

**VODAFONE NEW ZEALAND LIMITED
SUBMISSION TO THE COMMERCE
COMMISSION**



**SCHEDULE 3 INVESTIGATIONS INTO
AMENDMENTS TO THE ROAMING AND COLOCATION
SERVICES**

Issues Paper

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PUBLIC VERSION

I Summary

1. This is Vodafone's submission on the Commission's Issues Paper on its Schedule 3 investigation into national roaming and co-location regulation.

We continue to question the need for further regulation of roaming

2. The regulation of roaming prices is not likely to make a difference to the prospects for entry or business success of an entrant.
 - The costs of building a mobile network are high. Given the likely need for nationwide coverage from day one, any roaming agreement offers a better prospect for a new entrant than having to build.
 - In any case, the terms we propose for roaming in our undertaking are near to a reasonable estimate of an average cost-based rate for roaming. And our analysis indicates that the roaming rate makes very little difference to the business prospects of a new entrant who builds a network because relatively little of their traffic will actually be roamed.
3. The Commission is also aware that the failure of TelstraClear and Econet to enter the mobile market as yet is not to do with a lack of access to roaming agreements with Vodafone. In circumstances where service providers and access seekers themselves have managed to agree commercially acceptable roaming terms, overseas regulators have resisted attempting to price regulate roaming.

Setting roaming prices will determine where mobile networks get built in New Zealand

4. We recognise that the Commission is obliged to continue its investigation. Therefore we also take this opportunity to provide our views on what form regulation should take.
5. In other regulatory investigations, lower wholesale prices mean lower retail prices, and therefore greater long-term benefits for consumers. So the question for the Commission in setting prices is normally how far it can reduce wholesale prices while not unduly limiting incentives to invest in the access network that is the subject of regulation.
6. The case of national roaming is more complicated because mobile phone networks are not natural monopolies and can be economically replicated. In this case, a lower price for roaming is not necessarily good for the long-run interests of consumers. There are two reasons:
 - The roaming price will determine how far an entrant builds. In areas where it can build for less than the roaming price, it will build. In areas where roaming is cheaper, it will roam. Therefore a lower roaming price

means that the entrant will have an incentive to build less, and a higher roaming price means a more extensive competing network build.

A lower roaming rate that meant that an entrant did not build much could be a bad thing for consumers. It is typically thought that facilities-based competition is better for consumers than resale competition.

- A lower roaming price (which would normally be the Commission's objective) is also likely to affect our incentives to invest in a network. The logic is the same as for an entrant. The average costs of our radio network vary across the network (typically, rural areas have high average costs, and urban areas have lower average costs). A lower roaming rate will obviously affect our incentives to build in high-cost areas (since the entrant will be able to use high-cost network assets at low cost).
7. These two effects reinforce each other. There are two implications:
 - A lower roaming price is not necessarily better for consumers, since it will mean less network building and therefore less facilities-based competition.
 - The Commission will be determining the extent of competing mobile network rollout in New Zealand by setting the roaming rate. If it chooses a low rate, then it is settling for less network building. If it chooses a higher rate, then it is encouraging more building. Either way, we believe that it will be extremely difficult for the Commission to determine what an efficient extent of network rollout is for an entrant.
 8. A lower roaming rate shifts money around between Vodafone and access seekers. We therefore expect access seekers to argue that the Commission should regulate lower prices. Of course, this would make their shareholders richer, but it may not necessarily be in the long-term interests of New Zealand end-users if they do not actually build a mobile phone network. Their previous behaviour is not encouraging in this regard.
 9. Our conclusion from all of this is that setting roaming prices is very difficult. We can only assume that this is why we have not found a regulator who has actually set a price for roaming.

The best regulatory solution is for the Commission to negotiate an undertaking with Vodafone

10. The only justification we can see for regulation is a Commission's concern that without regulation access seekers might have trouble getting a roaming agreement, or trouble in negotiating reasonable roaming prices.
11. In this submission we look in some detail at the options to resolve these perceived problems, although we also point out that there is no evidence of either problem in practice.

12. In our view, the best solution is for the Commission to negotiate the undertaking with us. Having the Commission involved would eliminate any concerns about relative bargaining power, and could quickly provide certainty for us and for access seekers about roaming and co-location terms for the next five years at least.
13. We think that geographic de-averaging is likely to be the best way to price roaming. This would mean that prices would be higher in high-cost areas and lower in low-cost areas.
 - This would avoid the perverse investment incentives for a new entrant that would result from a retail-minus or a single average cost approach, and would therefore support sub-national entry.
 - It would also be simpler and more future-proof than retail-minus regulation.
14. We would have included geographically de-averaged prices in our undertaking but for the fact that we had a very limited time to complete and submit the undertaking. We suggest in this application a simple approach to de-averaging prices.

Three basic messages

- Further regulation of roaming will not generate significant benefits for end-users. This is because the price of roaming is not very important to an entrant's business case, and because, from public announcements, we understand that the most credible new entrants are shortly to enter anyway. So the Commission is unlikely to be able to generate additional new mobile entry by regulating roaming rates.
- Pricing roaming is likely to be complex and challenging. Roaming prices will determine where networks get built and where they do not. Were the Commission minded to attempt to price regulate roaming, we would encourage the Commission to implement geographically de-averaged pricing, but even this is likely to involve very significant complexity.
- The best solution is to negotiate the undertaking. The Commission has before it a quick and easy solution to avoid these difficulties. It can form a view on what a reasonable roaming contract looks like and suggest that to us as part of the undertaking process. This is likely to be an order of magnitude simpler, faster and more effective than recommending the designation of the roaming service.

II Table of contents

I	Summary	2
	We continue to question the need for further regulation of roaming	2
	Setting roaming prices will determine where mobile networks get built in New Zealand	2
	The best regulatory solution is for the Commission to negotiate an undertaking with Vodafone	3
	Three basic messages.....	4
II	Table of contents.....	5
III	Introduction.....	6
IV	There is no reason to further regulate roaming or co-location	7
V	The Commissions market definition is too narrow.....	10
VI	Pricing for roaming	13
	Characteristics of mobile network costs.....	13
	Criteria against which to assess a solution.....	17
	A range of possible solutions and assessment	19
	Conclusions	22
VII	Cost benefit analysis	23
VIII	Co-location.....	26
	Generic pricing of co-location is difficult because of site-specific factors.....	26
IX	Answers to specific questions.....	27
	Question 3.1	27
	Question 3.2	28
	Question 3.3	29
	Question 4.1	31
	Question 4.2	35
	Question 4.3	38
	Question 4.4	38
	Question 4.5	38
	Question 4.6	39
	Question 4.7	39

