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22 **CHAIR:** All right, good morning everyone and welcome to the second day of the
 23 Commerce Commission's conference on the mobile co-location standard terms
 24 determination. I'm not going to repeat the matters that I raised yesterday in terms of
 25 the process, and the way we conduct these proceedings, I think everyone here is
 26 familiar. If there's any questions you can direct them to staff, just go over to the
 27 table and if they need to raise something with me they will.

28 Before we get started I'll just make sure everyone's comfortable with that,
 29 no-one has questions on procedure? **[No comments]** If not I would like to, before
 30 we proceed to the agenda, ask Mr Newman to come forward. He's indicated to me

1 that he just wanted to put something into the record on a matter that I raised with
2 him yesterday, so I'd invite him to do that.

3 **MR NEWMAN:** Thank you Commissioner Rebstock. In the final session yesterday
4 afternoon when TUANZ was presenting our statement we were talking about the
5 question of pricing and we made the proposition that if final prices could not be
6 agreed upon then an interim pricing agreement could be reached with a
7 retrospective adjustment, and in questioning you asked me whether I was implying
8 that the Commission had the power to do that.

9 I just want to concede that sadly TUANZ has not uncovered some residual
10 power that the Commission has and had overlooked. And the point that I rather
11 clumsily was trying to articulate is if the parties cannot agree a final price at the
12 outset then perhaps they could agree on an interim arrangement with a retrospective
13 adjustment and that the Commission might encourage them in that process. So I
14 hope that clears the matter up and I apologise if I was ambiguous or incorrect
15 yesterday.

16 **CHAIR:** No reason to apologise, but thank you for correcting that for the record. All
17 right, we'll turn now to the agenda and I'll just note that we will take a coffee break
18 at 10.30 sharp and I'd also like you to note that we will keep moving through the
19 agenda and take items early if the full-time that we've set down for a matter isn't
20 necessary, so you need to be available not just at the precise time that we've put
21 down. If that causes anyone a difficulty if you could let staff know then I'll try to
22 accommodate that.

23 I did make an offer to TeamTalk that we might change the order and deal
24 with one matter that I think they were particularly interested in first, so I'd like to
25 turn to that straight away and that is the definition of cellular mobile telephone
26 networks and the list of access providers and access seekers, and I'll just confirm
27 with the parties that everyone's on board with that change in order, there's no
28 difficulty with that. **[No comments]**

29 I will remind you that the Act defines access seekers and access providers
30 with reference to the cellular mobile telephone network and an access provider is

1 every person who operates a cellular mobile telephone network, and an access
2 seeker is any person who operates or is likely to operate a mobile telephone
3 network and seeks access to the service. We defined the term in the draft STD and
4 provided a list of parties that we considered complied with the definitions.

5 And as we were reminded yesterday TeamTalk has put in submissions to the
6 Commission about that definition and have suggested that it be limited with respect
7 to networks that operate in radio frequency bands approved by the Ministry of
8 Economic Development. And the question I want to put, I believe that Telecom has
9 acknowledged that they agree that TeamTalk should not meet the definition of an
10 access provider, but I would be interested in Vodafone's view whether you accept
11 the submissions that have been put to us by TeamTalk.

12 **DR ARASARATNAM:** Vodafone has a similar position to Telecom, we think they don't
13 meet the requirement. The only comment we will make is MED doesn't have a list
14 of frequency bands that says which frequency bands can be used for cellular mobile
15 telephone systems, so there may be some difficulty in using that definition. So we
16 are in agreement, all we are saying is maybe we need to do some refinement of
17 what they have said.

18 **CHAIR:** Right, I'll come back to that point, but before I do can I ask if any party disagrees
19 with the submission from TeamTalk that in effect we should accept that they should
20 not meet the definition of an access provider?

21 **MS HASKILL:** Telecom supports TeamTalk's position.

22 **MR GOODWIN:** We would support TeamTalk. Ian Goodwin Kordia. We agree that
23 TeamTalk should not be recognised as a cellular network service provider, but we
24 wonder whether that definition of just simply excluding them is sufficient and that
25 maybe the type of service which is generally called trunk mobile radio should be
26 excluded from cellular, because there are other operators other than TeamTalk.
27 Thank you.

28 **CHAIR:** I guess that brings me to the second point that I wanted to raise with parties.
29 And we might have some concern about unnecessarily or unduly narrowing the
30 scope of the mobile co-location service. And we do have the option that, or I

1 believe we might have the option of the Commission using its discretion when it
2 assesses who complies and meets the definition of an access provider. And I
3 wonder if on this occasion rather than narrow the scope in the Determination
4 whether or not we should simply rely on that discretion.

5 So I won't say much more on that, but I'll turn first to TeamTalk if I could
6 and ask them for a reaction to that proposal that this be a matter of discretion on the
7 part of the Commission.

8 **MR HESLOP:** I think we'd be comfortable with that. The point to note is the potential
9 there's going to be a large number of people operating these types of networks in
10 New Zealand, set up a local service, to understand better what the process would be
11 for that.

12 **CHAIR:** All right.

13 **MR EDWARDS:** If we may make a comment. It's our position that we would support a
14 very liberal code on what a definition of a cellular network is, but we would make
15 the practical observation that some of the assets that TeamTalk have are very
16 precious because they're towers that you wouldn't get an RMA to build these days
17 and from time-to-time in building out infrastructure their assets and their towers are
18 very useful to co-locate on. And in some occasions TeamTalk have antennas sitting
19 on Telecom's infrastructure and there might be a requirement for TeamTalk to
20 collaborate and cohabitate.

21 **CHAIR:** You don't have a difficulty with that.

22 **MR HESLOP:** We don't have a difficulty with that. I mean as I indicated yesterday, we
23 have maybe 20 sites where we have direct control, we're the primary lessee. We're
24 more than happy to talk to people about co-siting on those locations. I don't think
25 defining us as access provider would make any difference to that. We've got people
26 like Kordia, Johnson Dick & Associates that do provide towers and no-one's
27 suggesting that they're defined as an access provider. If there was any difficulty
28 maybe we can review that.

29 **CHAIR:** All right, can I ask if any other party would like to speak to this matter?

30 **[No comments]** I believe that covers the issues I wanted to raise on that, but is

1 there some component of your submission that we need to address further in terms
2 of TeamTalk?

3 **MR HESLOP:** No.

4 **CHAIR:** Can I just turn to my colleagues and ask if they have follow-up questions on this
5 matter.

6 **MR PICKERING:** No.

7 **MS MAZZOLENI:** No thank you.

8 **CHAIR:** And I'll ask staff and our expert if there are any follow-up questions on this
9 matter? **[No questions]** All right, thank you very much for that. I hoped that
10 wouldn't be too difficult. Set a good pattern for the rest of the day. We'll measure
11 the rest of the day by the agreement we reached on that matter.

12 All right, let's turn then to the next matter on the agenda which is probably
13 one of the key issues for us today and that's around unacceptable performance
14 degradation and the calculation of a loss in the link budget. And just by way of
15 introduction, I just want to make sure if everyone can hear me, can people hear me
16 in the back? Yeah, all right, thank you.

17

18 **UNACCEPTABLE PERFORMANCE DEGRADATION**

19

20 **MR WESLEY-SMITH:** Madam Chair, if I could just raise a couple of administrative
21 issues before we get too far into the agenda. The Concept Economics piece that
22 was discussed by New Zealand Communications yesterday, we just wanted to
23 clarify whether the Commission wanted further comment on that today. We don't
24 feel that we've had sufficient time to give it the consideration it probably merits if it
25 is to be part of the Commission's consideration. So a little bit of guidance on
26 whether you'd like discussion on that today would be appreciated early.

27 **CHAIR:** Yes, but you're saying that you're not in a position to discuss it today?

28 **MR WESLEY-SMITH:** Not in any level of detail, no.

29 **CHAIR:** Right. Other parties in similar positions?

30 **MR YORK:** We would be in a similar position. Thankfully the paper was provided to us

1 last night but it was reasonably advanced into the evening when we got it, so just in
2 the time available we haven't had an opportunity to really have a close look at it and
3 digest it.

4 **CHAIR:** I think that my preference on that matter and that matter alone, and don't take
5 this as a general invitation, we will only allow further comment on those matters
6 that the Commission asks for; but my preliminary view on that is that we would
7 give you five working days to respond briefly in writing. But I will confer with my
8 colleagues and staff at the break about that, but I just reiterate to you, you know, we
9 want a brief response to the matter. So I think five working days would be more
10 than sufficient for you to respond to that. All right, I'll confirm that at the end of
11 the conference.

12 **MR WESLEY-SMITH:** Thank you, and I would like to confirm, I think we have sent a
13 copy of the TeamTalk agreement to the Commission last night and we are just
14 confirming with the other parties we co-locate with to confirm we can provide the
15 Commission with co-location agreements. They are all of a similar level of detail,
16 comparable pricing and I think the TeamTalk situation just clarifies what we were
17 talking about yesterday, that there are simple co-locations that we can facilitate very
18 simply with any party. Where we have issues is with parties wanting to push those
19 bounds.

20 So TeamTalk, just for the record, in all of our dealings to date have accepted
21 that antenna minimisation is not something that we generally support, they accept
22 mast replacement where we suggest that as an alternative, they are very willing to
23 consider the long-term impacts of co-location and I think take a long-term view as
24 we did. So they are conscious that pushing for a short-term fix might help them on
25 one side but when it comes to another site further down the track it could harm their
26 interests in the same way as we think about it.

27 So I think all of the agreements that you will see, irrespective of whether
28 they are with other mobile operators or with competitors like Kordia, or to an extent
29 TeamTalk, will all be of a similar level of detail and similar types of terms.

30 **CHAIR:** All right, I think that goes well beyond procedure, but I've allowed it because I

1 was fascinated by the fact that neither Telecom or Vodafone responded to those
2 points yesterday which I thought actually were quite important to the proceedings.

3 I'd ask then if TeamTalk has any comments you want to make in that respect.

4 **MR HARDING:** No, we'd agree with what Telecom have just said.

5 **MR WESLEY-SMITH:** We have included these matters in previous submissions so we
6 have attempted to use TeamTalk as an example of the co-location that we have
7 done and Kordia in the past.

8 **CHAIR:** All right, thank you very much for that. Now if we can return to the agenda
9 please and look at the issues that we want to deal with first up today. You will be
10 aware no doubt, and it came up yesterday, that the submissions on the definition of
11 unacceptable performance degradation in the draft STD indicated a range of views
12 of the appropriate total level of loss from access providers or existing co-locaters'
13 link budget and how this loss is to be measured.

14 We do want to seek clarification today on the calculation of the loss in the
15 link budget, and in particular whether interference should be included in the
16 formula. We will invite further discussion and evidence on the likely impact of a
17 1.0 dB loss in the link budget as opposed to 0.5 dB. Furthermore the Commission
18 wishes to discuss the significance of the impact of a 1.0 dB loss in the link budget
19 in a network with overlapping coverage areas, and whether it's appropriate to set
20 different interference thresholds for urban and non-urban areas. Finally we do want
21 to discuss submissions on the protection of emergency services and commercial
22 co-locaters.

23 So to kick this discussion off I do want to note that, as you will all be aware,
24 Kordia in particular has amended their cross-submission and ask them just briefly if
25 they would confirm what they think the loss link budget should now be using the
26 formula which excludes interference, and if we should accept the formula that
27 includes internal interference what you think it should be. For the record could you
28 please do that.

29 **MR GOODWIN:** Thank you. Yes, certainly the letter or the e-mail that was distributed
30 last week that we sent out explains our position and I think we've pretty much got it

1 right now. That does exclude what we call the internal interference of the network
2 of the access service provider, but it does include the external interference of the
3 access seeker.

4 So the basis of the interference calculation is to refer it to the thermal noise
5 floor of the receiver, or receiver noise floor, n in the equation. That's the
6 benchmark. And the purpose of that is that it doesn't vary, it's a matter of physics.
7 Whereas the internal interference from the service provider's network can be
8 somewhat variable and that's a good reason to exclude it from the formula, because
9 that avoids any argument of what that value is, and it varies with time according to
10 traffic loading. It also varies from one network to another according to the design
11 criteria of the day and it also varies with technology such as GSM and CDMA
12 based technologies. So to avoid the complications of internal interference that is
13 excluded from the formula. I think most engineers would agree with that.

14 The thing that we've pointed out in our paper last week is that as well as that
15 internal degradation which we say - sorry, rephrase that. As well as that noise floor
16 degradation from the external interference which we say should be no more than
17 0.4 dB, the other measures that may be used on site to mitigate interference, such as
18 filters or antenna re-alignment or changes to the antenna, those factors also impact
19 the link budget, and they should be added in to what is the net final impact on the
20 link budget loss. And that figure should not exceed 0.5 dB which is the main point
21 that we now agree on is 0.5 is appropriate. Thank you.

22 **CHAIR:** In totality?

23 **MR GOODWIN:** In totality, yes.

24 **CHAIR:** All right. Thank you very much for that. What I would like to ask further
25 questions on this matter is coming to this issue about whether internal interference
26 should be included or not in the formula. It does seem to me that this is likely to be
27 very difficult indeed to police and in a practical sense to implement. So I would
28 like to get some feedback from the parties on this matter and probably first turn to
29 Vodafone on that matter please.

30 **DR ARASARATNAM:** Thank you Madam Chair. We agree with all the things Kordia

1 said, but we just want to clarify a few things. So we agree with them that to work
2 out the external interference you use a noise flow as a reference, and we agree with
3 them that figure should be 0.4 dB. We have looked into this a bit further and Ian
4 didn't mention, you use 0.4 dB when the external interference is varying, you use 1
5 dB when you have a fixed level of interference such as a fixed link, whereas in a
6 mobile environment you have a varying interference. So again we agree with Ian
7 on that issue. And in terms of policing this, again we agree that it's easier to use the
8 noise flow as a benchmark.

9 And the other point Ian made was that interference is only one component
10 that leads to degradation. Things like filters, changes in the other aspects can
11 introduce interference or, sorry, degradation, and what the customer sees is the total
12 impact of this. And again we agree that the total should not exceed 0.5. So going
13 back to your question if it's easier to police yes, we agree it's better to use the noise
14 flow.

15 **CHAIR:** So you would agree to not include internal interference?

16 **DR ARASARATNAM:** I think this is where there's a difference in view, what's the
17 impact on budget? There we hold the view that we should include the internal
18 interference, but Kordia's proposal is about how do you calculate the maximum
19 external interference. So we want to clarify that and for that we agree with Kordia's
20 proposal, use the noise flow as the benchmark. So -

21 **CHAIR:** But I think the Kordia position is not to include the internal interference, is that
22 correct?

23 **MR GOODWIN:** That is correct.

24 **CHAIR:** This is the point I want you to come on to is - I mean I thought I heard you agree
25 that it would be hard to police if you included it, but you do want it included?

26 **DR ARASARATNAM:** Can I clarify?

27 **CHAIR:** Yes.

28 **DR ARASARATNAM:** That's the point we wanted to clarify. Kordia's proposal is about
29 how do you calculate the maximum external interference, what's the maximum?
30 And that part we agree that you should not include the internal interference to work

1 that out. So I hope I clarified or made that point clear.

2 **CHAIR:** But I think their point goes beyond that, because their point is that should be the
3 basis for the calculation and internal interference should not be included in it, if I
4 understand that correctly; is that the Kordia position?

5 **MR GOODWIN:** Sorry, I missed that last question.

6 **CHAIR:** Am I correct that the Kordia view is that internal interference shouldn't be
7 included in the calculation?

8 **MR GOODWIN:** You're correct in determining what is the unacceptable performance
9 degradation, that benchmark, that the calculation should be based on the thermal
10 noise floor of the receiver, it should exclude the internal interference from the host
11 network, and it should include the external interference from the access seeker
12 alone.

13 And one of the reasons for using 0.4 for that calculation, which is noise plus
14 external interference divided by noise, that ratio should be 0.4, is that our references
15 are the International Telecommunications Union, the ITU, which has done a lot of
16 work in spectrum sharing with all sorts of networks from satellites to fixed links
17 and mobile cellular. And they all use two benchmarks, either the external
18 interference is 6 dB below the noise floor or 10 dB, and those figures of 6 and 10
19 dB below the noise floor equate to, in the language we've been using in this
20 environment, an elevation of either 1 dB or 0.4 dB.

21 The minus 10 dB corresponds to the 0.4 we're using, and that is used in
22 circumstances where, as Vodafone says, the interference is varying. It also applies
23 when there is the potential for more than one interferer. It also applies in cases
24 where the impact is on more than one cell site in a network. So only in cases where
25 there's very limited amount of impact do you use the 1 dB degradation. So the
26 0.4 dB degradation for that part of the benchmark is used where variable
27 interference occurs, such as in cellular networks, as the interferer and where there
28 are multiple interferers potentially.

29 So if we are going to cater for more than one access seeker on a site you
30 certainly need to have that 0.4 as the method. So that determines the benchmark for

1 the external interference; but if you need to take other measures into account as
2 well, such as the filtering and changes to antennas, the impact of that needs to be
3 analysed in a second stage which is making sure that it doesn't exceed 0.5, which is
4 the final bottom line, if you like. And that excludes the internal interference even at
5 that stage.

6 **CHAIR:** Can I just follow-up one other question I would like your view on, and that is if
7 we were to accept the position that Kordia has put forward, 0.5 basically setting the
8 limit and excluding internal interference, the question I'm interested in asking you is
9 whether that's measurable and whether there's any concern about the practicality of
10 measuring it due to natural variation.

11 **MR GOODWIN:** That's a very good question and technically it is difficult to measure.
12 0.4 dB degradation in the noise floor is, what is that, it's only a few percent rise in
13 the level if you're looking at it on a technical instrument, a spectrum analyser and so
14 on. So to look at it directly is very difficult.

15 Really to determine what it is you need to use your technical skills to
16 calculate it by roundabout methods. You need to switch off your own equipment
17 and look at what the interference is into the spectrum of concern, you need to
18 increase the level of the interferer perhaps to raise it to the point where you can see
19 it above the noise of your instruments. It's certainly not an easy thing to measure.
20 Invariably you will need to even calculate it based on your knowledge of what the
21 isolation between antennas is, when they've been measured separately at a higher
22 level, so you can see above the noise interference.

23 So yes, it's technically difficult to do but it is possible to do. In terms of
24 variability this is one of the reasons for using the benchmark of thermal noise floor,
25 it's a fundamental matter of physics, Boltzmann's constant and so on all comes into
26 that, and it doesn't vary, it's been the same since all time. It's a low figure, you
27 know, in the scale of things it's a millionth of a millionth of a millionth of a watt per
28 hertz of bandwidth, of that order. So it's not a big amount, but it doesn't vary.

29 **CHAIR:** Where I'm taking this, and you'll appreciate that I'm an economist not an
30 engineer so if I'm misunderstanding this I'm sure you'll put me straight; but one of

1 the concerns we might have is whether or not, given a low figure like 0.5, would it
2 provide a means by which access providers might be able to put forward reasons to
3 reject co-location because of natural variations in the influence that has on these
4 measures. Does it lead to that possible point of controversy amongst access
5 providers and access seekers?

6 **MR GOODWIN:** I don't know, but I don't think so. It is a small amount, and the only
7 sorts of things I can think of is if an access provider might say well we desperately
8 need to put in a filter to reduce the interference or the perceived interference, and
9 the insertion loss of that filter which is going to reject the unwanted interference
10 will also attenuate their wattage signal and that's the amount you include. If it's
11 getting close to half a dB itself that doesn't leave much for external interference.

12 But I think in the real world this interference is actually going to be quite
13 small. The sorts of things that the International Telecommunications Union has
14 used these figures for is where we have operators in adjacent countries sharing the
15 same spectrum, so they're actually operating in the same channel as you. And the
16 signal that comes over the border needs to be accommodated as a direct hit on your
17 service. And so the measures used to minimise that are really aiming at managing it
18 within the same channel, whereas here we've got the channels operating in separate
19 spectrum and the amount of interference is only due to the overspill outside of their
20 own emission, which are really quite well controlled.

21 And in the case of dissimilar technologies the separation between the
22 transmit bands is quite wide and it's also from the user terminals in some cases
23 rather than the actual base station transmitter that's the closest. The separation is
24 quite wide, so that's very practical. In the case of similar technologies both
25 transmitters from the two services, the provider and the seeker, are adjacent and
26 their received bands are well away, 40 megahertz or so in the case of the 900 meg
27 band. So the outer band emissions are really going to be quite low. I think that in
28 the real world it's not a big issue that's going to stop the show.

29 **CHAIR:** Thank you for that. That's very helpful. On this issue about encountering
30 interference issues and how to deal with them, I would be quite interested to hear

1 something from TeamTalk if I might ask on your experience, because you've got a
2 large number of co-located sites, presumably you've from time-to-time had to deal
3 with these issues, and I wonder if you could tell us something about how that has
4 worked out.

5 **MR HARDING:** There's been several different interference issues over the years. Some
6 of them are established right at the time of application for co-siting and some of
7 them are discovered later on when one or other operator makes changes to their
8 networks, either us making changes or Telecom making changes to their network or
9 changing their technology. But as far as I can recall there's never been an issue that
10 we haven't been able to resolve between ourselves. I mean we're both committed to
11 coming out with a successful outcome.

12 One of the issues that we've had a number of times has been interference
13 from our trunk radio networks interfering with Telecom CDMA network and
14 they're both in totally different frequency bands, so the network is up in the 800
15 megahertz region and our equipment is in the 400 megahertz region. And we
16 believe that the resulting interference was actually being caused within the Telecom
17 equipment not within our equipment, but the net effect to Telecom was that they
18 still had an interference problem and the solution has been for us to change our
19 frequency so that it didn't impact the Telecom network.

20 But it always involves a team of engineers from both sides getting around
21 the table, discussing the problem, sorting it, making the relevant adjustments and
22 everybody goes away happy. And I can't recall any issues that have been
23 unsolvable or whatever. But it's just a fact of radio engineering life that there will
24 be issues when two parties co-site on the same site. I guess probably 95% of things
25 sail through smoothly without any issues and 5% we have to deal with and they are
26 dealt with. And it doesn't only apply with Telecom, that's where we have a lot of
27 our sites, but we've had other issues with other site operators and they've all been
28 resolved as well.

29 **CHAIR:** All right, I've kept the other parties at bay here from this discussion for a while,
30 but I think it's been helpful to hear from Kordia and TeamTalk on some of their

1 experience. I want to come back to the issue that we started with, which we were
2 getting on to with Vodafone, about leaving aside at this point the 0.5 or 1 issue,
3 coming back to the calculation and whether internal interference should be
4 included. And we've heard some fairly persuasive arguments why it should not be
5 included, so what I would like to hear from Vodafone is your most persuasive
6 arguments why it ought to be included. And if you're going to argue for it, part of
7 that argument needs to be telling us how it practically can be done and how it can
8 practically be policed and monitored.

9 **DR ARASARATNAM:** We are generally comfortable with going with the proposal. We
10 still hold the view internal interference should be included, but we can see from
11 Ian's point of view as well, so probably I'm not going to put very persuasive
12 argument. **[Laughter]**

13 **CHAIR:** Maybe I should just bank that.

14 **DR ARASARATNAM:** So -

15 **SPEAKER:** Just say yes. **[Laughter]**

16 **CHAIR:** All right, can I put the same matter to Telecom please.

17 **MS HASKILL:** It's Telecom's view that the maximum threshold of 0.5 must include all
18 impacts of co-location to link budgets by external factors such as co-lo interference,
19 filters, antenna minimisation etc, but should exclude internal interference in support
20 of Kordia. And I have with me John Kliffen who is our Telecom Investment
21 Manager who can, we hope, tell you the practical aspects of that.

22 **CHAIR:** Can we focus first on the issue of whether internal interference should be
23 included in the calculation, and then I'll come back to the 0.5 or 1.0.

24 **MR KLIFFEN:** Yes, thanks Tonia. Yeah, must introduce myself, I'm John Kliffen, I'm
25 an Investment Manager for Telecom Mobile but I'm also an RF engineer, and my
26 main role is for the design and ongoing expansion of Telecom's mobile access
27 network. So even though my title is Investment Manager actually I'm a radio
28 engineer by heart.

29 **MS HASKILL:** And guru.

30 **MR KLIFFEN:** And guru, yes. So we basically support the Kordia's proposal for

1 adopting the 0.4 dB level. This is based on international standards and they are
2 well established in all international markets for managing interference co-location
3 issues. So we don't see that there are any issues around the workability of
4 measuring the interference levels at that low level. That is what's done in all
5 international markets, and it's done here with co-location in situations that we face
6 today. So we don't see any working problem with that.

7 As Ian's mentioned the internal interference does vary quite significantly
8 depending on what technology you're using and through time. So it's very difficult
9 to include it in the assessments of what's going on at the site. What is a much more
10 practical way of looking at it is that the external interference basically is the first
11 point of contact that has an impact on the noise floor of the base station receiver
12 equipment, and if that external interference lifts the effect of interference, or the
13 effect of noise floor performance level, then that has an ongoing impact into the
14 link budget. So it's a starting point for all link budget calculations and that's why
15 the ITU documents refer to that when they're doing their interference assessments.

16 **CHAIR:** So you accept excluding internal interference in the calculation?

17 **MR KLIFFEN:** That's right.

18 **CHAIR:** All right. Can I ask if any other parties besides Vodafone or Telecom want to
19 object to what appears to be at least a weak consensus on, or nearly complete
20 consensus on this matter?

21 **PROF COUTTS:** Yes, I agree with Kordia and Telecom New Zealand in terms of just
22 ease of really starting point working out your link margin, that the exclusion of
23 interference is appropriate. I think where I'm troubled is probably getting to where
24 you're coming from, the way that's used in terms of deriving a link margin, right,
25 and overall interference which has got to be a combination, as far as the customer's
26 concerned. I mean they're seeing a combination of impacts, obviously thermal
27 noise, internal interference, interference caused by the access seeker, it's the sum of
28 all those.

29 And in a sense my position is that in some ways this 0.5/1 dB issue is -
30 we're getting the answer to the wrong question, is that what I'm concerned about is

1 how the parties appear to be - the potential access providers are using this
2 information to come up with rules of antenna spacing or link margin which to my
3 view are really quite different to general international practise. For example, the
4 view seems to be here, and this must be because New Zealand's completely
5 different, but I didn't know the laws of physics were different, that for vertical
6 spacing, for example, that the spacing has to be greater than 1.5 meters. Well that's
7 certainly not the practise overseas for vertical spacing.

8 But certainly, as I said yesterday, if you get a group of RF engineers
9 together, as I think Kordia explained quite well, you can consistently make that
10 work. What we have here is a problem - is we're not allowing the RF engineers to
11 get together, right, to solve really a quite straightforward problem from an RF
12 engineer point of view. In connection with horizontal spacing the separation needs
13 to be greater, recognise that, and there are all sorts of other practical issues around
14 horizontal spacing.

15 But coming to your point, Commissioner, it seems to me that I'd be asking
16 the question of why is it that New Zealand were having access providers saying that
17 the access seeker has to be 1.5 metres or greater, right, down the pole? And I can
18 tell you when I used to work for Telstra in the bad old days, and I'm talking the
19 early 90s, sure we'd tell the access seeker they had to be 1.5 metres down the
20 antenna because that way they don't get coverage. It wasn't a technical issue, and I
21 don't think fundamentally this is a technical issue.

22 So I'm comfortable with the discussions coming from Kordia and using the
23 thermal reference, though I would note that the actual noise, the thermal noise
24 actually varies quite significantly due to obviously the sun comes up in the morning
25 and you get a rise in the thermal noise floor. And what we're usually talking about -
26 so the actual noise, right, caused by thermal noise varies quite significantly; and
27 certainly in excess of several dB.

28 **CHAIR:** Can I just - I think there's some strong indication from Kordia that they don't
29 agree with that view, so I'd provide them with an opportunity. Before I do I just
30 want to confirm, I think I understand the points you're making, Professor, about

1 what the real issues are here. But you're not substantially - you're not disagreeing
2 with the preliminary matter I'd like to try to get off the table, which is which of the
3 formula to use. And it seems to me you're accepting that we take the approach that
4 Kordia has spoken to which takes account of external interference but not including
5 internal interference, is that correct?

6 **PROF COUTTS:** Correct.

7 **CHAIR:** Okay. Can I just confirm that no other party objects to this? I know Vodafone
8 has put forward an alternative view, but it sounds to me like you're prepared to
9 weakly almost concede the point.

10 **MR TUNNICLIFFE:** In the sense of practicality we will accept that view.

11 **CHAIR:** All right. I think we will put this one in the bag and it's very helpful actually to
12 remove that issue from the discussion, so I'm grateful to you all for that. And we
13 can move on to some of these other issues. But before we do I would like to
14 provide Kordia with an opportunity to respond to the last point that was made,
15 please Mr Goodwin.

16 **MR GOODWIN:** Thank you Commissioner. To the extent that the thermal noise floor is
17 dependent upon the temperature we agree that it is dependent on the temperature.
18 There is a basic formula KTB and T is the absolute temperature above absolute
19 zero, so the noise floor is directly proportionate to the absolute temperature. But
20 given that that is minus 270 degrees celsius that's a long way down, so the room
21 temperature today is of the order of 290 degrees, and if it was to get terribly hot
22 with the sun shining on the antenna outside you might expect it to go into a range
23 of, say, 30 degrees celsius, it might have been frosty at night so it might have been
24 at 0 before sunrise, a range of say 30 degrees. That's about 10% of the absolute
25 temperature, so we're talking there about a 0.3 dB change from quite a wide range
26 of temperature, and that's not a big amount.

27 In that basis for the thermal noise floor we also have a thing called the noise
28 figure of the equipment in use, and that varies from one manufacturer to another.
29 And it may vary slightly with the age of the equipment, but the ITU puts a
30 benchmark on that conveniently for us; and for third generation, 3G, systems they

1 say that the nominal figure for the noise factor, noise figure, is 4 dB, and worst-case
2 5 dB. So in their recommendation they use a noise figure of 5 dB which means
3 three times in linear terms roughly. So we're already talking about the receiver
4 having an equivalent noise temperature, if you like, of 1,000 degrees, and that
5 reduces even more the effect of a 10 degree change, or a 30 degree change in
6 environmental temperature, it becomes less and less significant.

7 So environmental changes are not a big factor, that's the basis of my
8 argument, thank you.

9 **CHAIR:** Yes, please Professor.

10 **PROF COUTTS:** What we'd like to do is, as one of my colleagues Mike has - because
11 really my point, the actual overall combination of noise and interference - and I
12 guess if I'm sounding frustrated it's because we're so far away from actually getting
13 fundamentally to the components that make up the overall impact, right, on system
14 design and the link margin. Because for a static system, let alone a mobile one,
15 some of the factors that go to change the system performance, the thermal noise as
16 you mentioned, the internal interference, which is time varying because we're
17 talking about a cellular system, and the reality is the internal interference is traffic
18 dependent, so the cells actually breathe, right. And that goes also for the access
19 seeker in the interfering interference and I haven't even talked about other spurious
20 interference, but hopefully we've actually - our good RF engineers have worked
21 around those problems.

22 So all those interference need to be taken into account when you're
23 determining the margin for a system. And what concerns me about the discussion
24 here, right, is we're talking about the very bottom level, and because of the
25 variability, and I'd like the opportunity, if we could, for Mike to just simply show
26 you how it does vary simply over the course of about 15 minutes, the actual level
27 goes up and down. And what we're on about really is designing margin, right,
28 margin so as good RF engineers we can be assured, right, that to the best
29 professional practise, international practise, we can assure a customer service in
30 terms of coverage in terms of data throughput, and the sort of impacts that

1 Vodafone were talking yesterday.

2 And one of the things I'd like to do is I'd be interested in the assumptions
3 underlying those numbers, because I've actually done a similar impact type of
4 calculation using the normal assumptions one makes, and my view is those impacts
5 are way overstated and potentially alarmist. And I would be concerned if those
6 figures, or those sort of impacts were taken as any measure of the realistic impact of
7 somehow related to this 0.5/1 dB issue. It's completely taken the problem out of the
8 context of the real world.

9 **CHAIR:** All right, we're firmly into the debate about 0.5 or 1.0, and I will give you the
10 opportunity, but can I just ask you one thing, Professor, this must be an issue that
11 every Regulator deals with in this area, is that correct?

12 **PROF COUTTS:** Interesting enough in some ways it isn't, because for example in
13 Australia if we were sitting around the table I think we'd find it curious that we
14 were even having this discussion because there's general agreement amongst the RF
15 community of the way you go about actually designing links. There is more debate
16 about how you measure it. And I note Kordia's comments and absolutely agree, we
17 can say 0.5, we can take 0.7, we can talk 1, the problem is how do you measure it?
18 And the measurement process is a combination of measurements, right, under
19 replicable situations, plus calculations given the actual antenna patterns.

20 So it's a combination of measurement, right, and estimation from the
21 antenna patterns and unfortunately the antenna patterns are usually for far field
22 situations not near field which is what we're talking about on an actually co-site. So
23 if you really want to be thorough, every site is totally unique, right, so this could be
24 a paradise for employing half the New Zealand population, right, to actually go and
25 engineer all these sites; but it's not done, it's not necessary, because you have RF
26 engineers that know their job, if they can be given the opportunity to sit down and
27 resolve the issues -

28 **CHAIR:** My question to you was -

29 **PROF COUTTS:** Sorry.

30 **CHAIR:** - in the Australian context, let's stick to Australia for now, has the Regulator not

1 specified any particular measure on this point?

2 **PROF COUTTS:** No.

3 **CHAIR:** And do you -

4 **PROF COUTTS:** The particular Regulator in the case of Australia would be the ACMA,
5 the technical Regulator, because as you know we have two, we have the ACCC
6 which is the economic Regulator.

7 **CHAIR:** Yes.

8 **PROF COUTTS:** The ACCC would definitely not go anywhere near the issue.

9 **CHAIR:** Okay, so is your proposition that we don't even have to consider this? So we
10 could just leave it open, because engineers are gonna be perfectly reasonable about
11 this?

12 **PROF COUTTS:** The engineers are but they work for companies.

13 **CHAIR:** Well presumably they do in Australia as well.

14 **PROF COUTTS:** Interesting isn't it.

15 **CHAIR:** I haven't exactly seen peace break out in Australia between the telephone mobile
16 or any other telecommunications company, so -

17 **PROF COUTTS:** We're talking about co-location.

18 **CHAIR:** Yes, I certainly understand what we're talking about, but what I'm asking you is,
19 is it the proposition of NZ Comms that we don't even need to regulate this particular
20 term because the engineers of the various companies will be able to sort it out
21 reasonably?

