vodafone is stating in the undertaking that it will supply the service for the price specified and also on the basis that the access seeker will comply with and carry out the Pass Through Obligation. It is not a term on which Vodafone or any other carrier will supply a downstream retail service but rather a term on which it will supply the service specified in the undertaking in respect of which there will be consequences if the access seeker supplies a downstream retail service in a particular way.

274. The words "in relation to" in s 152BS(1) extend to, and cover, the terms and conditions in the undertaking, with which Vodafone states in the undertaking it will comply, which form the basis on which it will supply the specified active declared service. It is undertaking to supply that service on condition that, *inter alia*, access seekers pay the specified price and observe the provisions relating to the Pass Through Safeguard.

275. As part of its attack on the validity of the Pass Through Safeguard, Telstra submitted that it was inconsistent with a Ministerial price control determination which applied to a number of Telstra's services. Pursuant to s 154 of the *Telecommunications (Consumer Protection and Service Standards) Act 1999* (Cth) ("the TCPSS Act") the Minister may determine that specified "carrier charges" are subject to price control arrangements. Section 155(1) of the TCPSS Act provides that where a carrier charge is subject to price control arrangements, the Minister may determine:

- (a) price-cap arrangements and other price control arrangements that are to be applied in relation to the charge; or
- (b) principles in accordance with which Telstra is to make alterations to the charge; or both.

Telstra is obliged to comply with such a determination.

276. The relevant applicable price control determination for the purposes of this review is the Telstra Carrier Charges — Price Control Arrangements, Notification and Disallowance Determination No. 1 of 2005 as amended. Clause 11 of that Determination provides that for the purposes of s 154(1) of the TCPSS Act carrier charges for connections, line rentals, local calls, trunk calls and international calls are subject to price control arrangements. Trunk calls include fixed-to-mobile calls. This basket of services is subject to a price cap. The effect of the Determination is that the charge for services in this basket as a group must not increase in nominal terms.

277. We do not consider that the Pass Through Safeguard is inconsistent with, or contrary to, the provisions of this Determination. The provisions of the Determination may be relevant to the reasonableness of the Pass Through Safeguard but they do not result in such an inconsistency with the Determination that it has the consequence that the undertaking is invalid. The Determination puts a price cap on the increase in the price of a basket of services

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which includes fixed-to-mobile calls whereas the Pass Through Safeguard provides that if an MNO's fixed-to-mobile charges exceed a specified charge then Vodafone is to receive a rebate from the MNO in respect of the fixed-to-mobile calls so made. The Pass Through Safeguard does not contain any provision which conflicts with the price cap imposed by the Determination. In such circumstances, it is not inconsistent with it.

278. The Pass Through Safeguard provisions raise no issue as to the validity of the undertaking or its proper characterisation as an "ordinary access undertaking" but they do raise issues as to their reasonableness having regard to the matters specified in s 152AH and the objectives set out in s 152AB.

279. Vodafone calculated the end fixed-to-mobile target average retail price of 21.15 cpm by adding an estimate of 5 cpm for fixed-to-mobile origination, transmission and retailing costs to its VMTAS end price of 16.15 cpm. Although Vodafone

adopted the 5 cpm estimate from a figure provided in the Commission's MTAS final decision, there was no material before us, it was submitted, by which we could independently be satisfied of the reasonableness of the 5 cpm estimate. It was submitted that we would need to have some evidence as to the costs of fixed-to-mobile origination, transmission and retailing, as well as termination, before we could accept an undertaking dealing with the price of fixed-to-mobile calls.

