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TRANSCRIPT OF PROCEEDINGS

PRODUCTIVITY COMMISSION

INQUIRY INTO RADIOCOMMUNICATIONS

DR D. ROBERTSON, Presiding Commissioner
DR N. BYRON, Commissioner

TRANSCRIPT OF PROCEEDINGS

AT CANBERRA ON MONDAY, 29 OCTOBER 2001, AT 9.26 AM

Continued from 24/10/01 in Sydney

DR ROBERTSON: Good morning, ladies and gentlemen. Welcome to a beautiful Canberra morning. I'm almost tempted to come back. Welcome to the public hearings for the Productivity Commission inquiry into the management of radiocommunications spectrum. My name is David Robertson and I'm presiding commissioner in this inquiry. My fellow commissioner is Neil Byron.

The inquiry started with a reference from the assistant treasurer on 16 July this year, and it requires the commission to review radiocommunications acts and the market based reforms and activities undertaken by the Australian Communications Authority. It's part of the national competition policy legislation review process. We've already talked informally to a range of organisations and individuals with interests in these issues, and submissions have been coming in and are still coming in at this point in time. Last week we had a hearing in Sydney, this week we have two days here in Canberra, and then next week we have three days of hearings in Melbourne.

The purpose of the hearings is to provide an opportunity for interested parties to discuss their submissions and their views on the public record. After we've had the hearings we'll be working towards a draft report which we will release for public comment in February 2002. We will invite participation in another round of hearings after the interested parties have had time to read that draft report. We like to conduct these hearings in a reasonably informal manner, but I remind participants that a full transcript is being taken, so you can be held responsible for what you've said, I guess, and for this reason, of course, comments from the floor cannot be taken because they will not be heard in the microphone and in the recording.

However, at the end of the proceedings this afternoon, if there's time, I will invite people to make additional comments, if they wish. That's assuming there's time, and it is a full schedule today, I can say that. Participants are not required to take an oath but are required under the Productivity Commission Act to be truthful in their remarks. Participants are welcome to comment on issues raised in other submissions. Transcripts will be made available to participants and will be available from the commission's web site following the hearings. Copies may also be purchased using an order form available from staff here today. Submissions are of course available on the web site too.

I invite speakers to give a summary of their submissions. Some of them would take us all day to read one if we read it out loud, so by summarising their submissions, this will provide major points for us to discuss with them and for later comment perhaps from elsewhere. This is intended to promote discussion at this stage. So now I'd like to welcome Ian Hayne from Market Dynamics, the first person this morning to speak. Ian, welcome.

MR HAYNE: Thanks very much, David. It's nice to be here, and I'd like to thank the commission for the opportunity to present some ideas before this inquiry. It's a very important inquiry and it's very strongly supported by Market Dynamics. This is

the first real post-implementation review of some reforms that were put into place in 1992 following some work that was done as part of the so-called micro-economic reform agenda from 87 to 92. That agenda looked at radiocommunications and broadcasting and telecommunications.

Telecommunications has had its second round of reforms now enacted from the 1997 act. The central thrust of my submission, I suppose, is that round 2 for radiocommunications is well and truly overdue because there are some serious structural weaknesses in the existing statutory framework that need to be amended and, in fairness, at the time the original legislation was passed, a lot of the concepts in the act were very new and they weren't very well understood, so it's with the benefit of a little bit of experience and a little bit of 20:20 hindsight that I think we can make some assessments about how successful this regime has been in achieving what it set out to achieve, and then think seriously about how we might take it forward. So it's a very timely inquiry, a very important one, and it's one that's been stalled two or three times, I recall, from my previous bureaucratic life, and so it's well overdue.

My submission at the moment is a draft and it is a private draft between the commission and me for the time being. What I'd like to do is continue to work on this submission before submitting a copy into the public record, where people from the audience will get the opportunity to comment, but for today I'll just use the one that I have. My company is a specialist radiocommunications consulting firm. My background is in communications policy and in law. My academic training is in communication theory, and I've been involved in communication policy over a long period of time, in both radiocommunications and in broadcasting. So that's my background.

When I was at the ACA I was responsible for the spectrum marketing team and was therefore responsible for the development effort behind spectrum licensing and the ACA's spectrum auction program, so it's not surprising that I'll make quite a lot of comments about those two main issues today. My company also represents a number of spectrum licensees in Australia. They will be making their own separate submissions, and you might see some correlation between thoughts in mine and thoughts in theirs along the way. The clients that I act for are generally very very supportive of the idea of spectrum licensing, but I think they'd share with me some commentary about the implementation.

Before moving into the submission and its summary, I just wanted to comment on some institutional arrangements and make some observations, having left the public service in the year 2000. When I first started in broadcasting policy division in 1985 in the Department of Communications as it was then, most of the functions that we're talking about today were conducted within the Department of State, and so as a policy adviser it was very easy for me to wander down the corridor and get access to skilled engineers and skilled radiotechnical officers who could inform the policy debate as it was being made.

With the devolution of the technical functions, the engineering and radio technical functions, to external statutory authorities, there's been a bit of a deskilling within the department in the radio, engineering and technical area, and I think that is leading to what we will increasingly see as some problems in policy development, and there are some examples in recent communication policy when you've really got to wonder how connected they were to the reality of practical radiocommunications and so on. So it's an issue that really sits in the institutional framework. I make some comment on that in the submission. I don't quite know what the solution is because the idea of independent statutory authorities is a very good one. Expert technical regulators I think are necessary, but the consequent deskilling of the department's policy advising capability is a significant issue.

I talk about some background on spectrum management generally to provide some theoretical perspective, I suppose, for the commission about what licensing is all about and how we come to be in the year 2001 using a licensing system, and I argue that it's essentially an historical construct. It's one that emerged at a time of very new development of this weird thing called radio in the early part of the 1900s, the 1920s and 30s in particular, and to a large extent the reason that we have the system that we have today is because we've grown that basic fundamental approach incrementally. And I make the point that it isn't the only way of managing a common access resource: there are other analogies that we can use, and perhaps it's time to think a little bit more about those.

I also bring in the review of the BTCE that was published in 1990. I think that was a landmark paper in many ways because it took a look at the management of radio frequency spectrum and did a report which highlighted some fairly significant structural issues. One of the central parts of my submission is that, although we've implemented some good reforms in radiocommunications management, those deep structural issues have not been solved in any systematic way by the reforms that have been implemented, and in fact I think it would be fair to say that the situation today in 2001 is not as good as it was perhaps in the earlier days of the reform, and the reason for that I think is that we've failed to keep up with what's been going on. So BTCE is an important reference document for the commission, I think, because it really articulated for the first time what the 1992 reforms were intended to achieve.

I make some comment about the objectives of the act and draw out some of the contradictions between things like overall public benefit and economic efficiency and those sorts of things. I have in fact proposed some dot points that I think should be used to guide the development of any future statutory objectives, and they retreat quite a way from the overall public benefit concept I think that is in the act at the moment. I make the point that overall public benefit is an inherently subjective concept. It can be interpreted in many many different ways, depending on where you sit, and I question whether or not a subjective concept like that has any place or role in a set of statutory objectives which are really about guiding how the regulator acts.

I'll just very quickly run through those dot points of importance because they may inform the debate and they also highlight my own understandings and biases and ideology to a certain extent in putting my submission forward. But they start with the premise that spectrum is a national resource of substantial economic importance. I say that because radio frequency spectrum is an input now into virtually every sector of the Australian economy, and its importance in terms of the Australian economy is only going to grow as we move increasingly into an information age.

I then put forward that efficient allocation and management of this resource is a matter of national importance, particularly in an era of rapid technological change and of convergence and of a growing information and telecommunications economy. I then suggest that transparency in technical and service neutrality are fairly fundamental to efficient management, and we should strive for those, and also that spectrum users for the most part are in a much better position to understand the pressures on spectrum and on technology and on allocation of the resource than is government, and that's a very important point because at the moment most of the responsibility falls on government.

My final pointer into the objectives for the new objectives that I'd like to see really relates to the fact that there are a lot of other policies of government that tend to get caught up in the administration of radio frequency spectrum, and you end up with an environment that facilitates all of this special pleading by special interest groups along the way, all of whom want something out of the government pie, and that creates particular distortions in pricing and demand allocation of this very important national resource. So I would argue - and this comes from very fundamentalist, rationalist economics - that those sorts of special pleadings really should be dealt with in a different way. They should be directly subsidised by the budget so that the people who are involved there can compete for access to the resource on equal terms with everybody else, and again that's a philosophical ideological point that may or may not be accepted.

I move on in my submission to talk about spectrum planning and the hierarchy of planning instruments that starts with the ITU, moves down in the hierarchy to the Australian spectrum plan, to any subordinate band plans, to all of the radio assignment licensing instructions, the complete infrastructure of apparatus licensing and radiocommunications regulation. It does exist within a hierarchy, and the influence and role of the International Telecommunication Union is very important in this, and I would argue that Australia's role is certainly beneficial to the country. Australia is highly thought of in the ITU circles. We're seen as an honest broker, and so I would advocate continued involvement with the ITU.