22 **PROF COUTTS:** Look I think obviously we have an impasse in terms of getting the
23 parties to come together to get co-location to work. And certainly this issue is one
24 of the pieces of the puzzle that we've had some discussion about what the 0.4 dB
25 should include. But I'm just saying there are several other parts that would need to
26 be included to actually come to a process which could be actually measured, an
27 agreed process of actually how you determine the link budget and how you actually
28 measure them. Now in Australia this is not laid out by the ACMA in terms of
29 exactly how that's done, and interestingly enough the disputes, of which there are
30 many, have not been around this area.

1 **CHAIR:** So it still begs the question why are we even spending - I mean a large amount of
2 the discussion in the documents is around 0.5 versus 1, and in fact NZ Comms has
3 submitted on this matter. So what I'm hearing from you is that we're misplacing our
4 focus in terms of what we need to determine.

5 **PROF COUTTS:** And that's partly the reason why from an NZ Comms point of view is
6 that when I came over here I said what is the historical background to this
7 discussion of 0.5 and 1 dB? And I think I call it the 0.5 dB frustration factor, that in
8 a sense, right, from NZ Communication's point of view the concern is that driving
9 down this number from 1 to 0.5 will be used as a proxy, right, for essentially
10 putting up barriers to why the vertical spacing needs to be 1.5 metres for example.
11 So that's the concern.

12 **MS MAZZOLENI:** Can I just make an observation here. Everybody's had the
13 opportunity to look thoroughly at the interference management and design plan
14 that's been put into the STD. That has a number of requirements that define
15 unacceptable performance degradation and it has a number of processes to go
16 through in order to try and assess that at the front-end and also assess that at the
17 back end once that's happened. The whole point of the submission and
18 cross-submission process was to narrow down what changes are required to that
19 document so that where we've got a situation where we are butting heads it can be
20 resolved, this can be resolved. And my understanding was that we were talking
21 here about the difference between 0.5 and 1 in the loss link budget.

22 I mean I'm very interested to hear TeamTalk and Telecom say that whenever
23 they have an interference issue they all get together and like sensible RF engineers
24 they resolve it. But the whole point of this agreement is to cater for the situation
25 where you're not doing that, and so that's what we're trying to zero in on here. So it
26 would be really useful if parties could address their comments to what we need to
27 fix in the STD in order to address the situation where there are heads butting, and it
28 would be helpful just to confine the discussion to the difference between the 0.5 and
29 the 1, which is I think where we've all got to through the submission process.

30 **MR DAVIS:** I guess to summarise Professor Coutts' statement is the reason that 0.5

1 versus 1 dB is such an issue for us is that we believe it's being used to justify
2 unreasonable positions which are being taken by Vodafone and Telecom with
3 regard to the level of separation they require from our antenna versus their antenna,
4 I mean it's been used to justify solutions which are just unworkable for us. So that's
5 the reason for the concern is, you know, they're making it unworkable by saying
6 0.5, whereas with 1 we may make it workable.

7 **CHAIR:** Mr Edwards, you wanted to add something?

8 **MR EDWARDS:** I just wanted to share a perspective on the frustration that we have
9 before us today, is the frustration that we've had internally and externally on this
10 matter. Simply put, the link budget and interference measure is like measuring how
11 much tread you use on your car on a long journey and it's being used as a
12 bamboozlement figure. And when we move to an incentives concept this issue
13 quickly moved away. But I would like my two expert colleagues who've been
14 working this matter for six months now to share a quick perspective if I may.

15 **MR LANCASTER:** Good morning Commissioners, ladies and gentlemen, my name's
16 Mike Lancaster I'm an independent consultant from the Melbury Group. What I'd
17 just briefly like to do is just show you a couple of slides. There's a printout of them
18 in the pile there, I brought three copies here because I don't know how clearly you
19 can see the screen. I've basically been in the wireless business for over 25 years
20 now. I worked with the original GSM wireless recommendations back in the UK in
21 the 80s, I came over to New Zealand in 1994 and led the team of engineers that
22 rolled out the Bell South, as it was then, Vodafone GSM network. I led the team of
23 engineers who built the first dual band GSM.

24 **CHAIR:** Can I just interrupt you for a minute, are you planning to give this presentation?

25 **MR LANCASTER:** No, no I'm just doing the first three slides.

26 **CHAIR:** Let's move to it quickly please, okay.

27 **MR LANCASTER:** What I really want to cover off is to basically get some perspective
28 here today. I want to just briefly touch on theory versus reality and talk to some
29 practical cases. This is a typical coverage map, it happens to be a Telecom
30 coverage map. Network operators across the globe present their coverage or their

1 service availability and maps similar to this; they tend to show primary coverage,
2 secondary coverage, fringe coverage. They tend to be demonstrated or actually
3 measured through the prediction tool by saying at the edge of this colour you should
4 be expecting a receive signal strength of, say, minus 70 or minus 80 dBm. The next
5 sort of layer of the onion out it could be 10 dB less and then the final layer is
6 basically what's left up until the sort of bottom sensitivity of the receiving device.

7 What I just want to cover off is basically how things change in practice.
8 Now what I've got here is not actually from a mobile network. This is from a fixed
9 wireless access network that operates in the 3.5 gig band. There are a couple of
10 operators who operate equipment like this, there are others like Kordia who do it in
11 a slightly lower frequency. But what this is, this is a piece of customer premise
12 equipment that is fixed to the roof of a property, it's got perfect line of sight to the
13 base station, it's like a fixed mobile deployment. So there's a base station that
14 covers an entire area, there are a number of customers connected. In this sector not
15 too many customers at all.

16 This is over a 24 hour period, it was a day in the middle of September, as
17 you can see the 15th from the dates at the bottom. And all I really want to
18 demonstrate here is during the course of the day the first hour is when the sun rises,
19 the ambient temperature overnight was about 8 degrees. During the day about the
20 middle of the day is in the bottom trough there, and then the second arrow is when
21 the sun set in the evening. So basically this equipment is idle, it's not passing a lot
22 of traffic, the total cell has a minimal amount of traffic flowing through it, there is
23 no interference because this is a licensed band, and this is the only device operating
24 in it in this geographic region.

25 All I just want to demonstrate here is the receive signal strength, which here
26 varies from about minus 73 approximately down to minus 75, changes throughout
27 the day. At different frequencies you will see elements of this behaviour to varying
28 degrees depending on the quality of the equipment, and any other influencing
29 factors. A mobile handset may go through a bigger variation than this, this was
30 only 8 degrees to approximately 15 in the peak of the day. A mobile phone could

1 go from the seat to the dashboard of your car where it may get up to 30, 40 degrees
2 to, you know, maybe an air-conditioned office.

3 So I'm just trying to show here in the real world we've got a device here and
4 as near as perfect environment you can get in the real world and you can see the
5 actual receive signal strength varying by a couple of dB. What we're talking about
6 in this mobile co-lo is the effect of 1 dB total, or half a dB in the link budget. This
7 is a slightly different scenario. This is where between the base station and the
8 receiving equipment you've actually got a tidal piece of water, it's actually up in
9 Orewa, it's the Nautilus looking across to the Whangaparaoa Peninsula.

10 What you're seeing here is basically there's a pure line of sight between the
11 base station and the receiver, however the signal is reflecting off the water and
12 being picked up by the receiver. So the upwards pointing arrows are the high tides
13 during the day, and the downward pointing arrows is the low tide in the middle of
14 the day. This is on exactly the same day. You notice here this is approximately the
15 middle of the day, this is the temperature effect overlaid on top of this. So you can
16 see because this is during the daytime you've actually got the temperature effect
17 added into this as well. But what you can see is there's a massive change here.

18 All I'm trying to demonstrate is that water reflects the radio waves, there are
19 hundreds of other objects around in the real world that reflect radio waves, whether
20 it's vehicles, cranes, how you use your device within a building, moving a few
21 centimetres either way can affect your actual receive signal strength. There's one
22 final thing I'd just like to set up, if I can turn on my phone with your permission.

23 **CHAIR:** Very quickly please.

24 **MR LANCASTER:** It will be, yes. All I'd like to conclude with is this is just a regular
25 Nokia phone, it's going to play the welcome tune because I haven't worked out how
26 to turn it off, it's got a bit of test software in it that actually will show hopefully on
27 the screen the actual receive signal level that the phone's receiving at that moment
28 in time. What I'm hoping, and this could fall in the category of like demonstrations,
29 you know, don't work with children and animals, this may fall in that category. I
30 just need to change the mode on this. There's just a small application on here I'm

1 going to fire up. What it's hopefully going to show up is what the receive signal
2 strength of my phone is at this moment in time.

3 **MS MAZZOLENI:** Can I just confirm we're not going to deafen anyone here?

4 **MR LANCASTER:** I would hope not. So we're on channel number 82 and that second
5 number down is the RF level. All I really want to do is to show in an apparently
6 static environment, that number's changing 2 dB, 6 dB, 3 dB. It's basically not
7 static. So my entire point here is the coverage maps that you see produced by the
8 various parties and in my slides as well, basically there is a living coverage map, it's
9 breathing, it's changing the entire time. So when you're in the fringe of that you
10 may get service, you may not get service. I mean here we are in the middle of the
11 city, we've got, you know, a reasonably good signal, it's varied over 10 dB and the
12 phone's just sat there not being affected by anything in its immediate proximity. So
13 my point is 1 dB I believe should be the threshold in the agreement, and my reasons
14 for that are you can just about measure it and it's a sensible number to use.

15 **CHAIR:** All right, thank you very much Mr Lancaster. I would like now to turn to some
16 of the other parties, all of whom have suggested 0.5 is appropriate, and what I
17 would like to do is hear from each of them why they think nothing greater than that
18 is appropriate. So if I could turn to Vodafone first please.

19 **MR YORK:** I think maybe what's useful to do is perhaps just take a step back for a
20 second and frame up the discussion, follow up a lot of what we've had just come
21 through now. I guess our perspective is that like Telecom we've invested in a
22 network, we've spent significant amounts of money to do that over many years.
23 And that network provides a given level of service to consumers already.
24 Consumers may not all the time like it, they may have more dropouts than they'd
25 like from time-to-time but it has a given level of service.

26 Now we have new parties who want to come and put their equipment on our
27 network and that's fine, indeed in some ways it's good, it provides a business
28 opportunity for us. But what you don't want to have occurring when the other
29 parties come along is damage to the quality of service that you provide to your
30 consumers. And the Commission recognises that and that's come through in the

1 draft STD and the documents that came out with it.

2 What the Commission has is a trade-off. On one hand it wants to see
3 co-location occur because that can hopefully provide a lot of competitive benefits.
4 But on the other hand it doesn't want it to occur in a way that will lead to significant
5 reductions in the existing quality of service for consumers. So the question I guess
6 we're having is what is the maximum allowable level of unacceptable performance
7 degradation? So I take the point that if there is an interference issue the RF
8 engineers can probably work together to try and sort it out. But the question is what
9 is the limit that we will accept as the maximum level of unacceptable performance
10 degradation?

11 Now we've provided evidence on what levels of performance degradation
12 we think will occur at 0.5 dB, that's been clearly through our submission and we
13 can talk to that in a second. We think that if you go to 1 dB it's going to lead to
14 even greater levels of performance degradation. And it's moving to those greater
15 levels of performance degradation that we've got to consider is it worth it to do that,
16 and is it gonna generate significant competitive benefits in doing so.

17 So maybe do we want to talk to what are the differences in performance
18 degradation you'll see at the different levels of dB.

19 **CHAIR:** Can I, just before you go on; isn't it to some extent in your hands whether it leads
20 to that or not by your own reaction to it and how well your engineers work with the
21 engineers on the other side?

22 **MR YORK:** Yeah, absolutely, the question -

23 **CHAIR:** So it's not a simple matter of the limit determining the extent of the problem it
24 does or doesn't create for consumers.

25 **MR YORK:** Yeah.

26 **CHAIR:** Some of it is very much in your control.

27 **MR YORK:** Absolutely and that's -

28 **CHAIR:** We've heard if parties are behaving reasonably that that likely impact is indeed
29 very very small, so it's only if you use it -

30 **MR YORK:** Yeah.

1 **CHAIR:** - to basically subvert the intention here is it likely to be a problem. Can I put to
2 you that that seems to be what we've heard from a number of parties. This is only a
3 problem if you choose not to take advantage of the engineering options you have to
4 ensure that that poor result doesn't eventuate.

5 **MR YORK:** Yeah, I think you're right. Hopefully your engineers can get together and
6 work out a way to make sure that that interference doesn't go beyond a level. But in
7 a lot of factors in life you set limits in place, you set rules in place. Why do we
8 have speed limits on the roads? You know, people, if they're reasonable you'd
9 expect to drive at certain levels, but we feel we need to set speed limits there. So
10 the question is how much are we prepared to accept as that unacceptable
11 performance degradation. I think -

12 **CHAIR:** I think that's not really my point, with respect, my point is this is not a speed
13 limit type situation, because how much you're prepared to accept is not just about
14 where you set the limit, it's about the behaviour of both of the parties to take other
15 action to ensure you don't have a difficulty.

16 **MR YORK:** Yeah.

17 **CHAIR:** And I don't think that's a speed limit type analogy.

18 **MR YORK:** I don't think we're necessarily in disagreement, I think measures will be
19 taken to minimise the level of performance degradation that can occur. There's just
20 a question of, you know, how much would be the absolute limit that you'd be
21 willing to accept.

22 **CHAIR:** What I'm saying is, is if 1.0 turned out to be unacceptable to you because of the
23 impact it was having on consumers you have other alternatives to ensure it isn't, you
24 know, that it doesn't reach the limit. And you probably, you know, if we think of
25 this as an incentive regime it probably sets up the right incentives so that the
26 companies' competitive position doesn't interfere with engineers getting together
27 and working out the most appropriate outcomes from a network and consumer
28 perspective, and it alleviates the problem of this being used in an anti-competitive
29 way. So I just ask you to respond to that because, you know, I'm not an engineer so
30 I may be misunderstanding the propositions that are being put, but I think that is

1 what I'm hearing.

2 **DR ARASARATNAM:** The difficulty we have is in some cases yes, we can accept more
3 than 0.5 dB. But using that as a general level in a number of scenarios we won't
4 have any other option but just to take the hit, particularly in rural areas. If you don't
5 have - if you lost some link budget or lose some coverage, other than putting a new
6 site we just don't have any other measures. And that's a concern we have tried to
7 express.

8 I just wanted to touch on two points. We have talked to the various
9 Vodafone of course, and the general message that came through is yes, they don't
10 have a performance degradation, and usually if there is interference then its the
11 access seeker that fixes it and we can even provide examples to that.

12 In terms of the impact, our concern is on four issues; rural coverage, indoor
13 coverage we haven't provided evidence of that primarily because we don't feel we
14 can accurately quantify that, but that's not to say it's not there because we have
15 dropped calls in urban areas. We tried to quantify the impact on data, and also there
16 will be impact on emergency services.

17 So these are the things we are trying to limit in terms of network impact and
18 certain areas we just don't have the option to fix it. Some areas we do, some areas
19 we don't, so thank you.

20 **CHAIR:** Can I just see if Vodafone wants to add anything to that and if not I'll turn to
21 Telecom.

22 **MR TUNNICLIFFE:** I'd just like to add one thing to that, Ken Tunnicliffe from
23 Vodafone. Just to add to that, I think our concern is, and Sathy's put that quite well,
24 in the rural areas we're relying predominantly at the moment on our GSM coverage
25 to reach those customers. We talked about this with Mr Goodwin around those
26 calculations. The reality is it is more susceptible to impact.

27 The bottom line here, and Sathy's sort of laid that out quite well, but I'd just
28 like to kind of make it crystal clear. In the other regimes we're not a position where
29 we're asked to turn our power down to accommodate the access seeker. We will
30 do everything we can to accommodate the access seeker, it's absolutely in our

1 interests to do that because that gives us a better return on the capital sunk.

2 Our concern is at the edge of the network, particularly in the rural areas,
3 where if we do that that will reduce the signal. And I acknowledge all the things,
4 lots have people have presented today that are far smarter on this technically than
5 me. There were many variables, as we know, that effect what the end customer
6 receives. Temperature today, all those things people went through. But the bottom
7 line is if you turn that power down it will have an impact.

8 So the question is, and this is why I guess we've got into this situation
9 discussion 0.1(sic), 0.5 is to at least have a threshold in there which tries to define
10 an acceptable level. My hope would be that in most instances the RF engineers will
11 work together diligently to sort that out. It's going vary a little bit depending on the
12 tower construction type, so in overseas countries, as you'd well know from
13 Australia, the sites are typically much taller, they have far more real estate on them,
14 that makes the job easier. We have got greater physical separation of the panels,
15 the problem is far less. So on those sites I think we'll have minimal issues sorting
16 those things through.

17 But there will be certain circumstances when you get to the edge of the
18 network and where you've got smaller sites where this becomes more difficult. And
19 I guess that's the issue where this thing comes into play. And what we're looking
20 for is certainty around that, effectively to protect the experience of our customers.
21 And we've done our best, we've been diligent to make our calculations around what
22 we believe is a fair indication of the impact that could be had.

23 **CHAIR:** So is your proposition that we should set a 0.5 to deal with the edge of the
24 network? So we're going to have 0.5 for the purpose of the whole network when
25 the problem is at the edge of the network? Why would we not set differential
26 thresholds then for just dealing with the edge of the network rather than - just a
27 minute please I'll come back eventually to you, but I just want to give the other
28 parties an opportunity to be heard.

29 **MR TUNNICLIFFE:** Certainly that's where the hot point is, because we have less density
30 of sites there, so there are less ways to deal with it, when you -

1 **CHAIR:** Isn't the right thing to propose is to set a different threshold for that rather than
2 use the more limited threshold for the entire network?

3 **DR ARASARATNAM:** The edge of the network, in rural areas it's quite easy to define as
4 interfere coverage, but in urban areas they differ, the network could be indoors. We
5 have difficulty quantifying that and that's a concern we have about the impact in
6 urban areas as well. I mean if we have perfect coverage we will have very limited
7 dropped call in urban areas. But the fact of the matter is we have coverage holes
8 and that leads to dropped calls.

9 **CHAIR:** All right, I want to give Telecom a chance to have some input, I will come back
10 to NZ Comms eventually, I promise, if I forget you'll remind me, but please if I can
11 turn to Telecom.

12 **MR KLIFFEN:** It's John Kliffen from Telecom. I'd just like to make a couple of points
13 about engineers collaborating on interference issues. I think the point's been made
14 that engineers do get together and sort those issues out. But at the end of the day
15 engineers work within limits, they work within sort of guidelines and frameworks
16 to achieve the required outcomes. One of those limits will be what is the level of
17 unacceptable performance degradation. That will lead to a certain solution, you
18 know, those limits define what the design outcomes we come out with. So it's very
19 important that we set those limits appropriately.

20 The ITU, they've come up with a guideline for those limits of 0.4, and that's
21 where, you know, internationally that's what's used as best practise, that's what
22 engineers use as a starting point for these interference calculations. That's why it
23 may not necessarily be regulated in Australia or some other markets because they
24 look to the ITU, they find out what are the guidelines, and that's what gets applied
25 when coming up with the site solutions that achieve successful co-location. So
26 that's where we recommend that we do follow the ITU guidelines and we stick to
27 0.4 as a starting point for the overall interference degradation point.

28 We also need to be realistic about what are the other factors that might
29 impact the UPD, the unacceptable performance degradation. That's site solutions
30 like filters, or potentially antenna minimisation if that gets introduced. All of those

1 factors need to be included in the total value as well. That's where 0.5 still is an
2 achievable workable threshold for site solutions and managing those interference
3 issues.

4 From an end user perspective Vodafone's expressed that, yeah, it's at the cell
5 edge that end-users for voice services are going to notice. Even a 1 dB, even a half
6 a dB, they will notice that, you know, reduced range in the rural areas of a 1 dB will
7 reduce the range from a rural site from like 20 kilometres down to 19 kilometres,
8 there's a 5% impact there. So if they're working outdoors then, yeah, there will be
9 holes in those outdoor areas. If they're indoors then that range is less. And so if
10 you're, say, 5 kilometres or 10 kilometres away from a rural site where you have
11 indoor coverage and you lose dB, all of a sudden you'll have to use your phone by
12 the window or even outdoors because you've lost that quality of coverage.

13 So those things do vary during the day, but that's also taken into account
14 with our coverage plots of what we show to customers, these are the areas that you
15 should be able to have service, even under loaded conditions. So yeah, there will be
16 service outside those areas on a sporadic sort of fringe sort of basis. But it's those
17 guaranteed areas that we publish that customers expect to be able to use that
18 service, and if that gets lost then they notice that impact. They rely on that. So
19 coverage at the cell edge is quite important for us. That's for voice services.

20 In rural it's outdoors generally but in urban areas it's inside buildings. We
21 have lots of holes inside builds, we do not have 100% coverage throughout urban
22 areas in our cities. Deep inside the buildings where the signal propagates through
23 several walls it just finally gives up at that cell edge. That's when you notice that
24 you've lost the dB, you know, the calls will drop sooner. So I agree with Vodafone
25 we don't have perfect networks they're always going to be holes in there. So for
26 voice that's, you know, that's one point.

27 The next point is around, we're moving towards data services. So high
28 speed data needs really strong signal strength to deliver the high data rates. We've
29 talking sort of 10 megabits per second. You won't get that at the cell edge, you only
30 get that very close to the base station. So I've got some slides in our Telecom

1 information in our slide pack that shows the impact. If I look at, say, slide 13 as an
2 example, where the black curve here shows - these are just nominal calculations but
3 they highlight the principle, that where you're close to the base station you've got
4 strong signal strength then you'll receive these really high speed data rates, and you
5 can send the base - the mobile itself can also send high speed data back up to the
6 base station as well.

7 **MS MAZZOLENI:** John, why was the PIB 38, the radio licence certification rules, why
8 have they not been updated then to cater for the high speed data situation?

9 **MR KLIFFEN:** Sorry, I'm not -

10 **MS MAZZOLENI:** In Telecom's submission you say PIB 38 radio licence certification
11 rules which, you know, in 2005, published by the radio spectrum management
12 group of the MED recommend that there is no single criterion for acceptable
13 interference levels because this will depend on the nature of the victim's service.
14 However commonly the total co-channel interference power calculated as above
15 should cause no more than 1 dB degradation to the receiver noise floor at locations
16 near the edge of coverage. And then you go on to talk about the fact that in relation
17 to non-mobile and low speed services 1 dB is an appropriate limit. But because
18 mobile communications have generally only provided for voice and low speed data
19 service this is out of date. I'm just wondering why this standard hasn't been updated
20 to cater for high speed data.

21 **MR KLIFFEN:** That's an issue for the MED really, PIB 38 is an MED based document,
22 technology has moved on and data is one of the key drivers where - that's why the
23 ITU standard documents take into account sort of the fact we've got multiple parties
24 also delivering multiple standards, so GSM and wideband CDMA at the same sort
25 of sites. And that's where the 0.4 dB threshold is applied in that case. PIB 38 hasn't
26 been updated for reflecting sort of that mobile co-location type basis. The 1 dB is
27 more relevant for fixed point-to-point type services, and for other sort of
28 international satellite type services, whereas, yeah, 0.4 needs - sort of isn't really
29 recognised in that document yet but it should be. So I agree, that's a gap in that
30 document.

1 **CHAIR:** Can I just - I hear the points that you've made generally about what might
2 happen in certain circumstances, but I'm not sure it informs us what the right value
3 is. I mean those things may all be well and true, but they may not simply come into
4 play at either of the values we're talking about. So I need something more than just
5 generalities about what might potentially happen in certain circumstances, what I
6 need to know is what will happen in this context, you know, is it really valid to say
7 that the worst outcomes that you might raise might occur as a result of picking a
8 particular limit of 1.0.

9 **MR KLIFFEN:** So if I could just respond to that. What is clear, especially to look at the
10 data rate as an example, in slide 13 I show that the data rate for a user at, say, a
11 certain distance might drop from 1.5 megabit per second down to 1 megabit per
12 second if there was a 1 dB drop in coverage. What's equally true is if there's half a
13 dB drop the data rate will still drop but will go down to a 1.2 megabits per second.

14 So really what we're talking about is the impact is going to be half as much
15 if we apply the half a dB threshold instead of 1 dB threshold in those cases. At the
16 end of the day what we're trying to do is provide a balance between what's
17 acceptable to allow acceptable co-location to occur and what's going to minimise
18 the impact to our customers. We're trying to minimise those impacts but still allow
19 co-location to occur. We're saying that half a dB still allows co-location to occur,
20 but it's a level that minimises the impact to our customers.

21 **CHAIR:** It doesn't necessarily allow the same degree of co-location does it? It won't
22 necessarily provide an opportunity to refuse co-location in more circumstances than
23 otherwise than if it was 1.0, is that not the case?

24 **MR KLIFFEN:** Well from my perspective go back to our original comments that, you
25 know, engineers will provide solutions to certain sort of requirements. If the
26 requirement is 0.5 dB as an interference, or as a site solution impact type
27 requirement then we will come up with a co-location solution. It's not something
28 that it's going to sort of knock out 20 sites, we will just make it happen. But the
29 solutions might be slightly different but at least they're protecting the existing
30 services.

1 **CHAIR:** Can I just at this point, I'm just going to do something slightly different, unless
2 one of my colleagues want to pursue a question at this stage.

3 **MR PICKERING:** Not at this stage.

4 **CHAIR:** What I'd like to do is ask our expert if she would like to pose any questions to
5 any of the parties on the discussion we've had thus far.

6 **MR KEARNEY:** Could I perhaps say something first please?

7 **CHAIR:** Sure.

8 **MR KEARNEY:** On behalf of Woosh I'd like to maybe put a different spin on this. I
9 accept Mr Lancaster's point that there is a time varying nature to radio signals and
10 that's something we all live with today. So given that I've got cell site A, for
11 instance, I have an average throughput of, let's say, 3 megabits per second on that
12 cell site, and I earn money based on the amount of data I can push through that cell
13 site in any one hour. If I'm obliged to take a 0.5 dB degradation that's 10%
14 reduction in my data carrying throughput, that's 10% less revenue. And I think
15 that's significant; a 10% degradation in revenue earning capability from a cell site is
16 huge. Carried out throughout my network my shareholders would kill me. That's
17 the worst perspective on it.

18 Woosh's perspective on it, we are quite happy with 0.5 because we think it
19 is an industry standard. If we were to go further than 0.5 I think the degradation
20 would really affect our revenue. Thank you.

21 **CHAIR:** All right, that's caused some controversy in the room but I still will turn now to
22 our expert and ask her to direct questions to whom she thinks might be relevant.

23 **MS PRESKAR:** I just have a question basically, we're all talking about the design
24 parameters here, and my main question, primarily to Vodafone but also to Telecom,
25 would be are you planning to include the, say, 0.5 or 1 dB link budget degradation
26 in the link budget in your calculations, or are you planning to measure it after the
27 co-location is done? Basically I'm just a little bit confused about the process you're
28 planning to go about. And when talking about 1 dB versus half a dB, are there any
29 international studies or measures proving that 1 dB is unacceptable when
30 co-location happens? Sorry, let me rephrase the question. After the co-location, do

1 you have any relevant data to prove that after the co-location happens link budget
2 has degraded by 1 dB? That's the first question. I would ask Vodafone.

3 **MR YORK:** I understand this is directed to us, did you want to speak to that?

4 **DR ARASARATNAM:** With the existing sites certain sites we could do some stuff, but
5 particularly rural area we can't do anything other than putting a new site, so we have
6 to take the hit. With new sites, if there is co-location if we are putting, say, 3G
7 taking into the rural area or LTE then we will probably factor that into the link
8 budget. But with the existing network in most of the places we have to take the hit,
9 because we may not have any other solution to fix it.

10 **MS PRESKAR:** Have you already taken the hit? What I'm asking is, is there practical
11 measured data to prove that you have actually - or someone in the world has
12 actually lost coverage after co-location. After properly designed co-location?

13 **DR ARASARATNAM:** I'm not across it, but just to answer that question in a different
14 way; what we have heard from Vodafone, other Vodafone OpCos is they do not
15 factor any degradation into their link budget for co-location, which means when
16 they co-locate they expect minimal or no interference, and we can provide evidence
17 to back this up. So I hope that answers your question.

18 **MS PRESKAR:** But that means in this case, in the case of New Zealand, you are
19 expecting degradation then, because if in other countries, as you say, they are not
20 factoring that into the design, that means that you are expecting that to happen;
21 what's the reason for that?

22 **DR ARASARATNAM:** I guess it's the way the whole process has panned out. So it was
23 an industry process, so that's how it went, so that's the outcome we have to live
24 with.

25 **MR YORK:** I think perhaps to add to that - Richard York from Vodafone - to the best of
26 our knowledge nowhere else in the world with regulation actually mandates that a
27 party must accept performance degradation to its network once somebody comes
28 and co-locates with it. And quite often in a lot of the co-location agreements you
29 have, if the access seeker comes on and any level of interference occurs, then that
30 issue must be resolved. So what we're looking at here in New Zealand is going

1 beyond that, it's actually accepting that when someone comes on the network there
2 will be some performance degradation on the existing network operator's network.

3 **MS PRESKAR:** And you're assuming that degradation will be whatever we set here?

4 **MR YORK:** That goes back to the point that Telecom was making. If you set at whatever
5 level you set, the engineers will find a way to work within that. But your role is to
6 set that limit, and as we say, nowhere else in the world is a positive limit set that
7 we're aware of.

8 **CHAIR:** But they're probably not allowed to refuse co-location and have to find a
9 solution, is that what actually happens in other jurisdictions?

10 **MR YORK:** I think you'll find in most other jurisdictions co-location itself isn't regulated,
11 so in Australia there is no economic regulation of a co-location service.

12 **CHAIR:** I find that slightly hard to accept as a general proposition, but -

13 **MR YORK:** It's just not a declared service under the Act.

14 **MS MAZZOLENI:** So how about we go back to the situation where we had, I guess at
15 the start of the submission process, where these limits were not defined but we had
16 to define harmful interference; and there's two differences there, it effects the
17 service in more than a minor way which you put up, and certainly Kordia from the
18 Radio Communications Act talks about interference which seriously degrades,
19 obstructs or repeatedly interrupts radio communications.

20 **MR YORK:** I don't understand the question.

21 **MS MAZZOLENI:** Well, if we go back to those more general definitions without
22 specifying the lost link budget, the antenna isolation and then we have some
23 parameters for people talking reasonably about what a solution is, but then we're
24 going to have some other clauses around -

25 **MR YORK:** I think as it is in the STD at the moment, I think it's the right framework.

26 **MS MAZZOLENI:** Which is very specific.

27 **MR YORK:** Yeah, it's very specific, there are a whole lot of actual issues around the
28 interference design management. But the debate, as you rightly say, has now
29 focused and narrowed down on to this one particular term. We think that's the right
30 framework, it's just a question of trying to determine what that number should be.

1 **MS MAZZOLENI:** But a non-prescriptive framework would seem to me to be more in
2 tune with what you're suggesting happens in other environments around the world
3 and perhaps, you know, that's why the definition, whether it's the definition that you
4 came up with, you know, affects service in more than a minor way, or what we
5 have in the Radio Communications Act, which is the seriously degrades, obstructs
6 or repeatedly interrupts communications. That's very non-prescriptive and might be
7 more of a template for what the rest of the world has.

8 **MR PICKERING:** Does the nature of the towers overseas cause there to be less chance
9 of this interference and therefore it hasn't become the issue that it's becoming here?

10 **MR YORK:** That's exactly right.

11 **MR TUNNICLIFFE:** Yes. Just to quote a statistic in Europe, our towers on height are on
12 average 16 metres taller than New Zealand, that's directly in relation to the RMA
13 and the Council consent process around how you build sites. That height has a
14 huge difference to your ability to space and set out antennas, which in practical
15 engineering terms solve a lot of these problems, so the job is more difficult.
16 Telecom did a good job in their presentation yesterday with those pictures of the
17 types of sites, you can see there some of particularly the older ones that were built
18 earlier, we have a reasonable number of those as well. It's much easier to do the job
19 on those. And that's why you don't have a subset of over 2,000 sites that are
20 suitable for co-location, there is a relatively small number that in practical
21 engineering terms support what we're trying to do here. That's where we need to
22 focus.

23 **CHAIR:** I mean I just - at this point I'm going to turn to NZ Comms, but I just, you know,
24 we often hear this sort of proposition, New Zealand's different, we're small,
25 everything's more difficult. I've heard it for years in electricity and gas, and most of
26 the time I want to pull my hair out when I hear it because you point to Europe,
27 while I look across to Australia it's vast country, yes, they've got some large urban
28 areas, but they have huge coverage that they have to take account of, very dispersed
29 population. I find it difficult to believe that they don't in some, you know, in some
30 respects they might be quite different to us, but in other respects I think they must

1 be quite similar.

2 What really worries me when I hear that something like this is something
3 other jurisdictions - the companies can just get on with and find solutions, but
4 New Zealand is somehow different, and when I look at the pattern and see we've
5 made no progress in terms of actual outcomes; yeah, you've done all sorts of talking
6 and reached heads of agreement, but there's actually been no change in outcomes, I
7 really wonder if the problem is a technical one as opposed to a behavioural one
8 about the incentive on the parties to get on with it. And what really worries me
9 when I hear we have to regulate down to the nth degree and no other jurisdiction
10 has had to do it, is that it actually becomes a tool for companies to find ways to
11 finally engage and get on with it.

12 So I have to tell you that all the alarm bells ring when I hear this sort of
13 thing, and it will take a lot of convincing and hard evidence to suggest to me that
14 these are just not instruments to once again just avoid getting on with the job of
15 making it work. Because it does seem to me that wherever we set this limit it is
16 very much in the hands of the incumbents to deal to these problems technically, if
17 they choose to do so. So I will turn to NZ Comms and finally give Mr Edwards a
18 chance to respond.

19 **MR EDWARDS:** Thank you Commissioner. May I just highlight that our May
20 submission on co-location did have a different - it did advocate a different
21 degradation level for city, rural and urban sites; we thought that that was a practical
22 framework to deal with these differentials. So on the edge of the network a
23 different level of degradation was accepted to a mid-city or suburban site. End of
24 point.

25 I'd like to call on Bevan Murphy to characterise the impact on emergency
26 services on the edge of the network of co-location and highlight an example, a real
27 life example where two organisations did get on with it before deferring to
28 Professor Coutts to answer the international tower question, Commissioner
29 Pickering's question. One moment.

30 **CHAIR:** I'd like you to keep this fairly brief because we've got another matter we need to

1 deal with, so please.