III Introduction

15. This is Vodafone's submission on the Commission's Issues Paper on its Schedule 3 review into national roaming and co-location regulation. It consists of three documents:
 - This submission,
 - A paper on market definition that looks at how best to define the markets relevant to this investigation, and
 - The latest summary of results from a 3G entrant cost model that was built by Covec to explore how regulation would affect the choices of a new entrant mobile network.
16. Section IV questions the Commission's case for regulating the roaming service. We think that there is no market failure to address, and therefore no role for regulation. We understand that the Commission has already decided to proceed, however, so we go on from this point to offer some advice, analysis and data that we think might help the investigation.
17. Section V addresses the Commission's market definition which we think is mistaken. An entrant will build rather than roam in any area where the costs of building are low enough. This means that building and roaming must be in the same market at least where the costs of building are low enough, and the market definition needs to reflect this. By extension, co-location and roaming must be in the same market since co-location is just one way to reduce the costs of building a network. This analysis leads us to a geographically separated market definition, split between areas where building another mobile network is viable, and areas where it is not.
18. Section VI discusses the price of roaming. Pricing of roaming is difficult whether it is commercially negotiated or regulated. Different areas have different costs. This fact is behind the entrant's tendency to build lower cost areas, and it makes a regulated average roaming rate problematic. Altering the roaming rate through time to reflect rising costs can be equivalent to a rollout requirement.
19. We also assess a set of possible roaming regulations — including negotiating with Vodafone on our undertaking — against a set of criteria. In our view, geographic de-averaging of prices is the best possible regulatory solution. And in our view negotiating the undertaking is likely to lead to better outcomes more quickly than any further regulatory intervention.
20. Section VII discusses issues around modelling of costs and benefits for the roaming investigation, section VIII discusses co-location, and section IX responds to the Commission's specific questions.

IV There is no reason to further regulate roaming or co-location

21. In this section we look at the two potential market failures that are said to justify regulation of roaming and co-location. We can not see evidence supporting either market failure, and so we do not think that further regulation is justified.
22. There are two reasons why the Commission might wish to price regulate roaming or co-location:
 - To cause entry that would otherwise not occur because roaming providers were refusing to do roaming deals.
 - To improve an entrant's prospects because roaming providers were setting unrealistically high roaming rates.
23. On the first, regulation could only make a difference if Vodafone were refusing to do roaming deals and, because of the need for nationwide coverage, this prevented an entrant from entering the market. [

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24. In terms of improving an entrant's prospects, regulation could make a difference if an imbalance in bargaining power between Vodafone and the entrant mean we were setting roaming prices so high as to limit an entrant's ability to compete. In fact, our undertaking sets roaming prices near to a reasonable estimate of costs, and our modelling shows that roaming prices make little difference to the business case of an entrant anyway.
25. If the Commission is of the view that this second market failure is a cause for concern, then the best solution is to encourage us to revise our undertaking to deliver a standard roaming offer that is more in line with the Commission's preferences. In our view, if the Commission were clear about what its objectives are, and what it considers acceptable roaming terms to be, then this issue can be quickly and easily resolved.

We see no evidence that a lack of roaming deals is inhibiting entry

26. If we assume that nationwide population coverage is necessary at launch, then the entrant needs a roaming deal at entry. If a roaming provider were using its market power to exclude a potential entrant by refusing a roaming deal, then this would be a clear market failure.
27. We can not see this happening in practice.
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28. [JVNZRI The lack of actual entry must be caused by some other factor. We have suggested in the past that the relative immaturity of 3G technology and the size of the market in New Zealand might have contributed to delays in entrants' building.

If the Commission is concerned about the level of roaming prices in the market, then the undertaking remains the best way to proceed

29. The only other justification for regulation that we can see is that a roaming provider might be using its market power to hold roaming rates above an appropriate level.

Concerns about prices are flawed in theory

30. We do not think that there is much merit in this position. In our view, if an entrant has a roaming deal, then the roaming rate cannot inhibit entry.
31. Any roaming agreement will be a better deal for an entrant than having to build. The costs of building a mobile network are high and there is a likely need for nationwide coverage from day one. This is a point that the Commission itself has made in previous investigations into this issue.¹
32. Taking this point a little further, a high roaming rate increases the geographic area where building and roaming are substitutes, and so the entrant will build a more extensive network to avoid the roaming rate.

Concerns about prices have no basis in practice either

33. In fact, we are not setting high prices for roaming.
34. The terms we propose in our undertaking are near to a reasonable estimate of an average cost-based rate for roaming. And, in any case, the roaming rate makes very little difference to the business prospects of a new entrant who actually intends to build a network because relatively little of their traffic will be roamed.

Negotiating the undertaking remains the best path for the Commission if it is concerned about market failure

35. If the Commission takes the view that the access provider's bargaining power is such that the resulting price of roaming would harm the entrant to an unreasonable extent, it has a simple solution open to it. It can use the undertaking process to negotiate a roaming price that it considers to be more appropriate.

¹ Decision 479, 1 November 2002, para 146.

36. We have signalled clearly our willingness to engage on the price and non-price terms of the undertaking so that we can minimise the distraction of a wasteful and ultimately pointless Schedule 3 investigation.

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The other option would be to wait and see

37. We do not think that the Commission needs to concern itself about roaming prices at all. [

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38. In these circumstances, a nother option open to the Commission would be to revise other aspects of the regulation (like the nationwide rollout rules, for example) and wait and see whether roaming prices become an area of contention.

39. Because the roaming rate determines the extent of the entrants build, the risk of getting it wrong is significant. Error would result in either too much or too little investment in long-lived capital. This effect was indirectly present in the consideration of MTR regulation, but in roaming regulation there is a much more direct determination of the extent of competing network build based on the Commission's decision-making.

V The Commissions market definition is too narrow

40. The Commission defined the relevant market for roaming in its draft extension review paper. It concluded that the relevant markets were the Telecom and Vodafone national networks, at the wholesale level, and with no customer or temporal differentiation.
41. We urge the Commission to reconsider its market definitions. In our view they could up generating regulation unnecessarily.
 - In particular, we think it would be a mistake to regulate roaming in areas where an entrant can economically build. In these areas there is no need for regulation, and imposing it will simply encourage disputes between Vodafone and the entrants to be played out in the Commission's offices rather than in commercial negotiation.

Geographic differentiation

42. The Commission's analysis in the issues paper implicitly puts building and roaming in the same market. It refers to the "build or buy decision" of the entrant directly and by suggesting there may be a connection between the roaming rate and the business case of a new entrant for building.² This is the entrant substituting between building and roaming. By using this language, the Commission is implying what we believe is in fact the case: that building and roaming are in the same market in locations where such substitution is taking place.
43. This is a very important point, so we shall try to be clearer:
 - In any geographic area where an entrant build is economically viable, building and roaming are substitutes and therefore in the same market.
 - In any geographic area where an entrant build is not economically viable, building and roaming are not substitutes and therefore not in the same market.
 - So the Commission should divide the country up into places where building is viable, and places where building is not viable.
 - In the former, we can not see any argument for regulation. If a hypothetical monopolist for roaming in that area were to charge a high price or refuse roaming services, an entrant would build.
 - It is only in the areas where building is not economically viable that we think any case for regulating roaming can possibly be made.

² See, for example, paras 26 and 31 of the Issues Paper.

44. A similar point applies for co-location. Co-location is just a way to build at lower cost. So if it does anything, the availability of co-location will slightly expand the area within which building is viable.
45. The co-location access price is part of the price of building. Therefore roaming and co-location – via its inclusion in the price of building – are in the same market wherever an entrant is substituting between building using co-location and roaming.
 - That is to say, anywhere that entrant build is viable, co-location and roaming are in the same market.
 - Anywhere that entrant build is not viable, co-location and roaming are not in the same market.
 - The availability of co-location will slightly expand the area within which an entrant build is viable.
46. These issues are explored further in the attached paper which focuses on the product dimension of the market. We conclude that:
 - The market needs to be defined geographically as there are only some areas where an entrant can economically substitute between building and roaming;
 - The areas where substitution is possible are characterised by low average traffic costs (co-location is one feature of this), and perhaps an increase in total traffic that imposes costs on the roaming provider.