But, at the same time, the central planning model does deal us some particular problems and I've highlighted in my submission the example of the international 3G issue as one of the comprehensive failures of central planning. I suggest, in fact, that it will probably go down as one of the worst examples of central planning in the

history of humankind. There are hundreds of billions in euros of debt attached to 3G at the moment, all because of some basically central planning decisions in Europe that we were going to have 3G.

Whether or not the market can sustain 3G at the moment is a moot point, and I would point out that the technology that was being touted in Europe - wideband CMA - is simply not available today; it doesn't work. So it remains moot as to whether the business plan behind 3G in Europe will actually work. Who knows? That's what happens when you get central planning wrong. You end up with people spending a lot of money and, at the moment, it looks as though they might be wasting that money. It's pretty tragic stuff.

I use that to say that government needs to acknowledge the failings in a central planning model and to recognise that, while we've made some pretty good tentative steps along the way in Australia to deal with those issues, we have a long way to go. I note in my submission that it's quite significant that right now both the UK and the United States are starting to look very very closely at trading in spectrum. This would have been unheard of, at the level that we're talking about, five years ago, and I certainly remember being involved in discussions in the UK and in the US about this and they were quite, "No, we won't go down there." Now they're openly talking about it.

On a recent trip to the US I had the pleasure of briefing some people from the GAO, the General Accounting Office, who were looking at spectrum trading and spectrum property rights from the point of view of a congressional review. The pressures that we picked up on about a decade ago and tried to do something about are now starting to be felt and recognised in other countries, and so you can see that there is increasing interest in spectrum property rights and trading around the world. That will continue, I suspect.

I talk in my submission about the types of licensing and sketch out a model for the commission that looks at a route licence or the concept of a route licence, where all of the spectrum derives its management, I suppose, from the constitutional authority at section 61(5) of the constitution. So we have this idea of the whole of the spectrum from DC to daylight being something that is the responsibility of the federal government. Within that overall route licence the federal government has authorised devices, and the whole point of radio frequency spectrum management - the whole point - is the coordination of devices so that meaningful radiocommunication between different devices can take place. If you don't have that coordination then you end up with the potential for interference between devices, and so the whole communication scheme breaks down.

Traditionally we have a model where all of the spectrum is owned, if you will, as a crown property right by the Commonwealth and it authorises people to operate devices. We have in Australia a system called class licensing, and class licensing is like a public park that gets created out of that route licence. That public park is

created a little bit like common space, and people can move into that park and out of that park, provided they abide by the rules that are posted on the sign at the metaphorical entrance to that park. If you don't abide by those rules there is regulatory sanction that can be brought against you.

That's a pretty good concept because there are a lot of devices that operate very well in an uncoordinated low-power environment. I've used the example in the past, with the commission, of a garage door opener. While they are low-power devices, they're pretty useful things, but if I was to put a five-watt linear amplifier on the back end of my garage door opener, I could have a lot of fun with the spectrum. No, that wouldn't really work.

Taking the analogy of my route licence one further, what spectrum licensing does in the current scheme is it takes a band of spectrum and carves it off from the route licence; allocates that to another private party for them to manage the business of authorising devices and managing interference and those sorts of things. I think that's a very useful model too and it's one that I'd like to see deployed much further in radio frequency spectrum management. The problem with it is that when it was conceived in 1992 the regulators, the legislative drafters, the government, the parliament were reluctant to let go. They were reluctant to give this new model its head, and so they constrained it in a number of ways. They made it a fixed-term licence that could be recovered and re-auctioned, allegedly so that they would have the flexibility to replan it and refarm it to different uses.

They put a whole lot of administrative impediments on the licences themselves, things like requiring testing of unacceptable interference; interference impact certificates; device registration; third party registration; all of these little administrative hooks that have served to reduce the utility of what many of us at the time hoped would be a private property right. The reality is that although I often talk about spectrum licensing being a pseudo property right, it isn't; it's far from it. It's a licence like any other. It's got a little bit more flexibility than some other forms of licensing but nowhere near the flexibility that it needs to have in order to satisfy the goal, the vision, the nirvana - if you will - of private property rights in spectrum that have been talked about in the economic literature.

My submission argues that we really need to remove a lot of those bureaucratic and administrative shackles. We need to encourage the government and the parliament and the administrators to let go, to have a bit of faith, and to let these private property rights evolve. That does create some problems, they will need to be dealt with, but we're all grown up enough to think seriously about those and how to fix them.

Moving right along, I talk very briefly about standards setting, and note that there is a very important role for setting standards to deal with human safety and health and those sorts of things, and that these should apply quite generally. I argue that standards setting is a central part of any centrally planned mechanism because it

provides for a homogenous radio environment that simplifies the planning effort, so it's quite important in that regard, but I also say that standards setting doesn't really have a lot of place when it comes to technology in the spectrum property rights domain, which I hoped that we could get to.

The problem with standards is that they take quite a lot of time and effort by a lot of people in order to be implemented, and that investment of time and effort by people makes them very hard to move away from. So in an area of rapid technological change you can see that standards may act as a brake on innovation. People will want to cling to the standard that they know because they've invested so much time and energy in it. I think that's the reason why I'd like to see, I think, the role of standards reduced in spectrum licensing and spectrum property rights, just to give the market that added flexibility.

My submission talks about charging for spectrum use. Although it's very hard to provide evidence for this without getting inside the ACA, I suggest that the budget imperative is a fairly compelling one on all Commonwealth budget funded agencies. The willingness of the ACA to give up a revenue stream to promote class licensing in a band is problematic in that environment. The ACA won't, I don't think, do that unless it has specific budgetary approval to do it, so you can see that the release of spectrum for the class licensing model is always going to be seen in the budget context.

I talk about apparatus licensing and provide what I hope is a fairly compelling case for the commission that there needs to be a very substantial rebalancing of apparatus licence fees to take account of contemporary spectrum values. I've given an example in my submission of a price distortion that exists in spectrum that is comparable to spectrum that's already been allocated by auction, and it's a very significant one. I think the ACA really needs to think again about its apparatus licence fee approach. It did tremendously well in the early days of the SMA by coming up with a more rational approach to pricing. It was a significant improvement on the scheme that existed before. However, the failing, in my view, is that we as a country have not reflected into that licence fee formula what we've learnt about spectrum values.

The ACA has reacted once, and it needs to be acknowledged that they did react once - for the public record - and that was to rebalance the GSM 900 apparatus licence fees where in a recent budget statement they went up by 150 per cent, mainly to reflect the increased value of mobile phone spectrum that was derived through auctions. I think the methodology of the licence fee formula was quite innovative at the time but I think it's past its use-by date, and the technology exists to come up with some much more sophisticated approaches to spectrum pricing. There's data available to help make those sorts of decisions. Some of the intellectual property necessary to underpin some of those things I think already exists within the ACA.

Spectrum licensing: I note that the law provides for auctions, tenders or

predetermined or negotiated price. I'm a great fan of spectrum auctions. Everybody in this room I think understands why I would say that at this time. They've been pretty successful as an allocation mechanism in resolving demand/supply problems, but they've also created their own significant structural inefficiencies along the way. The values that we see achieved in spectrum auctions, from the series that we've had so far, are really extreme values. Those values reflect an artificial scarcity that was created for each of those auctions, and I will fully admit to being a compliant party in that whole process.

What that's done is it's distorted the wider values of spectrum quite significantly because we have these very small pockets that have been spectrum licensed by auction. The values that have been achieved have been very very high and so that's tended to place, I suppose, unrealistic expectations about the value of spectrum. There's a very good example of that in all the hype that surrounded the 3G auction earlier where every other day it seemed you could pick up a paper that was talking about the $2.6 billion budget estimate for 3G. The real estimate - I don't know where it was or how it was derived or anything, but the reality is that auction yielded less revenue than a previous auction for a smaller amount of spectrum a year before.

So auctions are not a very good guide to the real pricing of spectrum. They provide a fairly good indication of how the spectrum ought to be allocated in a demand/supply sense but not in a wider valuation sense. I think that's going to create some significant problems. The other thing about the auction program is that it has cleared out some bands of spectrum of things like fixed links and, by those fixed links having to relocate to other bands, the demand/supply problem has simply been shifted. You can see that already the pressure on fixed-link spectrum has grown quite a lot in some bands. Peter shakes his head but there have been some complaints made about that.

I talk about the types of auctions that the ACA has at its disposal and it really only has two tools at the moment. One is the simultaneous ascending multiple round auction and the other one is an English open oral outcry auction. They're both suited to quite different circumstances. The SMR auction is really intended to deal with situations where you have multiple objects and you have complementarity or substitutibility between those lots. The SMR auction has some well known and fairly well documented theoretical flaws attached to it, and I believe that in the results from the ACA's auction program you can see evidence of those flaws being manifest. In my submission I make an offer to the commission to help you interpret the data from those auctions, if you'd like to take that further.

The ACA picked that design at the time and I was largely responsible for picking it. Mike Whittaker, who is in the audience with me today - I want to acknowledge Mike's contribution to this because he brought to my attention one of the papers; one of the academic papers on that. It was really on the basis of that we decided to have a look at SMR auctions in much more detail. At the time it was the

best design that was around; there's no doubt about that. It was not too bad a design at solving the allocation problem, but in view of some of the results that we've seen in Australian spectrum auctions and in view of the documented theoretical flaws, I think there are better ways of auctioning spectrum, better techniques. They are published in the academic literature and I've provided some pointers in my footnotes for the commission to that.