2 **MR MURPHY:** Sure. My name is Bevan Murphy, I used to work at Vodafone. I worked
3 on co-location projects with Vodafone and we worked together with Telecom on
4 the seven co-location sites, two of those sites were mine. One of those sites was a
5 site in Muriwai. It was a difficult site to get built, expensive. Telecom had plans to
6 build a site out there but they chose not to because of the cost of the roading.
7 Vodafone was looking at a site there but the residents didn't want two towers, so the
8 residents forced the co-location there. So we got together, we talked, we sorted it
9 out, the site was built in no time. So that's all I wanted to say about that.

10 **CHAIR:** How much time?

11 **MR MURPHY:** Well, I left the company, I went overseas so I'm not sure how long it
12 took, but we met on site and we just sorted it out. All the separation, degradation
13 wasn't taken into account, you know, we just - we looked at what was the practical
14 interference, there was no degradation that we could see, we knew that there was
15 some issues with Telecom transmitting into our receive band, but we just sorted it
16 out with the way that we arranged our antennas. You know, it got sorted, so it was
17 a win/win situation. And just the bottom line on that, with the increase in coverage
18 emergency services, the surf lifesaving and the Muriwai park rangers were able to
19 make emergency calls.

20 **CHAIR:** Professor.

21 **PROF COUTTS:** Just again trying to keep it brief on the jurisdictional issues; when I was
22 acquainted with the situation with Australia, looking into Australia, I mean I
23 recognise that there are specific aspects about the New Zealand approval
24 arrangements and the requirement of local Councils and that tends to mean a lower
25 mast site generally in Australia. But, you know, you go to each jurisdiction and
26 there are differences.

27 But I similarly have alarm bells when they say we can't get co-location
28 because this country is different. Different just means that you actually have to
29 work through different technical solutions; and as I said before, with vertical
30 separation which is used most commonly overseas, that the number of sites where

1 vertical separation is an option I would suspect is going to be less than perhaps in
2 the Australian situation because of the average lower tower heights.

3 But again it's not the tower height per se, because it does depend on the
4 surrounding terrain, it's the tower height relevant, right, to the terrain and the
5 foliage that concerns; and engineers get together and there's been many instances of
6 where vertical separations of less than half a metre have been used. And yet when I
7 come here it's like New Zealand's different, it's got to be 1.5 metres, and that says to
8 me there's something crook in Talarook.

9 **CHAIR:** Can I just ask a question, you've mentioned, Mr Edwards, that NZ Comms
10 would accept differential tolerances being used for CBD, urban and non-urban,
11 what is the range that you think is appropriate?

12 **MR EDWARDS:** I just have to check my submission, I think it was midway through the
13 May submission on the draft Voda STD. I just have to reference that.

14 **CHAIR:** Professor, do you have an expert opinion on how it might vary in those
15 circumstances if we were to do that?

16 **PROF COUTTS:** I certainly agree with the comments the theoretical half dB in terms of
17 impact on margin, and that's what it is, it's impact on margin, it's not - you can't
18 translate it directly into the impact on customers other than the statistical sense. So
19 I can see where you'd want potentially a type of margin for that rural application as
20 opposed to urban where you have quite a different margin consideration.

21 **CHAIR:** So would you accept 0.5 in the rural environment?

22 **PROF COUTTS:** In the rural environment I think 0.5 is not unreasonable, and for all the
23 reasons that have stated. But as I said, this issue is focused on 0.5/1 dB for the
24 wrong reasons.

25 **CHAIR:** All right. What about within the urban environment, is there a substantial
26 difference between, say, the CBD and the wider urban environment?

27 **MR EDWARDS:** Absolutely, because we've got all the overlying cells. I think the
28 compromise that we were looking for when we stated the three different levels was
29 maybe horizontal access in the rural areas and this staggered dB degradation.

30 **CHAIR:** I'm going to ask the Professor in the urban area what would it need to be if we

1 look at some differential between the CBD and the wider urban area?

2 **PROF COUTTS:** Again I think that's a bit of a difficult one to respond on the spot
3 without -

4 **CHAIR:** This is New Zealand Comms and you as an expert's opportunity to do so, so
5 we're about to make a decision so I'd like to have the -

6 **PROF COUTTS:** I'd go back to the 1 dB.

7 **CHAIR:** For the whole of the urban area?

8 **PROF COUTTS:** As a basic, just as a simple approach of recognising that the
9 sensitivities on the rural that you accept the 0.5 for rural and you stick with the 1 dB
10 as an allowance margin in metro.

11 **MR DAVIS:** Do you mind if I expand? Andrew Davis, NZ Comms. I'm not a radio
12 engineer so the Professor can correct me if I'm wrong, but in an urban area the main
13 thing that these people are worried about is coverage indoors, and as a rough rule of
14 thumb I'd say about 10 dB of loss per wall that you go through would be a rough
15 rule of thumb as to the signal strength that you'd lose. What we're talking about
16 here is half a dB, so it's like a lick of paint on the wall of a building.

17 **CHAIR:** All right, I think that's fine. I want to turn to my colleague, he has a question
18 please.

19 **MR PICKERING:** I guess I'm left with just one question. New technology that's come
20 along, how much has that reduced the opportunity for degradation? Is it improving
21 it or not?

22 **PROF COUTTS:** New technology always - it first introduces an opportunity but then of
23 course immediately it offers an opportunity it immediately gets snapped up as a
24 way of increasing the data rate or extending the coverage. So that it's like most
25 things, when you get a technological improvement, right, it usually means you can
26 do more with less, that's the way the innovation process works.

27 **MR PICKERING:** I know.

28 **PROF COUTTS:** And so for example in relationship to this issue is while historically that
29 you used a separate antenna for different bands and different technologies,
30 increasingly you're seeing multi-band antennas, right, increasingly you're seeing

1 structures that are potentially much more amenable for co-location, which 10, 15
2 years ago it wasn't possible. So there are significant technological changes
3 happening, given that co-location is the reality happening around the world.

4 **MR PICKERING:** You see I saw it as part of the solution to this issue over time, you
5 know, we say okay the data rate goes down because da da. Well, the innovation
6 comes in and you fix it.

7 **PROF COUTTS:** Okay, I always look at technology as enabling human beings to solve
8 the problem. Human beings are the problem and the solution to the problem, not
9 the technology.

10 **CHAIR:** Did Telecom have something on this point?

11 **MR KLIFFEN:** Yes, I'd like to respond - it's John Kliffen from Telecom - I'd like to
12 respond to a couple of points that were raised before.

13 **CHAIR:** I want to just wait for those responses if it's not on the point that the
14 Commissioner raised, is it on that point?

15 **MR KLIFFEN:** Okay, so can I -

16 **CHAIR:** Is it on the point the Commissioner raised?

17 **MR KLIFFEN:** About new technologies?

18 **CHAIR:** Yes.

19 **MR KLIFFEN:** Yeah, so, yeah, repeating what New Zealand Communications was
20 talking about, new technology is all about lifting data rates generally to end-users.
21 There's new technologies like MIMO and LTE, that's what's coming up, that's what
22 we're planning for today. They also require additional antenna infrastructure up on
23 the masts to deliver that new technology to the end-users. So we want to deliver
24 this, we've got to work within the constraints that we have within this co-location
25 STD to enable to do that. That sort of leads on to the forecasting issue, but yeah,
26 we need extra antennas to deliver those high speed data services to be competitive
27 really, that's where end-users will require low latency and really fast high speed
28 data service. Every dB is going to have an impact on that delivery.

29 **CHAIR:** Thank you. I want to give Commissioner Mazzoleni an opportunity to pose a
30 question and we do need to take a break very quickly, so please.

1 **MS MAZZOLENI:** Just one question, you all have co-location agreements to one degree
2 or other and you provided some of those, but what do you have in those
3 agreements? I mean are they silent on this issue? Do you have prescriptive
4 formulas on this, you know, about the level of loss link? Do you have the formulas
5 for calculation of that in your agreements? I mean, Bruce, maybe you could answer
6 that first subject to -

7 **MR HARDING:** No, there's nothing in our agreements about that at all, I think it's
8 probably one of those unwritten things that thou shalt not interfere with each other.

9 **MS MAZZOLENI:** So if you have an interference which might cause serious degradation
10 you don't even have anything in those agreements about in that situation -

11 **MR HARDING:** Only words to the effect that you shall not cause interference, if what
12 you're doing on the site causes interference you have to turn gear off and find a
13 solution.

14 **MS MAZZOLENI:** And is there a level around that interference, is it minor or serious?

15 **MR HARDING:** No, there's no actual level.

16 **MS MAZZOLENI:** What about you Paul?

17 **MR KEARNEY:** It's zero. The assumption to date has been that the access seeker will
18 not interfere, the acceptable level from the access provider is zero.

19 **DR ARASARATNAM:** That's been the experience from Vodafone, talking to other
20 Vodafone OpCos.

21 **MS STONE:** Susie Stone from Kordia, that's Kordia's perspective as well.

22 **MS MAZZOLENI:** Thank you.

23 **PROF COUTTS:** Just we were having a discussion here, the issue is measurable
24 interference, right, that fundamentally that's what it comes down to, right, that
25 measurable interference. And of course that's a very complex issue in itself, but
26 you don't try and put that, or specify it in usually these sorts of agreements.

27 **CHAIR:** All right, we're well over time now, I want to take a break until 10 minutes
28 before the hour where we'll start promptly and we will need to discuss on our return
29 emergency services. But before we turn to that matter I will give Commission staff
30 an opportunity to ask any questions on the earlier discussion. So we will adjourn

1 for 15 minutes, thank you very much.

2

3

Adjournment from 10.35 am to 10.55 am

4

5 **CHAIR:** Thank you very much. We just have one question on the matters that we've been
6 discussing that we would like to ask and I would be grateful for a brief response,
7 and that is, is there a generally accepted way to draw the boundary between rural
8 and urban, should we come to the view that we would differentiate the limit that we
9 would put in terms of the maximum appropriate level of loss? So can I just briefly
10 ask Vodafone for an answer to that question please.

11 **DR ARASARATNAM:** Our view is we should use the same threshold for both urban and
12 rural areas and that should be set at 0.5. In terms of differentiating the - if you are
13 looking to differentiate, our view is we should use the clutter data or classification
14 to differentiate urban and rural, and they're fairly accepted standard data packages
15 available.

16 **CHAIR:** Telecom?

17 **MR KLIFFEN:** We basically are aligned with Vodafone on this one, that we consider that
18 rural and metro should have the same 0.5 dB threshold apply. If the Commission
19 sought to differentiate between the two, though, then the clutter - we have
20 propagation models, and as part of that model is a land use factor associated with
21 each area, and that land use factor can be used to determine whether an area is
22 partly - if it's rural or non-rural, if it's in a metro area, so that can be a way of
23 classification for that. And if a site provided any coverage towards rural areas then
24 I would suggest that it should be determined as a rural site and if 100% of its
25 coverage was for in metro areas then it would be determined as a metro site. That
26 would be the only way I could see of defining the difference between metro and
27 rural.

28 Some sites would provide coverage to both, you know, if it's on a hill top
29 above a town it provides coverage to the metro area but it also provides coverage to
30 the rural area around it, and that same rural area should still be protected by that

1 0.5 dB threshold if you're looking at that type of split.

2 **CHAIR:** Kordia, any view on this?

3 **MR GOODWIN:** Our view is that the same threshold really would be easier to administer
4 for both and still probably the best thing to use, because I think in our view the
5 reality is that interference is going to be quite rare, and I think we're arguing about a
6 level which is well above what interference will be in reality. So I think for
7 simplicity of administration we would use the same level for both. But if you do
8 want to differentiate then I think we'd go along with Vodafone and Telecom in
9 using the terrain clutter data as the metric for whether a district is urban, suburban
10 or rural, and that if a site, as Telecom says, covers both an urban and a rural area
11 then the more sensitive one, of course, would be the threshold to use for that site if
12 you are going to differentiate between different areas. Does that answer your
13 question?

14 **CHAIR:** Thank you. Woosh.

15 **MR KEARNEY:** As I said earlier, I tend to say this in terms of the revenue earning
16 capability.

17 **CHAIR:** I'm not asking a question about people's preference, I'm asking about is there
18 acceptance or some industry standard to use to differentiate rural to urban if we
19 chose to do it. Everyone's repeating their views on other matters, I want you to
20 focus on the definition issue.

21 **MR KEARNEY:** I beg your pardon, I was merely trying to explain my answer. I really
22 don't see a difference between rural and urban coverage, and would prefer to stick
23 to 0.5 for both.

24 **CHAIR:** Is there a way to define the difference? Is there a definitional way to
25 differentiate?

26 **MR KEARNEY:** I wouldn't have a view on it.

27 **CHAIR:** All right. TeamTalk, any view on this, on the definition issue?

28 **MR HARDING:** I think it's very difficult to differentiate because in any rural area there'll
29 be a town somewhere and all of a sudden it has different conditions. We use the
30 same sort of propagation models as Telecom and Vodafone etc and that has land

1 classifications in it, but often there'll be a rural area with an open space but then
2 there'll be a town right in the middle of it, so we'd find it quite difficult to
3 differentiate.

4 **CHAIR:** And NZ Comms?

5 **MR EDWARDS:** We would prefer 1 dB everywhere but we would be prepared to accept
6 1 dB in the city and suburban areas and half a dB in the rural areas if we got
7 horizontal access.

8 **CHAIR:** That's not my question, my question was is there an accepted means within the
9 industry to differentiate in terms of the definition of what's rural and what's urban?
10 I know what your view is, we covered that in the last session, right now I just want
11 to get down to the possible mechanics should we decide to differentiate.

12 **MR EDWARDS:** I apologise, yes.

13 **CHAIR:** And how would you do that?

14 **MR EDWARDS:** Sites that didn't have an overlap in the rural areas would be the
15 definition.

16 **CHAIR:** Would be - right.

17 **MR DAVIS:** To clarify, we have our own opinion as to what rural and urban is, but the
18 question is, is there an industry accepted definition of that, and the answer is quite
19 categorically no, there isn't. We'd probably have to have another conference to
20 discuss it.

21 **CHAIR:** No, I don't think we will have another conference to discuss it. **[Laughter]** You
22 might all want to get together and have a discussion but we would not hold a
23 conference just to discuss that matter. But if I understand your point it's that it
24 would be - you would accept 0.5 where there's overlap?

25 **MR EDWARDS:** Where there's no overlap, where a cell tower exists and it doesn't - its
26 coverage umbrella, its coverage canopy doesn't bang into another cell site, so that's
27 defining what a rural site is. So where there's cell sites with no overlap i.e. it's -

28 **CHAIR:** I see what you're saying, okay.

29 **MR EDWARDS:** I apologise.

30 **CHAIR:** Okay, I think we can't take that any further here today. I'll just check with my

1 colleagues at the other table and see if they're happy with that. **[No comments]** All
2 right, thank you very much for that. I do want to turn to the issue of emergency
3 services very briefly. We've clearly focused on the submissions that we've had and
4 I simply want to put to you a simple question which is, if we accept 0.5 dB in the
5 rural areas this issue around - is there any significant issue really that we have to
6 contend with should we accept that on the issue of protection of emergency services
7 and commercial co-locaters? And I'll ask TeamTalk first please.

8 **MR HARDING:** Sorry, could you just repeat the question?

9 **CHAIR:** When we think about what sort of protections might be necessary for emergency
10 services for the purposes of ensuring that emergency service equipment is properly
11 protected, if we set the appropriate level of loss limit at 0.5, does that address the
12 concerns we might have about this matter?

13 **MR HARDING:** Yes, it does.

14 **CHAIR:** In the rural areas?

15 **MR HARDING:** In the rural areas, yes, particularly in the rural areas, yeah.

16 **CHAIR:** And if we differentiated, and we do not have a view on this, but should we
17 accept the proposition that we could have 1.0 level of loss in the urban areas, do we
18 have any remaining issues around emergency services in your view?

19 **MR HARDING:** No, the same standard would be applicable. If you're talking about
20 having 1 dB in the urban areas, that would be appropriate for the emergency
21 services too where we tend to have more sites there and more overlapping coverage.

22 **CHAIR:** All right. I'll briefly ask other parties to respond, Vodafone.

23 **MR YORK:** Yeah, look if the question is at 0.5 is there any additional concerns for
24 emergency services? No, that's consistent with the level we'd recommend.

25 **CHAIR:** This is in the rural areas only.

26 **MR YORK:** Yeah, in the rural areas. The only thing we'd notice that there would still be
27 potential loss of calls to emergency services in those areas, but it would be
28 significantly less than at 1 dB.

29 **CHAIR:** All right, Telecom?

30 **MR KLIFFEN:** Yes, 0.5 for emergency services we consider is appropriate, it's consistent

1 with the fact that emergency services are heavily used on - cellular systems are
2 heavily used in emergency situations and it's consistent that we have the same level
3 of degradation across all networks.

4 **MR GOODWIN:** Kordia's view is that the emergency services on both stand-alone
5 emergency service networks and also carried on cellular and that the same
6 degradation threshold should be same for both of them, so we agree with
7 TeamTalk.

8 **CHAIR:** Woosh, any view?

9 **MR KEARNEY:** We would agree with TeamTalk.

10 **CHAIR:** And NZ Comms?

11 **MR MURPHY:** We don't think there's going to be any problem with emergency services,
12 we think it's just a scare-mongering factor that the other parties have brought in.

13 **MR YORK:** We agree with TeamTalk, it seems everyone agrees.

14 **CHAIR:** All right, I think we have agreement. We'll take that agreement without the - we
15 don't have to get into the politics of it. You just can't resist though, I know. Even
16 when there's agreement there has to be an element of dissension, but we'll take the
17 agreement. That's a good outcome, thank you very much for that.

18 I'd like now to turn to the next matter if I may which is on site alterations.
19 So I don't know if anyone needs to change who's at the table, but if you do this is
20 your opportunity please to do that. Otherwise I will invite my fellow Commissioner
21 Pickering to lead the discussion on this area, so please, Commissioner.

22

23

SITE ALTERATIONS

24

25 **MR PICKERING:** Thank you Chair. I think yesterday we got from both Vodafone and
26 Telecom a view of where their masts were and how many they had. Really this
27 discussion is around this question of where the Commission took a preliminary
28 view that antenna minimisation and antenna rearrangement were valid methods for
29 access seekers to obtain a position on a mast that will result in the required level of
30 coverage. Other parties suggested through their submissions that mast replacement

1 extension or revision would be a preferred solution. So firstly we would like to
2 examine that dichotomy and then we'd also like to have a discussion subsequently
3 on if you had antenna minimisation what impacts it would have on the network
4 optimisation, and some of that I know we've covered already, so I'm going to try
5 and make sure we don't relitigate.

6 But firstly, I'd like to invite Telecom really, who put a submission in that
7 mast extension would be a preferred option, just to tell us what benefits you see in
8 this process over alternatives.

9 **MS HASKILL:** Perhaps if I could ask the Commission to turn to slide 19 in their slide
10 pack. We've attempted to take a very honest view of what are the advantages and
11 disadvantages of each of the site alteration views here. And the two things that -
12 we've talked a lot here about being cost-effective and efficient, we also would like
13 to ask the Commission to also consider when it's looking at the choices here to
14 think about the short-term and long-term impacts, particularly on end-users, and
15 what's of long-term benefit to the industry as a whole.

16 In our view that mast extension and replacement are the best solutions,
17 because where the current mast isn't capable of co-location it leaves the access
18 providers and any other access seekers that currently exist in the same positions on
19 the mast and therefore has the least short-term and long-term impacts. And
20 therefore the end-users have a minimal impact, the only impact they'll have is when
21 a mast gets swapped out or an extension gets on and somebody needs to climb up
22 the mast and turn the existing users on temporarily.

23 But probably of most importance is that they're long-term solutions. It
24 means that something can go up that means more than one access seeker can go on
25 the mast. We've talked a lot about a third player, this allows a third and a fourth
26 player. And in fact we have examples on the go currently where one of our
27 customers has an approval subject to mast extension, and they are in conversation
28 with another customer that we've introduced to say right can the two of you please
29 talk together about how you could both go on the extended mast.

30 So if we want to look through the table, and we've taken an across the board

1 view, and you can see from that we've put in some estimated costs for each of the
2 alternates. Mast replacement is clearly the most expensive and that is the accepted
3 industry drawback with that. Mast extension and antenna rearrangement are
4 probably the cheapest. But note that our numbers for antenna rearrangement and
5 antenna minimisation only include moving Telecom's gear. And as we've stated,
6 and as TeamTalk has noted, we have a number of other people on our sites, so they
7 would be affected as well, so we need to bear that in mind when you look at the
8 costs here.

9 And probably I just want to go on to say we talk a lot about antenna
10 minimisation and it appears to be a silver bullet. But if you look through what is
11 required here, it will still require RMA approval, it has a major short-term impact in
12 that all of the existing users are affected, it has a very minimal long-term benefit to
13 the industry. So its simple advantages are solely around cost and getting the next
14 person on the mast.

15 So that's why we think that the first two around mast extension and mast
16 replacement are clearly the best options because they just allow more space for the
17 least impact.

18 **MR PICKERING:** On the question of antenna minimisation, my immediate reaction was
19 that that would be a shorter process than a mast extension, can you give me a sense
20 of that, is that right or not?

21 **MS HASKILL:** That's what it feels like but that's an assumption that doesn't need RMA
22 consent. And in most cases it will have a visual impact, and it may, if you're
23 shifting things around, also have a height impact, so you can't assume that there
24 won't be RMA, and that's the bit that takes the longest in each of those processes.

25 The other thing that will take a long time is agreeing the design obviously
26 between access provider, existing access seekers and new access seeker. If you're
27 looking to, say, someone comes up with a proposal they'd have to agree with it
28 ourselves, they'd have to agree it with TeamTalk or Kordia who are already on sites
29 what that solution would mean to them; that's the longest bit. In terms of building
30 it, probably very short. You're simply taking a new technology and swapping it out.

1 So there are swings and roundabouts on that one.

2 **MR PICKERING:** So in general can you give me some sense of how long a minimisation
3 might take? You've expressed it now that the longest period will be getting the
4 RMA, or deciding you're into RMA the build is a shorter period. So presumably
5 that's likely to be the same for any minimisation is it, or does that vary also?

6 **MS HASKILL:** Well, it's the design period that will be longer here, RMA will be about
7 the same, you're right. I don't have a feel for how long build will take because it's
8 not something we've done with another access seeker yet.

9 **MR PICKERING:** The reason I'm coming at this, and I'll give everyone a chance, is
10 obviously the reason why the Commission took this view on antenna minimisation,
11 antenna rearrangement, was that we seek to get competition there faster and,
12 without putting a number on it, had sought to have more co-location there in a fairly
13 quick period.

14 **MS HASKILL:** Yes.

15 **MR PICKERING:** So I just go back again to how long minimisation might take.

16 **MS HASKILL:** Well I actually think it would take about the same amount of time as a
17 mast extension.

18 **MR LARSEN:** It's Mike Larsen here from Telecom. If I can jump in, so the RMA times
19 and that are potentially all variable all the same for all of them, so there's not too
20 much different there. But if we're talking about build time then mast replacement is
21 definitely longest. My understanding, talking to engineers, is a mast replacement is
22 similar to a site build timeframe but probably a little bit longer because you have to
23 erect a temporary site, and my understanding is that's about four to six weeks from
24 go to whoa.

25 The variable there, and this is a variable that applies probably across all the
26 options, is to an extent it depends whether the equipment's already in the country or
27 not. Generally most operators order their equipment from overseas, I know that's
28 the case with Telecom and it tends to take about 12 weeks to arrive. But that's often
29 done in parallel with preparing for the build. But if it is in the country then it can be
30 a bit quicker. But it's about four to six weeks we think for a mast replacement.

1 Antenna minimisation, once you've got the equipment is probably very
2 quick, it can probably be done overnight, because it is a case of taking antennas off
3 and just changing brackets, so it's probably one or two days to do that.

4 **MR PICKERING:** So let me just go back now, RMA takes?

5 **MR LARSEN:** Well depending on the situation anywhere between 20 working days and
6 infinity.

7 **MR PICKERING:** 20 years.

8 **MR LARSEN:** And that's hard to say because each site will vary. As soon as you need an
9 RMA you're basically - it sounds terrible - but at the mercy of the Councils as to
10 how long it's gonna take in each circumstance. So it's hard to quantify on each site,
11 but that takes zero to infinity. Equipment ordering generally takes 12 weeks; build
12 for mast replacement, actual build, four to six weeks; but for antenna minimisation
13 probably two days or two nights.

14 **MR PICKERING:** Okay, and the design will be going on parallel most of that time?

15 **MR LARSEN:** Yeah.

16 **MR PICKERING:** So you'll get all of the design done within that period?

17 **MS HASKILL:** You would, you'd run that concurrently with the RMA period.

18 **MR PICKERING:** Okay.

19 **MR LARSEN:** And John's just pointed out, in all cases there's some post-optimisation
20 work as well, which again is like site build where everyone just checks that it's
21 working how it's supposed to work.

22 **MR PICKERING:** All right. Just on this question, Vodafone, do you want to add
23 anything, is this very much what your view of?

24 **MR RAE:** Good morning, Justin Rae. Actually it is pretty similar. We ran our own
25 numbers, looked at these scenarios, a lot of these things are things that we do and
26 are doing. Probably concur in general with the timeframes. Minimisation doesn't
27 take away in all cases the need to deal with the landowner and it doesn't take away
28 in most cases the need to also get resource consent. But it's probably fair to say for
29 most of the other site alterations they're going to require those elements as well.
30 Principally it is a little quicker to implement, as Mark mentioned. Essentially

1 you're taking down the old antenna, replacing them with a new. But the design
2 factors and the approvals you need to implement are reasonably similar, apart from
3 perhaps mast replacement which has the highest impact.

4 **MR PICKERING:** So asking both of you now, when you've been putting additional
5 antennas up, have most of it been minimisation, or most of it been mast extensions,
6 or is that too general a question?

7 **MR KLIFFEN:** Perhaps I can answer that for Telecom. When we've been rolling out our
8 new W 2,100 network which is currently under employment, there's a range of
9 factors involved. Generally we add new antennas for that new network. There are
10 sort of constraints, so sometimes we do swap, especially when we've got a very low
11 capacity mast, like a lighting pole, then it will be swapped for a dual band antenna.
12 But generally we're adding antennas to an existing head frame where that capacity
13 is available. So there's some situations in rural areas where the mast capacity can't
14 support that additional antenna and we do replace the masts. We've got some older
15 masts that are guide masts that need to be replaced and that's been part of our
16 upgrade programme.

17 **MR PICKERING:** Do you have a percentage to date, have you been able to do
18 minimisation or rearrangement in 50, 60, 70% of the time or what?

19 **MR KLIFFEN:** So we have replaced about 5% of our masts as part of that upgrade
20 programme, so about 50 masts have been replaced. Antenna minimisation has been
21 done probably in about 10% of - sorry not 10%, about 10 or 20 sites, because of
22 particular site constraints where we've had to have done that. And there've been no
23 other sort of options, even a structural option.

24 **MS MAZZOLENI:** Can I just clarify that? But what are the steps that you go through in
25 terms of looking for a solution to answer Gowan's question, I mean would you not
26 first look at antenna minimisation?

27 **MR KLIFFEN:** Not necessarily. Yeah, obviously it has a bigger cost, but we're also
28 thinking about what are our future requirements for the network as well. So where
29 we know that it's in an urban area and we need to deliver both services and we need
30 the coverage extent then antenna minimisation won't be considered, we will replace

1 the mast. Some cases we do use antenna minimisation because of constraints and
2 we can't use anything else, but in most cases we do a mast replacement.

3 There are some situations on buildings also where there just isn't the suitable
4 locations for the additional antennas and there we've had to have gone for
5 minimisation approach as well, so we've replaced the existing 850 antenna with a
6 dual band antenna because there haven't been suitable locations to locate the
7 additional antennas. They're sort of site-specific type issues.

8 **MR PICKERING:** Okay. So now given that Vodafone and Telecom might not want to
9 say any more, I presume that, you're right?

10 **MR RAE:** I generally confer with John, we've practised all of these techniques to free up
11 capacity and, you know, go through probably similar decision criteria. You know,
12 sometimes we replace masts, use a variety of techniques.

13 **MR PICKERING:** Okay. So does any other group want to make some comments about -

14 **MR MURPHY:** Yes, I would, Bevan Murphy, NZ Comms. I worked for Vodafone when
15 they were overlaying their 3G network and that was a rapid access project, they
16 wanted to roll it out fast, antenna minimisation was the key technique to get that
17 rapid roll-out. If they were replacing antennas from the 90s to something more
18 modern using dual polarised antennas so that they could free up an amount for their
19 3G, you know, that was typically what they'd do. Last year I was working for
20 Telecom. They did use antenna minimisation in terms of going for dual polarised
21 antennas, but they didn't take it to the top degree which would be dual polarised
22 dual band antennas. So similar to what we used is dual band, dual polarised
23 antennas and we only need one to provide GSM and UMTS services.

24 **MR PICKERING:** So just to clarify here and go back to the statement you made about
25 the percentages. Are you suggesting there's any difference between what was being
26 said before about the degree to which minimisation had occurred at Telecom versus
27 what you're stating now?

28 **MR MURPHY:** I'm saying that they could have gone further if they wanted to, they could
29 have used triband antennas. But I guess that's what they were saying, when they're
30 forced to they will do that, but if not then they will tend to use as much antennas as

1 they can.

2 **MR PICKERING:** For what reason?

3 **MR MURPHY:** Not sure.

4 **MR KLIFFEN:** Perhaps if I could respond to that, if I could draw your attention to slide 6
5 of the Telecom slide pack. That shows examples of our slim line masts. In those
6 cases it's not possible to add separate frequency bands, so we do replace the 850
7 antenna with a dual band antenna because that's the only practical solution for those
8 types of sites.

9 **MR PICKERING:** Right.

10 **MR KLIFFEN:** So where we have - yeah, we have to do that on those sites, but for other
11 sites that are in the next category on slide 7, they're the sites where we've used
12 separate frequency band antennas for the different services, it allows us to optimise
13 independently depending on what coverage issues we're trying to address.

14 **MR PICKERING:** Right, okay. Anybody else want to, on this particular topic, make a
15 comment?

16 **MR RAE:** If I may, Justin Rae from Vodafone. I agree with Bevan, I was involved in that
17 same roll-out, and I'm a Site Acquisition Manager and work with radio engineers.
18 Generally when you're trying to get sites in quickly I certainly spend a lot of heated
19 discussions with radio engineers trying to get them to do dual or triband antenna,
20 makes my life generally a little easier. But I think the key difference here is that
21 that decision is made by the operator, it's an informed decision and it's made, you
22 know, having the benefit of knowing exactly how their network performs and what
23 kind of degradation you're going to get from going into that type of technology.

24 **MR PICKERING:** I think that neatly takes us on to this question of the impact of antenna
25 minimisation on the network optimisation. And I'd really like to start with a view
26 that New Zealand Communications might have on the benefits from their viewpoint
27 of antenna minimisation, and perhaps their view also why it wouldn't necessarily
28 degrade, given that you've got a mast that you could do it on, I think we have to
29 take that.

30 **MR MURPHY:** Well, it's a modern technique and it's been invented for this overlaying of

1 3G and 2G services, a lot of companies have new technologies. The problem if you
2 didn't use antenna minimisation at all would have to use 12 antennas and that's just
3 physically impossible. Now to actually get those antennas to see the same coverage
4 area and work together it becomes very difficult. So practically it's better to have
5 three antennas on a corner dairy rather than 12 antennas. So there's a lot of
6 practical reasons why you would go to antenna minimisation. And just going back
7 to my experience in Vodafone, degradation was not a factor in going to using
8 antenna minimisation, we didn't try and work out what was the losses, what was
9 the, you know, consequences of doing that, it was purely from a structural feasible
10 practical point of view.

11 **MR PICKERING:** Okay. Would Telecom or Vodafone like to make a comment?

12 **MS ODING:** My name's Amy Oding from Vodafone the Access Manager. I'd like to say
13 that we did consider all the design consideration on a site by site basis when we
14 evaluated antenna minimisation type techniques and that's so that we have a right
15 trade-off between the best performance for services we were offering to our
16 customers that we're delivering and also delivery timeframes as Justin touched on.

17 I guess our main concern around having antenna minimisation imposed is it
18 prevents our ability to have independent changes to our network because our
19 network is architected so that it is a holistic fabric, and if we break the chain around
20 how we manage, for example, GSM and UMTS we're no longer able to optimise
21 that network. And that has a potential detriment to our customers not only in terms
22 of the unacceptable performance degradation, but also potential loss of coverage
23 that's in addition to that total loss and unacceptable performance degradation.

24 I would also like to add that similar to the performance degradation
25 experiences from the best of our knowledge around Vodafone group, we're not
26 aware of any jurisdictions where an access seeker can require an access provider to
27 alter or make any changes to its network against its wishes.

28 **MR PICKERING:** Okay. Telecom - sorry.

29 **DR ARASARATNAM:** If I could just add to what Amy said. The fundamental issue is
30 3G or GSM and wideband CDMA are different technologies in a sense, because of

1 the frequency ranges you use, the types of traffic you carry, the coverage range and
2 the services you provide are different. So even though they are providing service
3 from the same site 3G may have a greater number of sites. So you optimise your
4 3G network to take into account what the infill sites or the additional sites are
5 doing.

6 Whereas 2G we optimise differently and suddenly now you have to do the
7 same together, and with that we lose a lot of ability to optimise the network, and
8 that's a fundamental problem with going from two antennas to one antenna once
9 you have rolled out the network. When you are rolling the network you make those
10 decisions, okay, what happens when we minimise. Now we have done that work.
11 If you have to now re-optimize the whole network that has been rolled out that's
12 where we have difficulties.

13 **MR PICKERING:** The difficulty I have is I always like to put a size on these things you
14 see, and I'm sitting here not sure whether this is a sort of a 5% problem or a 50%
15 problem. Perhaps that's the wrong way of expressing it but, you know, how much
16 work is involved in re-optimising? Because I'd have a very different view if it was
17 a small piece of work to be done as opposed to a large piece of work, and I
18 recognise it will be different in different networks. So can you help me a little bit
19 with, you know, what size of problem is this?

20 **MS ODING:** Yeah, we believe it would be a large piece of work. We avoid, for example,
21 combining antennas with GSM and UMTS and -

22 **MR PICKERING:** Because you get interference or -

23 **MS ODING:** Because we would potentially create coverage holes. All our sites are
24 interdependent and they're configured in such a way with particular azimuths and
25 heights and tilts and, yeah, it would be a very significant piece of work to try and
26 re-engineer all of that. And we've made a significant investment right around the
27 country already with our deployment.