280. In its submissions to the Commission (23 March 2005) which accompanied the undertaking, Vodafone adopted 5 cpm as it was "the Commission's conservative estimate of the cost of fixed origination and transmission". Telstra's submissions to the Commission in August 2005 on the Pass Through Safeguard did not challenge directly the figure of 5 cpm, but it did raise the issue whether common costs of fixed-to-mobile services (which were supplied jointly with other PSTN services) would be efficiently recovered in the manner implied by the 5 cpm figure. Telstra also contended that the figure of 5 cpm appeared to be based on an equi-proportionate approach to the allocation of common costs which did not allow cost recovery from consumers in a way that minimised the welfare distortions of marginal cost pricing. In its submission in January 2006 in response to the Commission's draft decision, Telstra made no specific submission in relation to the figure of 5 cpm although it referred back to its August submission and maintained its submission that the Pass Through Safeguard was not reasonable.

281. Vodafone submitted before us that having regard to "Telstra's silence before the Commission on this issue" we should give little weight to the submission that there was no material before us by reference to which we could be satisfied that the estimate of 5 cpm was reasonable.

282. There are a number of difficulties with this submission. Whatever stance Telstra may have taken earlier on the issue, Optus challenged the 5 cpm estimate before us. Optus submitted that Vodafone needed to put material before the Commission, which would be available before us, to satisfy us that the proposed target price was a reasonable price having regard to the price of the VMTAS and the costs of any relevant fixed service operators. Optus submitted that we could not be so satisfied.

283. The only material relating to the figure of 5 cpm was the observation of the Commission in its June 2004 Mobile Services Review of the MTAS. The Commission considered that evidence collected by it showed that the average price of fixed-to-mobile calls appeared to be at least double their underlying cost of production. The Commission considered that while the average price of fixed-to-mobile calls was around 38.5 cpm, the average underlying cost was likely to be in the order of 10 cpm to 17 cpm, depending on assumptions regarding the cost of the MTAS. That figure was based on a range of estimates of TSLRIC+ of providing the MTAS in the range of roughly 5 cpm to 12 cpm. The Commission then noted:

"... this range is consistent with estimates of the TSLRIC+ of providing the MTAS based on data collected by the Commission as part of its Regulatory Accounting framework (RAF). In addition to this, the Commission has conservatively estimated that the TSLRIC+ of providing the other

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elements of a FTM call are likely to be in the order of 5 cents per minute."

284. The Commission did not explain how the figure of 5 cpm was derived or broken down and there is no material before us from which we can determine whether that figure of 5 cpm (for fixed origination and transmission) is reasonable having regard to the matters specified in s 152AH and the objectives set out in s 152AB.

285. Notwithstanding Vodafone's submissions, we are still required to be satisfied that the Pass Through Safeguard provisions are reasonable having regard to the matters specified in s 152AH and the objectives set out in s 152AB. That, in turn, requires us to be satisfied that the target average retail prices specified in Table 2 of cl 3 in the Pass Through Safeguard provisions (extracted at par [17] above), particularly 21.15 cpm for the validity periods after 1 January 2007, are reasonable in the same sense. A critical component in the structure of that price is the 5 cpm figure. We have no material before us which might satisfy us that 5 cpm is a reasonable figure in the sense to which we have referred for the fixed origination and transmission costs of a fixed services operator. We have been told that it is the Commission's "conservative estimate" but we have no basis on which to assess or determine whether it represents efficient costs. Further, that estimate was given in the Commission's Mobile Services Review in June 2004 and we have no material before us as to the relevance or applicability of that estimate for the validity period 1 January 2007 to 30 June 2007 or any subsequent validity periods.

286. We are unable, therefore, to be satisfied that Vodafone's target average retail price of 21.5 cpm for the validity periods after 1 January 2007 is reasonable having regard to the matters specified in s 152AH and the objectives set out in s 152AB.

287. It may well be, as the Commission submitted, that the Pass Through Safeguard is not necessary as pass through might occur in a number of other ways. However, we do not consider that the Pass Through Safeguard is unreasonable because it has a potential consequence or effect on the level of prices in the fixed-to-mobile market. Although the Safeguard operates so as to give the rebate to Vodafone and not to its access seekers or end-users, it operates as an incentive for access seekers who supply fixed-to-mobile services not to keep or raise their level of fixed-to-mobile service charges above the level specified in the undertaking.