Most of the good designs that are around these days are combinatorial. By that I mean it's possible for a person to assemble a package of lots and make a single item bid, or a single bid for that package of items. That is a significant advance on SMR auctions where all the bidders have to individually price all of the components of the package that they're bidding on. That creates an enormous risk for bidders and I can speak authoritatively, having advised two bidders in Australian spectrum auctions and been involved in other efforts overseas. There are real problems for a bidder in the SMR auction. I've highlighted some of those in the submission and I'd like to note that it's a very dangerous space for bidders.

Combinatorial auctions remove a lot of that risk because all of the bids in the package are contingent on one another. The bid is made in such a way that you either get everything in the package at the price you nominate, or you walk away and that removes that risk for bidders. I think the ACA, while it was right at the state of the art at the time in picking up the SMR design, the FCC was doing the SMR design, many other countries have used the SMR design, it's now a matter of fact that the US is moving away from SMR towards combinatorial designs. The UK is now moving away to combinatorial designs, and I think it's time for the ACA to catch up so that it can retain its lead internationally.

Licensing and band clearance are two issues that my submission treats with a great deal of importance because they create two of the big structural impediments to widespread spectrum licensing. The issue there theoretically is, how do you take a portion of this root licence that I've described and assign the management of that component of the root licence to somebody else to manage, without causing widespread disruption, without causing people to write off hundreds of millions of dollars worth of infrastructure, and to do it fairly and predictably in a way that doesn't cause large-scale dislocation?

I put forward a model in my submission for dealing with that and it really does derive from this root licence concept and it suggests that when you allocate a management right, in the way that I'm suggesting, that all of the licences that exist there come with that right. The revenue that would normally have gone to the ACA during the spectrum reallocation period for apparatus licensing - I'm actually suggesting that that revenue belongs to the new licensee, and the new licensee should be able to charge fees to those incumbents that reflect the value of the resource that they've just acquired.

I talk about tenure and note that for apparatus licences in a centrally planned

structure it's quite important to have a fixed-term tenure licence because it's the fixed-term tenure licence that allows you to stop the existing apparatus licences, replan the band and get a new use in. That has been traditionally done with band plans and those sorts of instruments. They provide for the ordered refarming of a band to a different purpose, and a fixed-term licence is quite important to that whole process. If you go for a very long-term fixed-term apparatus licence - even if it has renewal - the flexibility to replan a band gets a little bit constrained because it takes much longer for the licences that exist to reach their expiry and then get refarmed out.

I think it's a double-edged sword. There are calls for improvements to the terms and conditions of apparatus licences to give them more predictability. I am not that persuaded by that and in fact think that a fixed-term right of one to five years, as we currently have, is probably good if you have the assumption that these bands are centrally planned and are going to be centrally replanned or may be centrally replanned. The situation is very very different from this idea of spectrum licensing and spectrum property rights. What I argue in my submission is that the fixed term, non-renewable nature of those licences actually works against all of the benefits that the theoretical model for spectrum property rights promises.

The fixed term tends to be a disincentive for people to invest in technology, particularly during the sunset years of the licence and, more importantly, it becomes a brake on trading in the sunset years of the licence because the ability of the new owner to garner a fair return on its investment in those sunset years is going to be limited; it's going to have less time in order to do that. So I argue passionately, strongly, and I hope in a worthwhile way, for perpetual property rights in radiofrequency spectrum for spectrum licences. I think the government, the parliament, the administrators need to cut the cord and let business get on with it, because in some bands I'm quite certain that business is much better able to get on with it in that sort of framework than it is within the centrally planned apparatus licensing approach.

I talk a little bit about the conversion process. I have highlighted for the commission two examples of conversion; both of them have ended up in what I would describe as a fairly negative outcome for the administration. The first one was the conversion of the 500 megahertz band in 1996. It wasn't so much a failure as a very very difficult way of getting from point A to point B. The process of conversion, as set out in the act, really requires that the spectrum space modelled by each individual radio device be defined in some way, so that a replacement spectrum licence can be offered to the licensee. It's a very convoluted, administrative, technically detailed task that actually takes longer than auctioning the spectrum - and it did in that case. In that instance we have five licensees and eight spectrum accesses to convert and it took about a month longer to get done than the auctioning of the unencumbered spectrum space.

The other example that I note was the conversion of the MDS bands. In the

MDS bands the licences had been auctioned as apparatus licences some time before. The apparatus licences were defined on a pseudo area basis and so it made converting those licences from apparatus licences to spectrum licences much less problematic than the 500-meg band. Unfortunately, there wasn't a lot of pricing information available to the ACA and so they set a set of conversion fees which were totally inconsistent with contemporary market values, if I can use that term again. As evidence for that I cite the incidents of the TARBS licences that were converted for $26 million and were later sold in the secondary market eight months later for $140 million. The valuation there doesn't seem quite right. That's a pretty good appreciation. Good on Mike Voulos. He made a good little profit out of that and shows you that the market is in fact working, and working quite well. You can also use that secondary market example as an example of the original allocation being inefficient.

Just talking about the efficiency of initial allocations, I'd like to return very quickly to the spectrum auctioning business. There has been a bit of trading in spectrum licences that have been auctioned. Last year I was actually approached to help some people get a more efficient distribution of spectrum in the 1.8 gigahertz band. The reason for that was that the original allocation resulted in an inefficient allocation, simply as a function of the SMR design. The ACA has some wonderful graphics in an Excel spreadsheet with coloured boxes, that I'm sure they can provide to the commission, that show that inefficiency in the allocation. As I say, I was approached to help some people solve that and we encountered along the way another problem with spectrum trading that is worth mentioning very quickly and that is the potential for state governments to levy stamp duty and associated charges on spectrum licence transactions and I think that is an impediment on trading as well.

I then talk about the spectrum reallocation process. Spectrum reallocation was introduced in the act to deal with the administrative complexity, if you will, of the conversion process. It in turn has introduced a whole new set of complexities into the treatment of spectrum licensing. It's a difficult area. I mean, it worked, in that the auctions for the bands that have been subject to reallocation have rendered quite a lot of revenue, so the value that the community has got out of that has been quite strong and probably outweighs the costs to the incumbents having to go. I think that's a reasonable assertion to make. The problem comes about, however, when you do this in a band where that issue is much more marginal, where the cost of getting the incumbents out is actually going to outweigh the net benefit of moving to the alternative approach. So spectrum allocation or reallocation has some problems with it.

I talk about trading in my submission as well - trading and a market for spectrum. I think this is one that's a little bit understated in many ways because there has been trading in the spectrum market, but it's been for whole licences. You've had whole licences changing hands from one licensee to another almost with a business system intact. If you go back to the literature on property rights you see a lot of thought about the spectrum becoming much more fungible as a commodity, so that

bandwidth and geographic areas can be subdivided and traded. We haven't seen a lot of that in the market so far and I think there are some impediments to that. One is the tenure issue because the turn that you have when you get your new licence is going to be limited after trading, but there are also some other issues. The ACA's presentation about information about spectrum licences is not very good. It uses RDBMS technology rather than spatial technology. For trading to work people have to be able to get access to the information about who owns what and where. The way to do that is with spatial techniques, GIS systems.

I know the ACA is working on this but it has been working on this for a very very long time. The market really won't function properly until there is information in the marketplace that's readily accessible to all-comers in the radiocommunications industry about the spatial representation of licences - who owns what, where and so on. It's fairly important. There also needs to be, in our view - and by "our" I speak for my US based partners in this - we're looking at some issues to deal with spectrum trading. There needs to be some sort of trading house or market exchange or something like that. I would argue that government not do that.

I think the mechanism is really something much more akin to the Australian Stock Exchange, for example, where you have people in the marketplace coming together to form a company where this sort of trading happens. I think the Australian spectrum exchange is a pretty good idea, although I note that the name has already been taken by somebody in the Australian Companies Register, so that puts an end to that one. There is a need, I think, for a spectrum exchange where people can come and buy and sell spectrum; they can trade it. That, of course, needs information and it needs technology. The intellectual property behind such a thing is actually very very sophisticated.

I talk about non-commercial use of the spectrum and, from my opening remarks, you'll probably gather that I have an ideological perspective there - that is much more in terms of rational spectrum pricing, rational spectrum management - and I believe if you do that the price for everybody should come down because in all of the spectrum that's there, there's more than enough for everything. The reason that we have pockets of excess demand and supply in particular bands is because that is the way the spectrum is planned. If we have much more fungibility, I suppose, in spectrum and much more freedom of people to trade in spectrum, then you could perhaps see some levelling of those peak prices that we see, and spectrum may get a little bit more cheap for everybody. But in terms of non-commercial use, it includes government funded bodies like defence and people like that, right down to community funded organisations like surf lifesavers.

I make the point in the submission that these people want special treatment in their pricing for radiofrequency spectrum resources yet they don't get special pricing treatment when they go down and fill up their car at the local petrol pump. The jet A1 that the air force puts into its FA18s costs money and defence pays for it. The diesel it puts in its leopard tanks costs money - defence pays for it. Defence uses

telecommunications - it pays for it. So all of these organisations are really paying for all sorts of other resources in the normal course of their operations and business. I pose the question for the commission: why is spectrum, as a resource, any different from that? It poses some very interesting issues.

