EFFICIENT OPERATOR BENCHMARK

Report for Optus

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EXECUTIVE SUMMARY

This report examines the ACCC's use of the results of the WIK-MNCM in determining prices in its mobile termination pricing determination of November 2007. In particular, we discuss the appropriate interpretation of the WIK-MNCM results for setting regulated mobile termination prices in Australia.

We conclude that the ACCC has not applied the results of the WIK-MNCM in a way that will produce prices that promote economic efficiency, as intended, in particular it has misconceived the concept of an 'efficient operator'. Relevant considerations that the ACCC appears not to have had appropriate regard to in its interpretation of the WIK-MNCM and in its determination of the efficient costs (TSLRIC+) of mobile termination include:

a.   The impact of quality of service on the reasonable[1] price of mobile termination;

b.   The appropriate inclusion of a contribution to customer acquisition costs from mobile termination prices; and

c.   The cost an efficient new entrant would realistically incur in achieving scale and/or the cost existing operators have efficiently incurred in achieving their current scale.

In a competitive market for mobile termination operators offering a higher quality of service (i.e., coverage) could charge more for termination services than other operators. Setting a termination rate for an operator providing a particular quality of service should have regard to the efficient costs of providing that quality of service.

It is not economically defensible to argue that customer acquisition costs should be recovered only from origination or subscription charges and not termination charges. We have estimated the cost of customer acquisition specific to termination to be around 1.7 cents per minute (cpm) based on customer acquisition costs of $150 per customer. This is likely to be a conservative estimate since empirical evidence of actual acquisition costs of mobile customers overseas suggests a considerably higher cost for customer acquisition.

In determining mobile termination prices based on the modelled costs of a network which is based on 'single day build' (such as that produced by the WIK-MNCM) consistency requires that if one assumes optimisation of network design and technology one must also model either: a) very low utilisation; or b) a significant capitalised value of losses associated with reaching equilibrium utilisation. Using results of the WIK-MNCM, we have modelled the costs specific to termination that an efficient operator would face in achieving scale. The results of this modelling indicates that the WIK-MNCM cost estimate (including adjustments

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[1]   In the context of 152AH of the TPA.

made by the ACCC) of 6.6 cpm should be increased by around 25% (or 1.7 cpm) to adjust for the costs of entry.

Accounting for these three considerations together indicates that based on a correct interpretation of the WIK-MNCM results, a price for mobile termination based on the efficient costs (TSLRIC+) is at least 9.9 cpm for a network with 96% population coverage.

Note that for the purpose of this report we accept that the WIK-MNCM models the scorched-earth cost of a hypothetically efficient operator adopting the best-in-use technology with different qualities of service (i.e., coverage) and traffic levels. We also accept for the purpose of this report that the adjustments made by the ACCC to the WIK-MNCM for 'Australian conditions' are appropriate. We note that in truth, the WIK-MNCN likely understates the true costs for a hypothetical new entrant.

1 BACKGROUND

1. Optus has asked the Competition Economists Group (CEG) to consider the ACCC's use of the WIK-MNCM in determining prices in its mobile termination pricing determination of November 2007[2] and the appropriate interpretation of the WIK-MNCM results for setting regulated mobile termination rates in Australia.

2. In commissioning the WIK-MNCM the ACCC requested a "tool for the assessment of the efficient costs of providing termination by hypothetical operators under different circumstances"[3]. In its final report provided to the ACCC on 16 January 2007, WIK indicated that its model was able to model a hypothetical operator providing mobile services in Australia. WIK notes that:[4]

   "The WIK Mobile Network and Cost Model (WIK-MNCM) is a bottom-up cost model, using a Total Service Long-Run Incremental Cost framework.

   The WIK-MNCM is able to determine the costs of all services provided by a mobile network, in particular the cost of terminating a call on it. The network can flexibly be configured to a hypothetical operator based on different assumptions regarding coverage and market share and for scenario applications to existing networks."

3. The WIK-MNCM model adopts a scorched-earth approach to a hypothetical operator. The hypothetical operator can be modelled to provide different levels of quality of services, primarily in terms of network coverage. Network coverage is modelled as the size of the network needed to achieve particular percentages of population coverage based on demographic data from various sources. The hypothetical operator can be modelled to have a different level of scale (subscribers and traffic). Scale is modelled in the WIK-MNCM as the market share of the Australian mobile market achieved by the hypothetical operator.