Technology differentiation

47. The Commission has indicated that it thinks that CDMA and GSM roaming are in different markets. We are not convinced that this is correct.
48. At the time of negotiating an initial roaming deal the entrant is assumed to be technology neutral and may negotiate with either Vodafone or Telecom. Unless the choice of technology is predetermined somehow, then these technologies are in the same market.
 - Hutchinson, when entering in Australia, for example, took bids from both GSM and CDMA providers and ended up roaming on Telstra's CDMA network.
49. Renegotiating a roaming deal is not technology neutral because at that stage a decision on technology has already been made. This second phase of the contract is what the Commission has focused on in its definition.
50. But focusing only on this point is too simplistic. In fact the entrant and the roaming provider know that they will have to negotiate again once the contract expires. And both have a strong interest in certainty about what is going to happen at the end of the contract term. The likely result of their aligned

incentives will be a long-term contract with rights of renewal. And the effect of that contract will be a single market for roaming. In effect, CDMA and GSM operators compete for the whole of the roaming business.

51. In addition, if roaming is a transitional arrangement between entry and nationwide rollout, then there is only ever an initial roaming deal, and the two incumbent networks are always in the same market.

VI Pricing for roaming

52. In this section we look at how to price roaming. This is a challenge because cost-based pricing is inherently difficult to apply in the case of a mobile network. This is because average costs vary quite sharply across different parts of the network.
- What this means is that setting a roaming price based on whole network average costs (which is what TSLRIC normally does) will tend to encourage building in low cost areas by the entrant and deter the access provider from investing in high cost areas of its network.
53. In our view the best answer to these perverse incentives is to geographically de-average roaming prices.
54. In this section:
- We look at how network costs vary across areas, and briefly discuss what this implies for both an entrant's rollout decision and for regulation of roaming prices,
 - We present some criteria for choosing between pricing options,
 - We look at the range of pricing options available, and
 - We draw some conclusions about which pricing option is likely to best meet the criteria.
55. It bears repeating that we do not think the Commission should regulate roaming prices at all, and particularly not in areas where building is economically viable for an entrant. We present the comments below on the basis that they might be of use if the Commission decides that regulating roaming prices is sensible course of action.

Characteristics of mobile network costs

Average costs can vary sharply by location on the network

56. The following chart shows how costs vary between areas in Vodafone's 2G mobile network. It is made up of total annualised cell site costs in an area, divided by the busy hour erlangs for a particular month.
- The traffic data is the sum of the average busy hour traffic carried during November 2006 for each site in an area.
 - The cost data are current budgeted costs to replace each cell site type, multiplied by the numbers of each type in each area, and annualised over the life of the assets involved.

- The cost per busy hour erlang is then expressed relative to the highest cost area.

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57. Some points to note about this chart.

- It excludes core costs. Core costs would be distributed using traffic as a driver. This would probably flatten out the shape of the chart slightly if they were allocated per minute. But we think that this would not significantly alter the chart as there are few core elements involved in roaming.
- It excludes transmission costs. Transmission costs are specific to each site and are difficult to get and attribute. We think that the areas used here are large enough for transmission costs to average out therefore they are not likely to change the shape of this graph, or if anything make it steeper (since transmission costs might be higher in more remote areas).
- The costs were split into civil costs and equipment costs and a 50 year life was used for civil costs, and a 10 year life was used for equipment costs. This is consistent with many publicly available LRIC models.
- The costs are what we would budget now for building sites. They are not historical costs. They are not fully forward-looking as they do not incorporate any future price changes over time.
- Using busy hour traffic means that the shape of the chart is driven by how volatile the traffic is rather than the total volume. We think using busy hour traffic is the correct approach as it is busy hour minutes that drive radio access network costs.

- The regions used here cannot be used for roaming purposes. The network is split up into location areas that do not correspond very well to these familiar geographic regions. Location areas must be used for roaming because these are the areas that can be switched off as the entrant builds out.
 - This data is based on 2G only traffic. We are continuing to build out our 3G network.
58. While this analysis is far from definitive, it does produce expected results. The lowest cost areas are urban and the highest cost areas are rural. [

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Incentives to build therefore vary by area

59. We have explained to the Commission before that the roaming rate is a key determinant of how far an entrant builds its network. This is despite the fact that the overall rate is not very important for the overall decision of whether to enter or not.
60. The variation in costs shown in the chart is at the heart of this observation. In essence the entrant's decision about where to build is a cost minimisation problem:
- If the entrant expects to be able to build coverage in an area for less than the costs of roaming (given an expected volume of traffic), it will build in that area.
 - If the entrant does not expect to be able to reduce its costs by building in an area (perhaps because the area is high cost, or has low traffic or a combination of these factors) then it will choose to roam in that area.
 - Together this means that the entrant will build just to the point where its costs of building equal its costs of roaming in an area, i.e., it will cover all areas up to the point where it is indifferent about whether to build or roam the next most high average cost area.
61. This means that if the roaming rate is set low, then an entrant will build less competing infrastructure, and if the roaming rate is set high, then an entrant will build their network out further.
62. This point seems to be accepted in the issues paper (para 26):
- “When considering the possible benefits from amending the regulated services, it may be necessary to take into account any likely interplay between the terms on which co-location and roaming are available. For example, the demand for roaming services may be influenced by access to co-location, and vice versa, as these services both relate to the “build or buy” decision of an entrant.”

63. Where this boundary is depends on:
- The entrant's expected traffic: This affects the entrant's average cost and the incremental cost that the entrant imposes on the roaming provider.
 - The cost of coverage and capacity: an entrant may be able to achieve the same average costs as the incumbent with less traffic if capacity costs are a relatively high portion of total costs.
 - Geography/topography, population density and traffic patterns. These are fundamental inputs into network design and dimensioning.
64. Therefore the calculation that determines exactly how far an entrant will build in response to a roaming rate is quite complex. It is especially difficult to determine where the entrant can match the average cost of the roaming provider for its expected traffic, possibly different calling patterns, and likely lower build costs (due to co-location and the declining cost of equipment).
65. The direct relationship between the roaming rate and the entrant's capital investment is the reason why we think it is not wise for the Commission to regulate roaming prices. If we are short-sighted enough to try to set high roaming prices in our commercial arrangements with new entrants, we generate for ourselves a more extensive competing network. Commercial operators are better placed than the Commission to make decisions about where and how much capital to invest.

Varying costs mean that regulating at average cost is risky

An cost-based average rate would need to change over time

66. A cost-based average rate (like a single national TSLRIC price) would have to be regularly adjusted upwards if the roaming provider is to recover its costs and retain incentives to invest. Underlying the problem is that the entrant will make build decisions at the margin, but the rate is set at an average.
67. As set out above, the entrant builds out its network until it is indifferent between building and roaming. As this happens, the average cost of the un-built areas increases. A cost-based average roaming rate will therefore go up to allow the roaming provider to cover its costs and to continue to invest in the network. This increase in the roaming rate means more areas are economic to build, the entrant starts to build them, and the cycle starts over.
68. One can imagine a retail-minus roaming rate having a similar effect. But a retail-minus rate is likely to be adjusted down through time as retail prices drop due to entry. If this is anticipated by the entrant, then they will limit their build accordingly.