So I would price all spectrum openly, transparently and give all these users some real pricing signals about the value of the asset that they're consuming. I have a rather cheeky, if you will, perhaps disingenuous - I'm happy to take criticism on this - example of this in my submission. I talk about the three-point whatever band - 3.1 to 3.6 or thereabouts. If you get out your Australian spectrum plan, that whole area of spectrum - its 500 megahertz - is all down as AUS11 or AUS1 footnote. It's all down as defence spectrum. Out of that, last year the government sold some of that defence spectrum and got $100 million for it for 100 megs. So I invite everybody here to do the maths. That spectrum, the whole lot, is technically worth about $500 million.

The reason I said I was perhaps being disingenuous on that is that if you had put the whole 500 megs into the market at the one time you might have only got $20 million for it. So there are lots of lessons and lots of issues to be had there, but the fact is that spectrum is valuable. A lot of that spectrum is directly substitutable for the spectrum that was sold by government. It just happens to be allocated to defence, but it's directly substitutable in a technology sense, so you really have to wonder what is that spectrum actually worth and why isn't there some sort of transparent pricing.

There was an issue raised by the commission about whether or not defence should be able to be challenged about its spectrum holdings, and I give some reasons why I don't think that's a very good idea. Probably the most obvious one is that defence will simply put their hand up and say, "National security", and I think that's probably a very valid and justified way of them responding to that. That's fair enough. But on the same wavelength as some of my earlier comments, defence needs to have some sort of way of internally rationalising the spectrum that it uses. It's not getting any price signals from the market about what its spectrum is really worth. The opportunity cost of that spectrum isn't being signalled to defence.

Perhaps if you had an open trading exchange, a marketplace for spectrum, that could provide some information back to organisations like defence so that they could value their spectrum better. Taking that a step further, I've sent to the commission a paper from my partner in the United States, Dr Mark Bykowsky, about federal trading of spectrum, which is really a shorthand way of saying defence releasing its spectrum back to the market on its own volition in accordance to its own sensitivity to the price signals that are generated by the market. So that model is there for people to have a look at.

I then avoid a couple of issues in this version of the submission. Those include broadcasting satellites and competition, and I won't make any comment in public

forum on those. I will just talk very quickly about the role of the ACA, before closing my summary. When you look back at what the government attempted to achieve in 1992 it was set out in a little booklet, which I didn't bring with me today. It was a little booklet, an explanatory booklet, called Implementing Radiocommunications Reform. It was published in about 1992 or 93 or thereabouts, and it set out three things that the government hoped to achieve. The first one was the selective and progressive introduction of a market based system of spectrum management to operate and define spectrum management segments alongside the administrative system.

The second point was improvements in the efficiency and effectiveness of the current administrative system, and that is effectively apparatus licensing. The third one is the establishment of the Spectrum Management Agency, and that's the expert regulator. My submission argues that we've come a long way in doing many of the things that the government set out to achieve, but have we made a difference against those three core objectives? I think there is a case that we haven't. In terms of the market based spectrum management system the deployment of spectrum licensing in Australia has been very very limited indeed. Not very many bands have been spectrum licensed.

There are reasons for that and they come from the administrative processes that the act requires in order to get spectrum licensing, and there are a lot of administrative delays in the process - and I will make some more comment on that in a minute - and there's institutional resistance, not just within pockets of the ACA, because if you ask Tony Shaw to come along today and talk about is he behind spectrum licensing, I'm sure he will say yes. If you ask the executive managers of the ACA they will all say yes, they're right behind it, too. But I think, realistically, my observation working in the ACA was that there was institutional resistance in pockets in the ACA and in the wider bureaucracy.

There's not a lot of understanding of things like spectrum licensing in the wider bureaucracy. It might have made 2 and a half billion dollars for the taxpayer, but the first real attention that it got from other elements of the bureaucracy was in the context of the PCS2000 option which got $1.3 billion. When Treasury financed the Reserve Bank it simply could not get enough of the ACA. So I don't know that the reforms are as widely understood in the wider bureaucracy as they could be. There are issues there why and all of that, but I think it has caused some sort of institutional resistance to the deployment of spectrum licensing.

At the moment apparatus licensing is the default condition for spectrum management in Australia and spectrum licensing is the exception that has to be justified. The justification is pretty intense. It involves public inquiries and making recommendations and submissions to the minister. It involves a lot of oversight by the department and all these sorts of things. I would really like to see a reversal of that so that spectrum licensing becomes an equal default condition to apparatus licensing - the situation where something like spectrum property rights can be

deployed fairly easily and without all of the administrative hoopla that currently has to be endured.

So I don't think that the progressive introduction of market based system of spectrum management has progressed far enough and quickly enough. I highlight a comparison with the rate of spectrum auctions in the United States, and it runs Australia to the US of about one to four or one to five over the same period of time. So clearly, the FCC is able to get much more spectrum auctioned and into the market than the ACA has been able to do. There are a lot of reasons for that, but let's address those in the work of the commission's inquiry.

If we have a look at improvements in the efficiency and effectiveness of the current administrative system, great headway was made. There's no doubt that the improvements to the apparatus licence fee formula were good, the implementation of class licensing was good, the removal of some non-assigned bands into class licensing, that's good. These are all very very positive things. But the failure to rebalance the licence fee schedule and formula to take account of the values that have been achieved at spectrum auction has created some quite severe inefficiencies. It's not efficient for a spectrum licensee to sublet their spectrum space at the moment, because the ACA will undercut the fees that they could reasonably charge and make a return on the investment. That's the reality at the moment. I've already given an example to the commission of how that works.

So really, if the ACA wants spectrum licensees to make more efficient use of their spectrum it has to make it a more equal playing field for spectrum licensees to be able to release their surplus capacity on a leasing basis. They don't do that at the moment. So I think that leads to a structural inefficiency in the whole apparatus licence fee approach, and so the gains that were made in the early part of the life of the radcom act haven't been followed through, because we haven't kept up with the pace.

Finally, just looking at the creation of external regulators, that I think was a significant advance in many ways. But in terms of the productivity of the administration of radiocommunications spectrum I don't know that it has advanced that much at all. While there is downward pressure on the regulator, and the regulator is doing things better than ever before - and all of that; it has made significant inroads - at the same time there has been a shadow bureaucracy in the department that oversights all of the work of the ACA, the ABA and of all of the other regulatory bodies. It means that when the expert regulator does its thing, as the act requires it to do, a lot of that product goes to the minister. The minister then refers it to the shadow bureaucracy in the department, that shadow bureaucracy works over the recommendations of the ACA, has a look at them, reviews them and it provides advice to the minister about the way to go.

Now, I would have thought that an expert regulator that had the confidence of the parliament, the government and all of that, would have been capable of making

pretty good recommendations to ministers in their own right. They don't, because nothing to do with spectrum licensing, in my direct observation, ever gets a ministerial tick without a very comprehensive review from the department. So the productivity of these administrative arrangements I think is not as good as it could have been.

One more thing on that front: talking about the actual administration, there is a lot of paperwork attached to spectrum licensing; a lot of fairly detailed trips and triggers along the way that all have to be satisfied. There are determinations of unacceptable interference, there is a mandatory device registration requirement, and a lot of that really duplicates work that would otherwise be done under apparatus licensing anyway. So with spectrum licensing, not only do you have all of the accoutrements that you have to have with apparatus licensing, but you've got this added layer, I suppose, of administration, called the spectrum licensee and its rights and responsibilities.

Again I'll use the term "cut the cord". It really is time to say, "Okay, if you're going to create a spectrum licence management right, then let the management of that spectrum be the responsibility of the new owner and let's not have a regulated second layer of administrative complexity that really mirrors what is happening in apparatus licensing anyway." Peter is nodding, because that's in his submission and I agree with him on that. I think we have far too much administrative complexity in the legislation itself in the support of spectrum property rights. Without wanting to offend the Productivity Commission, there is a body called the Office of Regulation Review that creates an enormous paper burden on the ACA, because every time it does a section 145 determination, a section 262 guideline, a section 60 determination of auction procedures, and collectively these documents amount to about two or three inches of paper, every time one of those instruments gets done and gets put to the authority for signature, it has to be accompanied by regulation impact statements.

I've noticed, and Tom has a wry grin on his face here, that that can be a little bit administratively complex, because they all look the same, they all do the same thing, they all end up being negotiated. So the effort of people gets put into actually doing these sorts of things. At the end of the day, what happens to them? I've never seen a RIS published as any part of anything that the ACA has done on its web site to do with spectrum auctions. They are on the record at the ACA I'm sure. I'm sure you can ask to have a look at the RIS's for all of these documents, but can I see a clamour from the taxpayers of Australia to rock down to the ACA office to have a look at these things? I don't think so. So I think there's a bit of administrative overboard in the application of the rules regarding regulation impact statements. It's on that point that I would like to rest my summary, brief as it wasn't.

DR ROBERTSON: Thank you, very much. I'm not quite sure where we come out on all that.

MR HAYNE: Neither am I.

DR ROBERTSON: Clearly, you're very much in favour of moving towards a market, but there are an awful lot of barriers in the way.

MR HAYNE: Yes.