4. The flexibility of the WIK-MNCM allows for various interpretations and assumptions regarding the 'hypothetical operator'. For example, the hypothetical operator can be conceived of as a new entrant who builds a network with the modelled quality of service (i.e., coverage) and achieves the nominated scale (or traffic level) by displacing sales of incumbent operators. Alternatively, the modelled hypothetical operator can be conceived of simply as a hypothetically efficient operator who has achieved the modelled scale and provides the

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[2] ACCC, MTAS Pricing Principles Determination 1 July 2007 to 31 December 2008, Report, January 2007.

[3] Request for Tender for the Provision of Expert Telecommunications Sector Consultancy Services to the Australian Competition and Consumer Commission, RFT Release Date: 31 March 2006, page 3.

[4] wik-Consult, Mobile Termination Cost Model for Australia, Bad Honnef, January 2007, page 6.

nominated quality of service. The latter concept appears to be the one adopted by the ACCC.[5]

5. In its mobile termination pricing determination the ACCC state:[6]

    "The WIK Mobile Network and Cost Model (WIK Model) Version 1.2 estimates suggest the cost of the supply of the MTAS for an efficient operator unconstrained by an existing network structure in an Australian context. These efficient cost estimates, which when adjusted for traffic and further adjustments to contextualise the WIK Model for Australian conditions (as outlined in Annexure A.2.2.1) result in a range of **6.1 cents per minute (cpm) to 6.6 cpm.**"

6. For the purpose of this report we accept that the WIK-MNCM models the scorched-earth cost of a hypothetically efficient operator adopting the best-in-use technology with different qualities of service (i.e., coverage) and traffic levels, though we do not endorse it as the appropriate model for calculating access prices for mobile termination. We also accept for the purpose of this report that the adjustments to the model for 'Australian conditions' implemented by the ACCC are appropriate.

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[5] ACCC, MTAS Pricing Principles Determination 1 July 2007 to 31 December 2008, Report, January 2007, page 10-12.

[6] Page 1

2   OUTCOME OF A COMPETITIVE MARKET

7. The Australian Competition Tribunal considers that in:[7]

    "... principle ... 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."

8. Hypothesising the outcome of competitive markets is inherently difficult. The general proposition is that "a competitive process (i.e. contestability) will ensure that the pricing of incumbents is constrained by the entry of an efficient new entrant operating a network based on present day costs and designed in a way which is unconstrained by legacy decisions of the incumbents (termed the 'new entrant standard')". However, in a competitive market the new entrant's ability to constrain the pricing of the incumbent by adopting a fully optimised network may be limited by its ability to gain sufficient market share after entry.

9. A market may be considered competitive if a new entrant can credibly threaten entry at minimum efficient scale – otherwise new entrant's costs don't constrain prices.

10. The mobile services market in Australia has four infrastructure operators (Telstra, Optus, Vodafone and Hutchison). Ignoring barriers to entry for a fifth player (e.g., spectrum licences) the hypothetical new entrant costs could be modelled on the basis that it could build a hypothetically efficient network that has a competitive quality of service (i.e., coverage) and a level of utilisation to at least achieve a minimum efficient scale on 'day one'.

11. This is in essence the cost modelled by the WIK-MNCN. It models the cost of a hypothetically efficient new entrant if they could build out a network overnight to the nominated population coverage and achieve the desired scale (or traffic level) from 'day one'.

12. The difficulty with this approach is that it does not reflect the reality of either:

    a.   the cost a new entrant would realistically incur in rolling out a network of the assumed coverage and scale; or

    b.   the efficient cost incurred by incumbent operators in attaining their current coverage and scale.

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[7]   Application by Vodafone Network Pty Ltd & Vodafone Australia Limited [2007] ACompT 1 at [63].

13. In reality, a new entrant would always build a new network over a number of years to demonstrate a quality of service and then pursue customers from its rivals. If a new entrant wanted to capture the benefits of complete optimisation using 'state of the art' technology (that modelled in the WIK-MNCM's scorched-earth approach) on 'day one' for a large established network, then they would have to wear the costs associated with having that network underutilised for an extended period. As a matter of practice, this is never what new entrants do - they seek to recover the expected cost of entry in the prices they charge from day one. As a matter of theory, it is not what a new entrant would do unless customer acquisition costs were zero (i.e., only if they could costlessly attain enough customers to achieve minimum efficient scale).