288. We have more concerns about the operation of the transit traffic provisions of the Pass Through Safeguard. The provision with which we have the most concern is the provision found in cl 7.4 (extracted at par [19] above) which provides that if the access seeker cannot or does not comply with cl 7 then it must not send **any** transit traffic — that is not just the traffic of the

defaulting transit carriage service provider but the traffic from all transit carriage service providers — to Vodafone for termination. This may not have been Vodafone's intention but it is the manner in which the provision operates. It is not for us to re-write the provision. We cannot see how such a provision is in the long-term interests of end-users of carriage services or of services supplied by means of carriage services, some of whom would be denied access to their mobile service due to no default on the part of themselves or their access provider. It has a consequence of penalising them in circumstances where neither they, nor their access provider, is in default. We consider that this provision is not reasonable having regard to the matters specified in s 152AH and the objectives set out in s 152AB. We do not consider that it is in the legitimate business interests of Vodafone and it is most certainly not in the interests of access seekers to the VMTAS. Further, it certainly is not likely to result in the achievement of the objective of promoting competition in markets for listed services, as referred to in s 152AB(2)(c) and, indeed, in its terms, would defeat that objective.

289. We are also concerned that the Pass Through Safeguard is inflexible in relation to the opportunity for competition to be promoted as a result of any reduction in the price of the VMTAS. It limits the opportunity of access seekers to determine the form in which any reductions they may receive in the supply of the VMTAS may be passed through to the retail fixed services market.

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290. We consider that the pass through provisions in the undertaking deprive access seekers of the flexibility to determine competitively the individual price elements for services within the basket of services that are supplied within the fixed-to-mobile market, and the form in which pass through will take place. This approach retards allocative and dynamic efficiency, inhibits competition, is not in the long-term interests of end-users and, in our view, is not reasonable.

291. We are also concerned about the difficulties identified in implementing the Safeguard having regard to the definitions and scope of "validity periods" and "earliest prior validity period" (cl 6.2(b)). If we were to accept the undertaking now, then it would only operate prospectively from the validity period commencing 1 January 2007. That gives rise to issues as to what is the relevant "earliest prior validity period". Overall, we are not satisfied that the Pass Through Obligation can be implemented in a manner which is clearly and precisely laid out for access seekers. In such circumstances, we do not consider that the implementation of the Pass Through Obligation is reasonable having regard to the interests of access seekers.

292. Telstra submitted that the implementation of the Pass Through Obligation was practically unworkable and unreasonable for the following reasons:

- it was not commercially acceptable from a corporate governance standpoint for a director to be required to certify all the matters required by the undertaking, including in respect of third parties;
- access seekers would be forced to spend considerable time and resources on compliance and monitoring tasks, thereby reducing their ability to focus on operational efficiencies and improving the quality of service to end-users;
- the incorporation of a subjective standard to trigger the dispute process was inappropriate; and
- the expert determination process was likely to involve the divulging of the confidential and commercially sensitive information of the access seeker to Vodafone.

We have insufficient material before us to enable us to determine whether Telstra's submission in this respect is well-founded. Having regard to our conclusions on other provisions of the Pass Through Safeguard, it is not necessary for us to reach a concluded view on this submission.

293. Telstra submitted that the inclusion of the Pass Through Obligation resulted in the undertaking being inconsistent with the applicable standard access obligations because:

- the Pass Through Obligation, which makes Vodafone's compliance with the standard access obligations contingent on the price which access seekers charge for retail services, is inconsistent with Vodafone's obligation to supply the MTAS on request under s 152AR(3)(a); and
- the prohibition on transit traffic in cl 7.4 of Pt C of the Service Schedule to the Access Agreement is inconsistent with Vodafone's obligation to supply the MTAS on request pursuant to s 152AR(3)(a).

These issues do not give rise to inconsistencies with Vodafone's obligations to comply with the standard access obligations; rather they are relevant to the issue of the reasonableness of the Pass Through Safeguard in respect of which we have made other findings and reached other conclusions.