DR ROBERTSON: Some of them that you've referred to are indeed government imposed, they're in the legislation, and it requires government legislation to change them. Others are characteristic of the way in which, not only through history spectrum has been used, but also with the very wide range of different types of people who use spectrum.

MR HAYNE: That's right.

DR ROBERTSON: I would have loved you to have been in Sydney last week when I had a considerable confrontation with some people from the New South Wales state authorities, who actually believe the Commonwealth should give them everything they want for free.

MR HAYNE: I think I've already made quite a lot of comment on that very issue today.

DR ROBERTSON: You have, yes.

MR HAYNE: I think it's a nonsense argument.

DR ROBERTSON: But the fact of the matter is that all the states probably come in from that position. The federal government is left facing seven states, all of whom feel that they have a right to anything they want.

MR HAYNE: Yes. I have seen a comment in one of the submissions that is before the commission from a state government agency, or an agency that represents a lot of state government bodies, and they actually acknowledge that payment of the spectrum is acceptable. They understand the basis for that. I think that's perhaps a function of me getting in their ear over a long period of time.

DR ROBERTSON: There you are, you see. You've had some influence.

MR HAYNE: I've had some influence.

DR ROBERTSON: But the point I'm making is that there are clearly a lot of impediments to this, and I identified a number as you were speaking that I thought particularly important. Community services is one. I mean, we've heard lots of comments from people who feel that they have a right to access, and this is a fundamental question that I haven't got my head around yet, which is: if it's a national resource, then does it belong to the government? You sort of touched on

that. In other words, does the government have the right to deal with it or should it be left to some other body?

Now, if we say no, we think it belongs in the market and we become very modern in our approach to competition, then you run up against the problem of whether or not you do get genuine competition in any particular market, and you again have mentioned a number of things like the government deciding for some reason that somebody else had paid too little for their licence and therefore they should pay a special levy, and clearly that is interfering in the market without allowing the market itself to find its own level. But the key to all this comes down to the secondary market.

MR HAYNE: It does, it does, and that is the one that I think is functioning least well at the moment.

DR ROBERTSON: Well, in fact is it functioning at all?

MR HAYNE: It is functioning. The secondary market is functioning at the moment. There have been quite a lot of trades of spectrum licences around the place, and in terms of the absolute number of licences that are in the marketplace and the number of licensees, the amount of secondary market trading of spectrum licences is actually quite high. It's higher than you would think it would be and I think proportionally it's higher than exists in apparatus licensing. That's not surprising because why would you trade apparatus licences when you can go to your nearest ACA shop and get one over the counter, so there are some issues with apparatus licensing but, no, there have been a number of trades and I've been approached to broker licences into the market.

I think in one of the footnotes I mention that I did the documentation audit on the first private spectrum auction in Australia. I'm currently working with some partners here and overseas on another private spectrum auction. These things are happening. They don't get a lot of press, they don't get a lot of talk about it, and in fact perhaps this is an issue for the ACA. There really isn't any information about the state of trading that's available to the public so that you can make objective measures about how successful it's actually been, but I'm very sensitive to the fact there's quite a lot of activity there, for one, but more importantly, there are other interesting approaches being made around the place.

Licences have been entertained to the market on a couple of occasions that I'm aware of. There hasn't been a sale but at least they've been offered to the market. Perhaps they weren't sold because of the structural problems in the market itself and the fact that there isn't a lot of information there. Most of the trades that have gone on have had to rely on bilateral negotiation rather than any sort of trading exchange. I wouldn't want to suggest for a moment that a trading exchange would be the universal panacea for trading, it wouldn't, but it would provide a structured place where people could come and bring their bag of spectrum licences and test them.

DR ROBERTSON: Yes, there are some institutions that have tried to do that. We've spoken to one, and it clearly hasn't got off the ground very well. So far I think all we've heard have been snippets of - "Well, these people did this," or, "Nobody is interested in this bit of spectrum that we know about," and until we get a really active secondary market where there's real evidence that there's trading, then you're not going to get a market - is my argument.

MR HAYNE: That's true, and the thinness of the secondary market really is a function of the thinness of the number of spectrum licences and licensees in the market. There aren't very many.

DR ROBERTSON: No.

MR HAYNE: There are less than 50 spectrum licensees in Australia at the moment, and the numbers are mostly made up from the MDS allocation more than anything else, because if you look at the big-ticket allocations in mobile spectrum you have mostly the same names and faces coming again and again and again, and they hold the bulk of the spectrum licences that are around there. They're not trading; they're holding onto their spectrum for strategic reasons. I wouldn't say anticompetitive reasons, but they certainly don't want to relinquish any spectrum so that a new player might get it. And, similarly, they're not real interested in releasing their surplus capacity in a leasing sense either because they don't want somebody to come along and start up a competing mobile phone business in their own spectrum space.

So there are issues there. Those can be overcome by contract though. You'll always end up coming back to the point that it turns out to be cheaper to go to the ACA to get an apparatus licence than it would be to go to a spectrum licensee and negotiate leasing on reasonable commercial terms, and once you sit down and work out what sort of return on investment you want to get out of the asset and look at what the asset is actually worth, the prices you end up with are way out of court for competing apparatus licences.

DR ROBERTSON: I suppose the first thought that springs to mind is, is the Australian market big enough to have a real market? Are there enough people on both sides of the market to actually create one or are we dealing with just a handful of companies who feel that they can just hoard and therefore don't need to trade, in which case there isn't enough competition, basically.

MR HAYNE: That would be right.

DR ROBERTSON: I mean, I'm on your side. I actually would like to move to a market but what bothers me is whether the conditions are right.

MR HAYNE: I agree. I think the conditions aren't right at the moment. the market

is too thin to support a full trading exchange such as I would like to see. It just wouldn't work. There'd be trading days when nothing happened, maybe trading weeks when nothing happened. There are ways of solving that problem but it is an inherently thin market at the moment. I am very much in favour of much more of these spectrum licences being put out into the marketplace. I wouldn't want to be portrayed, though, as advocating wholesale spectrum licensing everywhere because very clearly some bands aren't appropriate for that, and one of the comments I note in the submission is that a continuation of the mixed market administrative system is probably the best way to go. I just want to change the bias a little bit so that it's not so heavily stacked in favour of apparatus licensing.

I want to just draw out another point too. I highlight that. I don't know if the commission has seen this little book. It was published in 1996. A couple of wry grins around the room will remember this book! Just for the commission's benefit, this little book did a table of all of the bands from 39 to 41 megahertz, all the way up to about 3 gigahertz, and it made an assessment about whether or not the band would be a suitable candidate for spectrum licensing, based on six criteria. Interestingly, defence use was one of those criteria. If it was defence it was automatically excluded from spectrum licensing.

Now, I would argue that you could quite easily give a spectrum licence to defence. It would simply administratively confirm existing arrangements in many ways, but just by making that very simple switch you can change the mind-set about how they treat the asset, including the idea of them releasing spectrum to the market in their own way. But if you have a look at this table, you can see it's got a lot of entries on it, and if you look down this last column, yes, yes, yes, yes, yes, yes, yes, yes, yes, yes - all the way down the column. This was a book published by the former Spectrum Management Agency in 1996, talking about candidate bands for spectrum licensing, and there are a lot of them. There's not just a couple, but a lot. I'll leave that one with you.

DR BYRON: Approximately what proportion of those would have been actually spectrum licensed by now? Is it 50 per cent, 5 per cent or - - -

MR HAYNE: A very small fraction, less than 10 per cent. Less than 10 per cent, I would argue. It's spectrum licensing, as I say; it's not the default condition. It's the one where you have to go through administrative hoops in order to get implemented, and it takes a long time to do a spectrum licence band. A lot of that is a function of the administrative complexity.

DR BYRON: But could some of that administrative complexity be reduced by not having to vacate the spectrum first, in a sense selling the spectrum management right with "sitting tenants"?

MR HAYNE: With incumbents in place?

DR BYRON: Yes, with incumbents in place, who would then pay the rent to the spectrum manager rather than to the ACA.

MR HAYNE: That's a nice model. I don't think it would change the administrative burden though, because the way the law is framed at the moment, even if you introduced a sitting tenant right, I think you'd still end up with the Legislative Council folk wanting to have some checks and balances on the unrestrained administrative discretion to do these sorts of things, because at the moment the way the law is structured there are references back to the minister, and it's really a threshold decision by the minister as to whether or not a band is spectrum licensed.

There are two functions to that. One is the rapidity with which recommendations are made to the minister, and the second one is the wider public policy issue of whether or not ministers have a disposition to want to support that, and that's a public policy issue that I don't really want to comment on. It's really a matter for ministers and government as to whether or not they have this bias and want to pursue it or not. I would argue in a public policy context that ministers and the government at a structural level should be inclined to think more favourably about spectrum licensing, but to do that they're going to need to be convinced about the merits of the approach, they're going to need to have advisers within their departments who are open and willing to support the recommendations and support them enthusiastically. There are a lot of preconditions there.

DR ROBERTSON: You can see why I'm worried about a market.