28 **MR YORK:** How long would it take?

29 **MS ODING:** We'd be talking a about a programme around a year I'd say.

30 **MR PICKERING:** A year with many engineers involved or -

1 **MS ODING:** Yes.

2 **MR PICKERING:** As I say, I always like numbers. First before New Zealand
3 Communications can I ask Telecom.

4 **MR KLIFFEN:** Yes, so I've sort of tried to quantify the impacts of antenna minimisation
5 or multiband antenna minimisation in slide 16 of our information slide pack. So as
6 was described by Vodafone a 2,100 network has got higher frequency and sort of
7 less coverage range than a lower frequency like 900 or an 800 megahertz system
8 here, so that's our underlying system.

9 When we're overlaying 2,100 on to that then we need infill sites as a result
10 to provide complete coverage through the city area. Because we've got those infill
11 sites we have generally a different cell pattern for 2,100 versus the 850 network,
12 and because we've added those cell sites in we need to re-optimize the antennas that
13 are used for 2,100 versus the original cell plan that we had at 850.

14 So this slide shows the impact of different antenna that was still fixed at that
15 850 direction and we introduced a new site, say, just to the left of that existing site,
16 we wouldn't be able to optimize that 2,100 antenna to fix a neighbouring coverage
17 issue, which we would be planning for under the 2,100 cell plan. So in effect we
18 still have more holes in the network because we're stuck with the original
19 orientations.

20 So the table on the right-hand side of that slide shows the impact to the loss
21 in coverage, depending on how much off access we are constrained by in the lack of
22 optimization if you like. So typically we need to optimize these directions sort of
23 10, 20 or 30 degrees, but generally no more than 30 degrees type of re-alignments.
24 But even at 30 degrees it's around about a 3 dB type of impact.

25 So it is quite a significant impact that we're introducing in some areas.
26 Obviously if the cell plans are aligned in a particular area then there's a relatively
27 low impact. If it's only sort of like 5 degree optimization then it would be less than
28 0.1 of a dB and it's not a concern. But if we need to do a major - we're relying on
29 them to fix a particular coverage hole and we're not able to do that then this helps to
30 quantify what type of impact we've got.

1 **MR PICKERING:** Okay. Could I turn to New Zealand Communications.

2 **MR EDWARDS:** May I suggest we get Randy Henderson from American Tower on the
3 phone to answer this question. Randy is the West Coast sales representative for
4 America Tower, I think they've got 26,000 towers, and in their annual accounts as a
5 risk warning they've highlighted the impact of antenna minimisation.

6 Our second point is the speed of antenna minimisation to tower replacement
7 is quite dramatic, and simply put the type of tower would have to change if we did
8 tower swap outs. The tower types that we've seen on page 7 of the Telecom
9 presentation, if we had to replace those towers as a consequence of not getting
10 antenna minimisation we would have to probably go to a tower like the very first
11 one you see on the left-hand side on page 6 of the Telecom presentation. As a
12 consequence we'd go from a tower like that to a tower like this [**indicates**] and
13 there's quite substantial cost differences and timing differences. Our closing point
14 is that there's an order of magnitude difference in cost.

15 **MR PICKERING:** Would you dispute the cost suggestions in Telecom's chart 19 where
16 they suggest that antenna minimisation is about \$54,000?

17 **MR EDWARDS:** Yes.

18 **MR PICKERING:** The extension is 29 and the mast replacement is \$204,000, are those
19 costs what you would have thought or -

20 **MR DAVIS:** No, they're not. I was looking at them earlier and talking to the Professor
21 saying how do you think they got to those figures? I mean antenna minimisation in
22 particular we certainly don't believe it would be \$54,000 at all. The cost of an
23 individual antenna is in the order of \$1,500 to \$2,000 US dollars, at least that's what
24 we're paying. You know, there's feeders and a few other things in there, but it's not
25 \$54,000, no.

26 **MR YORK:** Do you mind - would it be useful if we explained how we got to our numbers
27 because I think they're pretty easily referenced?

28 **MR PICKERING:** Wait a minute, this is Telecom first of all, but I'll be happy to hear
29 from you. Do you want to comment on these numbers? We've got somebody who
30 says that they're far in excess of what - presumably you know what you're doing?

1 **MR KLIFFEN:** Yes, these numbers don't take into account the additional infrastructure
2 that the access seeker would be also adding on to the site, they're just the numbers
3 associated with making the rearrangements of the existing access provider's
4 antennas. So you're right, where we've got, say, four existing antennas and we
5 consolidate those to two antennas per sector, then yeah, there's two times three
6 sectors, that's six antennas times, say, US\$2,500, it's about \$4,000 per antenna, it's
7 about 24 grand in itself. Then there are the rigging costs and also the post
8 optimisation costs, because we're forced to re-design the coverage of the system,
9 we're doing some optimisation, making the best of the impact. So all of that adds
10 up to about \$50,000 odd.

11 **MR DAVIS:** We've submitted evidence on the past on three antennas shrinking down to
12 one. And things like adding in additional rigging costs and so on, if we're putting
13 up our same antenna at the same time it would be our riggers who are there, albeit
14 Telecom or Vodafone approved, you know, the guys are already on site, they're
15 already putting up antennas, it's just they bolt on two antennas not one. That's it, it's
16 not 20 or \$30,000 additional cost.

17 **MS HASKILL:** Can I perhaps just add at this point that the numbers we have are actually
18 from Alcatel-Lucent so they're not made up by Telecom, these are an estimate or a
19 quote from our supplier.

20 **MR PICKERING:** They're not charging you too much? **[Laughter]** Okay, well on this
21 particular point I just invite the staff, is there anything you want to ask on this
22 particular point? You're gonna have a chance to ask some other questions in a
23 moment but -

24 **MR OFFICER:** These are the prices, these are the quotes that you've had from your
25 supplier for putting up these masts. Incrementally, do you have any idea of what it
26 would be incrementally if, say, there was the access seeker's equipment was put up
27 at the same time? What would the increment be?

28 **MS HASKILL:** It would depend on what they're putting up. U mean they can make their
29 own - they obviously have their own suppliers I would guess. You would presume
30 that because the rigging costs are the same, so it would simply be what the

1 additional equipment would be and their own costs of getting their own contractors
2 on site to deploy, does that sound about right?

3 **MR KLIFFEN:** [Nods].

4 **MR CHARTERIS:** Che Charteris, Commerce Commission. The extra costs, the \$30,000
5 or alleged \$30,000, does that include optimisation of the surrounding network?
6 What proportion of that is optimisation of the micro-sites around?

7 **MS HASKILL:** None.

8 **MR CHARTERIS:** None whatsoever?

9 **MS HASKILL:** No.

10 **MR KLIFFEN:** Just to clarify that, the mast extension and the mast replacement options
11 do not include a cost for re-optimisation, because those options are quite beneficial
12 for Telecom because we don't have to re-optimize, we basically put the same
13 antennas up in the same place as before so there's no impact to the network. That's
14 why they're quite attractive, whereas the other options for rearrangement and
15 minimisation do require some re-optimisation work.

16 **MR CHARTERIS:** So that's just at that antenna or the surrounding antenna as well?

17 **MR KLIFFEN:** Yeah, so for the re-optimisation work it would include re-optimising
18 some neighbouring sites, that's just - yeah.

19 **MR CHARTERIS:** What proportion of the costs have you got there as re-optimisation of
20 the surrounding network?

21 **MR KLIFFEN:** Just wait a moment I'll dig out my information pack. It's about \$5,000.

22 **MR PICKERING:** \$5,000 of?

23 **MR KLIFFEN:** So the \$5,000 for the RF engineering teams to do their optimisation
24 work. So it's not necessarily the rigging teams going up to the other masts to
25 change antennas on those directions, but it's the cost for the RF engineering teams
26 and the labour for the drive testing and re-design work.

27 **MR PICKERING:** Okay, thanks. Can I go to Vodafone now.

28 **MS ODING:** Yeah, our costs would be only an indicative nominal amount for just mainly
29 the site itself, it wouldn't cover the holistic amount of, you know, the whole zone
30 that's impacted. And moreover our cost estimates wouldn't include costs, for

1 example, if there was a loss of coverage triggering a new cell site, and in that case it
2 will cost significantly a lot more, and more in the order of \$200,000 plus and
3 greater than one year deployment time to recover that loss.

4 **MR TUNNICLIFFE:** Just to add to that, our costings are of a similar magnitude to
5 Telecom's, so we had \$51,000 and that included the cost of the antenna which we
6 don't disagree with NZ Comms significantly on that, ours came out about \$20,400
7 but you do have the rigging cost, you do have the installation cost, and there's also
8 often RMA and landowner cost as well just depending on the level of change and so
9 forth with that. So it is in that order of \$50,000 to Amy's point. The optimisation
10 depends, assuming there's no new additional sites to be built, it's not a massive sum
11 to do that with the neighbours.

12 **MR PICKERING:** Okay.

13 **MR DAVIS:** Just coming back to this point, the ability to optimise networks
14 independently, so 2G, 3G, it's a nice to have, but it's not an absolute necessity to
15 have. And where they can't have it because there's restrictions on how many
16 antenna they can put on that site, they get by and they make do without it. The
17 number of sites that Telecom has, I think it's on page 6, is 255 sites, where they
18 have to make do and they have to get by based on that. Then there's 233 where hey
19 they can - that's on the following page - where they can get by without having to
20 use antenna minimisation to get multiple services on to the one site.

21 Now if you look at it from an incentives point of view, if you're an operator
22 who owns a tower and they're saying hey we really want this wholesale revenue, we
23 really want to get people on board here and we even take their \$54,000 cost; if
24 you've got three antenna positions on that tower, you can reduce the number of
25 antenna that you're using down to one so you're freeing up two locations that you
26 can go and rent out to ourselves, TeamTalk, Kordia, you know, maybe Vodafone or
27 Telecom depending on who it was. Typically they charge at least \$10,000 per
28 annum which is basically pure profit for them in terms of co-location rental.

29 So you're laying out \$54,000 today and you're opening up a revenue
30 potential on that site of \$20,000 per annum. It's a pretty good return. So why

1 wouldn't you do it?

2 **MR MURPHY:** Just two more points, first of all there's a lot of sites that are 2G only so,
3 you know, 3G is only in the cities, so there's a lot of sites that we can potentially
4 use antenna minimisation without going through this whole optimisation. The other
5 thing I'd like to show just looking at this picture that Telecom's provided, there's a
6 whole lot of antennas there and they're all facing the same direction. Why would
7 you have a 3G antenna facing into a hill and a 2G antenna facing down the
8 highway. So I just say in practical terms the antennas most likely will face the
9 same direction.

10 **MR YORK:** I perhaps just raise one point, perhaps it's useful to note in the background.
11 Just to be clear it's not, and hasn't ever been our submission that antenna
12 minimisation shouldn't occur, rather we just say, look antenna minimisation is an
13 option but that it should be subject to the limits under the access limits in the Act
14 and that it shouldn't lean to greater than the unacceptable performance degradation,
15 is that right Juliet?

16 **MR PICKERING:** Just repeat that again, because that's key.

17 **MR YORK:** Our position is not that, you know, antenna minimisation should be
18 prevented, it's just that antenna minimisation should be subject to the access limits
19 under the Act and that it shouldn't lead to greater than the maximum unacceptable
20 performance degradation level. So just the context, we're not trying to say here that
21 it's a no go solution.

22 **MR PICKERING:** Yeah.

23 **MR YORK:** There are other solutions available but there shouldn't be a presumption that
24 that should be the one that gets mandated upon us.

25 **MR PICKERING:** Can I go back to your 116 that you are now in agreement, albeit there
26 seems to be a difference as to how each interprets that agreement.

27 **MR YORK:** Yeah.

28 **MR PICKERING:** How much of that, just give me a size of that, how many of those
29 situations could be minimisation or alteration?

30 **MR YORK:** Okay, I think the first point - I think we've got some difficulties talking about

1 the heads of agreement.

2 **MR RAE:** I might be better placed to answer that question. Basically none, from the
3 work we've done together the due diligence on the sites, I don't believe that
4 minimisation is - certainly not necessary and the agreement doesn't cater for that
5 sort of thing. The sites that primarily form part of that agreement are very large
6 sites where there is sufficient structural capacity and we believe for -

7 **MR PICKERING:** Put the antenna on and that's it?

8 **MR RAE:** Yeah, so it's not necessary.

9 **MR PICKERING:** So those 116 could be done fast in layman's language?

10 **MR RAE:** Yeah, basically that's the basis for how they came to be in that agreement. We
11 did a lot of work together, lot of due diligence and selected the easy ones and
12 streamlined process to just get on with those. Because a lot of these arguments that
13 we're doing today, through the basis of that agreement and fundamentally because
14 of the type of types that we're talking about, interference issues, minimisation,
15 they're effectively moot points.

16 **MR PICKERING:** Okay. Do you want to respond in any way?

17 **MR EDWARDS:** I'd only make the comment that with antenna minimisation it wouldn't
18 be 116 sites, it might be 500. The issue is the universe of sites increases where
19 there's an economy to cover.

20 **MR PICKERING:** Chair, would you like to -

21 **CHAIR:** I'm just pointing out that Telecom has been indicating for some time they want
22 to add something, I don't know if you can see them.

23 **MR PICKERING:** I'm sorry, I'm getting caught in this corner.

24 **MR KLIFFEN:** It's just a couple of points I wanted to raise, is that what we're trying to
25 do with the 2,100 is where we've got separate antennas already we've already got
26 services available and we're trying to protect service to those existing users. Often
27 where we're putting in infill sites they might have dual band antennas then we're
28 accepting the constraints of having a multiband antenna at those sites. Within that
29 constraint we're adding new service but having the new coverage in that area, we're
30 not actually taking anything away.

1 But if we're at a site where we already have separate antennas optimised in
2 different directions and then we have an access seeker come in and force us to
3 minimise the antennas through multiband antenna minimisation, we're actually
4 taking away service in some areas through having to re-optimize. And that's what
5 we're sort of concerned about, we're actually taking service away from existing
6 users. It's a different situation than what is being portrayed here where they can sort
7 of add a multiband antenna when we're adding a new service in an area, that's a
8 different sort of case.

9 Also I alluded to the fact the photographs, the antennas in the photographs
10 are all pointing in the same direction. All those photographs don't have 2,100
11 antennas on yet, they were taken pre our deployment phase, so that is, yeah, they
12 are all facing in the same direction just to clarify that point.

13 I suppose a final point is that these things need to be considered on a site by
14 site basis because, you know, in some areas they are aligned and the impact will be
15 small, in other sites the re-alignment will be sort of quite significant. So it needs to
16 be considered on a case-by-case basis and we are open to doing that on a
17 commercial basis, but not through regulation.

18 **MS HASKILL:** If I might just add to the last point, Telecom has actually a commercial
19 offer out to some of the parties in this room for antenna minimisation and it has not
20 been taken up, because we don't believe that regulation should force technology
21 choices but we believe the market can force technology choices. So where there's a
22 return to be made yes it should be looked at on a commercial basis, but to date
23 no-one's taken it up.

24 **MR PICKERING:** Do you have a sense why it hasn't been taken up?

25 **MS HASKILL:** Because the parties involved would rather it be regulated.

26 **MR PICKERING:** Okay. Now New Zealand Communications.

27 **MR EDWARDS:** Simply put because there isn't a market, there isn't a third party tower
28 owning company. And I would defer to Woosh's point that if we had a third party
29 tower owning company it would solve the problem, and I'd defer to American
30 Tower Company to make a comment on this. We did ask them to come and they

1 couldn't make this conference I'm sorry.

2 **MR PICKERING:** Could I now ask the staff, do you have questions to -

3 **MS MAZZOLENI:** Could I just ask one?

4 **MR PICKERING:** Please do.

5 **MS MAZZOLENI:** Just again maybe Bruce and Paul, have you used antenna
6 minimisation solutions?

7 **MR HARDING:** No, not really, our service is in a range of different bands and normally
8 we have an antenna for each frequency band.

9 **MR KEARNEY:** Similarly not in my experience with Woosh, we're a single band
10 operator.

11 **MS STONE:** Just for the record nor has Kordia.

12 **MR PICKERING:** Thank you. I'll just ask the question, any other comments? I think
13 we've sort of canvassed this - I'm not allowed to come to any conclusions.

14 **CHAIR:** I think the staff have a question.

15 **MR PICKERING:** Yeah, I'm now going to turn to the staff to ask any questions they
16 would like to have of you.

17 **MR WILLIS:** Ed Willis, Commerce Commission. This question is directed mainly at
18 Vodafone but I'd be interested in what the other parties have to say as well. You
19 mentioned the limits on access principles as being something that could constrain
20 the use of antenna minimisation. You also mentioned the performance degradation,
21 but I think we've covered that in enough ground so I don't want to go into that. But
22 just in terms of the limits on the access principles under the Act, which limits on
23 access principles specifically did you have in mind as potentially limiting the ability
24 to use antenna minimisation?

25 **MS JONES:** I guess there's two sets of limits, one are the ones that apply across services
26 and ones that are specific to mobile co-location. The main one that springs to mind
27 is the one in relation to unacceptable inference. So it's the management of existing
28 or potential radio spectrum interference arising out of the relevant facilities, so this
29 is related to the interference discussion we've had earlier.

30 **MR WILLIS:** So the issue in terms of limits on access principles and unacceptable

1 performance degradation are essentially the same issue in terms of whether or not
2 you think antenna minimisation is appropriate?

3 **MS JONES:** They're related.

4 **MR WILLIS:** So they're not the same? If they're not the same can you just explain to me
5 how they're different?

6 **DR ARASARATNAM:** Antenna minimisation leads to performance degradation.
7 Interference is only one component of it. So the degradation leads to, or impacts on
8 what you do with your end uses, so that's how they're related.

9 **MR WILLIS:** So the interference which is coming from the limit on access principles is
10 one of the factors that goes into the total unacceptable performance degradation?

11 **DR ARASARATNAM:** Yeah, as we discussed earlier interference is one component, but
12 the total is made up of a number of components.

13 **MR WILLIS:** Thank you.

14 **MS JONES:** And the other principle which springs to mind is the one about reasonable
15 technical and operational network practicability. So here we're talking about the
16 way equipment is moved around and what that actually does to your network
17 performance and actual practicalities of moving things around.

18 **MR WILLIS:** Sure, have you given some thought to that would 'reasonable' in there and
19 where you draw the line on what's reasonable and what's not?

20 **MS JONES:** No, I think it comes back to the point made by Telecom which is that it's a
21 case by case thing, so you do need to assess each site on its own merits at the time
22 and make an informed decision at the time.

23 **MR WILLIS:** Sure.

24 **MS PRESKAR:** Aleks Preskar, Commerce Commission. I have a question regarding
25 antenna minimisation. We're talking, say, two different frequency bands having,
26 say, three antennas per sector for each technology. I can understand the reasoning
27 for not minimising all antennas on, say, two different frequency bands. What's your
28 opinion, would you oppose to, say, minimising antennas on the same frequency on
29 one technology, or would you explain to me what the reasons would be for not
30 minimising that?

1 **MR KLIFFEN:** Perhaps I can respond on Telecom's behalf. Our current forecast
2 requirements in the 850 band have a cross pole antenna for CDMA and a cross pole
3 antenna for GSM, so that involves two cross pole antennas. And also for our
4 wideband 2,100 network we're provisioning initially for one antenna, one cross pole
5 antenna, but then a second cross pole antenna will also be required for MIMO and
6 LTE type services, so we're planning for two cross pole antennas for both of those
7 services, for future capability.

8 **MS PRESKAR:** Then if we compare sites like this which is only one technology, what
9 would stop you from minimising these four antennas into one? Presumably they're
10 all, say, 850 megahertz, if you combine them into one cross pole?

11 **MR KLIFFEN:** That's right, so we currently have sectors with four antennas per sector
12 and they will ultimately still have four antennas per sector carrying out our future
13 services.

14 **MS PRESKAR:** So adding your services will not increase the total number of antennas?

15 **MR KLIFFEN:** That's right in that case. So initially we might have two antennas for
16 CDMA and two for GSM. We are consolidating those down and re-using the space
17 for 2,100. But they're still separately - it's not multiband antenna, we're not
18 consolidating those four antennas with the two frequency bands into two multiband
19 type of antennas, which would be the solution that you would need to apply for the
20 sites on the other sheet, on the other slide.

21 **MS PRESKAR:** Yeah, on other sides. So you said before that you would add more
22 technologies and still keep the same number of antennas, but then you said that you
23 would add some more antennas.

24 **MR KLIFFEN:** No, we would replace some of those antennas, so that we would still stay
25 with just four antennas per sector, we would not increase above four antennas per
26 sector.

27 **MS PRESKAR:** But in the meantime when you talk about antenna minimisation you
28 could potentially reduce the number of antennas into one with one single
29 technology.

30 **MR KLIFFEN:** If we didn't have 2,100 services from the site then we could reduce that

1 to two antennas per sector at 850.

2 **MS PRESKAR:** One for GSM, one for CDMA?

3 **MR KLIFFEN:** That's correct.

4 **MS PRESKAR:** Okay thank. And basically the same question to Vodafone, I don't have
5 pictures of your sites but -

6 **DR ARASARATNAM:** There are two issues that we consider in terms of the antenna
7 gain side of things when we minimise antennas. When you go to a dual band or
8 two vertical polarised cross pole -

9 **MS PRESKAR:** Sorry, I'm not talking about your band I'm talking about just the cross
10 pole antennas.

11 **DR ARASARATNAM:** Okay. Sorry, can you repeat the question?

12 **MS PRESKAR:** If you have one technology, a set of three four antennas on one
13 frequency on one technology, I assume one is for transmit and one or two are for
14 receive, you should be able to minimise them into one antenna or if you can explain
15 to me why you wouldn't?

16 **DR ARASARATNAM:** Can I give - let's say we have two antennas, both are for transmit
17 and receive and they are vertically polarised, and then we go to a cross polarize.
18 Doing that we will lose some gain in terms of antenna gain, also we will lose the
19 physical separation diversity. So there is some loss of gain in doing that. We can
20 possibly compensate with a large antenna but the large antennas seem to have a
21 narrow vertical beam width, so while you could get the reach you still lose the
22 coverage. So those are the considerations we need to take into account when we
23 look at can we go from two to one or four to two.

24 **MS PRESKAR:** My knowledge of antennas tells me that the same size antenna usually
25 has the same gain, and if you combine two vertically polarised into one cross pole
26 you keep the same - you preserve the diversity by getting different - it may be
27 different for rural sites, but generally in urban sites that would mean you should be
28 able to combine them.

29 **DR ARASARATNAM:** This is where I think in a rural - what we are trading off there is
30 you have diversity from physical separation, you are trading that off for cross pole

1 separation, and what we are finding is in urban areas that difference is about half a
2 dB and in rural areas you lose a bit more. So the effective losses going from two to
3 one taking all of that into account is half a dB, or around the half a dB mark. So
4 from coverage or link budget point of view we're going from two to one, we are
5 taking a half a dB hit or around the half a dB mark.

6 **MS PRESKAR:** So if my understanding is correct you differ from Telecom who just said
7 they would be able to replace three or four antennas with one without any additional
8 losses.

9 **MR KLIFFEN:** I never said three or four.

10 **MS PRESKAR:** Sorry, three or four into two.

11 **DR ARASARATNAM:** I don't know the four situation, but I'm surprised going from two
12 to one you will have no losses. Our understanding is you will have some losses.

13 **MR KLIFFEN:** So yeah, sorry, if I can respond from a Telecom perspective. So
14 definitely there are capacity implications as well. So if for GSM you need lots of
15 carriers and you have a combining loss for getting lots of carriers on one transmitter
16 chain, so if you need the coverage in rural areas for capacity reasons you may need
17 more antennas but that's, you know, that's a capacity driven issue. So we may need
18 more antennas in the future for that. But we would hopefully have wideband
19 CDMA services also providing that for that sort of capacity.

20 But in rural areas we do not consolidate sort of horizontally separated
21 receiver diversity on to cross pole because the impact is about 3 or 4 dB, so you
22 need to be careful about how we would combine, or use the antenna ports we have
23 available. We still need to preserve horizontal spacing but we can use cross pole
24 antennas as part of that configuration.

25 **CHAIR:** I'm just mindful of the time now and I believe that Commissioner Pickering
26 wants to wrap this up.

27 **MR PICKERING:** Yeah, I would like to wrap it up unless there's any really -

28 **MR BAILEY:** Matthew Bailey from the Commission. I think Telecom stated that your
29 position is that antenna minimisation shouldn't be part of the regulated service at all
30 but you've also said that you would consider antenna minimisation for our own

1 purposes under certain circumstances. So my question is wouldn't access
2 principle 3 imply that you'd also need to apply that, say, principle to an access
3 seeker?

4 **MS HASKILL:** You'd need to remind me what access principle 3 is.

5 **MR BAILEY:** I think it's something along the lines of an access provider must provide ...
6 to an access seeker on consistent terms and conditions.

7 **MR LARSEN:** John will correct me here but I'm hoping he's already given you the
8 answer and I'm just summarising it for you. But I think the difference we're arguing
9 is the difference between the existing site losing coverage on an existing site as
10 opposed to new sites. We do it ourselves on new sites but not with regards to
11 existing sites. I think that's the difference that we see.

12 **MR CHARTERIS:** Just so I can clarify, in your current roll-out of wideband CDMA
13 you're not looking at implementing antenna minimisation on an existing site?

14 **MR KLIFFEN:** As I explained before as a last resort it's only if the site capability cannot
15 support the additional antennas, that's generally on those cluster head frames, then
16 we can't implement the 2,100 service by adding a separate 2,100 antenna, so we
17 have to use a multiband antenna in those cases. And also there are some building
18 sites where there's just not enough suitable antenna positions to put the separate
19 antennas at as well. So we do use multiband antennas and we have used them for
20 the 2,100 roll-out, but it's as a last resort.

21 **CHAIR:** All right, I think -

22 **MR PICKERING:** One last question folks.

23 **MR CHARTERIS:** When you say 'last resort' I assume you mean when space is
24 constrained?

25 **MS HASKILL:** And mast extension is strengthening with the work and it's not in our
26 long-term forecast to use a pole.

27 **MR PICKERING:** Okay, thanks very much. Thanks very much for that folks, I think
28 we've had a pretty wide-ranging discussion there which the record will give us a
29 suitable amount of input, thank you.

30 **CHAIR:** All right, I'd like now to turn to the matter of access provider forecasting and use

1 of reserved space. And I invite Commissioner Mazzoleni to lead the discussion on
2 that matter please.

3

4 **ACCESS PROVIDER FORECASTING AND USE OF RESERVED SPACE**

5

6 **MS MAZZOLENI:** Nice quick subject before lunch. One of the limits on the access
7 principles for the regulated service is the access providers' current and reasonable
8 forecast requirements for capacity on relevant services. In the draft we said that I
9 guess current and reasonable forecasts would be around two years and we had lots
10 of submissions from access providers particularly around the sort of longer term
11 timeframes for deployment of new technology that five years would be a more
12 appropriate forecast period to reserve space.

13 I'm just interested to know the difference between a two year and a five year
14 forecast, particularly in light of the words 'reasonable forecast requirements'. It
15 seems to me that 'reasonable forecast', whether it's a two year or five year period,
16 would still have to have the location on relevant facility, the space that that would
17 take up, and when it would be used. So perhaps access providers can just make
18 some comment as to whether five year forecasts are going to be able to provide that
19 sort of detail so that space isn't excessively preserved.

20 I mean I understand for a two year period you're getting closer to your
21 design plan, so perhaps that envelope that you're reserving might shrink, but could
22 access providers perhaps comment on whether you can provide that sort of level of
23 detail in a five year forecast? So particularly location on the masts, the actual space
24 that you would take up and when you would be likely to use those, and how often
25 those forecasts would get updated too. Vodafone, do you want to kick off? Maybe
26 Telecom wants to.

27 **MS HASKILL:** Would you like us to start while they work out who would like to speak?

28 **MR YORK:** I think that's where we're going.

29 **MS HASKILL:** It's Telecom's view we would prefer a five year period, and it's John's
30 domain so I'll ask him to -

1 **MS MAZZOLENI:** I think that's pretty clear. What I'm asking is, you've asked to reserve
2 space for a five year period, how much certainty can you give to those forecasts
3 compared to a two year period? Because we're talking about not increasing the
4 envelope of space that you've reserved that access seekers would otherwise be able
5 to co-site on.

6 **MR KLIFFEN:** So we look at our current new network deployment as an example of the
7 planning work that goes into and timeframes that go into, I suppose, the
8 decision-making processes and also the deployment timeframes for a new network,
9 for a new technology. We first started considering wideband 2,100 in 2001.

10 **MS MAZZOLENI:** Sorry, John, to interject because I do want to keep this session fairly
11 tight so we finish on time. We understand all that from the submissions. I guess if
12 you think about it in terms of what's going to go into the database around your
13 forecasts, you're reserving space and you want to reserve that for a five year period
14 so that an access seeker can't co-locate within that space. So if you want to reserve
15 it for five years are you going to be able to provide the level of detail in terms of
16 where on that site you want your future requirements to go, you know, the space
17 that you want to occupy and when you want to occupy it about in a reasonable level
18 of detail?

19 **MR KLIFFEN:** Yes, so our planning work today is looking forward five years. We've
20 acquired spectrum for LTE services and we're also looking at MIMO enhancements
21 to our existing 2,100 service as well. So we understand what the antenna impacts
22 are for those services and that's what we plan to include in our forecasting process
23 for a five year timeframe. If that was just restricted to two years we would not be
24 able to reserve space for those new services that we're currently planning for.

25 **MS MAZZOLENI:** So for each site you can give quite a specific level of detail for that
26 five year period?

27 **MR KLIFFEN:** Yes, we would have a standard site design for the deployment or the
28 upgrade for LTE and for HSDPA+ and MIMO, and what frequency band that
29 service would work from, because we've already acquired the spectrum, and also
30 what antenna technology would be used. For antennas that are operating on the

1 same frequency bands as our existing services they can be aligned in the same
2 direction generally because they'll have the same underlying cell plan for that. So
3 antenna minimisation probably is less of an issue because, you know, we can keep
4 both 2,100 services that are either MIMO or LTE or whatever in generally the same
5 direction so that we don't face that suboptimisation type issue but we still sort of -
6 we can take that into account and look at what are our overall antenna counts and
7 how many antenna ports do we need to connect to our base station equipment.

8 **MS MAZZOLENI:** How often would you update a five year forecast? I'm presuming at
9 the outer years you probably update it, what, every year and then as you're getting
10 closer to deploying the use of that reserve space, what would you do it, every three,
11 six months within the sort of last year?

12 **MR KLIFFEN:** That's right, we get obviously regular updates from our suppliers as to
13 when that technology is going to become available, so that would feed through into
14 the timeframes for the deployment of that new technology. We would look at that
15 probably on a, say, two years - twice every year, every six months would be the
16 typical sort of planning refresh that I would imagine that that longer term forecast
17 would be updated by.

18 **MS MAZZOLENI:** Okay, thank you. Did Vodafone want to make a comment?

19 **MR YORK:** Now that we understand what is being asked. Might start with Justin.

20 **MR RAE:** Your first question about the database and how it will represent future forecast
21 requirements, in the database it's represented by the number of antenna which are
22 microwave antenna and panel antenna, so we've substantially completed the
23 database already and populated that. And we also know where on the masts we
24 want to place these antenna. So in the antenna process in the operations manual
25 when an access seeker requests a site data pack, that site data pack has to show
26 where those proposed equipment is going to be on the mast, so we're ready for that
27 level of detail.

28 **MS MAZZOLENI:** For a five year period compared to a two?

29 **MR RAE:** Yes, radio design people have worked out what it is we need to do and where it
30 needs to go on those sites.

1 **MS MAZZOLENI:** NZC, did you want to make any comment?

2 **MR FRASER:** Yes, good afternoon Commission, Hamish Fraser from Truman Hoyle.

3 Most of you probably know my partner Shane Barber, he's unfortunately away so
4 I've got the role of filling in for him. I'd just like to make, I guess, two observations
5 and then defer to the technical experts to the extent they can add to the substance of
6 that. Australian regulation is two years, as the Commission is probably aware.

7 It's our submission that technology is changing rapidly and that presents a
8 double edged sword for the incumbent carriers, in that whilst planning and what
9 they might want to use is one thing, realistic forecasting on the needs for their
10 towers based on the technology that will be available in five years is almost
11 impossible. But on that latter point I'd defer to Professor Coutts, I'm not sure if we
12 need to.

13 **MR DAVIS:** Also the other point is when does the clock start ticking as well.

14 **MR FRASER:** Well that hasn't been a question, but yeah, I mean I think the
15 Commission's aligned that there needs to be a queue and one takes one's place in the
16 queue and that's that. But we can address that if you'd like.

17 **MS MAZZOLENI:** So are you suggesting that the forecasts that far out could be quite
18 erroneous, and so perhaps there should be some sort of penalty for erroneous
19 forecasts where space has been reserved and then not utilised in the fashion that it
20 had been indicated within the database?

21 **MR FRASER:** I don't think that's our primary suggestion, we considered that. I think in
22 five years it makes it very difficult for us to realistically use towers when you've got
23 a five year forecast sitting over a large block on them. That might be something we
24 could make submissions on but it's not something we've come prepared to discuss.
25 We're saying that two years is ample and that two years is the model used in other
26 regions in areas where there's much lighter regulation with regards to some of the
27 other matters that have been covered today. This is one area where two years has
28 been determined, at least in Australia, and the technology's evolving rapidly enough
29 that more than two years isn't really necessary.

30 **PROF COUTTS:** Just to comment on that, having worked in Telecom Telstra, agree you

1 have a five year plan but having been involved in the planning process I never
2 placed a lot of confidence in the latter years of the plan, and that was back 15 years
3 ago. And in this particular area with all the changes happening as the question
4 marks about the actual timing of LTE and to what degree the degree of
5 implementation of MIMO and phased ray technology, there's a whole number of
6 things in discussion by the supplier community. And they all have impacts in terms
7 of the what you're going to do on the towers. So I find the idea of having more than
8 a two year plan to go on the database is somewhat lacking credibility.

9 **MS MAZZOLENI:** I think the access principle quite clearly says, though, it's access
10 providers current and reasonable forecast requirements. And we have heard that in
11 terms of the details that are required for a reasonable forecast, which would be
12 identification on a particular mast and the space that you would actually need and
13 the time at which you would need it, I think we've heard that access providers can
14 infill that level of detail into the database.