An average rate that rises with time is equivalent to a roll out requirement in some circumstances

69. Recalculating an average roaming rate as the entrant's build-out proceeds is equivalent to a build-out obligation but with extra uncertainty and regulatory cost. And altering an average roaming rate in some predetermined way can also be equivalent to a build-out obligation.
70. To see why, consider that an entrant faced with an increasing roaming rate would rationally invest to avoid paying it where it is economic to do so. Eventually the entrant would build out to the provider's footprint if the rate were not capped. If it were capped then the roaming provider could not cover the cost of roaming nor justify investing in those areas where the entrant does not build.
71. This is true as long as total coverage is imperative. If it were not, there may be a roaming rate that is high enough for the entrant to forgo coverage in some areas because its expected traffic in that area might be insufficient to justify building.

This leads us to conclude that a de-averaged rate is more useful

72. A de-averaged rate that differentiates prices between different geographic areas is not equivalent to a build-out obligation and therefore allows the possibility of permanent partial entry. It is also more stable requiring less ongoing adjustment in response to building.
73. This is consistent with our work on the market definition which shows that the market should be divided geographically according to whether building and roaming are substitutes in an area or not.

Or if the Commission believes that a nationwide build is feasible, then roaming should be strictly time limited and include a rollout requirement.

74. An alternative to de-averaging is to strictly time limit access to roaming and use an average rate. This would retain the roaming provider's incentives to invest and it would also avoid the risk of Commission setting an erroneous roaming rate and thus affecting the entrant's investment decision making. This is the only scenario where we can see an average roaming rate not being a very bad idea.

Criteria against which to assess a solution

75. This section lists the criteria that we think should be used to assess different forms of roaming regulation. These criteria are based on the two assumed objectives (generating entry, improving entrant prospects) and the characteristics of mobile networks listed above.
76. To date we have not benefited from a clear statement of what the Commission is trying to achieve with roaming regulation. It would be most

helpful if the Commission could be clear about what it is trying to achieve. This will allow us to do what we can to generate those outcomes.

Criteria

77. If the Commission can establish a case for amending the roaming regulation, we think that roaming regulation should:
- Be simple
 - Allow partial or sub-national entry
 - Be focused either on causing entry or improving the prospects of an entrant, whichever the Commission views as being the market failure, and
 - Not erode investment incentives for either the entrant or the host network operator.
78. We think that the regulation should be simple as complex regulation has proven difficult to implement. Examples including TSO determinations, which are so complex they are now three years in arrears, and UBS regulation where the imputed retail price is very difficult to calculate and a matter of ongoing discussion. This level of complexity should be avoided if at all possible if the regulation is to be effective. If there is to be price regulation, we would prefer a regulatory approach that does not require frequent reconsideration or generate ongoing disputes for the Commission to determine.
79. We think that the regulation should allow for sub-national entry. The reason for this is that the Covec entrant model shows that 3G entry is possible but challenging in the 5 main cities. Building beyond this can only make the business case worse, so we think that sub-national entry is the only realistic scenario absent new technology or a particularly enthusiastic entrant.
80. We think that regulation should be focused on one of the two possible market failures that we have listed, either entry being impossible because of a lack of a roaming agreement, or entry being difficult because of the roaming rate. If the Commission is clear about what the market failure is that it is trying to remedy, it will help in the choice of answers.
81. We think that investment incentives should not be compromised by regulation. If regulation is to be in the best long term interests of consumers, then it needs to maintain the incentive to invest so that consumers are able to access updated technology as it becomes available. We think that the pace of technological change in mobile telecommunications (with four new networks – CDMA, EV-DO, 3G and HSDPA built so far this decade) makes this criterion especially important.

A range of possible solutions and assessment

82. We think the following are the options for regulation of roaming

- An average cost based rate with a rollout obligation
- A retail-minus rate with a rollout obligation
- A geographically de-averaged cost based rate
- Adopting and enforcing our undertaking
- Commercial negotiation (i.e., no regulation of prices)
- Incremental pricing

83. One access seeker has also suggested that we price roaming on a type of incremental cost basis in their discussions with us.

Summary of assessment

	Average cost base plus rollout requirement	Retail minus plus rollout requirement	De-averaged cost based	Undertaking	Commercial negotiation	Incremental pricing
Simple	No	No	No	Yes	Yes	Yes
Sub-national entry	No	No	Yes	Yes	Yes	Yes
Addresses potential market failures	Yes	Yes	Yes	Yes	Partially	No
Maintains investment incentives	Yes	Yes	Yes	Yes	Yes	No

An average cost based rate with a rollout obligation

84. An average cost based rate with a rollout obligation would require a cost model which would be complex and contentious to build. It would also not allow sub-national entry, since, as we explain above, a rollout obligation is the only way to ensure that this option generates an efficient solution.

85. This option would provide national coverage from day one for an entrant and the average cost based rate would be in theory what a competitive market would produce if the contract was for a strictly limited time. So this option resolves both potential market failures.

86. Overall, this option would help an entrant into the market and therefore improve the entrant's performance. If the rollout obligation had a short timeframe, say half the lifetime of the relevant assets (so 5 years), then using an average cost rate for the roaming price is unlikely to seriously erode investment incentives for either the entrant or the access provider.

A retail-minus rate with a rollout obligation

87. A retail-minus rate would be complex to calculate. This is true for the same reason that it is true for UBS, the retail price for particular components of a bundle are difficult to impute. An imputed retail price is becoming more and more difficult to impute as we offer increasingly compelling calling options on-net for low flat fees (like Bestmate on Supa Prepay, for example), and so a retail minus price would doubtless need regular adjustment.
88. This option would not allow sub-national entry, because of the roll-out requirement. But the requirement to build is needed to protect against the otherwise difficult incentive problems caused by an average pricing approach.
89. A retail minus approach to pricing also may not provide as much certainty for the entrant as a cost base approach because the entrant's effect of retail prices is uncertain, but it will provide the entrant national coverage from day one. We would expect a retail-minus price to be higher than a cost based rate, and this would not be as helpful to the entrant, although it would mean a greater competing network build.
90. As with the previous option, if the rollout obligation were enforced over a short timeframe, average prices are unlikely to have a material effect on investment incentives for the host or the entrant.

A geographically de-averaged cost based rate

91. A full geographically de-averaged cost based rate based on TSLRIC would be highly complex to calculate. It would require a cost model for each area or area type, which would bring an added level of complexity to a cost modelling process that will already be fraught with technical challenges.
92. De-averaged pricing has two major advantages in that it would allow sub-national entry on a permanent basis, and, if rates are set appropriately, it would not affect investment incentives.
93. A de-averaged cost based rate would provide national coverage for an entrant from day one and relieve the entrant of any rollout obligations. It is also a theoretically efficient outcome from a competitive market if the parties started with the premise that the contract term would be indefinite. It would therefore address both perceived market failures sketched out above.