MR HAYNE: Exactly. It would take an enormous amount of political will to see fulfilled the sort of policy nirvana that I've described in my submission. There are two sets of impediments. The administrative ones - they're in the law. They can be fixed by passages of legislation. They can also be fixed to some extent by the administrative decisions of the ACA internally. Things like requiring device registration could be done by an exemption, I'm fairly certain, but at a deeper level, if you really want to promote the idea of private property rights in spectrum, that will need political support and political commitment. I think that's where the work of the commission is going to be very very important in informing the public policy debate.

DR BYRON: Is there a sort of a circularity, a catch-22 argument, in that if you're relying on perpetual property rights or non-time-limited tenure and an active secondary market is a way of achieving the flexibility, the reallocation, the responsiveness to changing technologies, et cetera, but you say, well, we haven't really got a secondary market, an active, thriving secondary market at present, but to what extent is the fact that licences are time-limited itself a deterrent to the emergence of the secondary market, so that we haven't got a secondary market because we're time-limited and because we're time-limited we haven't got a secondary market.

MR HAYNE: I agree, there is a catch-22 there, and even when we solve that

circularity, if we solve that circularity, it's by no means certain that having solved it we'll deal with the wider problem. The market may ultimately be too thin anyway.

DR BYRON: Well, the corollary of that question is that if we went to private property rights in a non-time-limited sense and were therefore reliant on an active, thriving secondary market to be able to achieve that flexibility and reallocation through the marketplace and so on, can you understand the reluctance of government to make that sort of leap of faith - - -

MR HAYNE: Yes, I can, because it is a leap of faith, literally.

DR BYRON: And are there other possible impediments apart from inherent thinness of the market that might - if we were to go this way and say, "Well, we're going to give the equivalent of perpetual lease or freehold or management rights," in the hope that secondary market will deal with all the subsequent issues, are there other impediments which would stop that secondary market from emerging, apart from the ones we have already mentioned about stamp duty, capital gains tax, about the thinness of the market? Can we explore it in more - the potential risks of going down that route?

MR HAYNE: It's quite conceivable that if you take a property rights model to its complete extent you end up with all of the property rights or management rights or whatever being held by a single party and you end up in a situation very much like we had in the days of the Postmaster-General's Department, for example, when another progeny of that organisation, Telstra, as it currently is, could own a lot of spectrum. It doesn't at the moment and there has been a role for competition policy in influencing how much spectrum goes to any one party. That's an issue I wanted to try and avoid today if I could - and that's the competition policy dynamics of the whole thing.

I think market information is probably one of the most critical issues to the market functioning. So few people are aware of the opportunities that could be had; for example, in the spectrum leasing business, if spectrum licence clients were to be able to get into spectrum leasing in a large scale way, as a contestable competitor to the ACA, how would the radiocommunications-using community come to understand that? There is a real information asymmetry at work here and I think to get the market to work you need to be able to solve that.

People who are currently apparatus licensees may need to be educated that there are other ways of fulfilling their communications requirement than going down to their local ACA office and filling out an application. The question that comes out of that is: whose role is it to do that information rending out? In a fully mature market you would expect that's a cost that would be borne by the players in the market themselves, through advertising or whatever, but in a very immature and thin market it is very difficult to do that.

There is a reluctance to do it because you don't know what their payback is going to be and so if it was a public policy goal that there should be a trading market, there may be some role for the government in supporting that at least in the early stages by promoting it and making people aware of it and levelling the playing field and doing all those sorts of things. That sits uncomfortably with my no intervention general ideology. However, in kick-starting markets along, particularly when you're moving from a very tightly controlled central planning regime to an open market regime, there are some significant public policy issues that emerge.

I look for examples at some of the chronic market failures that occurred in the former Soviet Union, which flicked the switch virtually from being a centrally-planned economy to an unrestrained and totally open market economy, where there are still people starving and where you have the vacuum being filled by some criminal elements, if I can put it that way, at least anecdotally. That's what I hear on the news.

It's that sort of issue and to address it I think you really have to confront the threshold issue: do you want to have trading flexibility, property rights, all of those sorts of things, or do you not? If you do then the process of getting to that nirvana needs to be carefully nurtured. The existing legislative framework in many ways sets out to carefully nurture that and the approach taken by the ACA so far in gradually letting spectrum property rights out, or spectrum licences out, has been consistent with that. It has been slow. I would argue though that you could change it around. If you think these things are desirable you could deploy them much more aggressively and then specifically deal with the issues that emerge, like competition and so on.

DR ROBERTSON: Do you think this proposal that is just touched on in the ACA submission - have you seen the ACA submission?

MR HAYNE: I have only glanced over it. I haven't read it in detail.

DR ROBERTSON: There is a proposal there to move towards a single form of licensing, which would have different sets of conditions.

MR HAYNE: We do. If you accept my model of the route licence that derives from constitutional authority, we currently do, and the law says within that overall framework we're going to administer some spectrum this way and some spectrum that way. There is a fundamental issue though in that the current licensing scheme has two focuses: one is a focus on devices and their siting and power and all of those sorts of things, so it is a very overt, controlling approach to devices. The other one relates to spectrum, spectrum space.

I could conceive of a model where everything was based on spectrum space and the devices are incidental; in fact the model I showed you in our meeting really takes that idea and models spectrum space based on devices. The problem though is

that the apparatus approach starts with a device on model spectrum space whereas a spectrum licensee authorises somebody to use spectrum space within which there will be constrained devices.

They approach the problem in fundamentally different directions, theoretically different directions, and so it really comes down to an issue of, do you want to have flexible trade or refundable property rights over bands of spectrum, and I believe that there is a place for that model. The other one is, do you want to specifically control particular devices because you need to in order to coordinate the way they radiate and interact with other devices in the environment, and I would argue that you want to do that as well, so already in the model we've got two forms of licensing that perform functions that are pretty close to what we have.

Peter Hilly's submission adds class licensing. He maps these three against what is there at the moment, and there is not too bad a match, so one single form of licence is an interesting concept. I think you have got some contradictions between the different theoretical approaches that are hard to resolve in a single type of licence. But, stepping back a bit and looking at the great scheme, I believe there is one form of licensing already in terms of the root licence and it is up to the government to work out how it is going to manage that root licence and whether or not it wants to carve pieces off and let other people manage them.

DR ROBERTSON: You came back to the government playing a role in that.

MR HAYNE: I did, in terms of making a decision about what it wants to carve away from its root licence; what it can afford to carve away and what it's prepared to carve away.

DR ROBERTSON: You see, I would have thought that you might not like that idea because it means that in issuing a licence there can be all manner of different conditions on it which would then influence its price.

MR HAYNE: Indeed, it could be open to quite a lot of administrative discretion and that administrative discretion, as you say, could take the price anywhere.

DR ROBERTSON: Yes, and could in fact act as an impediment to the free movement of the market.

MR HAYNE: Yes. It certainly could.

DR ROBERTSON: But you would accept that this was part of your root licence idea and therefore was acceptable in the long run.

MR HAYNE: Look, I'm prepared to accept right up-front that there is a root constitutional authority over radiofrequency spectrum and it resides with the Commonwealth. No problem about that. I don't want to get into political debate

about the first Australians here, but if we look at the notion of crown land when this country was colonised in 1788, all of the land was vested in the crown, and from that root land title vested in the crown, we now have a situation right across Australia with private property rights, all over the place.

There are a lot of useful analogies in land that I think give you some way of thinking about that constitutional root licence - crown land and spectrum, if you will. The way that those land titles emerged is an interesting accident of history in many ways too. I mean, you had the squatters who just went and took it, you had land grants which were basically favours from the crown, the idea of the landed gentry and so on. Through that complex evolution we now have a regime that's based on a duality. We still have crown land, national parks, public spaces - all of those sorts of things - and we have private property rights. I think it's a nice analogy. It really describes well the sorts of things that I think could happen in spectrum if the government had a mind to do it. It really comes down to political will.

DR BYRON: Coming back to your very opening remarks about institutional arrangements and so on, would it be correct to summarise that as saying that overall you see a larger and more independent ACA with more responsibility or control over the broadcasting spectrum than at the moment and with less supervision - in quotes- of control from the department watching it and shadowing it; watching over its shoulder all the time?

MR HAYNE: I think that's a fair summation of what I'm proposing. The submission makes the point that we have the technical regulation of radiocommunications split across two agencies at the moment and that creates problems for critical mass of skills, it creates management duplication of technical and engineering skills. At the end of the day a hertz here is really no different to the hertz next door, so I think there is a sensible place for the consolidation of technical regulation of radiocommunications in one expert technical regulator. I think that would be an advance.

There may be people in the ACA who won't like me saying that, especially because when you take technical interest in broadcasting you actually get all the baggage that comes with that and that opens up political dynamics to the management of spectrum that I think many people would prefer not to be involved in. But just in terms of managing the spectrum, in terms of having a critical mass of resources, and in terms of liberating some of that unused broadcasting spectrum for other things, I think that would be a real advance. As for expert technical regulator, why create them if you're going to second-guess them? Either the ACA is an expert technical regulator in radiocommunications or it isn't, and if it is, then why don't we accept that its recommendations are pretty good, well-founded ones, developed by careful thinking, thoughtful public servants who have the national interest at heart?

DR BYRON: There is also a suggestion in your opening comments about the reform in general, the tasks ahead of us. I'm using my own words here, but it seems

to me that there is a sort of finishing of some unfinished business from the earlier reform agenda.