15 **PROF COUTTS:** Well I'd say as in Australia two years is the accepted time and I find
16 that's congruent with what I expect to be able to predict the level of detail that
17 they'd be able to forecast unless there was some other motivation involved.

18 **MS MAZZOLENI:** Thank you, did any other parties want to make a comment on that
19 issue, just the issue between two and five years?

20 **MR TUNNICLIFFE:** Yes, I'd like to add to that. I think one of the things, as the
21 Professor's rightly pointed out, we do do a detailed five year plan out and we are
22 planning for MIMO technologies, that is the reality of where the future's going. So
23 to get above 21 odd megabits a second that is the only technique that gets us there.
24 And as such, you know, we're trialling this stuff next year in the US with Verizon,
25 our sister company, also looking at it in China. So I mean plans are well advanced,
26 this isn't airy fairy stuff. If we look at the vendors' road maps it's very clear that this
27 is where the technology's going, so we're working with our vendors around that as
28 well.

29 And it's only prudent that you reserve those slots. We will be building it
30 within a five year time period, there is absolutely no question of that, it's in our long

1 range plans, we know exactly where we're going with our GSM footprint. The only
2 expansion to that is around capacity and quality, but largely that's built out
3 obviously. 3G, we're still going with that, in the 900 band now, building that out,
4 some 2,100 infill again. So I think our plans are very clear in the five year period,
5 and to Justin's point that's why we're putting those requirements in the database.

6 The other thing I'd say from an access seeker's perspective is there are
7 economic issues as well. So how do you plan a return around a two versus a
8 five year period. I think particularly it's actually very difficult. A longer period is
9 more appropriate.

10 **MS MAZZOLENI:** I'd like to just turn to the other issue for this subject, which is the
11 issue of the squatters rights, or the camping right, which I must admit I find
12 extremely strange. I mean to me it's no different to having a tenancy arrangement,
13 you've got a time period for that tenancy to terminate and the tenant leaves the site.
14 So I find this fear about people staying on the towers rather unusual. So I mean
15 Telecom, you addressed this in your opening commence, did you want to talk to
16 this first?

17 **MS HASKILL:** Yes, we do thanks and it might be easiest if I perhaps give you scenarios
18 to illustrate where we come from, and we've looked at that from two perspectives.
19 One is from an access seeker perspective in that we would never ask to co-locate
20 temporarily on anybody else's site simply because it means a double up in build.
21 You have to not only go through the co-location application, you have to get two
22 landlord's consents, two RMA consents, two sets of builds, then you've got to swap
23 across your people from your temporary site to your new site; it makes no sense to
24 us from an access seeker's perspective.

25 From an access provider perspective, and I can tell you this because I
26 personally have experience in this area being in the early days of Wholesale in
27 Telecom; when you have an access seeker or a customer that has end-users on the
28 network and say, for example, we had a third player that established coverage over
29 Auckland, so they've got customers throughout Auckland, they come for a
30 temporary use of a site in central Auckland. So say they've got 1,000 end-users

1 within the CBD and they are apartment dwellers, say, or business people, those
2 people use the network daily, anyone out from the suburbs who comes through the
3 Auckland CBD also uses that site.

4 We come to the end of the tenure, Telecom wants to use its deployment, we
5 say hey here's six months notice, off you go. They say no, either because they
6 haven't been able to erect their second site or because they didn't believe our
7 forecast in the first place. So we go to turn them off. They go to the High Court, a
8 High Court in my view 99% likely to grant an injunction because of the end-users
9 that are impacted. We are essentially saying you end-users, you need to be turned
10 off. We know the PR impacts of that, it turns around big ugly Telecom trying to
11 affect 1,000 end-user customers in Auckland.

12 So even if we took it to a further court, the court would look at that balance,
13 what's the impact on the people that are affected not just the contractual impact of
14 the arrangement. So without even - we cannot see that even that would give us the -
15 even if you put penalties and you put financial penalties, the end result in many
16 cases is likely to be that the access provider at the end is in the weakest position and
17 is most likely the one who has to provide an alternate solution.

18 **MS MAZZOLENI:** I'm not a court lawyer at all but I would have thought if you had an
19 agreement that had a specific term on it and it was very clear, and even if you had
20 penalty sums in it for not decamping at this specific time that, you know, that's a
21 contractual matter that can be enforced.

22 **MS HASKILL:** And that has been what Telecom's relied on in the past and it hasn't
23 always been true.

24 **CHAIR:** When? What is an example of that?

25 **MS HASKILL:** There's the Compass litigation.

26 **CHAIR:** Which is about what?

27 **MS HASKILL:** We could talk to you about that later if you like.

28 **CHAIR:** Well is it on this matter? Is it relevant to this, is it on this point or remotely like
29 it?

30 **MS HASKILL:** Perhaps the point is that there needs to be a really good backstop, this

1 would only work if there's an absolute backstop. And what we're saying is our
2 experience is it's very hard to provide that backstop.

3 **CHAIR:** So a contractual right isn't a backstop?

4 **MS HASKILL:** So, you know, assistance from the Commission, or the Government, or
5 whatever would be needed in order to make sure that it didn't get turned on the
6 access provider at the end of the temporary tenancy.

7 **MS MAZZOLENI:** There's also a six month notice period here too which is reasonable,
8 well is that a reasonable time for sorting out -

9 **MS HASKILL:** But if your access seeker hasn't started to build in that six month period
10 they are not going to be in a position to move at the end of six months. So it very
11 much relies on the premise that the access provider forecast has not been put up in
12 good faith.

13 **MS MAZZOLENI:** Did anyone else want to comment on this issue? Vodafone do you
14 have similar issues?

15 **MR TUNNICLIFFE:** I would just add one thing to that, which is the six month notice
16 period in practical terms, depending on how organised with the planning the access
17 seeker is, that's a very short period in terms of building a greenfields site which
18 would be your alternate to move off to. So more typically you're looking at nine
19 months and upward from the point of starting your site acquisition process and
20 identifying the site, all the process approvals and build and so forth.

21 **MS MAZZOLENI:** Why would somebody be looking at a six month build period? I
22 mean if they're on a site, if they're got the ability to utilise a site that has a five year
23 forecast over it knowing that those forecasts are being upgraded, and when they
24 finally get their notice, which should link into their forecast time on the database,
25 they've got six months to decamp; why would they leave their build to the last six
26 months?

27 **MR TUNNICLIFFE:** All I'm saying is the way it's set up with two years that is a
28 relatively short period, I might not have explained myself properly there, so that six
29 month period comes up quite quickly. And so I think that's a real issue for the
30 seeker, to be honest, as to whether they get economic return out of potentially a

1 shorter period.

2 **MS MAZZOLENI:** But I guess that's for the access seeker to decide.

3 **MR TUNNICLIFFE:** That's true.

4 **MS JONES:** And just to clarify, in our proposal in our submission on the draft STD we
5 proposed a long notice period of 12 months, if for no other reason just to get the
6 access seeker going to find that alternative within the 12 months, which is typically
7 in our experience what it takes to acquire a whole new site with the build.

8 **MS MAZZOLENI:** So a longer notice period?

9 **MS JONES:** That's correct and that's what we've proposed.

10 **MR YORK:** So that almost deals to an extent with the Telecom point, where if the access
11 seeker doesn't believe in the first instance that your forecast was real and so perhaps
12 has been waiting until six months before the end, a longer notice period would deal
13 to that.

14 **MS MAZZOLENI:** What if your forecast wasn't real and they decamp and you don't use
15 the site, should there be penalties in that situation?

16 **MR YORK:** I think the ultimate penalty in that situation, if we don't exercise our forecast
17 right, is that the party stays on, is that right? Under the -

18 **MS HASKILL:** Very unlikely to give that final notice unless you're actually going to use,
19 because that is a clear deployment window.

20 **MS MAZZOLENI:** NZC?

21 **MR EDWARDS:** We submitted on this matter to the MED in October 2007 before the
22 2,500 megahertz WiMAX spectrum was sold. We said to the MED simply, please
23 don't sell WiMAX spectrum to the incumbents before you've sorted out co-location.
24 It acts as a big incentive to get co-location into the GSM and 3G market. It's
25 important that the Commerce Commission recognise that we also have 2,500
26 megahertz WiMAX spectrum through our Hautaki Trust relationship.

27 And if our industry colleagues at Telecom were to upgrade networks to
28 WiMAX, likewise with Vodafone, we'd be in a situation where we'd be forced to
29 say "me too". So then we would be in a same format where we had to
30 accommodate each of our networks at that same spectrum.

1 The impact in this is obviously it leads to incentives, but it actually
2 articulates the industry dynamic that would occur on the occasion where we were
3 camped on a site temporarily, Telecom and Vodafone said "could you get off that
4 site because we want to go to WiMAX". We would put up our hand and say "sure,
5 can we come to WiMAX with you also, we also have the spectrum, if you're going
6 to compete in that market we do too, let's get an industry solution that creates the
7 lowest structure".

8 **MS MAZZOLENI:** Do you guys have any questions, staff? Che.

9 **MR CHARTERIS:** Che Charteris, Commission. One of the last comments from parties
10 around the table was that there was this window in your planning where you pretty
11 much know you're gonna go and put your antenna on a site. When is that timing?
12 How long before it's basically a done deal where you're going to put an antenna on
13 the site? If we can start with Telecom that would be good.

14 **MR KLIFFEN:** So there's usually technology deployed on a site by site basis, and that's
15 either done on an individual case-by-case basis or as part of a network wide
16 upgrade or roll-out plan. So those network wide roll-out plans take longer to
17 deploy and usually have a business case signed off, you know, well in advance to
18 get that deployment programme up and running before we actually see the
19 deployment out in the field. So that might be two or three years from signing the
20 business case to having the deployment completed.

21 Whereas if it's on a site by site basis so we're expanding wideband 2,100 to
22 Invercargill, say, then that might be done on a separate business case and there
23 might be a shorter timeframe for it. But still the planning work for that would be
24 done under a longer sort of overall programme of work. But the individual sort of
25 commitment to deploying something at that site might be only completed a year or,
26 say, nine months before the actual completion date for that upgrade work. So it
27 does vary depending on the scale of the upgrade and the context of that upgrade.

28 **MR LARSEN:** If I can add to that too I think, Che, obviously throughout the process if
29 we are upgrading a site often we have to get landowner or resource consents as
30 well, and they can impact upon the final solution and the final timing. If you're

1 doing a network plan you obviously have a plan of how you want to roll out these
2 sites, but often because of those external factors it can get changed slightly along
3 the way because of those external impacts. So even with the best plan you will get
4 minor variations and actual timeframes due to those external factors as well.

5 **MS ODING:** In terms of introducing new services nationwide, a typical framework
6 Vodafone would use is we'd have a roll-out plan. And from our past experience as,
7 for example, our 2G and our current 3G deployment that's in order about five or six
8 years for a nationwide, and we'd break that down into, say for example, rolling out
9 in dense urban and then urban areas and then progressively so we can capture the
10 population densities, and so we'll have a programme that's structured around that.
11 On top of that we have more of the specific hotspots that require, for example,
12 capacity upgrades or performance enhancements and that might be more within a
13 one year planning cycle. And yeah, I mean given the lead times around having to
14 deploy cellular networks, yeah, we do have to build out multi-year, five year plans.

15 **MR CHARTERIS:** Just one quick follow-up question. There's been discussion around
16 LTE technologies and as such which seem to be more three to five years, in that
17 band, from what parties have said. Is it possible to provide indicative dates in the
18 database on when you'd like the space available, when you think that would happen,
19 and provide a notice period which is more formal and closer to the date? Telecom?

20 **MS HASKILL:** Yes, that's what we were planning to use the database for, is to say not all
21 of our forecasts will be out in five years, some will be within the next 9 to 18 month
22 period, some will be further out. So we expect those to be dated and changed.

23 **MS ODING:** Yes.

24 **CHAIR:** All right, thank you very much for that discussion. It is now time for the lunch
25 break and thank you for the contributions you've made on the matters up until now.
26 After lunch we will have a discussion on greenfield sites starting in one hour's time.
27 So we will adjourn now and reconvene at half past 1. All right, thank you very
28 much.

29

30

Adjournment from 12.33 pm to 1.34 pm

GREENFIELDS CO-LOCATION

1

2

3 **CHAIR:** All right, I'd like to now reconvene this session of the Commission's conference,
4 and as I indicated before we will turn now to issues around greenfields sites. And
5 you will all be aware that we had expressed a preliminary view in the draft that
6 greenfield sites are within the scope of the description of services in the Act, and
7 that there are public policy justifications for the inclusion of greenfield sites in the
8 STD.

9 In response, parties have pretty much across the board submitted that there
10 are significant practical difficulties associated with the regulation at greenfield sites.
11 In addition Telecom has - I believe it was Telecom that queried whether it was
12 actually covered under the Act or not.

13 For discussion purposes right now I'll put that issue to one side for the
14 moment, because if there is general consensus around treating greenfield sites
15 through a voluntary process then we don't have to go to that issue. So while I
16 thought that looking at the submissions, I wasn't so sure after the opening
17 statements made by various parties about whether there was consensus on this
18 matter or not. Certainly TUANZ seemed to suggest a contrary view. I wasn't
19 entirely clear whether New Zealand Communications' position was different than
20 what was in their submission.

21 So the first thing I would like to do is turn to New Zealand Communications
22 and ask what their position is on greenfield sites.

23 **MR DAVIS:** Our concern on if it was mandatory would be that it may be used by
24 incumbent operators who already had coverage in an area to slow down the roll-out
25 of a new entrant who was trying to build coverage within an area. So what we
26 would like to see is if you're an access seeker it can be mandatory, so you can make
27 it mandatory that you can join a greenfield build if you don't already have coverage
28 at that site. If you already do have coverage at that site then you cannot make it
29 mandatory if you join on that greenfield build.

30 **CHAIR:** Is it that straightforward whether you have coverage or not?

1 **MR DAVIS:** Well, if you're an incumbent who - I mean it is that easy to - it's an easy test
2 to come up with and measure. It's the question why would you want to build if you
3 already have coverage there.

4 **CHAIR:** So do you not see practical difficulties, leaving aside what your preferred
5 position is, if we turn our minds now to whatever practical difficulties there might
6 be with regulating greenfield sites, you wouldn't agree that that's difficult?

7 **MR DAVIS:** No, there would be some co-ordination issues similar to, say, a mast
8 replacement. But in terms of you can put into the database early on, this is where
9 we are deploying sites. And you've heard from parties today if you're building a
10 new site that process is up to 12 months long. So there's quite a window there
11 where you can put into the database beforehand, hey we are building a site here,
12 and other potential access seekers can then become aware of this new site that's
13 being built in a particular location.

14 **CHAIR:** And now that I'm clear on what your position is, have you turned your mind to
15 the legal arguments that Telecom has raised about whether the greenfield sites are
16 covered in the legislation anyway?

17 **MR DAVIS:** Matthew Bailey is probably more -

18 **MR FRASER:** Briefly, Commissioner, we have agreed with the Commission's position so
19 we didn't come prepared to discuss that in any detail, however again we can make
20 some very brief submissions. We broadly agree the Commission does have the
21 power, but given the questions asked we took that as a given and therefore weren't
22 coming in anticipation of answering that question.

23 **CHAIR:** Is that based on a legal assessment?

24 **MR FRASER:** Yes, it is, we formed that view some time ago that the Commission had
25 the power, but given the questions asked we didn't - I don't have those papers with
26 me, I didn't do the work at the time, that was Shane Barber as you may know.

27 Just to clarify one small issue that came up with the practical difficulties; we
28 do see some practical difficulties with the STD as it's currently drafted but the
29 suggestions that Andrew made in our view overcome that. They're consistent with
30 the submissions made in the previous round by NZC. I can discuss those if you'd

1 like, but I think the point was made there. The suggestion made by Andrew about
2 coverage at the new site adequately addresses that.

3 **CHAIR:** Right. Okay, so we don't have consensus on this issue. If the Commission were
4 to come to a view that we didn't have jurisdiction to do this, what would be the
5 view of parties about the TCF suggestion that they could facilitate a voluntary
6 code? I just want to - on this point, you know, a draft is a draft, they're preliminary
7 views, parties should never assume that because we took a preliminary view that
8 they don't need to come prepared to discuss preliminary views if you happen to
9 agree with where we were at that point because that is all they are, preliminary
10 views.

11 So I just hope that everyone understands that. In my experience things
12 move quite a bit often between drafts and finals. Whether they will in this case I
13 don't know, but it's a risky strategy to think "well we agree with the Commission on
14 the draft so we don't have anything to say about it", because you can never assume
15 those matters are necessarily gonna hold. So the point - I just want to make sure
16 that that's understood. If you want to provide us with the legal advice that you got
17 on that matter we would be happy to receive it.

18 **MR FRASER:** I understand submissions have been made on that point but I'm happy to
19 make sure that they're refreshed.

20 **CHAIR:** All right, then let's come to the second question that I put, and that is what would
21 be the reaction should we come to a view that either because of jurisdiction, or
22 because we agree that there are practical difficulties; what do parties think about the
23 TCF suggestion that they could facilitate a code to deal with greenfield sites? And
24 I'll start with Woosh please.

25 **MR KEARNEY:** Madam Chairman, Woosh would support a TCF investigation or
26 voluntary code in this matter.³

27 **CHAIR:** Kordia?

28 **MS STONE:** Kordia would as well.

29 **CHAIR:** Telecom?

30 **MR LARSEN:** Telecom supports that position as well.

1 **CHAIR:** TeamTalk?

2 **MR HARDING:** [Nods].

3 **MR DAVIS:** No, we wouldn't. Mainly because to date it has been essentially voluntary
4 anyway and you can see the outcome that we've had, it's for all intents and purposes
5 no co-location. So we wouldn't have any faith in a voluntary code at all.

6 **CHAIR:** Have you ever tried to get access to a greenfields site in advance of it being
7 built?

8 **MR DAVIS:** I don't know if we've been aware of any greenfield sites before they've been
9 built, so therefore we wouldn't have had the opportunity to put our hand up and say
10 we'd like to go on that.

11 **CHAIR:** I only ask the question because I don't know if what's happened to date on the
12 existing sites is - what I want to know is, you know, what is it about that that you
13 think would continue to happen with greenfield sites, particularly in an environment
14 where existing sites are regulated?

15 **MR DAVIS:** I guess the point I was trying to make was a bit more general, which is it's
16 voluntary at all, whether it be greenfield or existing sites, it just hasn't happened.
17 So if we were stuck with a voluntary process, albeit just around greenfields, then I
18 personally wouldn't have much faith in delivering co-location on those greenfields.

19 **CHAIR:** Are you aware of greenfield sites being regulated anywhere else?

20 **MR EDWARDS:** Sites have been regulated before operators start and as a condition of it,
21 so some regulatory environments have had regulated co-location as a condition of
22 somebody's licence.

23 **CHAIR:** Of getting a licence?

24 **MR EDWARDS:** Yeah.

25 **CHAIR:** In a licensing regime?

26 **MR EDWARDS:** Yeah.

27 **CHAIR:** Is that for competition reasons or -

28 **MR EDWARDS:** Yes, it's so the new entrant, or the incumbents are incentivised to
29 deliver co-location services to the new entrant.

30 **CHAIR:** So where are we talking about?

1 **MR FRASER:** Commissioners, Schedule 1 to the Australian Telecommunications Act
2 makes it clear that carriers are to consider co-location, it's not part of the code. I'm
3 not referring to part of the code, this is just simply Schedule 1 which is the licence
4 conditions for the carriers, they're required to consider co-location. There was a
5 subsequent code put out by the Minister in I think 96 that required parties seek
6 co-location before they - or as they roll-out, and that's part of the backdrop in the
7 Australian landscape. They've created, I guess, the incentive or the desire to
8 develop co-location and lead to the kind of different landscape we see there today.
9 So it is part of the Schedule 1, it's a very loose drafting -

10 **CHAIR:** So they have to consider it but it's not actually mandated that they -

11 **MR FRASER:** I think it was that threat of impending further regulation that was part of
12 the backdrop that meant it happened perhaps more so than we're seeing here. I can't
13 speak for the drivers here, but I think that would be fair to say that was one of the
14 impending threats that shifted the tipping point, if you like.

15 **CHAIR:** And Vodafone's view on a situation where either for jurisdiction reasons or
16 policy implementation reasons the Commission decided against regulation of
17 greenfields sites, what is your view on the TCF proposal?

18 **MR RAE:** Yes, we'd be happy to participate in that.

19 **CHAIR:** All right. I want to come back to the key policy issue which is then, you know,
20 leaving aside the legal arguments because we've got the Telecom submission on
21 that and, you know, I think the Commission has what it needs to deal with those
22 arguments, and we'll certainly give them due consideration. But if we put that to
23 one side just for the point of discussion and talk about practical issues around - and
24 maybe principled issues around why you would or you wouldn't regulate greenfield
25 sites, I would like to hear from other parties on this. And on this occasion I will
26 turn to Vodafone first, if you don't mind me doing that. For some reason if you're
27 on the left-hand side here of the Commission you get chosen to go first. I'm sure
28 you factored that in when you took that position on the table. **[Laughter]**

29 **MR RAE:** I must admit you are keeping us on our toes. So firstly from Vodafone's point
30 of view the current stage of roll-out, we're not looking for a large number of new

1 sites which would be greenfields sites, so I'd just like to frame that first. The other
2 parties that are here probably have a lot more at stake; perhaps more to gain, more
3 to lose, because between New Zealand Communications and Telecom you're
4 probably talking about hundreds of sites that could be involved.

5 I think probably Andrew's reticence for a mandatory greenfields process that
6 also applied to New Zealand Communications in an equivalent way probably goes
7 to the heart of what are the main practical issues, and the main practical issues are
8 that overnight in this country you would need to pause your roll-out, you would
9 need to exchange information on all of your new sites. I might add this is probably
10 at the same time we're working through all the implementation of the STD. You'd
11 have to go through a process of exchanging information, deciding which sites you
12 wanted to proceed with.

13 And as a rule of thumb I doubt - I could stand corrected - I shouldn't think
14 that too many of the sites that have been designed and built out in urban areas, such
15 that New Zealand Communications is active, in are being designed so that they
16 could be co-located on. In any event, even if they were, you're talking about
17 massive delays to change designs, co-ordinate, seek revised landowner approvals,
18 RMA consents and those sorts of things. So those are really the principal practical
19 issues I see.

20 **CHAIR:** But in practice you're not planning many roll-outs so it doesn't really affect you
21 one way or the other.

22 **MR RAE:** Yeah, I'm just being honest, we don't have a very aggressive new site roll-out.
23 Having said that I'm actually working on five greenfield propositions with Telecom
24 at the moment, one of which is very close to being built. We haven't had any major
25 issues with the fact that that's a voluntary process.

26 **CHAIR:** How long has that taken?

27 **MR RAE:** The one I'm thinking of, it's close to build, we started working together in
28 February or March.

29 **CHAIR:** So you started working on it and you're close to build?

30 **MR RAE:** Yeah, I mean actually it was a really - worked well because we became aware

1 of each other's interests in the area, and we were able to design the site at the
2 beginning to cater for both needs. We got a lease that covered for both parties and
3 we also got a resource consent that covered it off. So, yes, I think it's a success
4 story.

5 **MR PICKERING:** Did you approach anybody else to see if they were interested in
6 hanging off your mast?

7 **MR RAE:** No. And also we haven't received any interest from other parties in terms of
8 sharing, or sharing of information about where other sites might be.

9 **MS MAZZOLENI:** Why couldn't you have a similar database forecasting regime for the
10 greenfields sites as we've talked about with reserve space. When you buy a site
11 you've obviously got some either short or long-term build plans in mind to send up
12 a flag with probably sufficient timeframe to accommodate the sorts of delays that
13 you're otherwise talking about.

14 **MR RAE:** Yeah, I think that could be quite possible. I think even under a voluntary
15 process there would be no impediment to parties exchanging information about
16 their roll-out plans and seeing where it made sense.

17 **CHAIR:** There must at least be some argument that looking at what others might require
18 of you before you actually roll it out, a bit cheaper than waiting until you've built
19 and then have to deal with all the issues we spent discussing in the last session. I
20 mean this is the counterfactual, the counterfactual is do what we want and don't
21 have to worry about anybody else. Counterfactual is do what you want but then a
22 month down the track you're gonna be forced to consider what others are requesting
23 of you. So it must be more efficient to consider it right from the start.

24 **MR RAE:** Yeah, I think in an ideal world that's true. In New Zealand it's actually
25 unprecedented to have two operators active at the same time, I think generally over
26 the last, well since I've been here anyway, that it's always one or the other. So part
27 of co-ordinating is about, you know, do you need the sites, do you have the money
28 for the sites? So perhaps at the moment it's quite an unusual circumstance to have
29 several parties that are quite active.

30 I think in a lot of the urban areas where NZ Comms is active I think that at a

1 practical sense it would be quite difficult and very slow to have designed and be
2 trying to get resource consent and landowner rights for sites that are large enough to
3 accommodate two operators. And that would be the same whether you sought to do
4 that prior as a greenfield or if you seek to do it after when you've secured the rights
5 to the mast. So in those areas I think it's very tough to get a site that would work
6 for both parties that you could get any time within the next year or two. In the rural
7 areas, yeah, eminently possible, but the reality is certainly with Vodafone, and I
8 suspect with Telecom, probably very little new site work going on in those areas.

9 **CHAIR:** What do you think - I mean if given this doesn't seem to have a big impact for
10 you, NZ Comms has suggested that you should only be able to enter into that
11 dialogue if you don't already have coverage, which must be why they - despite what
12 you say they prefer to see it regulated, what do you think about that proposal? Just
13 assume for a minute that we decided we were gonna regulate this and we then
14 turned our minds to that proposal from NZ Comms, what's your view on that?

15 **MR RAE:** It wouldn't feel particularly fair, I think, first up. And also it presupposes that
16 other operators already have completed their networks in those sorts of areas.
17 Coverage is one thing but something we've been building for many years is more
18 capacity. For instance we might want to put more capacity on one of our sites, we
19 can't, and perhaps sharing a site would be a good way to go. So no, I personally
20 wouldn't be in favour of a system like that.

21 **CHAIR:** This is why I asked the question, is it so clear what it means to already have
22 coverage; because what if you do need new capacity? You have coverage for past
23 demand but for future demand you don't, how is that treated under a proposal that,
24 for instance, NZ Comms has proposed? I would assume that you would have
25 access to theirs because coverage should be relative to - should be forward-looking,
26 what you need in the future not just what you needed in the past. So if you had
27 access to the NZ Comms then on that basis, so you did have coverage in the past
28 but you need additional capacity, if you had access on that basis would you be more
29 favourable on regulating greenfield activity, because it would be, in that sense,
30 equivalent to their position?

1 **MR RAE:** We would be more favourable but not a significant amount more.

2 **CHAIR:** And just turning back to NZ Comms, do you accept that - I mean this is why I
3 asked you the question about well what does it mean to have coverage? Because I
4 would think you would have to realise that if they had coverage but they needed
5 extra capacity that you would then be up to the same requirements as everyone else.

6 **MR DAVIS:** If you force to co-locate at the greenfield point you will slow down that site
7 acquisition, that site build process.

8 **CHAIR:** So it's okay for everyone else to be slowed down but not you, is that the point?

9 **MR DAVIS:** Yes, and the reason - please let me qualify it, is they are an existing -

10 **CHAIR:** I'll let you qualify it before Tex fires you. **[Laughter]**

11 **MR DAVIS:** They are an existing operator with existing coverage. The dynamic there is
12 quite different from a new entrant trying to build out coverage, especially where we
13 are right now where we're trying to build out coverage in order to launch. So
14 slowing us down is slowing down our launch versus where you've got an existing
15 operator with existing coverage saying "hey, gee whiz, you know, I might have
16 some capacity constraints somewhere in the future", in the near future but in the
17 future nonetheless.

18 **CHAIR:** I guess the difficulty I have with that is simply this, you know, while we want to
19 promote competition, and you're a key part of that, we're interested in the outcomes
20 for consumers at the end of the day. Whether they get what they need from you or
21 someone else, I mean why you should have some protected position in this I'm not
22 quite sure, and I really wonder if it even sits comfortably under the requirements of
23 the Act which you're proposing. But I'm sure you can see some of the difficulties
24 with the logic that you're presenting to us.

25 **MR DAVIS:** Yes, I can.

26 **CHAIR:** So I want to come back to the question of if you were in a situation where, say,
27 all the other parties around the room needed extra capacity on one or most of your
28 greenfield sites, if the price of having this regulated rather than left to a voluntary
29 basis was that they would be treated the same, equivalence, and they could seek
30 co-location where they needed extra capacity, would you still support that this is

1 made mandatory and is covered by the STD?

2 **MR DAVIS:** So my concern there is that the potential, you know, capacity constraints
3 would be used as a reason to compel co-location on us and therefore slow down our
4 roll-out and the pro-competitive benefits that flow with that. So I guess if they can
5 demonstrate capacity issues in that area then fine, but otherwise no. So it would
6 come down to can they demonstrate capacity issues in that particular area where
7 we're building that site.

8 **CHAIR:** This gets very tricky, doesn't it, because who's gonna determine whether they've
9 demonstrated it? Is it you who at this point if we're concerned about incentives
10 what incentive do you have to acknowledge where it has been sufficiently
11 demonstrated? I mean what does it matter to you how they demonstrate it? If they
12 enter into a contractual agreement with you to buy the space, what more do you
13 need to demonstrate than that?

14 **MR DAVIS:** I mean you can demonstrate if you've got capacity issues in an area because
15 your network management tools tell you how many dropped calls you're getting in
16 the particular site or in a particular cell. So it should be relatively easy for them to
17 demonstrate that they actually do have capacity issues in an area.

18 **CHAIR:** So you're still - you are willing to support regulation of greenfield sites even if,
19 in a sense, you're treated equivalently to everyone else in terms of their access to
20 your greenfield sites?

21 **MR DAVIS:** If they have capacity issues, yes.

22 **CHAIR:** Why else would they seek -

23 **MR DAVIS:** To slow us down.

24 **CHAIR:** All right, okay.

25 **MS MAZZOLENI:** I just want to ask a question on the slowing down, maybe Vodafone
26 you can respond to this as well. So the fear seems to be around sort of having this
27 imposed immediately over your immediate either roll-out or greenfield
28 development plans, you know, is there a sort of a grandfathering provision where
29 you would have a one year grace period, I guess, and then have this type of regime
30 brought in, so that immediate plans are not slowed down?

1 **MR EDWARDS:** We would find that constructive. One of the joint themes of greenfields
2 is that it's a route to getting a third party tower company in. And I'm very grateful
3 for Commissioner Rebstock's questioning of my colleague and we'd like to give this
4 some more thought, because it's a route to getting a third party tower company in
5 that requires some more thought.

6 **MS MAZZOLENI:** Vodafone, you seem to have concerns around the immediacy of this
7 being imposed, would you have any issues - practical issues I'm talking about, not
8 the sort of logical arguments that we've been through - you know, after a period of
9 12 months?

10 **MR RAE:** I think a delay - if it is to become mandatory I think a delay would be wise. I
11 think what we're looking at is the scale of the work we have to develop to launch
12 the STD co-location service, and I think one of the practical issues of bringing in
13 greenfields at a similar time is just simply, you know, all the work that has to be
14 done and what, you know, what has the highest priority. So certainly if it was
15 delayed that would make sense.

16 **CHAIR:** Of course if there was a delay it would be a delay for everyone right, including -

17 **MS HASKILL:** From Telecom's perspective we would be ready to start now because we
18 don't have a huge roll-out plan, but we'd also - with the suggestion of a year it
19 actually gives you time to produce a voluntary code of practice, that's another thing
20 to bear in mind.

21 **MR LARSEN:** I'll add further to that. Our concerns are not just around the time delay,
22 we do think there are additional practical difficulties which mean that it is more
23 appropriate to refer it to a voluntary organisation like TCF so that we can properly
24 consider these. I think there are a number of practical difficulties that haven't been
25 mentioned yet which mean it will be a real challenge to come up with a greenfield
26 regime within the timeframe left to us that's actually workable, given the variability
27 across sites. I'm happy to outline some of those, or our views on what those
28 practical difficulties are now if that suits or to do it in a time that's more
29 appropriate.

30 **CHAIR:** Just before we get on to those points, can I just see if TeamTalk or Kordia,

1 Woosh have anything you want to add on this matter?

2 **MR HARDING:** No, we haven't really considered it to be fair.

3 **MR KEARNEY:** Woosh would be very interested in a greenfield site co-location process.

4 There are practical difficulties as Justin as outlined. I see your point about needing
5 probably a grace period to get organised, but most definitely the idea that you could
6 have the cost for site build is very attractive to us. Also, I do believe that the RMA
7 administrators would favour the idea that two companies are coming to them for
8 one site rather than two companies coming to them for two sites.

9 **CHAIR:** I think that's a very validly made point.

10 **MS STONE:** We would echo the points raised by Woosh and certainly in other
11 deployments that we've done Councils have supported parties coming together to
12 avoid disruption to the community, and we would also echo the concerns about
13 sharing the investment cost as well.

14 **CHAIR:** I'm not sure we can take this a whole lot further, though we do have on the table
15 now an additional concept that first if we go over the jurisdiction issue and then if
16 we brought in a policy issue I wonder whether we think greenfield sites should form
17 part of the STD. We have the possibility of dealing with some of the practical
18 difficulties and dealing with some of the policy issues around mandating this
19 immediately, the option of a one year lead-in period, and the opportunity for some
20 of the practical difficulties to be worked through through the TCF on a voluntary
21 code basis in the meanwhile.

22 So I think those are all very helpful things to look at, and the Commission
23 will need to take it away and decide how to approach it. But I'll just ask my
24 colleagues if they'd like to follow-up on this. **[No comments]** And I'll ask our staff
25 and expert if there are any questions you'd like to follow-up? **[No questions]** All
26 right, are there any other matters anyone wants to raise on this?

27 **MR CHIVERS:** Could I just make one quick comment please Commissioner?

28 **CHAIR:** Sure.

29 **MR CHIVERS:** Ralph Chivers from TCF again. Just by way of clarifying my comments
30 yesterday in relation to how I'd see a TCF voluntary code for greenfields, should it

1 prove to be necessary; I'd see it very much as being a development largely of a
2 piece of process that would be additional to the STD and not a complete fresh set of
3 rules. That may possibly address some of the concerns NZ Comms have. I
4 understand their position on progress on this issue over the years through industry.
5 I see a piece of work likely being a new additional piece of process just to
6 supplement the STD in the case of a special case of new sites that don't exist
7 already.