14. Similarly, incumbent network operators have built their networks over time. Whilst they may have made prudent and efficient decisions regarding technology over time, the fact that they build their networks over time means they will inevitably be based on outdated technology - as will 'new entrant' networks by the time they reach efficient scale. Moreover, the incumbent network operators were once new entrants and had to acquire customers over time. As the market has grown and new entrants have competed market share away from their rivals, they have increased utilisation of network assets. Necessarily, prior to reaching their current scale they would have incurred and accumulated the 'cost' of under-utilisation of the network elements needed to achieve a competitive quality of service (i.e., coverage).

3 MOBILE TERMINATION

15. It is useful to recall that mobile termination is only one of a number of services provided on a mobile network. It is, however, the only service which has its price regulated. The nature of competition in mobile markets could be described as one in which operators first set mobile termination prices (or have mobile termination prices set by regulation) and then compete for mobile subscribers. If competition for subscribers is effective, any above or below cost revenues from termination would be reflected in final prices to subscribers so that overall revenues would be equal to cost.

16. The operation of this so-called "waterbed" effect suggests that the primary purpose of regulating mobile termination appears to be to achieve a more efficient structure of mobile prices (rather than a lower overall pricing level) and to avert potential distortions in competition between fixed and mobile services.

17. The Australia Competition Tribunal has noted that:

> "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 ... [t]he lack of competition is not necessarily a temporary phenomenon, nor one that will be cured by any foreseeable changes in the market itself."

18. Nevertheless, it is relevant to consider the various mobile markets together in considering the likely outcomes of a competitive market. For example, a new entrant would not enter to simply provide a termination service - rather it would base its decision on the economics of providing all services offered across the network.

19. The reason mobile termination is regulated is because of a perceived monopoly over termination to individual customers (not a perceived monopoly over mobile services in general). If we want to estimate competitive market prices we need a thought experiment that removes this monopoly. It is a fact that the structural and institutional arrangements in the mobile market mean that the individual choosing their network subscription (the called party) does not pay the charge for termination levied by that network. By contrast, the calling party pays the charge for terminating access but they cannot 'choose' the network on which calls are being terminated (assuming that they must contact that individual and the only means to do so is through a single mobile subscription held by them). In this sense the mobile network (or perhaps more accurately the mobile subscriber) has a monopoly in terminating access to its subscribers.

20. The thought experiment which removes this monopoly involves asking "what would happen if the party that chose the network that terminated the calls also paid the charge". That is, imagine that the calling convention was such that mobile subscribers paid for both origination and termination. That is, instead of the calling party paying the termination charge the called party would be liable for any such charge.

21. In this thought experiment, mobile operators do not charge the calling party for termination. Instead, all mobile operators' costs would need to be recovered from their own subscribers. Mobile operators would charge their own customers for making and receiving a call either in a per-minute charge or in some other manner. This would remove the alleged market power because the individual who is choosing the network is also the individual who pays for all that network's costs (including termination).

22. A number of observations can be made regarding the likely outcomes from this 'competitive market for mobile termination'. Firstly, the termination service would be a service provided to, and paid for by, the mobile operator's retail customer. If the mobile operator set the price of termination too high without lowering origination prices then the retail customer would be free to choose another carrier. The mobile operator would actively compete for the customers' termination business in exactly the same way that they compete for their origination business. As such, competition between operators would naturally result in termination prices recovering some portion of the retail costs associated with that customer (e.g., retail billing and customer acquisition costs).

23. Secondly, real world economies of scale mean that workably competitive prices might not be set equal to either the efficient cost of existing operators or the cost of a new entrant. Workably competitive prices would be set above this level (i.e., possibly reflecting Cournot style competition) at least in the short run.[8]

24. Thirdly, if some operators (e.g., Telstra and Optus) offer more superior quality of service (i.e., coverage) they could charge more for a termination package than other operators (e.g., Vodafone or Hutchinson).