Adopting and enforcing our undertaking

94. The undertaking is much simpler than either a retail-minus or a cost based approach, since rates can be a matter of negotiation rather than determined by some highly complex analysis.
95. Using the undertaking will support sub-national entry, and it provides national coverage on day one for the entrant. Having the Commission negotiate on behalf of all entrants will equalise, at least, bargaining power. This will mean that the entrant is in a better position than they otherwise might have been, if the Commission is concerned about an entrant having to negotiate with incumbents.
96. If the roaming rate agreed to in an undertaking was to be de-averaged by area (as we plan to make it), then there is no effect on investment incentives, assuming that the rates are not set below cost.

Commercial negotiation

97. Allowing providers to set rates using commercial negotiation is relatively simple.
98. It will certainly allow sub-national entry, [
JVNZRI. It also provides the entrant with full coverage on day one.
99. The roaming provider's bargaining power may lead to an inefficient price, so this option only addresses the first of the two potential market failures. But we do not think that this is a serious issue in any case, since higher roaming prices generate more extensive competing network build.
100. Both parties will internalise the effects of the contract, so there will be no effect on investment incentives.

Incremental pricing

101. Incremental pricing is relatively simple, the entrant simply pays all costs that they create for the access provider.
102. Incremental pricing would allow sub-national entry as the entrant could still choose where to build. Although the price would likely be lower than the TSLRIC price, so the rollout would be consequently smaller.
103. An efficient market would not produce an incremental price as this would result in the roaming provider not recovering its fixed costs, and therefore it would not stay in business nor maintain the incentive to invest. Which brings us to the main problem with incremental pricing, it erodes investment incentives, creates a first mover disadvantage, and because of this discourages infrastructure competition.

104. We understand that Econet advocates incremental pricing and we view this as being a clear case of regulatory opportunism. We would be happy to discuss incremental cost pricing with them once our networks are the same size.

Conclusions

105. If the Commission believes that one of the market failures that we list is affecting roaming—which we dispute—then clearly the best option using the criteria is for the Commission to negotiate with the roaming providers on behalf of the access seekers. None of the other options satisfies all the criteria.

VII Cost benefit analysis

106. As stated above, there are two reasons why the Commission might wish to regulate roaming:

- To cause entry that would otherwise not occur, and/or
- To improve an entrant's prospects and thereby generate some long-term benefits to end-users.

107. These objectives amount to choosing a factual that either includes one more mobile service provider (with or without different roaming prices), or reflects the existing market structure (but with different roaming prices).

108. In this section we look at what reasonable factual and counterfactuals are, and how these could be assessment in a CBA.

Factual and counterfactual at wholesale

109. At the wholesale level, the factual and counterfactual are defined by the effect of regulation on market structure.

110. The current state of the world is, presumably, the best counterfactual:

- This features Telecom and Vodafone with nationwide networks. It also must feature partial entry by TelstraClear (although only the Commission and TelstraClear are likely to know how extensive that entry will be in the next two years).
- The Commission will need to make a decision about how likely partial entry by Econet is. Certainly our view is that it is more likely than it used to be, given the new investors.
- In addition, there will be at least three MVNOs enter the market this year, beginning with relatively simple resale products but moving towards more sophistication as suits them over time.

111. We assume that the counter-factual also includes commercial roaming deals, some roaming regulation (but not regulation of prices), and our undertaking, which will stand regardless of whether the Commission regulates roaming prices or not.

112. The factual is harder to determine:

- If the Commission intends to generate new entry, it is hard to see how that might happen since there is no other operator with access to cellular spectrum. It is possible that one of the existing four operators might be persuaded to part with some of their existing 2G or 3G spectrum rights by a potential new entrant, but this seems harder for the Commission to predict.

- A more nuanced factual would involve lower roaming prices, and therefore a less extensive rollout. It is harder to assess what the consequences for consumers would be because that requires an assessment of the entrants' strategy and building plans and a prediction about what that might mean for its behaviour in the retail market.

Retail market changes

113. One difficult task for the Commission will be to assess how retail market outcomes in mobile would change if all else was held equal except that roaming prices were reduced. Obviously any benefits to consumers derive from changes in market structure causing changes in behaviour; i.e. a new with lower retail prices. Or, if there is no change in market structure, from an entrant cutting prices in response to a lower roaming rate.

If regulation causes entry

114. Any model of competition will predict a retail price fall due to entry. This will mean that existing customers will gain consumer surplus from increased consumption of services. Some of this consumer surplus is a transfer from producers which is not counted in a total welfare analysis, and some is a net welfare gain cause by increased consumption of services.
115. The price fall will also cause new customers to enter. These customers will gain consumer surplus for each service that they consume. In this case, there is no transfer from producers.
116. On the supply side there is a transfer from producers to existing consumers due to the fall in prices. As stated above this is not counted in a total welfare analysis. There is also a gain in producer surplus because of the increased consumption of services by existing customers.
117. For new subscribers there are gains to producers from customers entering the market.
118. To calculate producer surplus, some estimate of marginal cost is needed.

If regulation does not cause entry

119. If regulation does not cause entry then the welfare gains are derived from a change in behaviour of the entrant caused by a regulated rather than a commercially negotiated roaming rate. A change in the roaming rate means that the entrant has a different cost structure. For an entrant with a partially built network, the marginal cost is different for different types of calls: on network calls have a low marginal cost due to the nature of networks, and roamed calls have a marginal cost of the roaming rate. It is not clear how this will affect the entrant's pricing behaviour in the market.

The total welfare test is the best approach to assessing welfare impacts in this case

120. If the factual reflects the existing market structure, then a CBA is needed to assess the benefit a regulated roaming rate will deliver regardless of the test used.
- If the consumer welfare test is preferred, then the costs will be less building by entrants (presumably meaning less intense retail competition) and the benefits will be lower costs for entrants (presumably meaning more intense retail competition). It is difficult to know how this works out in the end.
 - If the total welfare test is preferred, the analysis also needs to look at reductions in producer surplus relative to the current market arrangements.
121. If the factual includes a further entrant, then the analysis will effectively be a CBA of a fifth entrant into the New Zealand market (depending on what the Commission's view is about Econet's credibility as an entrant).
122. Using a consumer welfare test, it is impossible to get a negative NPV for such a scenario because any model of competition will produce a price fall that will benefit consumers who will not face the costs of entry. There can only be consumer welfare gains in these circumstances. This makes the quantitative analysis irrelevant for the consumer welfare test.
- This highlights the inadequacy of the consumer welfare test to make regulatory decisions. Under it, further entry benefits consumers regardless of how much capital or other costs are incurred to achieve entry. If the consumer welfare test is used under these circumstances, the Commission would need to explain how an investment of hundreds of millions of dollars in infrastructure can be simply ignored.
123. Using the total welfare test, a CBA will be needed to assess the overall benefit of regulation that causes further entry. Such an analysis will offset the consumer welfare gain from lower prices with the costs of building incurred by the entrant.
124. In this case we take the view that the total welfare test should be preferred (although we recognise that the Commission is likely to prefer to use both tests). We would typically suggest using the consumer welfare test alone only in the case of functionless economic rents. Since competitive entry in mobile is viable, the prospects of securing any rents will drive new entry. Thus in this case, any rents can not be functionless by definition.