8 **CHAIR:** All right, thank you very much. Any further last -

9 **MR EDWARDS:** NZ Comms would always recognise that the TCF has changed
10 dramatically in the last 12 months as a function of different stewardship. But
11 New Zealand Communications would say like to share with the Commission that
12 we're here before you because the TCF process from 2003 to 2006 failed to get a
13 self-regulatory code on co-location. And again earlier this year when we had an
14 opportunity to start soft launches, and in fact in March of this year when we asked
15 both Vodafone and Telecom for soft launches to kick off rapid multi-access
16 co-location, we didn't have a result. If you could consider that I'd be grateful.

17 **CHAIR:** Yes, I understand the point. I think we're looking at a different set of
18 circumstances here, but I understand the point that you're making. All right, I know
19 you offered to give us practical examples but is this something you've covered in
20 your written submissions already?

21 **MR LARSEN:** We have covered some of them and I didn't want to go into them in detail
22 because I don't think it's necessary now. The one point I suppose I did want to
23 make is, one of our concerns is that it would be mandatory as we think there are
24 clearly examples of sites where parties would generally agree that greenfields
25 would not be in the interests of either party. And classic examples of those are light
26 pole sites, and I was very interested to hear Churton Park mentioned yesterday. I've
27 had a lot of experience dealing with Councils on light poles and negotiating
28 agreements, and I know for amenity values, their clear preference is you are on
29 separate adjacent poles rather than it going together on the same pole.

30 So it's not necessarily true that in all circumstances under the RMA they do

1 favour a joint approach, quite often for amenity reasons they actually favour
2 individual approaches. So I think it just needs to be recognised by everyone that
3 there are clear examples of types of sites where a mandatory greenfield approach
4 would actually have detrimental effects on both the access seeker and access
5 provider. So that needs to be taken into consideration during the process as well.

6 **CHAIR:** I understand that, but if that's the case the interests are aligned and you wouldn't
7 be seeking to co-locate anyway.

8 **MR LARSEN:** That's my point, I agree. So in a commercial or a voluntary code that's
9 exactly right. My point was just that if it's mandated i.e. that it's a compulsory
10 greenfield process, that that mandating needs to allow the flexibility for parties
11 where there is no joint interest to not proceed, yeah.

12 **CHAIR:** All right, thank you very much for that. I'd like now to turn to the matter of
13 service levels and penalties and invite Commissioner Mazzoleni to lead the
14 discussion on this matter, thank you.

15

16 **SERVICE LEVELS AND PENALTIES**

17

18 **MS MAZZOLENI:** The main service level that we want to address is the capacity limits
19 for the site data pack applications, and the initial discussion I think we'll have is
20 concerning where we've got a significant number of towers; so we'll leave Woosh's
21 points about asymmetric regulation for parties that have a smaller number of towers
22 to the end of this discussion if that's okay. I think in the STP we started off with 30
23 per month and we came back in the draft STD with 15 per week. I think certainly
24 Vodafone and Telecom have come back in their cross-submissions with a capacity
25 limit of 10 per week per access seeker.

26 My first point is I don't understand why you're interested in putting a limit
27 on the access seeker because this is really about, you know, what capacity flow you
28 can both handle. So I'm assuming from that that you can handle 10 per week,
29 would that be a reasonable assumption?

30 **MS HASKILL:** From Telecom's perspective yes, but there does need to be a capacity

1 limit at each stage because of the service level impact. You cannot expect to get the
2 same level of service that you had putting in 10 as you would 30. It's a simple
3 matter of resources and the effort that's required and the interactions that go on
4 behind the scenes in order to meet your service levels. And if you're looking at a
5 service level which is aiming to provide certainty to the access seeker then they
6 know if they put in 10 you will get it within a service level of five working days. If
7 you put in more then it becomes movable. So there is a principled reason why most
8 service levels in the ICT industry have a capacity limit.

9 **MS MAZZOLENI:** So what umbrella capacity limit would you then apply?

10 **MS HASKILL:** We've submitted 10 per access seeker per week, provided that's forecast
11 of course.

12 **MS MAZZOLENI:** So provided you've got forecasts you can handle 10?

13 **MS HASKILL:** No.

14 **MS MAZZOLENI:** There's no need for you to impose a level on an access seeker?

15 **MS HASKILL:** Sorry, I don't understand.

16 **MS MAZZOLENI:** You can handle the work flow that comes from an access seeker
17 putting in 10 to you per week?

18 **MS HASKILL:** Yeah.

19 **MS MAZZOLENI:** Right, thank you. And Vodafone would be the same?

20 **MR RAE:** Yes, we would.

21 **MS MAZZOLENI:** And I think in terms of the draft STD, the 15 applications per week,
22 I'd just like to query NZ Comms, can you actually support a volume of 15
23 applications per access provider per week?

24 **MR EDWARDS:** What we've done to do that is hire an out-sourced engineering company
25 and as soon as our board got the confidence that the co-location protocol was real
26 they would allocate out-sourced consultant subcontractors.

27 **MS MAZZOLENI:** So the answer is you could handle 15 per access provider per week.

28 **MR EDWARDS:** Yes, that's right, but in the spirit of compromise we weren't going to
29 split hairs whether it was 10 or 15, as long as the cumulative number they could
30 bank up, you know, 10 per week per access provider.

1 **MS MAZZOLENI:** Right, because it seemed to me even going to the 10 per week per
2 access provider, I mean if you kept that sort of flow up you're getting pretty close to
3 your targets within your timeframes.

4 **MR EDWARDS:** That's right.

5 **MR DAVIS:** So, yeah, we're quite happy to agree with Telecom and Vodafone on this
6 one.

7 **MS MAZZOLENI:** Good. Okay, does that also facilitate your rapid multi-site access?

8 **MR EDWARDS:** No, no, rapid multi-access protocol, RMAP, is agreeing the standard
9 cell tower type up-front.

10 **MS MAZZOLENI:** I think we're going to come to that when we talk about common site
11 databases, but in terms of volume doesn't it do that?

12 **MR EDWARDS:** Yes, it does.

13 **MS MAZZOLENI:** Okay, that's good, thank you. So given that, given that you can
14 actually handle that volume and access providers, the larger access providers can
15 handle that sort of volume, I'm still quite drawn to what we had proposed in the
16 Schedule 3 investigation with still having overarching targets and timeframes to
17 achieve actual co-locations within certain periods. Does anyone have a view on
18 that?

19 I mean because, you know, we have seen - this could stall and it could stall
20 for a number of reasons, internal and external. But I guess we would, certainly in
21 the first six to nine months, we're drawn to the idea, given the history of co-location
22 to date and the fact that we really are trying to get a workable regime here, we're
23 very drawn to the idea of monitoring that sort of flow of site applications and where
24 they end up into final co-locations for probably the first six to nine months.

25 **MS HASKILL:** From Telecom's perspective we believe the individual service level
26 regime that was designed and agreed with the Commission on the other STDs for
27 UCLL UBA backhaul gets you there. What it does is it breaks down the end-to-end
28 process into the key steps of the process. Each of those are measured, monitored,
29 reported on, and the key bottlenecks have penalties.

30 There is the concept out there of having a cumulative end-to-end but our

1 experience to date has shown that that's not necessarily how an access seeker rolls
2 out their network. They put in requests for information in a lump, they analyse
3 those, they might put in applications over a period of time as you've pointed out
4 while they work through them themselves, and that narrows down the field. Then
5 they get to the build process, which again because of your resourcing you would do
6 in a phased approach.

7 So you can still measure end-to-end by adding up the individual service
8 levels and how are you going at each of those key bottleneck stages. For example,
9 for an access seeker that's seeking to know whether they can roll-out in Tauranga
10 the site data pack is the most important thing to them at the time. And ten of those
11 out of a request for 20 might be no, but that's important to know and it's important
12 to know quickly. And that would not be measured in a cumulative end-to-end but it
13 certainly would be in an individual service level basis.

14 So each the key bottlenecks is dealt with separately. In effect you can see
15 your end-to-end result by adding each of those up, and then you can identify where
16 the bottlenecks are, if we have problems in delivering site data packs on time, then
17 we can get in and we can fix it, it's immediately noticeable that that's what you can
18 do. Whereas in a cumulative and an end-to-end perspective you may not know that
19 for a single item until you're well past the time.

20 So we do think that the process that has been agreed with the Commission
21 previously actually gets you where you need to be.

22 **MR EDWARDS:** We believe that we need the two-tier penalty regime in place. There's
23 two different incentives on co-location and it's meant to achieve two different
24 objectives.

25 **MS MAZZOLENI:** We're going to get to the penalties in a minute.

26 **MS HASKILL:** I've got David Porteous with me who runs the service levels for
27 wholesale, do you want to add anything to that, David, from a practical perspective?

28 **MR DAVID:** I think it depends if you want to talk about the effects of the cumulative
29 penalties and some of the anomalies that can happen with that.

30 **MS MAZZOLENI:** We're going talk about penalties in a minute, is that all right?

1 **CHAIR:** Yeah, that's fine.

2 **MS MAZZOLENI:** I mean I'm still fairly drawn to having less capacity limits and targets
3 and timeframe sort of overarching monitoring for the first six to nine months, and I
4 think we could probably construct something based on the types of volumes that
5 we're talking about here in these service levels. And it might seem a little bit
6 intrusive in a sort of a business as usual type situation, but I think this is a fairly
7 unique situation in terms of the co-location STD delivering actual co-location sites
8 over, you know, reasonably - well in the near term.

9 **MS HASKILL:** Yes, I can see the driver for that, and I'd invite the Commission to let us
10 help you with that, because the other balance that needs to be struck with service
11 levels and the other potential access, you know, access providers have raised this in
12 their submissions, we don't want this to add complexity and cost. It needs to be
13 transparent, so we don't think the cumulative one that's currently set out quite gets
14 us there, simply because it can't isolate issues and it does have some anomalies in
15 how it's measured. But a service level regime can be made to view end-to-end and
16 we would be more than happy to help you get there rather than just sort of come up
17 with something theoretical.

18 **MS MAZZOLENI:** What you've said is already covered in your submissions in terms of
19 the details of that.

20 **MS HASKILL:** Yes, although I don't think we've talked much about how you would
21 construct a better cumulative process.

22 **MR EDWARDS:** We think cumulative totals are absolutely essential to capture the
23 institutional motivation to go and capture a large amount of sites. Yesterday we
24 shared with the Commission that we needed an institutional solution where we
25 could go to our CTO, who's not here with us today, and go to him with a chunky
26 group of targets so we can mobilise a large contractor. And without this two-tier
27 level we will get stuck at one co-location there, one co-location there, one
28 co-location there; it's essential that cumulative targets exist.

29 **MS MAZZOLENI:** Justin, did you want to add anything, no?

30 **MR RAE:** Not at this point thank you.

1 **MS MAZZOLENI:** Can I just turn then to Woosh's proposition that the smaller players
2 can't handle the types of site data pack application volumes that we're talking about
3 here. And I think your proposal was that for parties with less than 30 sites there
4 should be a different regime in place.

5 **MR KEARNEY:** The 300 sites was a purely arbitrary figure, but my general proposition
6 was we're not as big as Vodafone or Telecom, we don't have the same number of
7 sites, and someone could hit us with ten applications per week for three weeks and
8 we'd be inundated. So I was looking for some way of relaxation in those targets.

9 **MS MAZZOLENI:** What would you see in terms of the relaxation?

10 **MR KEARNEY:** Probably something of a percentage of our total database. I think I've
11 suggested something like 3% of our total database per week.

12 **MS MAZZOLENI:** Can I have other parties' comments on this sort of asymmetric
13 approach for parties with a smaller number of sites?

14 **MR EDWARDS:** We would support it.

15 **MS HASKILL:** We have a view that two-tier regulation is not ideal, however again in the
16 single service level regime that we've got you would have a different tolerance level
17 for a smaller player until they got up to speed or a larger soft launch period, or a
18 bow wave would also cover off Paul's concerns so he didn't have to gear up for six
19 months, or the service levels wouldn't apply for six months. So there are other
20 ways of dealing with it other than a two-tier regime.

21 **MS MAZZOLENI:** Vodafone?

22 **MS JONES:** Again I don't think we necessarily, as a general principle, support two-tier
23 regulation. However, if it was done in a way which it was certain so that everybody
24 knew what the relaxation was and how it was to apply that was absolutely certain
25 everybody knew how it would be implemented, then we would be less concerned in
26 this particular instance.

27 **MS MAZZOLENI:** Thank you. Susie, sorry.

28 **MS STONE:** We would support Woosh's suggestion. Should we become an access
29 provider we'd be in a very similar position to what he's articulated. We also have a
30 much smaller number of sites than either Vodafone or Telecom.

1 **MS MAZZOLENI:** So do you have a view on the sort of site cut-off level that Woosh
2 was talking about which was around 300 sites?

3 **MS STONE:** Well, we've got about 500, so 500 would be preferable to us just from a
4 self-interested point of view.

5 **MS HASKILL:** 1,000's good. [Laughter]

6 **MS MAZZOLENI:** Thank you Telecom.

7 **MS STONE:** I mean it comes to we have a different type of site because we're been
8 primarily based up until about ten years ago around broadcasting, so they are a
9 different site structure with more complex issues than some of the sites that we've
10 been looking at over the last couple of days. And I think a percentage of our site
11 database would suit us as well.

12 **MS MAZZOLENI:** Can I just ask Che to comment on there are a couple of other service
13 levels that you wanted to address.

14 **MR CHARTERIS:** Cheers, Che Charteris, Commission. In the submissions, in particular
15 from Telecom, there were points made regarding the service level timeframes, in
16 particular the preliminary site approval, project plan approval, interference desktop
17 study. You've mentioned we should be going back to the STP timeframes which in
18 some cases are double the timeframe proposed in the draft STD. Do any other
19 parties have views on the timeframes proposed by Telecom, in particular that the
20 preliminary site approval should be 20 working days not ten? NZC?

21 **MR EDWARDS:** Obviously we'd like it as fast as possible and we'd expect some
22 resource. We'd consider something midway, but we are under pressure to roll here.

23 **MR CHARTERIS:** But is that based on practical experience of the time that this step
24 usually takes or -

25 **MR EDWARDS:** Well it would really depend if there was a - the context of this is the
26 independent third party tower company, or independent database provider. An
27 independent database provider or an independent tower company could meet that
28 ten day turn around.

29 **MR DAVIS:** Or indeed where we've co-located with Woosh and Compass, if you were to
30 measure how long it took us on those processes versus the length of time that you're

1 given under the proposed STD, we would come well within those timeframes.

2 **MS HASKILL:** So other than 300 we can have a faster service level then?

3 **MR DAVIS:** Well it comes down to willing buyer willing seller Tonia.

4 **MR CHARTERIS:** And Bruce, TeamTalk, what's your experiences with the timeframes
5 for these steps in dealing with other parties?

6 **MR HARDING:** Generally the timeframes that have been applied by the companies we
7 work with have been within these type of parameters. I guess our concern was
8 looking back the other way, if people were coming to us we don't have a division
9 set up for looking at these types of things, it means taking somebody off other
10 active work to actually do it. As it appears it will probably be outside of this
11 process, we haven't been too concerned about it. If we were to come within the
12 process then right now we would struggle to meet any of these timeframes because
13 it just meant stopping other revenue earning work.

14 **MR CHARTERIS:** It was more a question of in your dealings with Telecom, Vodafone,
15 with other parties, what sort of timeframes have your co-locations met compared to
16 those proposed in the STD?

17 **MR HARDING:** It's hard to comment, because I haven't actually got definite details.

18 **MS HASKILL:** I can probably add some more, Bruce, because we've got a large number
19 of TeamTalk full site applications in the pipeline now and they're taking on average
20 26 working days each, and that's with a geared up team, so they do take a while to
21 do properly.

22 **MR HARDING:** And I guess that depends on what you define as process, because it
23 becomes an iterative type process. Some sites we've got as much detail as Telecom,
24 if not more, on the site so we can do more ourselves, other times we've got to seek
25 information from them. So it does vary and that was why I was hesitant to say just
26 how long it takes, but the overall impression is that it gets done expeditiously.

27 **MR CHARTERIS:** Vodafone, do you have a view on this given that in your submission
28 you didn't challenge the timeframes?

29 **MR RAE:** Yes, we do and in hindsight and having now processed a few more applications
30 we think that the period for the preliminary site approval should be increased back

1 to 20 working days, that's what's in the current code. I think now looking at some
2 of the volumes of sites we're talking about going through ten days for what is
3 probably the critical decision point in the end-to-end process out of a process that in
4 the STD come templates around a year; you know, ten days more to get it right I
5 think would be very well spent.

6 **MR CHARTERIS:** Just one other issue related to the service levels. In your submission,
7 Telecom, you suggested that the service levels around the fault restoration time be
8 removed because this wasn't applicable in this instance. I notice no other parties
9 commented on that, and I assume that the access providers network can still cause
10 faults in the access seeker's network depending on how things are configured; is
11 that understanding correct?

12 **MS HASKILL:** It wasn't in the agenda so I haven't -

13 **MR CHARTERIS:** Basically in your submission you say that the access provider's
14 network cannot cause a fault to the access seeker's network. Do you still hold to
15 that proposition?

16 **MS HASKILL:** Yes, we do, but this is about putting equipment - bolting it to masts, it's
17 not about network to network; which UCLL does have a different aspect, because
18 UCLL co-location is for the purpose of UCLL connections to the network. So in
19 this case it is quite a different scenario.

20 **MR PORTEOUS:** Yeah, I think just to add to that, yeah, in UCLL or other types of
21 services such as that there's an interaction between the networks and the logical
22 communication between them. This is a service which is about the placement of
23 physical equipment on a physical mast, so there's not an actual network interaction.
24 The exception being not a network interaction but the interaction of RF signals is
25 the only area where the networks have a relationship but there's no connectivity
26 between them.

27 **MR CHARTERIS:** So there's no utility sharing or anything like that which may cause a
28 fault?

29 **MR PORTEOUS:** The utility sharing, there is the possibility of power utility sharing and
30 that would be one case of a fault, say if a transmitter blew up or something like that.

1 **MS HASKILL:** That wouldn't be a network fault.

2 **MR PORTEOUS:** But that's not a - yeah.

3 **MS HASKILL:** We looked into this, we had ten faults last year and they're things like
4 roofs blowing off shared facilities, electricity failures, but none of them had
5 anything to do with the network or the access seeker network.

6 **MR CHARTERIS:** So they didn't impact on access seeker network?

7 **MS HASKILL:** They're physical faults on shared facilities usually.

8 **MR CHARTERIS:** Do any other parties have a view on the probability of access
9 provider network faults impacting access seeker networks?

10 **MR RAE:** From Vodafone's point of view we actually struggle to think of any examples
11 of what that could be.

12 **MR EDWARDS:** We can't think of anything other than possibly shared power or shared
13 transmission, but that's only usual, it wouldn't be an issue.

14 **MS MAZZOLENI:** Okay, unless staff or the Commissioners have any other questions on
15 the service levels can we just turn to penalties. I think in terms of the penalties we
16 fully understand what is in the submissions in terms of the two tiered penalty
17 regime and we also understand quite clearly that, in terms of the individual defaults,
18 the arguments that have been put forward about the penalty percentage, the 20%
19 compared to the 7%.

20 What we put out in terms of our issues paper that we'd like to talk about
21 today is that if we should decide to go to a single penalty regime that it would seem
22 that the delay in completion of all of the key tasks is probably more appropriate to
23 what we're trying to achieve here. And particularly in light of the sort of lack of
24 progress that there has been in terms of achieving actual co-locations to date. I
25 mean the end purpose of all of this is to actually get co-location, so perhaps the
26 cumulative penalty is more appropriate for that.

27 But I'd just like to ask NZ Comms, the Commission put a \$500 penalty per
28 delay day in the draft STD, and New Zealand Comms has submitted that that really
29 is too light and it should be around the \$2,000 per delay day level. And I just
30 wanted to make quite sure, particularly in light of some of the opening comments

1 from Vodafone and Telecom yesterday, that you're well aware that that's obviously
2 going to drive costs into the co-location service.

3 **MS LANIGAN:** The other way that you could look at it is that it's go going to drive the
4 incentives so that those costs then - sorry, let me rephrase it. It's really about trying
5 to avoid delays and kind of get the incentives right although, you know, kind of
6 flowing on from yesterday in the discussion, even using that \$500 per day amount,
7 even with quite a lot of sites as documented in the piece that was handed out, that
8 still, when set against the potential retail revenues to be lost, will kind of lead to the
9 result that the co-location provision isn't perhaps top of the to do list for Telecom
10 and Vodafone. There's not the sense of urgency that there would be in a
11 competitive market as is kind of clear from international examples and the domestic
12 arrangements between parties that don't compete in the down-stream market.

13 And Bill's going to talk a bit - Bill has some examples in a moment of how
14 things have worked overseas, particularly in Europe. But the implications for SLAs
15 is that it's important to be as detailed and descriptive as we can to improve the
16 incentives. But given the specific case at hand, it really does seem that detailed
17 SLAs are necessary but not sufficient to address the incentive problems, and that
18 again Bill in a moment, I think, has some views on some additional measures to
19 change incentives.

20 **MS MAZZOLENI:** I'm just interested in the difference between where the draft STD was
21 in terms of what we consider to be an appropriate liquidated damages sum, I guess,
22 and the \$2,000 that you've suggested.

23 **MR EDWARDS:** We also submitted when we wrote the adjustment submission, the latest
24 submission, we adjusted it for two reasons; one was that we hadn't made any
25 significant progress on co-location since the initial threat of the STD; and secondly
26 in that submission we also shared our perspective that roaming was an appropriate
27 incentive because we just weren't seeing any traction. We envisaged having some
28 soft launch co-locations to build and we envisaged being around this forum today
29 with anecdotal evidence of the last 20 or 50 co-locations we've built. The fact is
30 that we're here with none.

1 **MR McCABE:** Bill McCabe, NZ Communications. I think the target here is to provide
2 co-location. From our perspective we want coverage and whether you provide
3 coverage via co-locations or whether you provide it via other mechanisms, it's the
4 coverage that we want to be able to provide to customers. What happens in
5 jurisdictions around the world generally when there's a need for a new entrant to
6 provide competition in a market, national roaming is the tool by which coverage is
7 provided to that new entrant, and it's happened all the way across Europe as you're
8 probably aware.

9 And there's an obligation to provide and if the price of national roaming is
10 set at a level that does not provide the disincentives that Emma, I think, spoke about
11 yesterday, then suddenly co-locations can free up. So if we have coverage using
12 national roaming across the country at, for example at marginal cost, then I think
13 suddenly we will find that Telecom and Vodafone will be knocking on our door
14 every morning saying "have you looked at this site, have you looked at that site,
15 come on, can we co-locate" because it's in their commercial interests to then do so.

16 Again a perspective from the UK, and I know that Commissioner Rebstock
17 earlier you were saying that you hadn't seen peace break out between mobile
18 operators around the world. That's absolutely true, but I've recently come from the
19 UK where Hutchison 3G and T-Mobile who compete ferociously in a very
20 competitive market got together and said this is crazy, we're rolling out networks
21 right the way across the country, we've got 20,000 base stations between us, if we
22 can get together and site share, network share on our existing infrastructure then we
23 can reduce our costs and compete that much better in this market.

24 What they've done within 18 months of signing, they've got about 10,000
25 base stations that they are sharing on, they're using single antennas, they're
26 broadcasting over two different frequencies for that and they've got ambitions to go
27 to 3.5 G and LTE in the future. So they're designing something that's future-proof.
28 What's happened there is other operators have seen that costs are going to be
29 reduced and I think Vodafone and Orange have also signed a deal where they're
30 going to be sharing their entire networks as well.

1 So when we start talking about incentives I think, you know, the first thing
2 that other places do is they say national roaming - the obligation for national
3 roaming has to be there. In other jurisdictions there's generally competition for that,
4 for the provision of national roaming and the prices are significantly south of where
5 the Commission came out on on their final report on national roaming. I've just
6 been surprised here in New Zealand that national roaming wasn't given more focus,
7 because if it was I think we would find there would be significantly more
8 co-locations in place now and in the future because it would be in all operators'
9 interests to do so.

10 **MS MAZZOLENI:** Thank you for that. But just before we finish on this subject I'd just
11 ask access providers to perhaps comment on, since you've raised it in your openings
12 yesterday about some of the costs that might be driven, not specifically of course -
13 we're not concerned here about pricing, but the impact of the sort of penalty level
14 certainly for this particular penalty, the delay in all of the key tasks at the sorts of
15 levels that -

16 **MS HASKILL:** Again I'll get David to talk to the detail, but there are a couple of things
17 the Commission should bear in mind. The current STD process does have a change
18 mechanism in it for service levels and under that if the service level regime is seen
19 not to be working I think they're annual reviews from memory, an annual review
20 shows the service levels are not meeting the needs and they're reviewed and you can
21 review the number, you can review where the penalties lie and how much the
22 penalty amount is for. I suggest here that it's not been a lack of service levels that
23 haven't driven co-location, it's the bigger things and Bill's actually alluded to it.
24 Wherever we've dealt with customers we meet our service levels and there's a
25 two-way street in that, they have things to do as well, particularly in the co-lo, it's a
26 lot of compromise on that. So but, Dave, you were going to talk about financial -

27 **MR PORTEOUS:** Yeah, I think firstly just to add to what Tonia is saying and,
28 Commissioner, you mentioned the importance of timely end-to-end delivery and
29 that's a very valid point. One of the things with this type of application processes,
30 however Tonia's mentioned earlier, not every application goes all the way through

1 to completion. And so in looking to measure things at the completion point you
2 have a variable completion time which starts to add complexity into the
3 measurement and reporting of such. I think the other important thing is that service
4 levels are about providing certainty of delivery and not about financial payments.

5 So you know, as mentioned earlier each of the components of this service
6 carry variable importance, such as the site data pack, to allow you to assess if you're
7 going to proceed with a site right through to full site application where you know,
8 okay, you want to get into the queue and that buys you a certain amount of
9 certainty. So at each stage in the process it's important to have a timely delivery,
10 and I think it's also important to have a timely remedy at the time of any breach,
11 and I believe that that drives the right type of behaviours from an access provider in
12 a better way than an overall cumulative approach.

13 **MS MAZZOLENI:** Thank you. Vodafone did you want to make a comment?

14 **MR RAE:** We'd prefer not to make a further comment, thanks.

15 **MR YORK:** Would you like me to respond to the comment on pricing around national
16 roaming as a penalty for co-location, I just wonder given it's been helpfully raised
17 by NZ Comms whether you'd like a response on that?

18 **MS MAZZOLENI:** I'm not - I don't particularly think that that would be helpful but -

19 **MR YORK:** Okay, the only thing - obviously there are points in our submission, the idea,
20 I guess, of a pricing principle of marginal cost around national roaming and that
21 creating great incentives for us to come and knock on the door for NZ Comms to
22 co-locate. I think if it's getting prices of marginal cost for national roaming it
23 would have no incentive to open the door when we came and knocked on it, it
24 would be getting such low prices for it it would never want to incur the costs of
25 rolling out its own network by co-location. So I think the incentives go both ways,
26 and if our objective is co-location there I don't think pricing national roaming at
27 marginal cost is going to help with that.

28 **MS MAZZOLENI:** Do Commissioners have any other comments in this area, staff? [**No**
29 **comments**] Thank you.

30 **CHAIR:** All right. You had put your hand up briefly, I will give you a brief time to -

1 **MR McCABE:** It's just in response to Vodafone's latest comment, I was referring to other
2 territories. Generally what happens is there is a sunset clause on national roaming,
3 so the obligation only lasts for a certain amount of time. So the incentive is still
4 there to provide your own coverage.

5 **CHAIR:** We'll look at putting a sunset clause in at the appropriate time. Okay, let's turn
6 to the next item then please which is common format site database issues, and I'd
7 like to invite Commissioner Pickering to lead the discussion on that, thank you.

8

9

COMMON FORMAT SITE DATABASE

10

11 **MR PICKERING:** Thank you Chair. Well in the common format site database
12 discussion there are really two focuses; one being what's included in this database
13 and needs to be or should be included, and secondly the question of accuracy and
14 the delivery of that.

15 So just focusing on the what's to be included. The Commission's
16 preliminary view was that the common format site database should contain
17 information on all of an access provider's relative facilities rather than only those
18 that are reasonably or practically capable of supporting the mobile co-location
19 service. We did receive a number of submissions on this matter of common format
20 site database, and some of the submissions express the view that the database
21 should be maintained in a common format by each access provider and include only
22 those sites that are reasonably and/or practicably capable of supporting the
23 co-location service.

24 So I really would like to start from New Zealand Communication's point of
25 view. You have made some submissions obviously, but what do you require, or
26 what would you suggest you require in the database? From a site point of view not
27 content at this stage, just site, which sites?

28 **MR FRASER:** Yes, all sites.

29 **MR PICKERING:** All sites, give us the reasons for that.

30 **MR FRASER:** The rationales are a number. Firstly, who makes the decision as to

1 whether it's suitable. I mean I don't want to be disrespectful, but we'd like to have
2 some insight into the decision-making process that goes behind that. Secondly, and
3 probably related to that, is the issue that we may look at a site and say well that's the
4 perfect site, yes it's not suitable, but it might be okay for tower replacement. So we
5 would say tell us where they all are and let us make a decision about how to fix it if
6 it's inadequate.

7 **MR PICKERING:** Would you see that lampposts and trees and things like that would
8 have the same interest or require the same - clearly it wouldn't be all the same
9 information because you just couldn't get the same amount of information on - I'm
10 trying to distinguish here, you know, is there any priority of information depending
11 on the site type.

12 **MR FRASER:** The short answer to your question is yes, we would say all sites should be
13 there. I'm not sure how many are in trees but it's -

14 **MR PICKERING:** Perhaps I was exaggerating slightly. But a lot of lampposts and -

15 **MR FRASER:** Yeah, no, there are, but it does help us plan and if we know where the sites
16 are, I mean if a site's not suitable it's not suitable and we can equally make that
17 decision, but it helps us plan to know where existing sites are. We would like to
18 defer, we understand there's some representations to be made from I think it's
19 Tarantula, and we would defer to I guess their expertise about other jurisdictions
20 and what occurs there.

21 But the rationale is simply that it assists us to plan our network and our
22 roll-out to know where all the other networks are, and for us to make the decision
23 about whether or not it's a suitable site for co-location and not have others make
24 that decision for us. The priority, though, and prioritisation, which is the second
25 point you make and you said we're going to come up next, is - I mean ideally all at
26 once but obviously and logically ones that are clearly going to be unacceptable
27 could come later in terms of a prioritisation process, that's not -

28 **MR PICKERING:** I think both Telecom and Vodafone suggested that that might be a lot
29 more onerous. Maybe Vodafone you could start by - just because you're on the left
30 side.

1 **MR RAE:** Thank you. We went through a lot of these issues when we were with the TCF
2 and the principles that came out of that were the reasonably practicable, compatible.
3 But we agree there shouldn't be a degree of subjectivity about what sites go in the
4 database. But I think if we're looking at this we should really have in the database
5 the things that matter, and if you take the point of view that we, for various reasons,
6 have a situation in this country where there isn't a lot of co-location, I think perhaps
7 by trying to put all the sites that are out there in the network, whether or not they
8 may be suitable for co-location, is perhaps trying to run before we can walk.

9 So definitely certain types of sites are far more compatible for co-location
10 than others. I've never seen anyone co-locate in any country really on a rooftop.
11 People co-site but they don't co-locate. The reason for that is there's nothing that
12 the access provider has that the access seeker needs from them that it can't get from
13 the landowner. So what happens in those situations, and I've processed 50 of those
14 this year, is a near site or a co-site which is a very simple process.

15 So I would suggest for reasons like costs, for the reason that there is a very
16 short implementation timeframe. We are talking about, in our instance, probably
17 similar for Telecom, going from masts, which I think should be in the database,
18 whether or not we think they can be co-located on they should all be in there; to
19 adding roof tops and roadside sites, it doubles the size of the database, it doubles
20 the amount of work we would have to do, and I suggest it wouldn't lead to any
21 doubling or even perhaps any more co-location than you would have if you just
22 stuck with masts.

23 **MR PICKERING:** Okay, Telecom?

24 **MS MAZZOLENI:** Sorry, can I just clarify a point with Vodafone? Didn't you say
25 yesterday that your database was about 80% full on masts?

26 **MR RAE:** Yes, it is, that's true.

27 **MR PICKERING:** But he's talking about going from masts to all the other, yeah.
28 Telecom?

29 **MR PORTEOUS:** I concur with much of what Vodafone has said. I think firstly the TCF
30 process was a very important process, and it was at the request of the Commission

1 that we engaged with the TCF as an industry, both access providers and access
2 seekers, to look at the mobile co-location, and part of that was the purpose and
3 scope of the database.

4 It is a case of balance of usefulness versus cost, and I think the point is well
5 made that clearly any mast, any structures, we're not talking about removing or
6 making a judgment call on structures that may well be capable of supporting
7 co-location. But if you start talking about traffic lights and lampposts, and you've
8 seen the images of them in our slide pack - slide 27 gives you an idea of those - it
9 just is not practical, and therefore the question is left, why put it in a database that is
10 a service guide to say here's places that you can possibly co-locate on. Why put
11 something in there that is not capable of being co-located on?

12 **MR PICKERING:** Could I just go back one step to help me with this, this is both to
13 Vodafone and Telecom. You've got a set of antenna out there for the whole
14 network, those are assets, presumably they have to be on your financial books and
15 you'd have to know where they are and all those sort of things; don't you each have
16 one database at the moment that covers that?

17 **MR PORTEOUS:** The blunt answer is no, we have some 14.

18 **MR PICKERING:** 14?

19 **MR PORTEOUS:** 14 in various states.

20 **MR PICKERING:** Will you ever get one?

21 **MR PORTEOUS:** I don't have a crystal ball and it is -

22 **MS HASKILL:** There is one planned for roll-out at the end of 2009, an asset database for
23 Chorus that includes all mobile and fixed assets, at the end of 2009. So that won't
24 help us here particularly unfortunately.

25 **MR PICKERING:** I can sort of understand how - and given that's the facts that's the
26 facts, but it's sort of a bit strange, but never mind.

27 **MS MAZZOLENI:** Can you just clarify that, so that's for all potential sites?

28 **MS HASKILL:** The new database?

29 **MS MAZZOLENI:** No, no, the current databases that you just talk about, for just masts
30 and your new database, how well progressed is that?

1 **MS HASKILL:** We think they're about 60%, 60% of what the TCF asks for.

2 **MR PICKERING:** Could you just help me again, I thought somebody said the TCF asked
3 for all. Wasn't that what - did you say -

4 **MR EDWARDS:** We wanted all the sites in the database.