25. Finally, any 'first mover' advantages that some operators (e.g., Optus or Telstra) have would not necessarily be passed onto customers. For example, Optus could earn more from its improved coverage than the cost to Optus of providing it – this is merely by virtue of the fact that given Optus (and Telstra) already has high utilisation. Other operators such as Vodafone and Hutchison could not get

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[8] This is always the case in oligopolistic markets, unless Bertrand competition exists which implies marginal costs of existing players have fallen faster than expected at the time of entry and/or demand had fallen below expectations leaving them with excess capacity – neither of which appears to be accurate based on market evidence.

the same utilisation as Optus or Telstra if they built out as far. This is because if Vodafone or Hutchison were to build to a new area they could not achieve the same market scale as they would have to share the market with the incumbents.

4 EFFICIENT OPERATOR

26. In considering the question of what market share to model the ACCC has adopted a concept of a hypothetical 'efficient operator' as opposed to that of a hypothetical 'new entrant'. The ACCC indicates that it:

    "... has consistently considered that the appropriate costs to recover when determining the costs of supplying the MTAS are likely to be those of an efficient operator. This is because, in an effectively competitive market, it could be expected that prices would reflect an efficient level of costs."

27. The ACCC conceives of a hypothetically efficient operator without reference to the legacy technology and business choices of incumbent operators. As noted above, the cost produced by the WIK-MNCM is based on a scorched-earth modelling approach. For example, it does not take into account the decisions of incumbent operators to locate base station in particular areas even though they may have been prudent decision at the time.

28. The effect of adopting the efficient operator concept proposed by the ACCC is to 'strand' (or give zero value to) the sunk cost incurred by incumbent operators of having attained their current market share. The sunk costs which are being stranded by adopting this ACCC's efficient operator standard include:

    a. The cost of attaining their current market shares (reflected in an low utilisation of assets in the period between which they were built and today); and

    b. The cost of prudent and efficient decisions regarding network design and technology choice which would no longer be made by a hypothetical new operator adopting a fully optimised network design and technologies.

29. That said, in making its determination for the relevant period at 9 cpm the ACCC allows an increment above its estimate of cost to reflect differences in the cost estimated by the WIK-MNCM and the actual cost of network operators. The ACCC indicate that:[9]

    "[t]he reason for establishing a 9 cpm price rather than a price more closely aligned to a TSLRIC+ estimate generated by the WIK Model is to provide a reasonable outcome that can account for any discrepancies in network elements that may be deployed in an actual network of an MNO [Mobile Network Operator]."

30. This could be read as the ACCC conceding to the fact that the efficient operator's costs (estimated by the WIK-MNCM) do not reflect efficient decisions of

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[9] Page 47

incumbent operators made over time (point b. above). The ACCC provide little justification for the level of the increment above its estimated cost range and 9 cpm, apart from to note that it is above the estimate of 7.8 cpm for smaller operators (with a traffic consistent with 17% market share), but it does call for additional information from operators to establish the efficiency of their recently incurred costs.

31. Notwithstanding this, it is apparent that in adopting the ACCC's interpretation of an efficient operator standard the ACCC has not made any allowance for the costs associated with the 'efficient operator' achieving the assumed level of scale and scope (point a. above).

32. In this regard, the efficient operator standard as interpreted by the ACCC will not produce prices that promote economic efficiency as they will be inconsistent with the prices produced in a competitive market. We note that the Australian Competition Tribunal has determined the following:[10]

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

33. The ACCC's efficient operator standard has no regard to market realities because it fails to have regard to either the realities faced by a new entrant entering the market or the actual efficient costs incurred by operators in establishing their current market positions (in effect it assumes perfect competition and assigns a zero value to sunk costs).

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[10] Application by Vodafone Network Pty Ltd & Vodafone Australia Limited [2007] ACompT 1 at [73].

5 MODELLING THE COMPETITIVE PRICE

34. This report has identified a number of relevant considerations that the ACCC appears not to have had appropriate regard to in its interpretation of the WIK-MNCM and in its determination of the price of MTAS. These include:

   a. The impact of quality of service on the reasonable price of mobile termination;

   b. The appropriate inclusion of a contribution to customer acquisition costs from mobile termination prices; and

   c. The cost an efficient new entrant would realistically incur in achieving scale and/or the cost existing operators have incurred in achieving their existing scale.