VIII Co-location

125. In this section we look briefly at the regulation of co-location.
126. We follow the approved TCF code for co-location. Since this code has been accepted by the Commission, we understand that the Commission will not be looking at non-price terms for co-location in this investigation.

Generic pricing of co-location is difficult because of site-specific factors

127. The Commission's task is to determine whether altering co-location regulation to include regulation of prices will benefit end users. We already offer co-location at either half the capital cost, or half an equivalent annuity.
128. Each cell site is different because of certain idiosyncratic costs. These include access, the foundation and power. This is true even though the sites can be classified into a small number of types. In effect this classification is little use because of the idiosyncratic costs.
129. For example in our existing shared facilities agreements, total site electricity costs range from []VNZRI and total site access costs range from []VNZRI (all excl GST). These are just shared sites, so there are likely to be other sites which if co-located or shared would fall outside these ranges.
130. Co-location can also happen in a variety of different ways depending on how much capital is shared.
131. We therefore believe that pricing all possible types of co-location for all site types would be a considerable waste of time.
132. Generally speaking, we view the regulation of co-location as entirely unnecessary given existing commercial arrangements.
133. As with roaming regulation, if the Commission would prefer an alternative approach to co-location pricing, the best means for enforcement would be for it to indicate its preferences in negotiations for our undertaking.

IX Answers to specific questions

134. In this section we provide answers to the specific questions raised by the Commission in the Issues Paper.

Question 3.1

(a) To what extent are commercial negotiations being undertaken for the services?

135. [

]VNZRI

136. [

137.

]VNZCOI

(b) What is the likelihood of commercial agreements being reached for the services?

138. [

139.

]VNZRI

(c) What is the likely counterfactual for the services?

140. See Section VII of this submission for a discussion on a CBA for roaming.

Question 3.2

(a) What is the likely factual? What would be an appropriate designated roaming service and co-location service? How would the service compare to the services available under the counterfactual (in particular, in terms of pricing)?

141. See Section VII of this submission for a discussion on a CBA for roaming.

(b) How would such changes to the current specified services lead to long term benefits for end-users, which would not otherwise have been forthcoming? What empirical evidence is available to support such scenarios?

142. If roaming caused entry, then a consumer welfare test will give positive results because consumers do not face the costs of entry and any model of competition will show consumer welfare benefits from entry. The case of total welfare is less obvious and would need to be modelled. However, as we have said in the main body of this submission, we can not see how regulating the roaming rate will generate new entry.

143. If regulation does not cause entry then the assessment of benefits is much more difficult and relies on establishing a connection between roaming prices, network building and retail rates and demonstrating that lower roaming rates will lead to better outcomes for consumers despite less network building.

144. The dynamic effects of further regulation will be extremely important in this case, given the close relationship between the roaming rate and the extent of the entrant's build. Any change in the roaming rate and therefore the extent of the entrant build will have effects that last for the lifetime of those assets. A static model is not adequate to capture these effects.

(c) What is the interrelationship between the roaming and co-location services? How does the price of one service affect the other?

145. Co-location is a mechanism to help building by lowering costs. Roaming and building are substitutes in areas where costs are relatively low. The availability of co-location therefore expands the area in which building is economically viable, and therefore increases the area in which building and roaming are substitutes. The size of this change is an empirical question that we have not investigated.

146. The prices of roaming and co-location affect each other like all substitutes: lowering the price of one service means more demand for that service and less for the substitute.

147. So if the price of roaming were to drop below its current level, then there would be less co-location and less building in general, as entrants substitute between building and roaming.

(d) To what extent would amendments to the regulated service reduce barriers to entry?

148. We have said to the Commission before that, in our view, the lack of entry is more to do with market size and the maturity of technology than a lack of roaming or co-location agreements.
149. There are no asymmetric barriers to entry, i.e., no difficulties that entrants face now that incumbents did not face when they entered. In fact, there are arguments that entry is now significantly easier now than when Telecom and BellSouth built their networks.³ Prices have fallen and demand for mobile services is confirmed.
150. [
-]VNZRI** We think that neither roaming nor co-location is important enough to the business case for regulation to materially affect the case for entry.
151. Changes to roaming regulation could assist with supporting partial entry, by removing or adjusting the rollout requirement. We are unclear how much this matters in practice though, since we have no nationwide rollout requirement in our standard commercial terms.

Question 3.3

(a) In principle, what benefits and costs do respondents consider would result from designating the services (that would not eventuate in the absence of such designation)?

(b) Should these benefits and costs be evaluated in qualitative or quantitative terms (or a combination)? Is there any particular modelling approach that should be adopted to best evaluate the benefits and costs?

152. The only significant benefits and costs from regulating roaming prices would be felt in the retail mobile market. In theory, more competition in this market could mean lower prices and higher volumes for mobile subscriptions and calling.
153. As we said above, however, we would not expect a major impact on competition from regulating roaming prices. This is because, even without changes to regulation, there are likely to be two new entrants, and because regulating prices down will mean less network building.
154. We would prefer the Commission to continue its normal approach and quantify costs and benefits wherever possible. Clearly there will be a need for subtle

³ The Commission recognised this in Decision 479, 1 November 2002, para 136.

judgements on some important issues, especially about the value of further infrastructure competition.

(c) To what extent have parties themselves conducted or intend to conduct a quantitative assessment of the impact of designating roaming and co-location services in New Zealand (for example, by modelling the impact of designation on the business case of a new entrant)?

155. We have the Covec model of a 3G entrant that we have already shared with the Commission. The model includes both co-location and roaming and looks at the business case for entry. For completeness we are attaching the latest summary of this model to this submission.
156. This model can be used to look at the impact of reducing roaming or co-location prices on the entry business case. Doing this reveals that regulation is unlikely to make much difference to an entry decision.

(d) What empirical evidence is available from overseas jurisdictions on the impact regulating roaming and/or co-location services (or the threat of regulation) has made on new entry?

157. In Ireland, Meteor entered in the second quarter of 2001 and signed a roaming deal in the third quarter 2004, over three years later. In this case a roaming deal was obviously not a necessary condition for entry. However, once the deal was signed, Meteor seems to have been able to capture market share more rapidly.
158. Of course, this is not an indication of the impact of regulation of roaming or co-location on new entry, since Meteor entered without regulation and without roaming. However, it does support the view that nationwide coverage is important in the retail market.

(e) Do respondents have a view on how any interplay between roaming and co-location should be accounted for in the Commission's assessment of the benefits of any amendments?

(f) Could one service act as a substitute for the other? If so under what conditions?

159. As we have said above, co-location is a mechanism to help building by lowering costs. Roaming and building are substitutes in areas where costs are relatively low.
160. If the Commission thinks that co-location is significant enough to account for separately, then it could have two factuals, one in which both roaming and co-location are further regulated, and one in which just roaming is further regulated.
161. A simpler approach would be to have just one factual that considers further regulation of both. In our view, regulation of co-location is a trivial distraction

that is unlikely to seriously influence an entrant's business case. Therefore we do not see the value in separately considering whether to further regulate roaming or co-location.

Question 4.1

(a) Should the requirement to cover 10% of the area in which the New Zealand population normally lives or works before accessing the roaming regulation still be in place?