MR HAYNE: Yes.

DR BYRON: There is resolving problems arising from or which have emerged after the last set of reforms, major reforms, and then there is the forward looking thing: how do we go to the next level anticipating issues that are just sort of coming over the horizon? So there is past, present and future - finishing the old agenda, dealing with current things and looking forward. Where do you think are the greatest potential gains for an inquiry like this one to concentrate on? How much effort do we put in to finishing off the 92 reform agenda; how much effort into finetuning what we've got, and how much towards dealing with what may yet be just sort of starting to come over the horizon?

MR HAYNE: My response to that would be that to solve the problems that we think are coming in the future, the best place to start is from a good base, and at the moment we don't have a good base. I think correcting the difficulties with the existing regime will provide a foundation on which we can do another review in three to five years' time and think about doing some more things. I really think because the original implementation was not complete and it had all of these compromises in it, we don't really have enough information at this stage to know whether or not it will work, or work well. We know that it's not working well at the moment.

My thesis, I suppose, is that the reason it's not working well is because there are all of these shackles and administrative impediments to allowing it to work. Tenure is one of the fundamental ones there. I'm thinking that if those are fixed we might get a little bit more information about whether or not there is potential for those sorts of issues to solve the problems that were identified a decade ago - because they're not solved yet - then perhaps doing some more work over time. This is perhaps an issue that comes out of the delay in this review in many ways. There has been a radiocommunications review, of one kind or another, work in progress since about 1995.

It's been delayed and stalled and pushed back and all of those sorts of things for a wide variety of reasons, but in many ways this is the first true post-implementation review of the implementation of the regime that was put in place. My own view would be: let's use that as a post-implementation review, fix up what's there and commit ourselves to reconvening in three or four years' time where we have another look at that progress and start mapping it forward. We have a fairly good idea about what much of the environment is going to look at over the next two or three years at least anyway. I think it's going to be much more conservative in terms of growth than perhaps it has been over the last two or three. There are a lot of reasons for that - political reasons, economic reasons, telco correction reasons and so on. If we're clever we could probably use those two or three years of pause to take stock, to do

some concrete things; take stock and think about having another go.

As you probably gather I'm a believer in the reforms that we tried to implement. I'd like to see them given a chance to work properly before we sort of go throwing bubba out with bathwater. I think there are some symptoms here that we can diagnose and fix about the illness, and let's see if we've got something reasonably healthy after that.

DR BYRON: If the current reforms were working properly, as you see them, do you think that would deal adequately with issues like, you know, convergence? Was that something that people were thinking about when the current sweep of reforms - - -

MR HAYNE: Yes, they certainly were.

DR BYRON: - - - were thought of in 1990?

MR HAYNE: Yes, I wrote a thesis on convergence when I was at university in 1993, so it's no real issue. Before I did my work the broadband implementation group was doing work in the earlier 1990s, in the department, and the BTCE was also doing quite a lot of work on convergence. All of that fed into the regulatory scheme, I'm sure. The issue about convergence is an interesting one because it's all about taking a lot of different media forms, or different content forms and reducing them to bid streams of one kind or another. They're all ones and noughts ultimately. The challenge is about getting those bids from one place to another cost-effectively. In telecommunications that is the real issue at the moment; it's moving a bid from one place to another as cost-effectively as you can.

It seems to me that the price distortions in radiofrequency spectrum are not giving people good signals about whether or not radio spectrum might be a useful substitute for some fixed infrastructure. We know what fixed infrastructure costs to put in, we know what a metre of glass costs, we know what it costs to dig a trench. We know virtually all of the input costs on laying optical fibre cable. We don't have a very good sense of the true value of using radio for some of these alternatives, because the value of the spectrum isn't being properly exposed in the marketplace. From a convergence point of view it doesn't matter whether or not that bid travels over a bit of glass, or it travels over a radio link. It matters not one iota. The only thing that the customer is concerned about is getting that bid for the lowest price possible.

I'd hate to think that bids that are travelling over radio are being internally subsidised or cross-subsidised or something because of some distortion in the way the spectrum is priced. I think, alas, that the evidence suggests that there are significant price distortions in spectrum and bids over radio are going to cost more than over alternative technologies.

DR ROBERTSON: I've just got one last question which is on a slightly different subject, which is the ITU. You imply that in fact we can influence what goes on in the ITU. Do you really think we have enough clout to do that?

MR HAYNE: I might defer on that to others, except to make an observation that everyone has told me that - not everyone, but a lot of people have told me that Australia is very highly regarded in the ITU as an honest broker, particularly between a couple of significant trading blocs, one based on North America and the other based on Europe. Australia is in a position, as a net importer of technology, where we get our technology inputs from both. We have an interest, from a national perspective, in getting maximum band for buck and coming up with good solutions, and so my understanding - and I'll leave this for others to confirm or deny - is that Australia is seen as an honest broker in that forum and our role is welcomed.

DR ROBERTSON: Thank you. Neil?

DR BYRON: I think we will leave it there.

DR ROBERTSON: Yes, thank you very much, Ian.

MR HAYNE: Thank you. Thanks for the opportunity to explain some of this stuff.

DR ROBERTSON: We'll take a 15-minute break.

DR ROBERTSON: Welcome back. We now move on to the Australian Maritime Safety Authority, where we have Mr Roger Timms and Mr Geoff Toomer. That's right, isn't it?

MR O'NEILL: No, Geoff has declined - Matt O'Neill.

DR ROBERTSON: Matt O'Neill, sorry. I beg your pardon. We have 45 minutes for you. Would you like to start by just summarising.

MR TIMMS: Thank you, commissioner. My name is Roger Timms. I'm the general manager for Maritime Safety and Environmental Strategy with the Australian Maritime Safety Authority. I'd just like to thank the commissioners for the opportunity to participate in this review. We have made a submission to the commission and we'll be happy to answer any questions you may have about it. But in addition, initially however, I would like to briefly make a couple of extra points if I may.

It's essential, from our perspective, to recognise that Australia has international obligations to provide maritime and aviation emergency and safety of life services that depend upon radiocommunications. These include services for safe maritime navigation and for search and rescue. Our responsibilities and standards for these services are defined under international agreements, including the safety of life at sea convention, the search and rescue convention and the international telecommunication union convention. Australia is party to all of these instruments.

A large number of domestic and foreign ships and aircraft operate in and around Australia using equipment that is designed to operate on the frequencies specified under these international instruments. Australia has an obligation to ensure that the emergency and routine safety users of this equipment of both Australia and foreign ships and aircraft are not adversely affected by alternative users of the spectrum within Australia. It's essentially that the radiocommunication legislation continues to recognise that internationally agreed frequencies are assigned to maritime and aviation emergency and safety communications and that it ensures these frequencies are not encroached upon by application of marked based mechanisms such as auctioning of the spectrum.

The advantage of the current licensing system is that it provides the licence-holder with some enforceable protection from interference caused by other users of the relevant spectrum. In the absence of the licensed reservation of spectrum for maritime and aviation emergency and safety purposes, an appropriate alternative form of protection would be for the legislation to directly quarantine the emergency and safety frequencies from other commercial uses. This could be done by reference to relevant international convention obligations and specifications for such frequencies which would allow for responsive changes over time in international requirements.

Commissioner, this concludes my additional remarks and we would now be happy to take any questions you may have about our submission. Thank you very much.

DR ROBERTSON: Thank you. Where to start. Clearly there are some international issues here and also some local ones, but the international ones I think probably come into the same category as the request we had last week from radio telescopes; that frequencies should be reserved for them and also that they should be protected from interference from neighbouring transmitters of one sort or another. So there clearly is a category, I think, that needs to be carefully selected. The real problem, I suspect, is changing over time and whether that imposes too much of a burden on people who are in those spectrum already. How frequently do these frequencies change?

MR TIMMS: I might pass that question, if I may, to my colleague, Mr O'Neill.

MR O'NEILL: Given the changes in technology over the last few years and with the basic analog services that the maritime business has been a party to, particularly in the MF band, HF band, and also in the VHF spectrum, with the changes that will be taking place, I guess, within organisations that are moving away from commercial services on the VHF band, the need for that spectrum to be maintained for future maritime usage, such as AIS, VTS and the other services that are being addressed at an international maritime organisation level, we need to make sure that those spectrums at least are looked at not only on the international level, but on a local level so that those frequencies are maintained.

We have a vested interest in the Barrier Reef with environmental issues. AMSA is setting up a ship reporting system there. There is a need for us to have that spectrum maintained for that purpose. The short answer is that the existing spectrum that the ITU has designated for maritime usage needs to be maintained for ongoing technologies that are coming on line in the maritime industry. I guess the other major issue as far as maritime spectrum is concerned, is the interference issue. With the demise of ships' radio operators and also maritime communication stations - that are becoming a thing of the past - the new digital global maritime distress and safety systems suffer from a lack of monitoring and, as a result of that, there is widespread interference on the HF marine bands which is an integral part of the global maritime distress and safety system. The ACA does a great deal in managing that issue but there is still a need for pressure at a high level in order to safeguard that spectrum.

DR ROBERTSON: Do I understand then that the spectrum range is increasing, that you are having to take more spectrum to maintain a good level of service?