35. Each of these matters is considered further below.

5.1 Quality of Service

36. A reasonable charge for mobile termination (i.e., one that promotes economic efficiency) is one that reflects the outcome of a competitive market and provides for competitive neutrality between networks. A relevant question is whether Telstra and Optus should be able to charge a higher termination rate to reflect the higher quality of service they provide relative to other operators.

37. In the case of mobile termination we understand that Telstra and Optus provide a superior quality service than either Vodafone or Hutchison.[11] For mobile termination the most important quality dimension is likely to be geographic coverage and appears to be the most important distinguishing feature of the network operators mentioned above. Customers calling a mobile subscriber benefit from wider coverage area by being able to contact the mobile subscriber more often and in a greater variety of locations. However, the incremental cost of additional coverage increases as coverage is extended. Mobile operators typically build a network in the lowest cost areas (such as higher density urban areas) first and extend that coverage out to higher cost areas (such as rural areas) later.

38. In a competitive market for mobile termination it is likely that operators would be able to charge a premium for higher service quality. This is consistent with

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[11] We have not investigated actual quality of services differences for each operator for the purpose of this analysis. Differences in quality of service may arise from issues beyond coverage. Actual differences in quality of services should be incorporated in any implementation of this analysis.

observed origination pricing in which operators with greater coverage appear to charge a premium to smaller (in a coverage sense) operators. Note that it does not follow that operators who have higher unit costs because they are smaller (in the sense of less scale or traffic) would be able to charge a premium. As noted by the Australian Competition Tribunal in a competitive market:[12]

> "... 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."

39. Consider an analogy from the passenger transport industry. Should ordinary taxi drivers and limousine services have to charge the same price? Clearly the limousine service has higher costs and higher quality of service. It should be able to charge a commensurately higher price. If the limousine service can only charge the same price as the taxi service it will be unable to cover its costs. It will rationally reduce the quality of service and swap ordinary sedans for limousines. Such regulation would create a competitive distortion and drive out quality – i.e., only the lowest quality services would be viable.

40. Principles of efficient regulation and competitive neutrality therefore appear to require that Telstra and Optus be compensated for the provision of a higher quality service. This is likely to be particularly important to promoting dynamic efficiency in the market. If an operator is unable to charge for higher quality of service it will have less incentive to provide higher quality of service.

41. It is worth noting that the amount that Optus or Telstra could charge for this superior coverage in a workably competitive market would be more than the average cost to Optus or Telstra of providing that coverage (based on Optus' or Telstra's utilisation). This is because the relevant competitive constraint would be what it would cost a smaller operator to expand to provide that quality of service. Given that utilisation would be lower (as the rural market needs to be shared with 3 rather than 2) the unit cost of the smaller operators expanding would be higher.

42. By implication, when using a cost estimate from the WIK-MNCM to set the mobile termination prices for a regulated mobile operator it would (at least) be necessary to model the hypothetical operator providing the same quality of service (i.e., coverage) as is provided by that regulated mobile operator.

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[12] Application by Vodafone Network Pty Ltd & Vodafone Australia Limited [2007] ACompT 1 at [71].

5.2 Customer Acquisition Costs

43. In a competitive market for mobile termination, mobile operators would actively compete for the customers' termination business in exactly the same way that they compete for their origination business.

44. Even under current institutional arrangements the quality of the termination service, i.e., the coverage, provided to subscribers is likely to be a key factor in marketing to subscribers. Today, subscribers will choose a network based on their ability to make and receive calls in various locations.

45. In addition, the unit cost of providing mobile services (including mobile termination) is lower the higher is expenditure on customer acquisition costs. That is, the more customers that are acquired via greater expenditure on customer acquisition the greater is the traffic in total (including termination traffic) and hence the lower is the modelled unit costs using models such as the WIK-MNCM. There is therefore a clear causal link between the termination service and customer acquisition costs, as is there between origination services and customer acquisition costs.

46. For these reasons, it is not economically defensible to argue that customer acquisition costs should be recovered only from origination or subscription charges and not termination charges.

47. Customer acquisition costs are an important element of achieving network scale. Table 1 provides a sample of estimated mobile phone customer acquisition costs for Australia and the USA.