(b) If so, what should the 10% cover – population or area?

162. Our undertaking asks for a 150 site threshold before an access seeker is able to access the service. These types of "sunrise" requirements are useful to avoid timewasters and to ensure that entrants are actually network builders as opposed to MVNOs in disguise. [

]VNZRI

163. Avoiding timewasters is important because there are significant costs in making roaming work. We explain further below (in the answer to question j) the technical details that need to be negotiated to make a roaming deal. [

]VNZRI

164. Whatever the sunrise requirement is, it needs to be clearly expressed. We understand that there is some confusion at present about what the 10% requirement refers to.

- Our 2G network covers around 97% of the population, and about 37% of the land area.
- Clearly a 10% geographic coverage requirement is a substantially different burden to a 10% population coverage requirement.

(c) Should an access seeker still be obliged to commit to rolling out a national network?

165. A nationwide rollout requirement makes partial entry based on the regulated service impossible. The Commission needs to form a view about whether it thinks this is a sensible requirement given the plans of new entrants.

166. Our view is that partial entry is the most likely scenario for the third and fourth entrant in NZ. And it is hard to see justification for a rollout obligation from a regulatory perspective as benefits accrue to consumers – in the absence of geographically dependent retail prices – with partial entry.

167. However, if an average roaming rate is envisaged, then a build out obligation is vital as it limits the time that the host network is exposed to a below cost

roaming rate in high cost areas. As we explain in the body of our submission, not limiting the roaming provider's exposure to roaming rates below cost would erode investment incentives for both the provider and the entrant.

(d) If national roll-out is unnecessary, should there be a minimum roll-out (% of population) necessary?

168. Some build out requirement could help ensure that competing networks actually get built. This might be thought a useful requirement in an environment where competing network builders have not exactly been queuing at the door. As noted above, a rollout requirement is also important if the Commission settles on an average price approach to regulating roaming prices.
169. An alternative might be for the Commission to negotiate the roaming rate in the undertaking with Vodafone. The roaming rate determines the extent of the build. Therefore trying to decide what is a sensible minimum rollout is equivalent to setting the roaming rate (although with the added complexity of figuring out what level of building is implied by any roaming rate).

(e) Should roaming cease to be available in particular areas as a new entrant builds out its network?

170. We think that in-footprint roaming should be left to commercial negotiation. In our experience, entrants typically prefer not to have in-footprint roaming, since it avoids paying for roaming when a customer's handsets roams on to the host network while in the entrant's coverage area.
171. Note that technically there are only certain areas in which we can switch on and off roaming. Our 2G network is divided up into location areas so as to generate roughly equal amounts of traffic in each area. We can enable or disable roaming in each area, but we can not provide a finer level of control over where roaming is available or not.

(f) Should there be a sunset clause for the provision of roaming?

172. If the Commission is committed to a particular build size, then a build obligation and a sunset clause is the most transparent way of providing a regulatory incentive to achieve this.

(g) Should the amended roaming regulation include 3G-3G roaming?

173. 3G does not solve the perceived market failures that lead to roaming regulation any better than 2G, so it is difficult to justify including this in regulation in our view. The need for nationwide coverage from day one can be easily delivered with 2G roaming.
174. In addition, we have not yet built our 3G network beyond the main centres, so regulation seems of little practical use.

175. More broadly, it seems to send a very poor signal to infrastructure builders indeed to impose a regulatory obligation on us to provide 3G (and presumably HSDPA) roaming on regulated terms when the network is still less than 18 months old and not complete, and when HSDPA has been in commercial service less than six months.

(h) Do value-added services, as set out in the current roaming service description, include data services? Should data services be specifically included in the roaming service description?

(i) What provisions need to be made to facilitate data roaming?

176. Data services could be included in a regulated roaming service description (and accordingly we have proposed a data rate in our undertaking application). This change from the present roaming service could be implemented through appropriate amendments to the service description.⁴

177. In specifying any regulated service that includes data services, the Commission needs to clearly distinguish between standard supplementary services and value-added services. Examples of the types of value-added services that need to be clearly excluded from any regulated roaming service which Vodafone currently provides include:

- Vodafone Live! and other Vodafone content or third party content
- Any information services provided to Vodafone customers
- Any services or functionality that are not integral to the sending or receiving of voice, SMS or data (including, without limitation, location-based services)
- Vodafone's voicemail and voice messaging;
- Services provided by Vodafone's Intelligent Network or pre-pay platforms;
- Mobile commerce services; and
- Customer self-service applications.

⁴ A proposed service description might be "A service that enables an end-user who subscribes to a New Zealand network operator's (operator A's) cellular mobile telephone service to use voice, SMS and packet-switched data services generally accepted internationally as second generation cellular mobile services that are provided to the public by another operator (operator B), with the area where operator B has a cellular mobile telephone network (which must not be a third generation cellular mobile telephone network), but which is outside the coverage area of operator A's cellular mobile telephone network. For the avoidance of doubt, the service does not include any value-added services or functionality that provide benefits to end-users that are not part of the standard telecommunications services or functionality associated with basic retail cellular mobile telecommunications service."

(j) Are there any technical issues associated with voice roaming which the Commission should be aware of?

(k) Are there any technical issues associated with data roaming which the Commission should be aware of?

178. There are many technical issues to overcome to have a national roaming service operating between different networks.
179. Mobile networks by definition have customers that move from location to location and so issues such as forecasting, dimensioning, capacity planning, signalling loading, exclusion zones and service access (or non access) must be dealt with. In addition software functionality to enable roaming, determination of routing for all different call cases, ongoing software upgrades, testing, fault finding tools, and operational processes all need to be settled.
180. From the Commission's point of view these technical questions primarily come down to the amount of time it takes to implement roaming once agreed.

- [

]VNZRI

- We also believe that roaming would take ongoing additional technical resources to manage and some other major business changes to ensure that the customer maintained a high quality of service.

(l) Should inter-network roaming (roaming between different technology types) be considered?

(m) Is inter-network roaming feasible within the time period usually used to assess new entry (2-3 years)? If so on what types of networks should the service cover?

181. No, this is unlikely to be feasible because network interconnectivity does not, and is unlikely to, exist. If devices exist that support more than one network type (e.g., CDMA/GSM or EDGE/WiMAX), then the device would be able to connect to different technologies. This would mean a hard handover, i.e., a drop and re-establishment would be required, because as far as we are aware, no network interconnectivity capability for this exists or is on our vendor's roadmap today.

(n) If inter-network roaming is considered, does this affect the markets already defined? If so how?

182. If CDMA/GSM devices were to become widespread, then certainly the Commission's wholesale market definitions would need revision at least (we

think they need revision anyway). These devices do not seem likely to become extremely popular with consumers in the near term.

- We understand that Telecom discourages consumers with its dual-network phones from using them in GSM mode while in New Zealand, although we do have a roaming agreement with O2 in the UK that means the phones would work.

183. Beyond CDMA/GSM devices, inter-network roaming seems unlikely to be a serious issue within the regulatory timeframe normally considered.

(o) What are the technical issues that need to be considered for inter-network roaming?

184. See (l) above. Even roaming between two networks with the same technologies is difficult to implement, and we are reluctant to speculate further apart from to say it is likely to be more difficult to handover calls between different technologies.