5 **MR PICKERING:** No, no, but TCF, what did they define?

6 **MR PORTEOUS:** In the TCF we were looking to have all of the useful sites in the
7 database and there was -

8 **MR PICKERING:** Useful being for co-location?

9 **MR PORTEOUS:** For co-location, so masts that had the structural - not necessarily the
10 structural - but would have height and generally had a high likelihood of being able
11 to be co-located on.

12 **MR PICKERING:** So was there some definition? The definition was just what you said
13 was it? And you had to make the decision, or did they have - was there some way
14 other people could make that judgment?

15 **MS MAZZOLENI:** Can I just clarify this? The masts that we're talking about here in
16 terms of the 60% and the 80% are the roughly 2,000 sites?

17 **MR PICKERING:** No, 309 or something.

18 **MR RAE:** I can help, Dave. Just this once. **[Laughter]** So look, at the TCF, you know,
19 basically it was certainly in the work stream that Dave and I were working in, very
20 practical, pretty constructive just, you know, guys who do things, and we're talking
21 about what's gonna make co-location work. This database is quite a step ahead
22 from where we are now, we're in the darkness really, and now we're moving into a
23 situation where we're going to have transparent visibility of each other's sites.

24 And the words that came out in terms of the principle, I think, were like
25 reasonably capable and practicable. But when we draft our STP what we had in
26 mind was every mast in your network goes in the database, whether or not it can
27 support co-location, you shouldn't have a subjective element to that. It's arguable
28 whether a rooftop is a relevant facility, we won't perhaps go there now, but really I
29 don't think most people sensibly would think that that helped mobile co-location.

30 So I think our suggestion in our cross-subs or sub was that take out the

1 subjectivity, just say the sites that should not be in it, which for us really are
2 roadside facilities and special sites, like rubber trees and roof tops. But every other
3 side in your network which is a mast it goes in the database.

4 **MR PICKERING:** So just on a number basis how many were you talking about then?

5 **MR RAE:** So under those criteria we would have 600 sites in the database.

6 **MR PICKERING:** 600 sites, okay, and Telecom, how many?

7 **MR PORTEOUS:** Currently we have over 420 in the database as it stands now.

8 **MS MAZZOLENI:** But that's of your 800 total that you mentioned yesterday, correct?

9 **MR PORTEOUS:** Of our 800, yes.

10 **MS MAZZOLENI:** The definition's pretty close to what we used in the Schedule 3 which
11 was a rough umbrella of sort of 2,000 sites.

12 **MR LARSEN:** Yeah, if you refer to our slides yesterday I suppose the summary is we
13 agree we're not saying you should exclude things that are doubtful, we're saying
14 basically we just think you should exclude things that are doubtful, we're saying
15 basically we just think you should exclude things that are clearly not capable. If
16 you look at the numbers you'll get an idea, as everyone said, we're really taking
17 about lampposts and building sites. In our slide 3 yesterday we supplied some
18 numbers and you can relatively indicatively quite quickly get the sort of numbers
19 that should be included in the database by having a quick look at that and going
20 from there.

21 **MR PORTEOUS:** So in concurrence with Vodafone, we're not - talking about
22 subjective measures, we would say everything excluding lampposts and traffic
23 lights and buildings, and clock towers.

24 **MR PICKERING:** Okay. New Zealand Communications?

25 **MR EDWARDS:** Commissioner Pickering, somebody yesterday mentioned when is the
26 tipping point when this co-location protocol works. One of the reasons why we
27 believe that every cell tower, every antenna, every piece of mobile radio access
28 network should be in the database is once the tipping point occurs, and there's an
29 incentive to get costs down as a consequence of co-location, then it's rational
30 economic behaviour by the two operators, Vodafone and Telecom even, that a third

1 entrant, or somebody who is building a tower in the district would say "excuse me
2 Telecom or aunty Vodafone, you have an antenna on that building, you have a
3 lamppost on that building, you're currently paying \$12,000, or in some cases
4 \$15,000 to Porirua City Council or Invercargill City Council, or you're paying 20
5 grand to Joe building owner, come over to us please Mr Telecom or Vodafone and
6 we'll move that antenna to save costs for the industry, which impacts the best use
7 for the end consumer".

8 And as a consequence once that tipping point's been breached there's an
9 incentive to co-locate and reduce masts in the community, and it reduces costs in
10 the community. And NZ Communications would put to the Commission that every
11 site and every antenna must be in the database because once the tipping point comes
12 those sites are incented to go into co-locate situations.

13 **CHAIR:** I don't understand then why they need to be in the database. If they're incented
14 from their side to approach someone who's building a greenfield site, why does it
15 need to be in the database? It's not reliant on the access provider knowing who to
16 approach if somebody knows it's being done, why does it need to be in the
17 database?

18 **MR EDWARDS:** Because the access seeker who is looking to build a site in the area,
19 who is looking at an infill or increased capacity site, could gather around the other
20 operators in the market who would be incentivised to increase capacity at the lowest
21 marginal cost. He or she as the operator would know where those antennas were
22 located and who the landlord was and how it would be structured and what the
23 pricing was.

24 **CHAIR:** It just seems to me if you're planning to do something and you want to know if
25 anybody else is interested in collocating there aren't more than a handful of them so
26 you can ask for expressions of interest. If the interest is there it shouldn't require a
27 costly database to elicit the interest. I understand the point you make and I think it's
28 a valid point about there might be a change in incentive, but it's that very incentive
29 that means you don't have to put a lot of money into an expensive database in order
30 to get the outcome.

1 **MR DAVIS:** There's one other reason why we'd argue for putting in rooftops and so on, is
2 in some cases these operators have negotiated into their leases exclusivity over that
3 structure. So then when we come along we get told no, no, this isn't a co-siting,
4 even though we've independently got a lease from the landlord for that site. They
5 actually say "no, we require a co-location from you". And an example of that is
6 Unitech in Auckland. There's a chimney there and we independently got a lease on
7 that chimney, we let Telecom know that, you know, as a good neighbour hey we're
8 gonna put our antenna here, and the landlord had said to us as a condition of our
9 lease Telecom's an existing tenant so get their sign-off that everything's okay.

10 **CHAIR:** I understand that point, but I just wonder what the jurisdiction is to address a
11 co-site issue in a standard terms determination on co-location.

12 **MR DAVIS:** I guess the point I'm making is Telecom is telling us it's not a co-site it's a
13 co-location, even though it's not on a tower. They don't own the structure at all but
14 they're telling us it's a co-location.

15 **MR LARSEN:** If I can answer that question, Unitech we would consider would be in the
16 database and we think it's a mast, we wouldn't regard that as a building site. It's
17 definitely not a building site, it's not on a rooftop. It's a rare situation where instead
18 of a mast we've used a chimney, normally the mast would be in our lease area, in
19 this case it was a chimney rather than a mast. But we would definitely regard that
20 as being in the database, it's a mast or similar structure as set out in the Act and we
21 clearly think that's covered. So we wouldn't be arguing with that one, that should
22 be in the database.

23 **CHAIR:** But I think, I mean I understand the points you both made on that, but coming
24 back to the wider issue, I can understand the point you make about wanting to know
25 what's in the leases for co-site purposes, I'm not sure that - I just wonder in a legal
26 sense whether we'd have the jurisdiction, whether that provides a reason for us to
27 extend a database when it's not actually about co-location. In some instances it may
28 be they're not arguing that, but where it's really a co-site instead of co-location what
29 is the jurisdiction for us to extend the database so you have that additional
30 information?

1 **MS MAZZOLENI:** I think the issue is that the definition that we put in the draft STD I
2 won't say widened, but instead of capturing the 2,000 masts that we were talking
3 about in the Schedule 3, has extended it to, in Telecom's case, you moved up from,
4 you know, roughly 1,000, you've said, to about 3,500.

5 **MR PORTEOUS:** Yes.

6 **MS MAZZOLENI:** So I guess the issue is if we're to infill the entire database with that in
7 your case 3,500, say Vodafone has a similar number, should we be prioritising the
8 masts as defined in the Schedule 3, the sort of 840 odd that you're talking about
9 **[indicates Telecom]**, the 600 that you're talking about **[indicates Vodafone]** and
10 then backfill for the others which are within the co-location definition as a second
11 tier.

12 **MR PICKERING:** Yeah, that's what I was going to suggest. I mean is that a practical
13 position to take, that if we did choose to go to all, could there be one classification
14 as you suggested before, the TCF masts etc, etc, and then simply just in this
15 position there is some antenna, you don't have to say very much about it at all. At
16 least I would have thought then that gives another party the opportunity to just
17 peruse through and they know that it's this classification lamppost, or it's a plastic
18 tree or whatever, and you go from there. But at least the majority of opportunity is
19 well specified.

20 **MR PORTEOUS:** Yes, I think that the - two things; one the idea of putting within the
21 common format site database the practical sites that are likely to be capable of
22 co-locating is clearly the priority. It's important to note that all transmitting
23 facilities are recorded in the MED database, so any of those other sites, whether
24 they be building, traffic lights, clock towers, whatever, will be in a publicly
25 available forum.

26 **MR PICKERING:** Now is that kept up-to-date?

27 **MS STONE:** Yes, it is, yeah.

28 **MR PICKERING:** You're satisfied up-to-date? You're looking very perplexed there Tex.

29 **MR EDWARDS:** Our choice would be to have an independent database provider. We
30 think that adds a level of simplicity. The same thing happens with the number

1 portability database, and we believe because of the tipping point and the motivation
2 of co-location we think that a full database is better than a half database. We'd
3 actually be grateful if we could call an expert witness who runs a database company
4 to share a quick perspective on the matter.

5 **CHAIR:** Well I just want to be clear on what's new evidence here and new submissions
6 that haven't been previously put to us. Can I just clarify this.

7 **MR EDWARDS:** We did submit in the last round of cross-submissions we specifically
8 noted and advocated midway through our submission that we thought the database
9 should be outsourced to an independent company.

10 **MS MAZZOLENI:** But, Tex, that is the point, isn't it, I mean it did come in in the
11 cross-submission so no-one else had the opportunity to have any comment at that
12 point.

13 **CHAIR:** It's not the purpose of cross-submissions to enter a new - it's to respond to
14 another team's submissions. So I think it's quite difficult for us, quite difficult
15 indeed.

16 **MR EDWARDS:** I understand.

17 **CHAIR:** Where it leads to if we were to allow it is further delays because we'd have to
18 have a process to allow for the comment on it.

19 **MR PICKERING:** But if you just took that aside you've still got the basic question, what
20 should we have in the database? And at the moment I think we've canvassed the
21 views, I'd like to ask the staff whether - well sorry, Woosh and Kordia and others
22 around the table.

23 **MR KEARNEY:** I've got nothing to add.

24 **MS STONE:** Just to address the point that New Zealand Communications made before,
25 it's not the same as number portability, that was a new service that was being
26 introduced that required a new database to be built. At the TCF we agreed on a
27 common format and in making our individual databases accessible we think that
28 that's sufficient.

29 **MR PICKERING:** Right, okay. Anybody else have any say here?

30 **MR CHIVERS:** If I just may say a couple of comments. Just by way of clarification the

1 TCF output records that, and I'll just read this out for convenience. "The common
2 format site database is a database (for example a spreadsheet) containing up-to-date
3 information on all of the access providers' sites that are capable (i.e. physically
4 compatible) of supplying a mobile co-location service".

5 So that clarifies what was agreed largely by the people around this table
6 today. In terms of the additional point about the Ministry of Economic
7 Development's radio spectrum database, it's a lawful requirement to licence every
8 transmission. Those licenses which are site-specific must be registered in that
9 database before transmission can commence. So in fact not only is that database
10 up-to-date it tends to actually lead the commencement of service.

11 **MR PICKERING:** Right, okay. Staff, do you want to - on this question of sites? Che.

12 **MR CHARTERIS:** Just one little question on the level of information. It sounds as
13 though we've got two tiers of sites that are being discussed, the mast and towers and
14 then the roadside lamppost, pole, signs, artificial trees, rooftops. Would parties, if
15 both types were included in the database, do parties see merit in the full set of
16 information set out in the STD being included for those lampposts, signs and
17 artificial trees, like the number of antenna and all those sorts of things, or are they
18 after a simpler set of information? And what are the benefits of the fuller set of
19 information for those other sites? NZC?

20 **MR DAVIS:** I'll address it and at the same time address a question which Commissioner
21 Rebstock asked but then we didn't get to answer, which was a jurisdictional issue of
22 co-site versus co-location and what actually can be regulated here. Towers etc
23 definitely co-location, full information. Rooftops, the only types of rooftops that I
24 can think of where you can say hey, you know, we're going to be asked to co-locate
25 here rather than co-site, is if the access provider owns that building. And in
26 particular I'm thinking perhaps exchange buildings of Telecom's because they do
27 own quite a number of buildings. In that case I would expect that rooftops would
28 be within the database.

29 And the other would be where they have somehow negotiated some form of
30 exclusivity over that rooftop, so they actually do control that rooftop and they

1 intend to enforce that exclusivity clause in their lease, then, you know, in that case
2 if we were to come along on to that rooftop they would be telling us "this is the
3 co-location situation, we require a co-location application from you".

4 In those situations I would like to see it within the database. Other rooftops
5 where they don't have exclusivity and, you know, we are just dealing with a private
6 landlord, then no, that's a co-site application, and that's outside the scope of what
7 we're looking at today.

8 **MR CHARTERIS:** Specifically in relation to the other things, the artificial trees, signs,
9 all these things where it seems to be agreed it's not really physically capable to
10 co-locate.

11 **MR EDWARDS:** An artificial tree in Johannesburg about 50% of the sites are stealth
12 sites, they're artificial trees, they're special trees made for antennas. You can
13 co-locate on those. They're very expensive but you can.

14 **MR CHARTERIS:** So NZC disagrees with the proposition that it's unreasonable to
15 expect to co-locate on -

16 **MR EDWARDS:** No, it's reasonable to expect to co-locate on stealth sites, they're trees,
17 and a stealth site is a look alike tree with an antenna in it, and in some shopping
18 centres, particularly Westfield up at the end of the northwestern motorway, there's a
19 shopping centre facility that is partly assigned and that is able to be co-located on.
20 So those independent structures and even some traffic lights can be co-located on.

21 **MR CHARTERIS:** So you disagree in general -

22 **MR EDWARDS:** That's right.

23 **MR CHARTERIS:** - with the proposition that any of those things I've mentioned cannot
24 be co-located upon in some instances?

25 **MR EDWARDS:** They should be in the database because they can be co-located.

26 **MR CHARTERIS:** Telecom?

27 **MR PORTEOUS:** Yes, in answer to your question I think that the sites we're talking
28 about that are not practical to co-locate on, firstly the TCF agreed that the database
29 would have full information. So if you look that what's included in that you've got
30 things such as height, you've got location, eastings and northings, and you've got

1 panel antenna and various other data. You know, some of it is probably not
2 available for some of these sites. The eastings and northings, the location data is
3 available in the MED database and hence, as I said before, all these sites are
4 actually known to the public. And again I guess I come back to the point that they
5 are not practical sites to co-locate on, but it is possible to know where these places
6 are if you wish to consider it.

7 **MR CHARTERIS:** Thank you.

8 **MR PICKERING:** Just one final question around what's to be included. What's the view
9 of - in the STD we've asked that the database be completed within ten working days
10 of the Determination. So where is Vodafone and Telecom and New Zealand
11 Communications, you must have some sites at the moment that you'll put into a
12 database?

13 **MR DAVIS:** Sure.

14 **MR EDWARDS:** We have a database that's running available, ten days, fine.

15 **MR PICKERING:** Okay, Vodafone?

16 **MR RAE:** We can make the ten daytime frame as long as the scope of the database
17 remains as it was at the TCF and in our STP. If there were changes made through
18 this forum the ability to recover in ten days over many hundreds of sites is probably
19 beyond our abilities.

20 **MR PICKERING:** The STD did have some changes from your STP, right?

21 **MR RAE:** Yes, and we submitted that it should go back to the STP scope. It would be
22 impossible to achieve those timeframes.

23 **MR PICKERING:** Do you have a sense of how long, given the changes that we've
24 proposed?

25 **MR RAE:** Yes, we do. If the database was expanded to include rooftop sites and
26 lamppost sites, those sorts of things, we estimate it would take us two months to
27 populate the database. If the database also included, as was suggested in the STD,
28 the draft STD buildings and building capacity, which is really space inside the
29 equipment cabinets, we think that would take probably in the order of five months
30 to ascertain information, mostly because it's not something we've ever recorded or

1 I've ever seen recorded anywhere else, and we would have to visit every single site
2 and open it up and survey it.

3 **MR PICKERING:** We made some changes to the content as opposed to the sites. If you
4 just went back to your sites that you propose should be in the database, is that going
5 to be a problem to get to that point with the content, the database content that's
6 proposed?

7 **MR RAE:** Which version of the content is it?

8 **MR PICKERING:** What was in the STD.

9 **MR RAE:** Yes, it is a problem because the content includes capacity inside the cabinets.
10 There was also a change, I think, in the way the antenna height was measured and
11 also a couple of other minor changes. Basically for hundreds of sites, you know,
12 that's a significant piece of work to go back and get that information.

13 **MR PICKERING:** Okay. Telecom?

14 **MR PORTEOUS:** Yeah, we've already submitted in our submissions on what we believe
15 the realistic timeframes delivering the database are and in agreement with Vodafone
16 that as the scope is changed it will add further delay to delivering that database. I
17 think again it's important that what we had been working on as a starting point has
18 been what was agreed in the TCF and we are working to deliver that.

19 I think the other point to note is that as we increase the scope of the
20 database, both if you look at an increase in the number of sites and an increase in
21 the number of fields per site, not only is the build cost of that database growing but
22 then the ongoing maintenance costs are increasing significantly. We've had an
23 estimate from our suppliers on this and, you know, it comes in at the equivalent of
24 one hour per site per month, which is a number coming up to around about
25 \$1 million a year.

26 **MR PICKERING:** Well, it sort of comes rather neatly into the next question, which is the
27 accuracy and format and all that of the site. Perhaps you would like to start by sort
28 of talking about this maintenance and the issues about continuing to ensure its
29 accuracy.

30 **MR PORTEOUS:** Well as I said earlier, in Telecom we have a disparate set of databases

1 to manage our assets in general and our mobile assets in particular. And so the
2 process for maintaining the accuracy of this database is a very manual process, it
3 does require investigation of multiple databases, it may require site visits. And
4 until we get to some point of nirvana where we have a single database with some
5 form of electronic tagging and the like on these assets then it will continue to be a
6 manual process. And, as I say, the more sites that are involved the more manual
7 labour involved.

8 **MR PICKERING:** In the 2009 design, would you have the electronic tagging?

9 **MR PORTEOUS:** I'm not familiar with it, I don't know if Tonia is.

10 **MS HASKILL:** This is for the whole of the Chorus asset so our business requirements
11 would go in following whatever the STD comes out with.

12 **MR PICKERING:** Okay, what about Vodafone, where are you with this issue of
13 maintaining the database?

14 **MR RAE:** With any database the challenge is getting it all up and running and then
15 keeping it accurate. It's fair to say we've almost got it populated and the challenge
16 now is to keep it accurate. Networks are not static, there's a lot going on and a lot
17 of changes. It is for us out of necessity, due to the fairly short delivery timeframes,
18 going to be relatively manually maintained in the short-term, but yes, we're looking
19 at other options to make that more streamlined in the future.

20 **CHAIR:** It's kind of - I'm fascinated by this how you run your business. I mean especially
21 Telecom, I just can't - I'm sitting here thinking you'd probably be the biggest
22 benefactors of this because you finally have management systems to run your
23 business, how do you run your business without a consolidated data set?

24 **MR PORTEOUS:** (Inaudible).

25 **MS HASKILL:** (Inaudible).

26 **CHAIR:** So I mean the fact that you don't have what you need to run your business now
27 doesn't seem to me like a very good reason for giving you lots of extra time to get
28 on top of it. Probably you'll benefit as much as anyone from us putting some tight
29 timeframes around some of this.

30 **MS HASKILL:** Sorry, I was probably glib before, but the reality is as we build out

1 networks we've had people come up with site-specific solutions, every time it
2 appears to be easier for them to make a new database than it is to build this big
3 consolidated database, because as you can imagine every network roll-out it gets
4 uglier and heavier.

5 **CHAIR:** I do understand that, but we are talking about technology companies here. So I
6 mean I just can't help but be absolutely -

7 **MS HASKILL:** That's all right, Commissioner, because I'd like some help here too.

8 **CHAIR:** Well you're about to get it, you're about to get it.

9 **MR PICKERING:** Any of the industry participants want to make any further comment
10 about this whole question of maintenance and process around that? Staff do you
11 want to ask -

12 **MR PORTEOUS:** Sorry, just one final comment, I think a final comment about the
13 database, it is a very important part of this process, but it is the start of a process,
14 and it is intended as a guide to help access seekers assess the most appropriate, most
15 likely sites that they can get ahead and get co-location. The next stage in that
16 process is the delivery of the site data pack that gives you the detailed information.
17 I think it is important to keep the perspective of where the database sits in the whole
18 process.

19 **MR PICKERING:** But the site pack must be made up of information that comes off some
20 database doesn't it?

21 **MR PORTEOUS:** Multiple databases and that is part of the - during the site data pack
22 application process that is the work that goes on to actually get all that information
23 together.

24 **CHAIR:** I would suggest to you that at some point you will have to compete with one
25 another for - you will want to compete with one another for new business, new
26 co-location. So we will do you a great service if we encourage you to get your
27 databases sorted out as soon as possible. You won't have months to sort it out if
28 your competitor gets a bit ahead of you.

29 **MS HASKILL:** But we do believe that that was agreed at the TCF that got us there, so do
30 please bear that in mind.

1 **MS MAZZOLENI:** Can I just add another comment, I think I now understand your
2 timeframes in terms of your loose system, but we are coming to that after the break.

3 **MR PICKERING:** As I'm chairing this we've got to be careful here that we don't point
4 the finger too strongly at one party, I bet it's happening in most places.

5 **MR PORTEOUS:** Thank you.

6 **MS MAZZOLENI:** Can I just ask a question on standard sites?

7 **MR PICKERING:** Yeah, please do.

8 **MS MAZZOLENI:** Because it was NZC in terms of the rapid multi-site access. It seems
9 to me with the information that you've got in the database that you should be able to
10 classify your sort of six standard sites, particularly from I guess the way Telecom
11 describe their sites yesterday. There seems to be quite a high correlation in terms of
12 masts with some of the descriptions of your six standard sites, not taking into
13 account the individual, you know, geographic conditions of each site. But it does
14 seem to me that you can now get most of that information out of the database.

15 **MR EDWARDS:** Our concern lies behind the STD where the process, as envisaged in
16 this document, is that there'll be more industry consultation to actually agree those
17 standard types, whilst the classification might be able to be pulled off atom ... as we
18 submitted several years back. Our concern is the actual document has our rapid
19 multi-access process ... have some more industry consultation to exactly agree
20 amongst all three big co-location participants what atom 1, 2, 3 is and in the process
21 ... for rapid multi-access which is, you know, a multiple site, you know, ten site
22 co-location arrangement over similar sites.

23 **MS MAZZOLENI:** But if you take this ... of what's in the database and we go back to the
24 capacity limits that we talked about in the service levels, doesn't that get you to the
25 same place?

26 **MR EDWARDS:** Our reading of this was that for the industry to agree what rapid
27 multi-access process was, i.e. for ease of ... ten sites called atom 1, processed as one
28 application with one of the access providers, that that would - our understanding of
29 this document in the STD it required a further process, so -

30 **MS MAZZOLENI:** But, for example, you'll be able to tell, I'm picking from the database

1 that there might be 20 what you call atom 1 sites from Telecom's information.

2 **MR EDWARDS:** Yeah.

3 **MS MAZZOLENI:** On a weekly basis you could file applications for all of those over
4 two weeks. Doesn't that get you to the same place?

5 **MR EDWARDS:** Our interpretation of it didn't have that understanding. Our
6 understanding of this document was that there would have to be some more
7 industry consultation for Telecom to agree what actually atom 1 was, and it was our
8 request to the Commerce Commission that the official atom 1, 2, 3 be decided
9 upon. I'd be happy to take comment from industry colleagues, but we understood
10 that that was the process.

11 **MS MAZZOLENI:** But the information that you are putting in your database, you
12 showed us in the slides yesterday, you described, what did you call them lattice -

13 **MS HASKILL:** Yes, one heavy one light etc etc.

14 **MS MAZZOLENI:** They seem to me ... am I missing something here?

15 **MS HASKILL:** Where I think Tex might be confused, in the document the intention is it
16 that each access seeker tests a standard equipment solution and then that can be
17 applied to the application throughout. In fact you need to do that before you can
18 make your full site application, you need to have it approved but there's no industry
19 consultation involved in that. And then you can look at, as an access seeker,
20 whether that would suit a particular site type; for example, you need to have
21 different brackets for a lattice tower than you do for a round pole. But of course
22 then you have to - once you get to the ... configurations, but that's how you get
23 essentially to that step, that's exactly right.

24 **MS MAZZOLENI:** So you can do that testing on a standard - what you call your atom, 1,
25 2 or 3 in your soft launch phase, can't you?

26 **MR EDWARDS:** We would hope. It was our concern that, as Telecom mentioned that
27 there would have to be some further testing of - and a decision that all the lattice
28 towers were going to be called that for good order sake and we were concerned at
29 the classification of these sites, because it hadn't been decided before the STD was
30 approved that it would lead to further industry delay.

1 **MS MAZZOLENI:** Maybe Telecom could just reassure that what pops out of the
2 database description will actually provide NZC with sufficient information to
3 classify each of those -

4 **MS HASKILL:** The database sets out what type of mast it is, what antennas are there, if
5 there are other access seekers, if there's people in the queue. So yes, we would be
6 able to sort through those and work it out.

7 **MS MAZZOLENI:** I mean I'm thinking that perhaps with what comes out of the database
8 plus the service level capacity limits that we have for site applications you're pretty
9 much there in a slightly different form, but -

10 **MR EDWARDS:** We'd stand corrected on it, but our concern we would like to stress with
11 the Commission is that obviously it takes two to tango, but we need the access
12 provider's cooperation if we made the judgment look we're going to call these ...

13 **MS MAZZOLENI:** But even if you do, Tex, you can still put your application ...
14 whatever pops out of their database, you're still going to get so the same place.

15 **MR EDWARDS:** It's quite an important point to us because it equals ...

16 **MR PICKERING:** Anybody else got - I think we've got time for one more question.

17 **MR OFFICER:** In terms of population of the database, is there any way that we could
18 identify the most, say, the first tranche which would be in rather than just say
19 generically, say, co-locate it within any areas, is there any way that could be done?

20 **MS HASKILL:** ... or even in a territory authority that they could be interested in, then we
21 can do it that way. That gives us a focus to target which ones we do.

22 **MR EDWARDS:** Classic chicken egg situation here, we need the databases to work out
23 which sites we can build.

24 **MR OFFICER:** You've got the MED database.

25 **MR PICKERING:** But the 80/20 rule applies.

26 **MR OFFICER:** Would it be possible to identify particular areas or any regions or
27 anything like that?

28 **MR DAVIS:** Yeah, it would.

29 **MR PICKERING:** Okay, any other industry questions? All right, I'll bring this session to
30 a close, thank you for your input.

1 **CHAIR:** All right, it's now time for the afternoon tea break. We will resume promptly
2 and I'll ask you to be seated by 3.45 at which point we will be discussing
3 implementation timeframes. Thank you very much.

4

5 **Adjournment from 3.29 pm to 3.46 pm**

6

7 **CHAIR:** I'd like to resume this session please. As I indicated before the break this session
8 is on implementation timeframes and I would ask Commissioner Mazzoleni to
9 please lead the discussion on that matter, thank you.

10

11

IMPLEMENTATION TIMEFRAMES

12

13 **MS MAZZOLENI:** The first matter we'd like to talk about, and we've just touched on it I
14 think in the previous session, is the timeframes for the development of the
15 operational support systems. And you'll see from the issues paper that we sent out
16 last week I think that we proposed a timetable there for the database and the
17 enhancements to the OSS(?) systems to be completed by ten days after the STD.
18 Now I think that Vodafone you were comfortable with that timeframe.

19 **MR RAE:** Yes, we are as long as the database scope remains as it was in the STP.

20 **MS MAZZOLENI:** I understand that, yeah, and Telecom I think, as I said previously,
21 you had obviously submitted a much longer timeframe for the use to be completed,
22 I think we understand the reasons for that.

23 **MS HASKILL:** I've got Steve Herstell with me who's the Programme Manager who will
24 talk to this.

25 **MR HERSTELL:** Good afternoon, I'm Steve Herstell. I'm the one tasked with turning
26 this paper into an operational system. Just to step back a bit, Telecom has been
27 working for the last two months, a team of six people pretty much, on making sure
28 on getting a really good start on actually starting to build a technology solution to
29 support this. So we're quite a way down that process now. And we're obviously
30 building it against the framework and the structure of the STD as it stands, the draft
31 STD.

1 Were that not to change significantly then we're on track for ten days for the
2 final STD plus ten days. I think were there to be significant changes that would be
3 a challenge for us. The reality is with the technology solution it takes 20 days to do
4 a fix. You have to identify what the problem is, research a solution, code and test
5 the solution and then put it into production. So on the basis of the draft STD we're
6 on track.

7 Just a final comment, of course what can appear quite an innocuous change
8 on paper can actually, when it comes down to implementation, be quite narly. So I
9 would say that a ten day target is challenging but given those changes we are on
10 track for that.

11 **MS MAZZOLENI:** Did anyone else want to make comments on that timeframe for the
12 operational support system? **[No comments]** Okay, so we'll just move on then to -
13 I didn't mean to be too quick but - which really concerns the soft launch timeframe
14 and I think again in this issues paper that we put out that would see so soft launch
15 period of basically the Determination date with around 40 days on it. So we've
16 moved away from sort of a volume based approach to a time based approach based
17 on some of the submissions that we received.

18 So I mean I think probably given that you have tested a number of these, I
19 take it that you haven't tested your support systems fully, but you have certainly
20 tested some of the processes for co-location applications through to completing
21 co-locations, that sort of soft launch period would seem reasonable. Perhaps we
22 can have comments from parties.

23 **MR HERSTELL:** From Telecom's view we could discuss the framework and what the
24 soft launch is achieving. As a builder of this system and someone who wants to see
25 a successful outcome, and we've spoken today and I agree with the Commission
26 and Tex's team that we want to actually want to say antennas on masts as an
27 outcome here. I think there is some issues with the way the soft launch is set up in
28 the sense that there's a gate at the beginning through which a number of
29 applications will pass, and it's a time gate, 20 days.

30 The way this process is structured there's no guarantee that all of those

1 applications will actually complete, it's just the way the process is set up, and that's
2 a good thing. So I would like to propose, if the Commission would be interested in
3 seeing it, a different approach to the soft launch, that utilises the fact that the
4 process actually has five stages and we look at each stage as a mini soft launch.
5 And that allows us to see a number of applications going fully through each stage
6 but not having to pre-select a number that we're not actually sure how many of
7 which will actually complete the process.

8 **MS MAZZOLENI:** Is this a change from what you previously submitted?

9 **MR HERSTELL:** It is.

10 **MS MAZZOLENI:** I don't think at this stage given the range of options that we have had
11 that would actually provide a great deal of additional benefit to this discussion.

12 **MR HERSTELL:** Okay, then I'll go back to my comment that the window itself is
13 actually quite short to capture a sufficient number of applications that will actually
14 finish the process. We would prefer to see a longer window, up to 40 working days
15 that would actually capture more applications. Also if the window stays at 20
16 working days there is actually a perverse incentive the way it's structured that the
17 clock starts ticking when the first application is received, it actually generates a
18 perverse incentive for everyone else to hold back for 20 days.

19 **MS MAZZOLENI:** You have tested these things, apart from your OSS(?) system you
20 have tested these with other parties haven't you, you have tested the steps in this
21 process?

22 **MR HERSTELL:** This is testing with my own team building this solution.

23 **MS HASKILL:** This solution is completely new and is being built for the STD, so it's
24 about the semi-automated solution that will be deployed at this stage. Plus there are
25 a lot more stages in this STD than there are in our current processes, so those would
26 need to be tested.

27 **MS MAZZOLENI:** So we are just talking about the testing for the support system for
28 this?

29 **MR HERSTELL:** Yes.

30 **MS MAZZOLENI:** Can I just get some comment from Vodafone because you, I mean

1 provided we stick to the definitions that we currently have, you seem to indicate
2 that that time period was okay.

3 **MR RAE:** In our submission we submitted that the soft launch period should be - all the
4 applications that are submitted are in a 40 working day period, and I think the
5 Commission's view is 20 working days and that's what's in this revised plan. We
6 suggested a longer period because there is the propensity for applications that are
7 subject to the service level penalties to pass applications that are not. There's a
8 couple of optional steps, for instance, in the process whereby an access seeker can
9 go straight from site data pack to full site application. So, yeah, we're very
10 supportive of the time based approach and we'd suggest just that it's 40 working
11 days.

12 **MS MAZZOLENI:** Can I just perhaps have a comment on that from NZC?

13 **MR DAVIS:** For us it's a case of sooner the better. I mean we're working through a
14 number of co-location applications with Telecom now so it should be getting the
15 opportunity to test their processes. And same with Vodafone, albeit not nearly as a
16 progressed stage as with Telecom. They've had a very long time where they've
17 been aware that this is coming, so 20 working days versus 40, it's one month's
18 further delay versus two months further delay, it actually has a real impact on our
19 roll-out.

20 **MS HASKILL:** Can I perhaps point out that unlike UCLL and UBA there will be no
21 delay because we offer this service currently. And as Andrew pointed out we've got
22 things in the pipeline. We are applying the timeframes set out in the ops manual to
23 each. There's actually no delay in rolling out the process, it's simply about
24 deploying the technology solution and testing it.

25 **MS MAZZOLENI:** It's simply about the relaxation of the penalties for that soft launch
26 period?

27 **MS HASKILL:** Correct, yes.

28 **MR HERSTELL:** Can I also say, backing up Vodafone, there is a real risk that a BAU
29 application will overtake a soft launch application, and it will be moving, certainly
30 in our area, into an uncharted part of the solution that we haven't had a chance to

1 test.

2 **MS MAZZOLENI:** Okay, did other parties want to make any comment on the soft launch
3 timeframe?

4 **MR KEARNEY:** I would prefer the longer the better.