Table 1: Mobile Telephony Customer Acquisition Costs

Firm	Market	Year	Customer acquisition cost (AUD per customer)
Hutchison	Aust (mobile)	2004/05	456
Hutchison	Aust (mobile)	2005/06	423
Sprint	USA (fixed line)	2001	536
Nextel	USA (mobile)	2001	807
Voicestream	USA (mobile)	2001	569
Alltel	USA (mobile)	2001	518
Mean			**551**

Sources: NERA, Approach to Estimating the Retail Margin and Retail Costs for a Mass Market New Entrant, 5 September 2006, Table 3.5. Customer acquisition costs adjusted for change to Australian CPI from June 2006 to March 2008.

48. To the extent that these numbers capture some value of customers other than their cost of acquisition they may overstate true customer acquisition costs. In Table 2 we estimate the impact of including an allocation of customer acquisition costs to the WIK-MNCM network cost estimates using an assumed customer acquisition cost of $150 per customer with a life of 5 years.[13] The result is an estimate of customer acquisition costs attributable to mobile termination of around 1.7 cpm. This estimate is based on an equi-proportionate allocation of customer acquisition costs to the mobile termination service rather than one that seeks to promote overall economic efficiency and consumer welfare (e.g., via a Ramsey allocation).

Table 2: Customer Acquisition Costs Impact on Mobile Termination Costs

	Value		Source
Number of subscribers (million)	4.9		WIK-MNCM (19.6 million * 25% market share)
Customer acquisition costs ($ millions)	193.9	A	Assume $150 per subscriber amortised over 5 years at 10%
Total network costs ($ millions)	743.69	B	WIK-MNCM with ACCC adjustments
Termination costs ($ millions)	237.76	C	WIK-MNCM with ACCC adjustments
Termination minutes	3,578,925,000	D	WIK-MNCM (40.1 billion * 25% market share *35.7% termination minute share)
Termination rate (cpm)	6.6434		WIK-MNCM with ACCC adjustments
Customer acquisition increment (cpm)	**1.73**		Calculated as: A/B*C/D*1000000

Source: WIK-MNCM and CEG analysis

5.3 Entry Costs

49. In considering the factors affecting outcome that would eventuate from a competitive market the Australian Competition Tribunal noted that:[14]

> "[T]hese 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

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[13] Optus' mobile customer acquisition costs for the June 2008 quarter were reported at $155 whilst for the March 2008 quarter, were reported at $145. See http://home.singtel.com/attachment_hub/1C7DFF5C-6F50-474A-BE90-8309838B8790/Group%20Jun%202008%20MDA.pdf

[14] Application by Vodafone Network Pty Ltd & Vodafone Australia Limited [2007] ACompT 1 at [72] and [73].

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.

It can be seen that, in seeking to emulate the outcomes realisable in a competitive market, some regard must be had to the actual process (the dynamics) by which operators compete and establish themselves in markets"

50. In determining prices based on the modelled costs of a network which is based on 'single day build' (such as that produced by the WIK-MNCM) consistency requires that if one assumes scorched-earth optimisation one must also model either: a) very low utilisation; or b) a significant capitalised value of losses associated with reaching equilibrium utilisation.

51. We have used the WIK-MNCM to determine the extent to which its estimate of an efficient termination charge must be increased in order to take into account the efficiently incurred cost of losses accumulated during the period of low utilisation of assets subsequent to entry. This has been achieved by applying build-time and up-take assumptions to estimates of termination cost estimated from WIK-MNCM, generating profiles of costs and revenues. The termination rate is set at a constant level through time in order to make the forward looking present value of termination revenue at the time of entry equal to the forward looking present value of termination costs at the time of entry. That is, the entrant sets a termination charge that will, over the long run, recover its costs in present value terms. This results in accumulated 'losses' during the early years of low utilisation which are treated like an investment in achieving efficient scale – and this investment earns a return in the form of a margin once efficient scale is achieved.

52. This is precisely what would happen in a competitive market. In a competitive market a new entrant could not enter with higher prices than existing players but must at least match the prices of incumbents while it builds up efficient scale. These prices charged by incumbents would themselves reflect the value to them of their own past investments in building efficient scale.