Question 4.2

(a) What is the most appropriate pricing methodology for access to roaming services – retail minus or cost-based?

185. We assess both these pricing options in the body of our submission. In our view the best pricing methodology would be a de-averaged cost-based approach.

- A retail-minus approach, while in theory much superior for pricing of access to replicable assets, is much more difficult in practice.
- Retail prices are falling quickly, making a retail-minus price unstable. This is a problem as the rate directly affects the entrant's level of investment. In addition, imputing retail prices for mobile plans would be an extremely complicated and contentious exercise.

(b) If retail-minus, what would the various components of such a price look like (for example, what would be the appropriate retail price(s), would it be necessary to impute a retail price; what would be the avoided costs?

186. As noted above, the imputed retail price is a complicated calculation where the services are being provided in bundles at different prices. This is clear from the UBS exercise and that is trivial by comparison with the complexity of retail mobile pricing.

187. There are also some additional costs associated with roaming compared with providing services to our own customers.

- For origination, a roaming customer would use the same network elements as a Vodafone customer, except that a roaming customer's details would be stored on the roaming network's HLR rather than the Vodafone HLR.
- For termination the roaming customer would use the same network elements except that our VLR would check the roaming customer's information in the roaming network's HLR rather than our HLR. This would involve an extra exchange of information and some bandwidth resource and use of the VLR instead of the HLR.
- Roamers consume network resource and signalling bandwidth even when they are not making calls. Vodafone customers also consume similar resources, but we charge a two part tariff or higher prepay rates to recover these non-call costs. We charge roaming with a single part tariff, so these fixed costs should be considered in any price-setting exercise.

(c) Should a single retail-minus price cover both voice and data? How should the retail-minus price be constructed to cover both voice and data?

188. It is very difficult to impute a single retail price when services are sold in a bundle. It might be possible to create a single retail-minus price, perhaps based on ARPU. But this seems very difficult, highly likely to generate perverse incentives, and entirely unnecessary.
189. A better approach would be to have one price for each of voice, data and SMS. This is what we propose in our undertaking application.

(d) If cost oriented pricing is the preferred pricing principle, is TSLRIC pricing the only viable option?

190. TSLRIC is a robust approach to cost modelling. However, if the methodology employed generates efficient long run costs then how one arrives at the answer is less important. The Australian Competition Tribunal recently came to this view in its decision on Vodafone's MTAS undertaking appeal.

(e) Would cost-based mobile termination rates be an appropriate benchmark for a cost-based roaming service?

191. As sketched out in the answer to (b) above, both termination and origination are similar but not exactly the same for a roamer compared to a customer. We would expect roaming to cost a bit more than termination, although how much would doubtless be a matter of for debate.
192. Whatever benchmarking the Commission undertakes, we are concerned that it is robust. In particular, benchmarking must take account of differences between countries, and not just involve accounting for exchange rate differences.

(f) What are the implications of each pricing principle (retail-minus and cost-based) in terms of promoting new entry?

(g) In what ways could access seekers and access providers be encouraged to continue to invest, if a cost-based pricing principle was used? For example, would it be appropriate to have a roaming price that rises over time? If so, what are the appropriate bounds?

193. In the body of our submission we assess a set of options including retail minus and cost-based rates on precisely the criterion of whether they would promote new entry.
194. More important than which pricing principle is chosen, is what rate emerges. Whether the Commission chooses a cost-based rate or a retail-minus rate, it should be conservative in its estimate of prices in order to encourage firms to replicate networks everywhere that that is economically feasible.
195. A time varying roaming rate is equivalent to a roll out requirement and is just a proxy for a geographically de-averaged rate. It is more transparent to use de-averaging directly. This allows for partial entry to be a permanent state of affairs.
196. If the Commission believes that nationwide entry is viable, or that some particular level of buildout is required, then a build-out plan and a sunset provision are a more transparent way of providing a regulatory incentive than a rising roaming price if they are enforced rigorously.

(h) Should the pricing of voice roaming differ from that of data roaming? If so how?

197. The pricing principle should be consistent between these services. But in our view the simplest approach is three separate prices for voice, SMS and data roaming.

Question 4.3

(a) For each likely final pricing principle, what is the appropriate interim pricing principle that would provide an appropriate estimate?

(b) Is benchmarking appropriate and practical?

(c) Could cost proxies be used, and if so, which ones?

(d) Is there a close relationship between roaming rates and mobile termination rates?

(e) Would an estimation process be more appropriate to use in the situation where there are very few relevant benchmarks?

198. We have said previously that there are very few benchmarks for roaming rates. This may be because very few regulators have ever been required to set roaming prices.

199. We note above that termination rates are likely to be lower cost than roaming, but taking an estimate of termination rates from comparable countries, adjusting it for New Zealand conditions, and adding some increment to reflect the higher costs of roaming might be one approach.

200. Whatever benchmarking the Commission undertakes, we are concerned that it is robust.

Question 4.4

(a) What is an appropriate final pricing principle?

201. This issue is covered in our previous answers. In brief we recommend a de-averaged, conservatively-set, cost-based rate.

Question 4.5

(a) Do respondents have any views on the wording of the other parts of a service specification for roaming and whether any new parts are needed?

202. Consistent with Vodafone's view that a national roll-out requirement may no longer make commercial, Vodafone is proposing that the national roll-out requirement be deleted (including reference to the holding of sufficient spectrum rights to support a national roll-out) and replaced with reference to the minimum cell-site build requirement. We have suggested in our undertaking application a threshold of 150 cell sites.

203. Vodafone also considers there is benefit in inserting the phrase “New Zealand-based” for the avoidance of doubt to clearly distinguish domestic inter-carrier roaming from international roaming.

(b) What is the most appropriate description of an access seeker?

(c) Should there be alignment between the access seeker and access provider definitions?

(d) Should the definitions be more forward-looking to cater for fixed-mobile convergence?

204. The Commission has options available to it in the future to address this should it arise within the regulatory period. Vodafone believes it is premature to develop a definition that will cater for fixed/mobile convergence.

Question 4.6

(a) Should co-location pricing be based on a specified formula?

205. This is difficult to do in practice because of the heterogeneity of cell site costs.

(b) Could co-location be classified into a number of generic site types/forms?

206. The sites themselves can be categorised. But the costs of each site vary within categories. There are costs such as access tracks and power supplies that vary a lot between sites.

207. It is therefore not possible to classify the sites by all costs into a small number of generic types. Also the types of co-location vary widely depending on what level of sharing occurs. This makes it difficult to simplify co-location.

(c) Could a cost allocation formula be used to determine the price depending on the type/form? If so how?

208. This may be possible to do for part of the cost, but not all of the cost, due to the idiosyncratic costs associated with sites such as access and power.

209. The fundamental issue is the range of site costs and the range of types of co-location.

Question 4.7

(a) How should the initial pricing principle be distinguished from the final pricing principle?

210. We do not see any sensible way to distinguish between the initial and final pricing principle.

(b) What is an appropriate interim pricing principle?

(c) What is an appropriate final pricing principle?

211. The objective in the case of co-location is to avoid the replication of capital. Therefore a cost-based approach is appropriate. This is simple (if time-consuming) to do on a site by site basis, but we think it is not possible to do en masse.