5 **MS MAZZOLENI:** And I guess that takes us to the point of the asymmetric regulation
6 we talked about before in terms of the capacity limits for parties which have under
7 300 sites and whether that should be carry through to, I guess, the implementation
8 period for the operating support systems and the soft launch. So perhaps Vodafone
9 or Telecom and NZC would like to make a comment on that? I think Woosh's
10 position is fairly clear in terms of what they've submitted on that.

11 **MS JONES:** Could you repeat the question sorry?

12 **MS MAZZOLENI:** Which part?

13 **MR RAE:** I guess we have some sympathy, but I guess we're all in this together and we
14 haven't previously been in favour of differentials in how the service is supplied.
15 But I guess we did have some understanding about that. I mean we're going to be
16 focusing on delivering the service ourselves, so that's our main priority.

17 **MS MAZZOLENI:** Telecom, I guess your position is the same as you articulated when
18 we were talking about the capacity limits.

19 **MS HASKILL:** Correct.

20 **MS MAZZOLENI:** Sorry, did you want to say anything further?

21 **MS HASKILL:** No.

22 **MS MAZZOLENI:** NZC.

23 **MR DAVIS:** We're probably the most likely access seeker, we share a fair bit of sympathy
24 with Woosh. So in terms of would we support an asymmetric regime for the
25 smaller players? Yes, we would.

26 **MS MAZZOLENI:** Did Commissioners have other questions on this subject? Staff? [**No**
27 **comments**] Okay, I think that pretty much wraps up the discussion that we wanted
28 to have on implementation and soft launch. Unless there were any other comments
29 that other parties wanted to make? That's a clear answer.

30 **CHAIR:** All right, thank you very much for that. Now my next item on the agenda is the

1 other matters that we wanted to raise, the primary one we started with at the
2 beginning of the day. The other matter that we wish to ask the parties about was a
3 letter that was circulated by Telecom earlier this week outlining a number of further
4 matters for discussion, and they were largely practical aspects of operation manual,
5 and the only question we had for parties today is whether anyone had any concerns
6 regarding the issues identified by Telecom. **[No comments]** Mr Kearney, did you
7 have any concerns with the letter circulated by Telecom?

8 **MR KEARNEY:** No.

9 **CHAIR:** Kordia?

10 **MS STONE:** No, we didn't.

11 **CHAIR:** TeamTalk?

12 **MR HARDING:** Seems pretty straightforward.

13 **CHAIR:** NZ Comm?

14 **MR DAVIS:** We're still reading it.

15 **MR EDWARDS:** Our concern obviously is about price and obviously the back-up
16 procedure, but we'll talk about that later.

17 **CHAIR:** I'm not sure what you mean by later, but not part of this conference.

18 **MR EDWARDS:** I'm sorry, I noticed on the programme that we had agreement on
19 charges and if there was going to be a discussion point on that it was going to be
20 related to the operations procedure and implementation of soft launch, and an
21 understanding of if there would be a review of this STD.

22 **MS MAZZOLENI:** I don't think that's the subject that was intended to be covered under
23 other charges. It was simply that a number of parties had submitted that a
24 pre-agreement on the charges had to be put back into the final STD as a prerequisite
25 to providing the service. We had removed it, the Commission had removed it in the
26 draft on the basis that this is a specified not a designated service, and so you would
27 come to your own agreement on price terms. We understand the submissions on
28 that and unless anyone wants to raise any new matters on that we will address those.

29 **CHAIR:** But first can we just - I think we are in a position now where the letter - NZ
30 Comms doesn't want to raise anything with it?

1 **MR DAVIS:** No.

2 **CHAIR:** All right, thank you. And on the issue of charges, the Commissioner is right, the
3 Commission has no further question it seeks to raise on that matter, so unless there's
4 any comment anyone would like to make on that matter. **[No comments]**
5 Mr Edwards, are you -

6 **MR EDWARDS:** I'm forced into a situation where we'll have to go with due process on
7 that matter.

8 **MS MAZZOLENI:** Can I just say we have noted your comments previously and we did
9 ask some questions about whether that was a pricing dispute or a general pricing
10 matter, so I don't think again that there is anything further we need to add to that
11 discussion, that we canvassed that in a prior stage of the agenda.

12 **CHAIR:** All right, that then completes the issues that the Commission wish to raise with
13 parties. But before I move to the closing statements by each party I will ask if there
14 is any matter that would like to come back to before we do so that you can't cover
15 in closing statements. Please NZ Comms.

16 **MR DAVIS:** There is one. We've talked for the last couple of days about incentives and
17 Vodafone's mentioned that we've signed this heads of agreement and they've held it
18 up as good process. Last time we were here, which was 4th of October 2007 for the
19 mobile market review, we were looking at roaming and co-location. Tom Chignall
20 from Vodafone announced to the conference, and I quote;

21 "There's been a handshake on pricing for a multi-site deal between
22 Vodafone and NZC, involving one of these gentleman actually, but there was a
23 meeting that took place between one of the principals of NZC and our Chief
24 Executive last week where we shook hands on price, a price for co-locating of
25 several hundred sites, and now we're into sorting out a legal agreement around it
26 which will be based on the master co-location agreement, and Juliet and the team
27 here is working on that. So we're trying to get to a heads of agreement together in
28 short order. Obviously I think it is quite a good deal".

29 That heads of agreement was only signed the other week in the lead up to
30 this conference. And the point that I'm trying to make here is the only progress that

1 we've ever seen in any of our negotiations with Vodafone and Telecom is where
2 there's direct pressure, upcoming conferences, that sort of thing. And it comes back
3 to do we trust that this heads of agreement will be followed through on without
4 further pressure? No, we don't, we don't have any particular level of faith in that
5 heads of agreement at all.

6 It's also worth pointing out that in that year that's passed the heads of
7 agreement no longer covers several hundred sites, it covers around a quarter of the
8 number of sites that we initially spoke about, and the price per site has doubled, it's
9 almost doubled now what we have agreed to pay Vodafone with what we shook
10 hands on over a year ago.

11 **CHAIR:** All right. Any other matters anyone would like to come back to without
12 covering things that could be closed in closing comments? Any specific matters?

13 **[No comments]** All right, thank you very much for that, we'll now move to closing
14 statements, and to be consistent I will turn to Vodafone first.

15 **MR YORK:** Sorry, I'm being advised from both sides. Is this an opportunity for the
16 closing?

17 **CHAIR:** The closing statement, yes. Was there anything else you wanted to raise before
18 then?

19 **MR YORK:** I think maybe just - I'm just seeing whether we want to respond to Andrew's
20 comment.

21 **MS JONES:** No, nothing other than to say we disagree what was said but we're not going
22 to go into the details today.

23 **CHAIR:** All right, thank you. Okay, Vodafone, closing statement please.

24

25 **CLOSING STATEMENT BY VODAFONE**

26

27 **MR YORK:** Okay, wow, what a day and a half. Right through the conference there has
28 been a clear indication from the Commission I think around its frustration around
29 the small number of co-locates that have occurred. I can understand that
30 frustration. As many of you will know I in a past life was a Telecommunications

1 Competition Regulator in Australia, I was the Director responsible for mobile
2 telephone regulation in Australia from 2001 to 2005. And I think I can clearly
3 understand that if you had a service that was in a regulatory regime as long ago as
4 2001 and seven years later you're only looking at an environment where you've got
5 seven or eight co-locations, or however many we've got going on now, I think I
6 would be pretty frustrated too. So I can understand that, and I can understand why
7 you'd be asking the questions in terms of why isn't it working and what's going on
8 and what can be done to correct that.

9 I think, having said that, it's important to remind ourselves what the aim of
10 the regime is. And I think the Chair got it right earlier this afternoon by paring us
11 back to remind us that it is to promote competition for the long-term benefit of
12 end-users. I think we need to remind ourselves that the same is not to have
13 co-location occur on every possible cell site, or that it should occur as quickly as
14 possible irrespective of the costs of doing so. In some cases co-location may not be
15 possible for particular cell sites, or it might not be the right solution in the
16 circumstances.

17 It's also possible that making it occur in the shortest possible timeframe
18 might achieve some short-term goals, but I think we want to consider whether or
19 not getting it to happen as fast as possible, or putting particular measures in place
20 that will make it happen a little bit quicker than it otherwise could will on balance
21 generate outcomes that are to the long-term benefit of end-users.

22 So the aim here with what we come out with with the STD should be to put
23 in place a document that creates the right mechanisms, processes and incentives to
24 have co-location happen in a way that is to the long-term benefit of end-users. But
25 having said that we can understand that you would look at the situation and say the
26 number of co-locations that are going on right now is not in the long-term benefit of
27 end-users, we understand that.

28 So I think it's important to ask ourselves what's the problem, why isn't it
29 happening? And I'm fairly new to the co-location issue when you look at the long
30 scheme of the series of debates here, I've been here in New Zealand less than a year.

1 But it strikes me, and I think even Andrew got it absolutely spot on just before,
2 when he said the biggest problem we've got is the lack of trust between the parties.
3 NZ Comms doesn't trust us, they think we will use any process we're given to game
4 the environment so that we can keep them off our network. I don't believe that's the
5 case, but I understand they have that distrust.

6 We probably, if we look in our heart of hearts, have some issues we're
7 concerned about as well. We're concerned that NZ Comms may not have the right
8 incentive to co-locate in a way that doesn't do damage to our network. If
9 co-location happens in a way that reduces our quality of service, that's no skin of
10 NZ Comm's nose. In fact it makes consumers like being on our network less and
11 provides it with some benefit when it enters the market.

12 I'm not saying it will go there to damage our network, but it may not have
13 the right incentives to take care, or care for the quality of service we can provide to
14 our consumers. And it probably doesn't have the incentive to worry about the
15 ability we have to meet our future forecast needs. Again, I'm not saying it's there to
16 sabotage us, but it probably wouldn't be having regard or care if we can't meet our
17 future network roll-out plans. So I guess what we're looking for in most of the
18 things we're arguing about are protections, so that when co-location occurs certain
19 things that we're worried about are protected.

20 I think at a general level the lack of trust has two implications; firstly it
21 explains why we've got so much disagreement around so many issues, why there's
22 so much contention on a number of issues. But secondly I think it emphasises how
23 important the STD is. If we can't trust each other and get commercial deals
24 happening, which has shown itself to be the case, then there is the need for that
25 STD to come in. And it's needed to resolve issues and set in place the framework
26 that we all need to get the right level of co-location to occur. But as I say, the
27 objective should not be to make every possible site co-locatable, or that it should
28 have to occur absolutely overnight tomorrow irrespective of the cost. And they're
29 the balances it needs to meet.

30 Having said all that I think the conference has taken many issues forward

1 and so there's quite a lot of positives I think that have come out of it. On
2 interference, whilst recognising NZ Comms has a general reference for a 1 dB
3 interference measure, it was, I think, refreshing to hear NZ Comms' expert
4 acknowledge that 0.5 dB is not an unreasonable number for unacceptable
5 degradation performance in rural areas. Now we would prefer this number was
6 applied uniformly across both urban and rural areas, but that's now going to be a
7 decision for you to make. But I think it is good that we've heard that just about
8 every party has accepted that 0.5 dB in general, and we've had the positive
9 comment from NZ Comms today.

10 I think I was also personally heartened to hear some of the engineers argue
11 that interference shouldn't be that great when co-location occurs, and that if you put
12 in place the right parameter, engineers will work to minimise, or work within that
13 framework and will probably seek to minimise to the greatest extent possible the
14 performance degradation. And so in that sense whatever level we set there is really
15 just a protection, it is a limit to just ensure any performance degradation doesn't go
16 too far.

17 With regard to antenna minimisation, I think it was good, especially over
18 today, to see and discuss how it's not costless to parties, and that it won't be an
19 overnight solution. Whilst clearly it doesn't take long, in terms of days, to take an
20 antenna off of one party, maybe strap on board another one in replacement of it, or
21 maybe take off a couple from one party, chuck up one and chuck up another one -
22 what am I saying, take them on and off - shouldn't take too long to do that.

23 Antenna minimisation will still require parties to go through third party
24 consent arrangements, and it will require time to get the network design aspect
25 sorted out. I think once it's seen in that light it's good to acknowledge that it's not a
26 silver bullet that will get co-location happening overnight, it's merely one of many
27 alternatives that can be considered to achieve co-location in circumstances where
28 otherwise it might not be possible.

29 I think it was also good that we got the chance to remind the Commission
30 that we are not saying antenna minimisation should be banned, we're not saying it's

1 something that shouldn't occur. Whilst we might have some fundamental
2 objections to an access regime that does force a party to change the way it does its
3 business, in this instance we have placed in our STP acknowledging the trade-offs
4 that exist in this case that antenna minimisation should not be banned outright.

5 But what we are merely asking is that when suggested by an access seeker
6 we would have the right to reject it if it breached the access limits contained in the
7 Act, which I think is reasonable. It's the limits that are there in the regime that
8 govern access to a service, or if it leads to greater than 0.5 dB, the measure of the
9 unacceptable performance degradation.

10 With regard to forecasting we stand by the proposal we put in following the
11 draft STD coming out, the idea that access providers are able to forecast for a
12 period of five years going forward, but that access seekers are able to come on
13 board the site to co-locate while that future forecast need is left idle. I think it's a
14 nice outcome, or a nice suggestion that balances both parties' needs. It balances the
15 objective to try and get co-location to happen a bit more quicker, but it also doesn't
16 put at risk future network roll-out plans that parties have.

17 Clearly, though, having heard the concerns from Telecom that were well
18 articulated this morning, I think very careful attention does need to be paid if you're
19 going to follow through with our suggestion on that, to the conditions under which
20 access seekers can camp and its obligations to vacate as access providers seek to
21 exercise our forecast rights; that will be a crucial part to that proposal if you decide
22 to go through with it.

23 Finally, perhaps it's good to just touch on some issues around expectations
24 and make a couple of notes on that. The first one is around expectations of the
25 numbers of co-locates we might be able to expect. There's been talk at various
26 stages of 2,000 cell sites possibly being available in New Zealand. I think it would
27 be unrealistic to expect that 2000 cell sites are capable of co-location, and for that
28 matter that 2,000 cell sites are being demanded for co-location. NZ Comms, in its
29 submission, have indicated that it only intends to roll out, or use a third of its cell
30 sites using co-location, so you're looking there around about 466 on its numbers.

1 So there's not probably the demand for 2,000 and nor should there be an expectation
2 that those kind of numbers, I think, would be occurring with co-location.

3 What we have said is that at least on our network 309 sites do seem
4 structurally sound in order to accommodate co-location, can accommodate extra
5 antenna in a way that doesn't compromise our forecasts, and have co-location occur
6 in a way that shouldn't lead to performance degradation greater than 0.5 dB. So in
7 that sense there are 309 that at least meet those criteria and are there available to be
8 considered whether we go forward with it.

9 The other, I guess, positive is that we do have the heads of agreement that
10 has been signed. I do note Andrew's concerns before about what progress will
11 occur following that, but I think it is important to note that the heads of agreement
12 is legally binding. You have a copy of it, you can see what is contained in it. It
13 should be a reasonable accessible document of a limited number of pages, but you
14 can see all the matters that are covered off in that.

15 We have a genuine commercial commitment to follow through on that heads
16 of agreement, and I do believe that there will be co-locations come out of that and
17 that they would have occurred if we come back here in a year's time. It may not be
18 the full 116 but I believe there is a genuine commercial commitment on the side of
19 both parties to make that arrangement happen.

20 The second thing around expectations is perhaps something on timing. I
21 don't think we should be thinking that co-location is something that happens in a
22 week. There are a number of steps in the end-to-end process that parties need to go
23 through.

24 The other thing to note around expectations is not everything is in the
25 control of the access provider, there are a number of steps along the way that both
26 the access provider and the access seeker have to fulfil. We might be able to fulfil
27 our steps but a co-location might not occur because an access seeker does not fulfil
28 its part to the obligation. And so if some time down the track you are still
29 continuing to be disappointed by the number of co-locations that occur, perhaps
30 before deciding to blame it on the access providers, we'd encourage you to see

1 whether the access seekers in those circumstances have been following through on
2 their parts of the arrangement.

3 And finally I guess when it comes to the number of co-locations that occur,
4 we can only put through a co-location if an application is made to us. Now as I
5 indicated before, I note that there are clearly trust issues between the parties on this
6 and there have been in the past. But we have not had a formal application for
7 co-location prior to the heads of agreement from NZ Comms since July 2006. They
8 may have very good reasons for not having put forward that application, they may
9 not have trusted that we would follow through on it in good faith. Again I would
10 say we would disagree with that point of view. But the STD will be there now,
11 parties should be able to make an application within that context, and we will do
12 our part, we will obviously follow our obligations under that STD.

13 In conclusion, we've spoken about the tipping point at times during the
14 conference; when will we be at it, are we at it? Perhaps we're starting to see some
15 indication that it's coming now. With the STD about to be put down, if you thought
16 parties had an incentive, or access providers had an incentive to try to avoid
17 regulation, they won't have that any more will they, the STD will be in place. So
18 hopefully we're at that tipping point.

19 I'm hopeful if we have the STD finalised we will move to the stage where
20 we can actually start implementing it, and that hopefully we're at the tipping point
21 and that the Commission will start to see, post the STD, the numbers of co-locations
22 that it's hoping will generate outcomes that are in the long-term benefit of
23 end-users. Thank you.

24 **CHAIR:** Thank you very much, Mr York, on behalf of Vodafone. I will now turn to
25 Telecom and invite you to give your ten minute closing statement, thank you.

26
27 **CLOSING STATEMENT BY TELECOM**

28
29 **MR WESLEY-SMITH:** I was just talking out in the lobby with some of the guys when
30 Anita came and interrupted me, we were talking through how we'd sum up our

1 position on the key issues. But look I think we have set out our positions pretty
2 clearly, and they're in the transcript now.

3 What I wanted to just touch on, reflecting back on the conference, is this
4 perception that co-location is broken, or that the industry is broken, which I think is
5 a very sad perception, and an incorrect one. You know, there are five parties sat
6 around this table that have agreed, I think, pretty much entirely on every major
7 issue we've been discussing in the last two days. There are five parties that have
8 agreed successful co-locations with much less detail than is set out in the draft STD,
9 and a similar manner to the way we have heard co-location being described
10 internationally.

11 So we have close to 200 instances of site sharing that we're involved in
12 today and yet there continues to be this perception that we as an access provider are
13 responsible for, and are in some way, shape or form intending to hold back
14 co-location in New Zealand. And I refute that, and I want to reiterate our position
15 that we think that the systems and the service that we have in place today is capable
16 of supporting and facilitating large scale co-location for any willing access seeker.
17 We have applied exactly the same processes, the same technical and operational
18 policies and roughly the same price to our dealings with everyone on this table.

19 I talked in my opening about the importance of collaboration and making
20 co-location successful; it's a complex product. And I think there is ample evidence
21 over the last two days that five parties around the table have collaborated
22 successfully, and I think over the years we have demonstrably reached an industry
23 view on what the prudent bounds of co-location are.

24 Now, yes, New Zealand Comms have come along and challenged some of
25 those and that is entirely their prerogative, we have changed and amended our
26 policies in response to New Zealand Comms' position on a couple of issues. We've
27 gone back and reviewed all of our processes and the level of customer service that
28 we were applying to co-location. And I think we would support the existence of
29 this STD to provide certainty to the industry on those remaining issues that we still
30 aren't in accord on.

1 But I also don't want us to lose sight of the fact that those issues are 5% of
2 the STD. The industry has reached agreement on 95% of the terms laid out in the
3 draft STD. What we're talking about is just that last 5% where it gets really hard
4 and you're dealing with really complex issues. And I think we, Telecom, continue
5 to feel that blanket regulations to permit that last 5% of co-locations will cause
6 more harm than good.

7 But I don't want the fact that we are still discussing those last 5% to cloud
8 the issue of whether co-location in New Zealand is broken. Because I think the
9 evidence demonstrates that it's not. Thank you.

10 **CHAIR:** Thank you very much Mr Wesley Smith, and the rest of the Telecom team. And
11 I'll now turn to New Zealand Communications please.

12
13 **CLOSING STATEMENT BY NEW ZEALAND COMMUNICATIONS**

14
15 **MR EDWARDS:** Ten minutes. Thank you Commissioners, thank you for listening to us.
16 We're thirsty, we're frustrated, we're in a hurry and we're under pressure. This
17 conference has cost our organisation \$1,764,000. In the same time Vodafone's had
18 a free cashflow of \$9 million come in, and our estimate of Telecom's revenue is
19 \$4.5 million in that time. Our economist suggested that there is 20 to 1 disincentive
20 to co-locate. Simply put, co-location breaks up a cosy monopoly. We believe it's a
21 monopoly because all the statistics we see see Vodafone benefiting from 73% of all
22 the mobile phone minutes.

23 I'd quickly like to talk about what we've heard today and yesterday and what
24 we didn't hear yesterday and today. We didn't hear from customers, what would
25 they vote for. Would customers vote for antenna minimisation? Would customers
26 vote for 1 dB degradation? I believe this woman would vote for antenna
27 minimisation and I believe this woman would vote for co-location.

28 We didn't hear from Randy Henderson, he's from America, he works for
29 American Tower. He told me that co-location is very similar. He said it takes three
30 days. He used to work at Onetel in Australia. Onetel in Australia went broke

1 because they couldn't get a fast enough regulatory outcome for any large problem
2 they had on their mobile phone network. We didn't hear about standard cell tower
3 types and the disagreements on what they were. We didn't hear from angry
4 consumer groups.

5 Notably, we didn't hear from the Chinese Regulator. I was pleased earlier
6 in the week when our CEO e-mailed us the output from the Chinese Regulator
7 who's demanded co-location. We didn't hear from Huawei, Nokia, or Lucent. We
8 didn't hear about their costs of the difference in antennas. We didn't hear about the
9 cost of antenna minimisation and how successful it is.

10 We didn't hear from shareholders, and we definitely didn't hear from our
11 shareholders because all they do is shout, swear and scream. It's ironic that we
12 didn't hear from Vodafone shareholders or Telecom shareholders, because they
13 have an obligation to maximise their return in this market. The people you see in
14 this room report to those shareholders. They have a fiduciary obligation to
15 maximise their return. Maximising their return does not bring about a third
16 operator.

17 It's ironic that three years ago Telecom and Vodafone had the same
18 shareholder The Capital Group. The Capital Group visits New Zealand every year.
19 They would fire their Board of Directors if there was any regulatory concession.
20 The irony of this conference is that we're actually quite good friends with Telecom
21 and Vodafone. On a personal, sociable relationship everybody gets on. The issue
22 is that the Telecom executives and the Vodafone executives must meet their
23 fiduciary obligation to their shareholders.

24 Another matter that we haven't heard about this conference is horizontal
25 access. I believe that horizontal access is an undebated issue. And from
26 time-to-time horizontal access, vis-à-vis the 1.5 metre down the tower issue, should
27 be discussed.

28 Who have we heard from in this conference? We've heard a lot from
29 Vodafone. And I personally took offence to the opening disposition from
30 Vodafone; we've got spectrum at a 57% discount. We've got an interconnection

1 agreement. An interconnection agreement is a basic DNA of a mobile phone
2 network. We've got a termination arrangement, we've got number portability. But
3 how long, how long has it taken?

4 Our organisation has had a policy of sending new people to negotiations to
5 build trust and to have a fresh start. Unashamedly Andrew Davis and I have a
6 history in New Zealand. For seven years we've plugged away trying to build a
7 network. Poor old Andrew started two years before me.

8 The issue was we managed to secure a whole series of very talented
9 executives from third party operators off-shore, one of whom we described as the
10 David Beckham of the mobile phone industry in Europe. We sent this gentleman
11 along to a negotiation to capture a commercial agreement. He came back in the
12 office and he said "I feel like I was begging". We were upset.

13 We heard a lot about dB and degradation. We debated a lot whether it was
14 going to be 0.5/1 dB. He said this, she said that, I said this, he said that. I put to the
15 conference that it wasn't a discussion, it wasn't a discussion on degradation, it was a
16 discussion on incentives. Where were the incentives that altered the balance in
17 co-location from 20 to 1 disincentives?

18 We talked a little bit about emergency services and we gave the anecdotal
19 evidence of the Muriwai Surf Club who now has better emergency services as a
20 consequence of co-location.

21 We talked about the reservation of spaces and we talked about the
22 frustration that NZ Comms had had because we pleaded with the MED not to sell
23 WiMAX spectrum to Telecom and Vodafone. We pleaded with the MED not to
24 sell them WiMAX spectrum until the co-location issue was sorted out. We have
25 WiMAX spectrum, and if there was to be a WiMAX upgrade amongst the
26 consumers, NZ Comms would be chasing the same consumer base as Telecom and
27 Vodafone. Correctly managed, that's a formula to get a third party tower company
28 involved.

29 We've heard New Zealand's different. I don't see any differences here. This
30 office could be anywhere in the world.

1 The access principle number 3. I was delighted that it was mentioned, it
2 was therapeutic. I heard that Telecom's obliged to deliver service to us the same as
3 it delivers it to itself. But during the course of the conference we noted some
4 confusion with the cell sites in Chorus, with the cell sites in Telecom Wholesale, or
5 the cell sites in Telecom Retail. And again we submitted, I think in the last quarter
6 of 2006, that the cell sites be pulled out of Telecom and be put in the Chorus
7 vehicle. Perhaps that's a solution.

8 We talked about antenna minimisation. The US tower companies tell us
9 that it saves money. Every annual report of the American Tower Company explains
10 antenna minimisation is the way of the future.

11 We talked about asymmetry and we notice that asymmetry exists in almost
12 all telecommunications regulation. Even our kind friends at Vodafone
13 acknowledge that from time-to-time asymmetry in prices are available to new
14 entrants.

15 We spoke about the MED database and we noted that it's not fast. We have
16 three people on our database team, they update it twice a day. And proudly I can
17 announce that we're hopefully going to update another eight cell sites when we
18 build them this weekend.

19 Our solution to the problem; its incentives. Vodafone stated earlier that the
20 provision of the national roaming agreement at the marginal cost would reverse the
21 incentives of a roll-out. We found this interesting, because for the incentives to be
22 reversed they must be in Vodafone's favour today. So obviously that's a barrier to
23 co-location.

24 What's our solution to the problem? Incentives, heavy handed regulation, an
25 institutional package that we can pack up and send to an outside third party
26 contractor. We have the capital.

27 The third thing that we need as our solution to the problem is a hairy gorilla
28 backstop. The Commission has mentioned watching closely for the first six to nine
29 months NZC suggests that STD contain a formalised review of certain thresholds,
30 so if these thresholds aren't met by a given date the Commission can use its broad

1 revision powers under Section 30(r) of Part 2 of the Act.

2 We also heard that if incentives are right we can get it done by tea time.
3 There's a very important race going on and I suggest to everybody in this room that
4 the race is a race that New Zealand's never seen before. The race is that Telecom
5 are building GSM 3G network. The other part of the race is NZ Communications,
6 we're building GSM 3G network. Vodafone have 72% market share and there's a
7 race on as to who can be third and who can be second.

8 It's counter-intuitive, but the reason why Andrew Davis and I struggled so
9 long to get funding for this project was that we couldn't prove to somebody that
10 there was a business case. There is a business case, and the business case is to push
11 ahead and to be the second operator. I'm delighted that our Chief Executive Mike
12 Reynolds used to be the third operator in Singapore. When he left the job in
13 Singapore he was the second operator.

14 Processes are untested and it frustrates us. Benchmarks must be against
15 what Vodafone got when they got co-location with Telecom. Co-location goes on
16 everywhere in New Zealand, unfortunately it's just the landline. Again, how did we
17 get funded? Look Mr Banker, fixed to mobile substitution is only 10%. We got
18 funding because our business case is obviously fixed to mobile substitution. We're
19 in the same market, we're in the same market that Vodafone is in when they capture
20 landline business.

21 Closing out; what does it take to get to the tipping point? The tipping point
22 was the highlight of the two days for me. It was therapy to an exhausted
23 entrepreneur. Incentives are approximately 20 to 1 against us. Co-location is not a
24 silver bullet, but it is an essential ingredient of a successful level playing field.

25 My closing comment is that shareholders need to be warned, like Telecom's
26 shareholders were warned before. I recall when Telecom shareholders were warned
27 that if they missed their broadband targets, something would happen. Did Telecom
28 miss their broadband targets or did some cyclist just decide to unbundle Telecom
29 one morning.

30 Our industry is at a turning point. I'm grateful for everybody listening to the

1 team at NZ Communications, and I'm very grateful for everybody working in with
2 the expanded team at NZ Communications. I wish everybody a great weekend, and
3 I'm very much looking forward to the debate when we're debating about products
4 and services and prices. Thanks very much Commissioners.

5 **CHAIR:** Thank you very much, Mr Edwards, and the rest of the NZ Comms team. I'll
6 now ask if Kordia would like to make some closing comments.

7

8

CLOSING STATEMENT BY KORDIA

9

10 **MR GOODWIN:** Thank you Commissioner for the opportunity both to speak this
11 morning and answer questions and for the opportunity to sum up now. Kordia is a
12 major co-location company, it's a major part of our business; not so much in the
13 cellular mobile provision but in all other parts of the industry. However, recently
14 we acquired some WiMAX spectrum, and in the event that we roll-out a network in
15 that spectrum we would become both an access seeker and an access provider, so
16 we hope to have a nice well balanced regulation because we will be affected from
17 both sides.

18 This morning our main submission was on the basis of interference
19 management and we believe that that definitely needs definition in the
20 Determination and not just left as unstated, and the method for that is definitely
21 unacceptable performance degradation. Our belief is that the best way to define
22 that is degradation to the receiver thermal noise floor, and that figure should be 0.4
23 dB. And that in addition to that the other mitigation measures that may be taken on
24 a site need to be then added in, and that that sum total of receiver noise floor
25 degradation plus the other mitigation impacts should not exceed 0.5 dB. We gave
26 good reasons this morning for that based on best practise that comes to us from the
27 reports of the ITU and a whole range of industries, including IMT as they call third
28 generation cellular.

29 In the case of different environments we have a preference for a simple code
30 that is uniform across all urban rural environments, 0.5 dB. However, if the

1 Commission chooses to differentiate between them then it's important that there's a
2 clear definition of what is urban and what is not urban; that is, rural. And that we'd
3 suggest something that might do that well would be the clutter data that most
4 operators use to set a definition of the boundary for that. I think that's all we have
5 to say for the moment, so thank you again for the opportunity to speak.

6 **CHAIR:** Thank you very much Mr Goodwin and Ms Stone for participating in the
7 conference. And I will now see if TeamTalk would like to make any further
8 remarks.

9

10 **CLOSING STATEMENT BY TEAMTALK**

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12 **MR HARDING:** We just thank the Commission for the opportunity to be here. We do a
13 lot of co-location work, both people on our own sites and looking for other people's
14 sites. We've learned a lot from this and we look forward to seeing how the rest of
15 this procedure rolls out.

16 **CHAIR:** Thank you very much, and grateful to you to have spent the full two days with
17 us. We thought you might disappear after we let you go first this morning. Okay,
18 I'll turn now please to Woosh and Mr Kearney would you like to make any closing?

19

20 **CLOSING STATEMENT BY WOOSH**

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22 **MR KEARNEY:** Thank you very much, Commissioner. I will only take one minute of
23 people's time. It's Friday evening and I think some people have already missed our
24 planes. I really have one point, which is that this meeting had the potential to
25 degenerate into Telecom plus Voda versus NZ Comms. And that's fine, there are
26 obvious commercial issues there. But I would like that at the end of the day you
27 consider the other players in the marketplace, there are ourselves, there is Kordia
28 and there's potential new entrants, all of whom will hope to benefit from
29 co-location. That's really my point. So thank you very much for your time and for
30 your patience.

1 **CHAIR:** Thank you, thank you very much. You would get the award for the most
2 charming accent I have to say. There's quite a few Commissioners are quite partial
3 to that accent. **[Laughter]** Okay, you'll forgive me for that won't you. I'll turn
4 now to TCF and Mr Chivers, would you like to make any -

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CLOSING STATEMENT BY TCF

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8 **MR CHIVERS:** Only a brief comment, Commissioner, to reiterate our earlier offer that if
9 there's a piece of work that you feel would be of benefit for the TCF to do as a
10 consequence of any of your final decisions then please let us know. Obviously, you
11 know, any direction from the Commission is always taken seriously by the TCF and
12 its members and, you know, the greater specificity you can provide in that direction
13 the more helpful. That's all I have to say, thank you for your time.

14 **CHAIR:** All right, thank you very much for being generous in your offers and we may
15 well take you up on that.

16 That, I believe, now concludes the Commission's conference on mobile
17 co-location standard terms determination. On behalf of the Commission I do want
18 to thank everyone for their submissions and cross-submissions and for your
19 forthright participation in the conference. It does make a great deal of difference to
20 us, and I do feel like we've had a fulsome discussion. So I'm sure my colleagues
21 agree with me that we appreciate the frank exchange of views.

22 I'd also like to thank the Commission's expert advisor who has helped us
23 before the conference and I'm sure will help assist us after the conference. It's very
24 important for us to have access to that expertise.

25 Finally, I very much want to acknowledge Commission staff who I'm sure
26 you can appreciate does a tremendous amount of work behind the scenes and I
27 know also with you on a day-to-day basis, and we now will be very much in their
28 hands to help us bring this matter to a Final Determination.

29 We have, as usual, relied heavily on our stenographer and our
30 communications person and I'm grateful to them for helping us keep the

1 proceedings as efficient as possible.

2 All of you have provided to us printed material from time-to-time during the
3 conference, and we want to ensure that we do have electronic copies of anything
4 that you have provided. If you haven't already done so we'd ask you to provide
5 electronic versions to us within three working days so that if it's appropriate that
6 they can be made available on the website.

7 There were two matters that I particularly wanted to note where we have
8 sought additional information. The first one is I ask NZ Comms if they would be
9 prepared to give us the legal advice they had on the issue of greenfield sites, and if
10 you're willing to do that we would ask that you provide that to us.

11 And the second matter related to giving other parties the opportunity to
12 comment on some of the economic evidence that NZ Comms' expert provided on
13 incentives on the first day. And I indicated that we were prepared to give parties
14 the opportunity to have a bit longer to look at that. My view on that being
15 appropriate hasn't changed, therefore we would ask that both of those matters are
16 dealt with by 5 pm on the 17th of October. So if you wish to avail yourself of the
17 opportunity to comment on that economic evidence, please do so by that date.

18 I'll finally ask if there's any other matters. **[No comments]** If not thank you
19 all once again, do travel safely and the conference is now closed, thank you.

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21 **Hearing conference concludes at 4.47 pm**

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