53. Using the WIK-MNCM, we generated costs and estimated termination rates associated with varying levels of market share (traffic). In doing this we utilised the assumptions outlined by the ACCC in Tables A2-1 and A4-2 of the Determination. The results of these model runs are shown in Table 3 below.

Table 3: WIK-MNCM Results

Market share	Total annual cost ($mpa)	Termination cost (cpm)	Annual cost allocated to termination ($mpa)
25%	743.69	6.643	237.76
20%	629.91	7.002	200.46
15%	547.85	8.129	174.55
10%	469.68	10.326	147.83
5%	378.42	16.604	118.85
0%	267.86	n/a	83.95

Source: WIK-MNCM and CEG analysis

54. Since the WIK-MNCM does not report explicitly the annual cost allocation to termination of incoming calls, we calculated this value assuming a total market size of 40.1 billion voice minute equivalents, and using the other traffic parameters employed by the ACCC.

55. Assuming a build-time of two years to achieve a full network size, and twelve years to reach 25% market share (at a fixed rate of termination), Figure 1 below shows how the cumulative present value cost of entry (i.e., the sum of the present value differences between annualised cost and annual revenue) changes over time.

Figure 1: Cumulative Present Value Cost of Entry
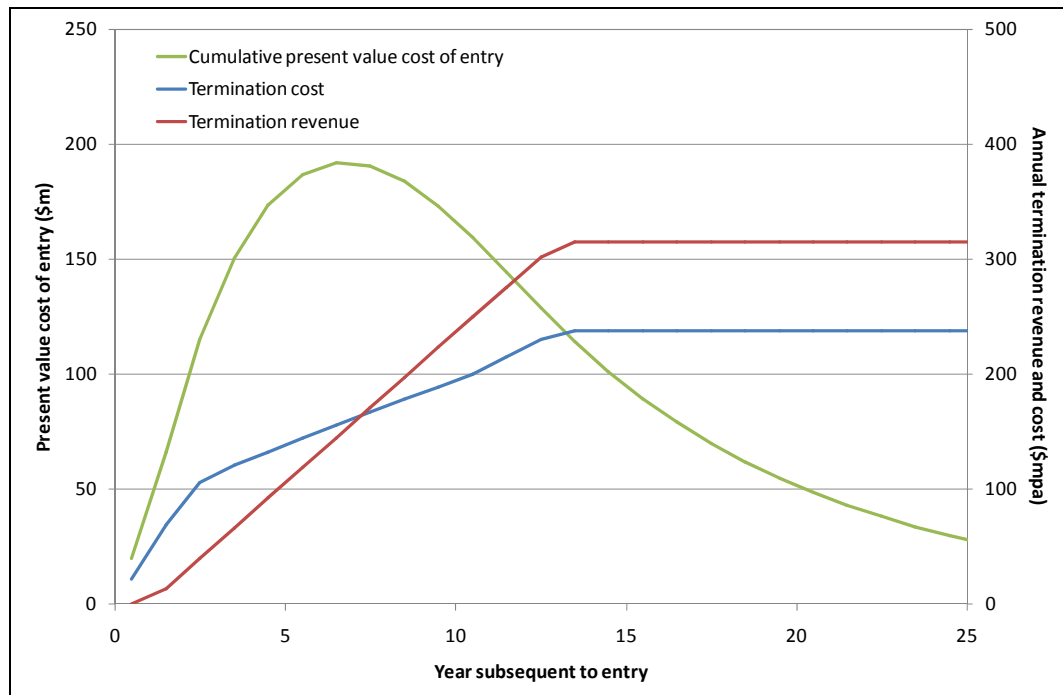
56. The effect of the delay in being able reach scale can be clearly seen in the figure. Annualised costs rise most steeply in the first two years as the coverage network is rolled out. Thereafter, costs rise more incrementally as increasing demand requires greater provisioning of sites, links and switches. Until year 8, annualised costs are higher than annual revenues and the cumulative present value cost of entry grows but then shrinks as revenue exceed annualised costs. A termination rate that adequately compensates for these entry costs will scale the revenue such that the cumulative present value cost of entry converges to zero. This means that over time the present value of termination revenue is sufficient to offset the present value of termination costs, but no more than that.