294. We have not dealt with all the issues and submissions raised and made in relation to the Pass Through Safeguard as we are not satisfied, having regard to the matters specified in s 152AH and the objectives set out in s 152AB, that the provisions of the Pass Through Safeguard to which we have referred, are reasonable for the particular reasons to which we have referred.

295. Our conclusion that we are unable to be satisfied, having regard to the matters specified in s 152AH and the objectives set out in s 152AB, that the provisions of the Pass Through Safeguard are reasonable has the consequence that we are unable to be

so satisfied as to the undertaking as a whole. The Pass Through Safeguard provisions are an integral and material part of the undertaking. It is not open to us to excise the Pass Through Safeguard provisions from the undertaking and otherwise accept it. It is only open to us either to affirm

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the Commission's decision or to set that decision aside and accept the undertaking.

296. Clause 19.8 of the Agreement in Attachment A of the undertaking contains a severance provision in the following terms:

"(a) Subject to paragraph (b), if the whole or any part of a provision of this Agreement is unenforceable, partly unenforceable, void or illegal in a jurisdiction, then it is severed to the extent necessary to make this Agreement enforceable in that jurisdiction.

(b) This clause 19.8 does not apply if the severance materially changes the intended effect of this Agreement, alters its basic nature, is contrary to public policy or the Telecommunications Laws."

That provision provides no basis for us to exclude or excise the Pass Through Safeguard from the Agreement, and thereby from the undertaking. Severing the Pass Through Obligation from the Agreement would materially change the intended effect of the Agreement and alter its basic nature.

297. In the light of our findings and conclusions in relation to the efficiency of Vodafone's costs, what have been described as the empirical flaws in the PwC models and certain provisions in the Pass Through Safeguard, it is not necessary to reach any conclusions in relation to the reasonableness of a number of other non-price terms and conditions in the undertaking which were the subject of submissions.

## 17. CONCLUSION

298. For the reasons set out earlier, we are not satisfied that:

- Vodafone's costs were efficiently incurred;
- the costs produced by either of the PwC models generate a total cost of providing the VMTAS of 16.15 cpm;
- Vodafone's price term of 16.15 cpm for the period 1 January 2007 to 30 June 2007 and for any subsequent validity periods does no more than cover Vodafone's long-run incremental costs of supplying its VMTAS.

299. Those consequences lead us to the conclusion that we are not satisfied that Vodafone's price term of 16.15 cpm for the period 1 January 2007 to 30 June 2007, and for any subsequent validity period, is reasonable having regard to the matters specified in s 152AH and the objectives set out in s 152AB. Nor are we satisfied that the particular provisions of the Pass Through Safeguard to which we have referred are reasonable having regard to the matters specified in s 152AH and the objectives set out in s 152AB. The end result is that we are not satisfied that the undertaking is reasonable having regard to the matters specified in s 152AH and the objectives set out in s 152AB.

300. The result is that the decision of the Commission rejecting Vodafone's access undertaking will be affirmed.

## ANNEXURE A

### GLOSSARY AND ABBREVIATIONS

AICC	assets in the course of construction
capex	capital expenditure
cpm	cents per minute
EPMU	equi-proportionate mark-up
F&F	furniture and fittings
GPRS	General Packet Radio Service
GRC	gross replacement cost
GSM	Global system for mobiles
MNO	mobile network operator
MTAS	mobile terminating access service
Ofcom	Office of Communications, the United Kingdom telecommunications regulator
opex	operating expenditure



PSTN	public switched telecommunications network
SMS	Short Messaging Service
TSLRIC	Total service long-run incremental cost
TSLRIC +	Total service long-run incremental cost plus a mark-up to enable a recovery of organisation-level common costs, estimated according to the EPMU rule
VMTAS	Vodafone's domestic digital mobile terminating access service on its 2G/2.5G GSM network
WACC	Weighted Average Cost of Capital

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