57. Using the inputs shown in Table 3 and the assumptions described above, we estimate that for an eventual market share of 25% and coverage of 96%, the WIK-MNCM termination cost of 6.643 cents per minute would need to increase by around 25% to 8.291 cents per minute to offset the losses due to under-utilisation of the network during this period of demand uptake.[15]

58. Table 4 provides a sensitivity analysis. It shows the percentage increase in the WIK-MNCM unit termination costs required to compensate for some alternative entry scenarios involving different build-times and periods needed in order to achieve the traffic equivalent to 25% market share.

Table 4: Sensitivity Analysis

Build time	Number of years to achieve 25% market share		
	10	12	15
1 year	23%	28%	36%
2 years	20%	25%	32%
3 years	17%	22%	29%
4 years	14%	19%	26%
5 years	11%	15%	22%

Source: CEG analysis

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[15] In making this calculation we have used a real WACC which is equal to the nominal WACC adopted by the Commission adjusted for a long term expected inflation rate of 2.5%.

APPENDIX A: JASON OCKERBY

Jason Ockerby is a Director of the Competition Economists Group. He is an economist with over 10 years experience in competition and regulatory economics and has specialised in the areas of communications, energy and environmental economics.

Jason has been involved in a number of significant mergers and acquisitions. He has advised on the competition effects of a number of energy transactions in Australia and transactions in the communications sector. These include the sale of electricity businesses in Victoria, the Optus-Foxtel Content Sharing Arrangement (CSA) and numerous confidential and sensitive transactions. He has had particular experience in the development of behavioural and structural remedies (undertakings) to address competition concerns.

Jason has worked extensively in the area of telecommunications and communications regulation. He has led an Australian telecommunication carrier's (Optus') regulatory economics practice for the five years to June 2007. In this time he has dealt with the full range of communications issues including: price squeeze allegations; spectrum licensing, access price costing and regulation, universal service, M&A, resale pricing, cost of capital, imputation testing and LRIC modelling. Jason has had his expert reports on regulatory matters accepted by the Australian Competition Tribunal.

In addition, Jason has affidavit expert reports relating to market definition, misuse of market power and competitive effects before the Australian competition regulator. This evidence has led to competition remedies and the commencement of Federal Court proceedings.

Over the past five years Jason has had significant experience in advising lawyers and Counsel on economic and quantitative issues in the context of court proceedings.

SELECTED ASSIGNMENTS AND REPORTS

- Provided economic advice and modelling for a bidder on a proposed transaction involving British Energy.

- Advised Vodafone on the construction of a mobile termination cost model for Fiji.

- Advised Digicel on mobile termination costs in PNG and Samoa.

- Advisor to T-Mobile in the Competition Appeals Tribunal hearing of an appeal of Ofcom's Final Statement on Mobile Termination.

- Advisor to GSM Europe on the European Commission's review of the Universal Service Obligation across member states.

- Advice on the preparation of a Part XIC special access undertaking for a fibre to the node access network prepared for the G9 consortium of telecommunication operators.

- Expert report on the need to take into account asymmetric risk in setting the regulated WACC. Analysis of the social consequences of setting the WACC too high or too low when assets are sunk. Before the Australian Competition Tribunal. http://www.austlii.edu.au/au/cases/cth/ACompT/2007/3.html

- Construction of a top down LRIC model of GSM mobile services in Australia. Modelling of network architecture, MEA values, routing, demand and scale costing.

- Critical analysis of Telstra's PSTN Ingress Egress access model (the PIE II model), architecture (minimum spanning tree), network and costing assumptions. Including international benchmarking of model assumptions based on FCC hybrid cost proxy model and other international models.

- Analysis of competition effects of 3G network sharing alternatives. Submission to the ACCC and briefing of Mergers Commissioner on competition effects. Advice to Baker and McKenzie acting for Optus.

- Competition analysis of various transactions in communications sector.

- Preparation of a Part XIC ordinary access undertaking for mobile termination services. Expert advice on statements, submissions and briefing of Senior Counsel and lawyers (Gilbert and Tobin) in an appeal of the undertaking to the Australian Competition Tribunal. Advice on top down LRIC modelling, Ramsey-Boiteux pricing, network externalities and market definition in two-sided markets.

- Independent expert advice on the regulatory regime in the acquisition of United Energy.