MR O'NEILL: No, the spectrum range is not increasing. It is the fact that because of deregulation and the class licensing arrangements, there are more unprofessionals, so to speak, on the existing spectrum and are not following the guidelines of the

radio regulations, hence quite a lot of interference infringements.

DR ROBERTSON: What sort of people are these? Are these local radio stations?

MR O'NEILL: A lot of them are from the Pacific regions, Indonesia, various other countries to the north, who are using the spectrum for anything from religious broadcasts to what have you. There are also a lot coming from the fishing fraternity, foreign fishing fleets, some from the Pacific islands where, because of lack of knowledge, the spectrum has actually been allocated for commercial usage instead of the purpose for which it was intended, which is safety related. Interference is a major issue on those frequencies, plus on some of the satellite infrastructure regarding 406 and 121 EPIRB the interference on the ground segment is also an issue.

DR ROBERTSON: So this is really an issue for the ITU. It's up to the ACA to press that.

MR O'NEILL: It's an issue for the ITU but it's also an issue for the Australian Communications Authority to lobby the ITU to ensure that people within the region are abiding by the legislation.

DR ROBERTSON: Yes, there is a regional - - -

MR O'NEILL: And there is a regional preparatory group.

DR ROBERTSON: But this isn't directly an Australian issue.

MR O'NEILL: No, this is an international issue.

DR ROBERTSON: Right, okay. Neil, did you have a question then?

DR BYRON: I guess I'm still trying to think of what we actually do about these increasing levels of interference that threaten the safety of such important services. It's not clear to me exactly what we do. How do we proceed from here, given the problem as you've described it?

MR O'NEILL: This issue has been around for a long time. It's not something that's new. I guess the difference between the interference now and the interference of 10 years ago is that 10 years ago there were lots of coast radio stations listening, monitoring, working on those channels. There were lots of ships' radio operators who were also operating on those channels. With the downturn, so to speak, of that type of business - and most of the systems on GMDSS are digitised - those frequencies are not being watched, and the interference reports are not being processed. With the global maritime system there is a set of frequencies for distress alerting. It's like a paging system: distress alert on a particular frequency and then they move over to conduct the distress on a working frequency, for instance 2182 or

4125. Those are the frequencies that are now not being monitored on a day-to-day basis, but they're still an integral part of the GMDSS.

DR BYRON: In the submission you mention the fact that it's becoming more difficult or more expensive for you to get the sort of technical expertise the ACA used to provide for sorting out many of these interference issues. Is there some other way that you can get access to that sort of technical expertise that you need, apart from getting it directly from the ACA?

MR O'NEILL: I don't believe so because, as you say, it's an international issue and unless we had the backing of the ACA to feed into the ITU, the international part of interference would not be addressed. The only other issue from that perspective is on the VHF band where there is now no requirement for a licence for VHF; there's more of a class licensing. Whilst VHF has been a cornerstone of the maritime industry and it's an integral part of some of the systems that the Australian Maritime Safety Authority use, there is a fear that the VHF band could become like CB radio, with a flood of people buying a VHF set and getting out and using it.

DR BYRON: But if the ACA has decided that for its purposes it no longer needs to maintain a VHF register, and AMSA feels that it would be useful to have a VHF register, can you set up the register yourselves since you need it and the ACA apparently says it doesn't?

MR O'NEILL: What we're doing at present, I've been having negotiations with the ACA. The reason we want call signs on VHF is so as we can link them to a MMSI number and it assists us in search and rescue. We're considering setting up our own block of call signs to alleviate that issue but that's only for VHF sets that are fitted with digital selective calling. I guess the concern is those other VHF users that have come on the market we would have very little control over.

DR ROBERTSON: When you say "we are setting up", that's the International Maritime Authority or the Australian - - -

MR O'NEILL: No, AMSA separately has been given a block of call signs from the ACA and we're actually looking at setting up some database where we can link those call signs to the MMSI numbers. That in a way will help us to track VHF sets that are fitted with DSC but the other issue regarding interference on the VHF spectrum I guess time will tell.

DR BYRON: Is that a current problem or are you just apprehensive that it may well become a serious problem?

MR O'NEILL: We are apprehensive. It's not a current problem but there's a certain fear and trepidation that if you allow people to go and buy a VHF set and just get out and use it without any - I mean, there is still a requirement for people using VHF to sit the limited operator's certification. As to whether this will be regulated is

an issue that remains to be seen.

DR ROBERTSON: Basically you don't have any problem with the ACA. They're doing all they can to help you, is what you're saying.

MR O'NEILL: No, we don't have any problems with the ACA, commissioner.

DR ROBERTSON: Right. There's another point you raise about charging for locating distress beacons. Could you explain that a bit more.

MR O'NEILL: That's regarding false alerts on the 406 and the 121s where there are interference issues and we seek assistance from the ACA to locate the source of the interference.

DR ROBERTSON: Okay.

MR O'NEILL: As I say, with the spectrum - and our paper I guess has a similar intent as the one from South Australia where the safety spectrum needs to be protected and not encroached upon by commercial users unless there are evaluations done on what the implications are.

DR ROBERTSON: So the main problem you've got is to the north of Australia, basically.

MR O'NEILL: Yes.

DR ROBERTSON: Or from the fishing fleets.

MR O'NEILL: That's where we're setting up our AIS system, which is basically akin to a poling and monitoring system of vessels, tracking through the Barrier Reef. For environmental reasons all those vessels will need to be tracked by the Australian Maritime Safety Authority and, in order to do that on the VHF spectrum, we need it to be fairly clean.

DR ROBERTSON: Right, and that's where you come into the problem with the Pacific islands and Indonesia.

MR O'NEILL: That's correct.

DR ROBERTSON: Sure.

DR BYRON: Can I come back to the point about reservation, because in your submission and in your opening comments you're arguing very strongly for part of the spectrum to be quarantined for maritime emergency use only, even with changing technologies which use different parts of the spectrum. I don't know if you heard Mr Hayne earlier this morning talking about his idea of somebody actually having a

perpetual ownership or management right over bits of the spectrum. The hypothetical could arise, if something like Mr Hayne's suggestion were to go ahead: what if AMSA actually owned or had freehold title to a certain piece of spectrum and somebody came along and made an offer to buy 2 per cent of it for a very attractive price? Might you be tempted to say, "We could give up that bit"? Or if you felt a very strong need you could actually go to the marketplace and buy additional spectrum to add to your freehold holdings. Tell me why it won't work.

MR O'NEILL: It won't work because the maritime spectrum is not really AMSA's per se; it's an international spectrum. It's legislated in the ITU, it's lobbied by the IMO - International Maritime Organisation. The spectrum that AMSA is talking about is an international spectrum used by shipping worldwide, so it would never be AMSA's. I suppose you could hypothetically say on a regional basis it could be, but take for instance the VHF spectrum. The safety part of it, channel 16 and 67, is sacrosanct, ITU legislated distress and safety frequencies. Some of the other parts of the VHF spectrum of maritime is taken up by Telstra for their sea phone commercial service, and they buy that spectrum from the ACA. AMSA would not be in a position or would not want to be in a position where we're auctioning our own spectrum.

DR BYRON: I guess I was wondering to what extent you'd need to have exclusive dedicated use and to what extent you can share or coexist. I think you already partly answered that by saying that the channels 16 and 67 are absolutely sacrosanct.

MR O'NEILL: Yes, and the other parts of it are - like the way Telstra operated in the commercial side of the VHF band is they bought all the commercial channels, and that's fair and equitable but all of those channels were used for maritime usage, like the sea phone network or whatever. So we don't have a problem with that because it's basically maritime. What we wouldn't want is those commercial frequencies that are used on the VHF band to be utilised by anything other than maritime - selfish but - - -

DR ROBERTSON: Turning to the other end of it, as it were, what about the equipment? Would it not be possible to ensure that the equipment on ships was sophisticated enough and strong enough such that its signal could deal with interference coming from a small VHF transmitter that might be in the Solomon Islands or Bougainville or somewhere?

MR O'NEILL: Usually with the VHF there is not that interference issue. It's the usage issue. With VHF you usually grab the channel or you don't get on. The strongest signal is on the channel. Nobody else is going to get in until that station is gone or finishes, so it's not so much an interference issue as a usage issue.

DR ROBERTSON: But you said the power is important too. If there's somebody on frequency - - -

MR O'NEILL: On HF the power is more important. VHF is short-range line of sight, depending on the height of your antenna, so it's basically the number of people on rather than, "Hey, if I've got 10 kilowatts I can blast you off the air." On HF you may have a user on 500 watts and somebody comes on with a log periodic directional antenna and points it at you and blasts you off the face of the earth, so it's a different scenario.

DR ROBERTSON: It's not a problem that you can solve using better equipment.

MR O'NEILL: No. I believe in the US they have got some new digitised system on VHF for the narrowing of the bandwidth and there are more users on, so I guess that could be a scenario down the track where instead of using analog on the VHF spectrum you could move over to a digital system where the bandwidth I think is down to five hertz or something like that.

DR ROBERTSON: Because one of the thoughts I have is that obviously maritime operates in what's now a very popular range, and yet you want to stay within a range that's going to give you the right degree of warning at any time. Now, if other people are crowding in, one way of dealing with it is to narrow it down, because presumably you couldn't move to another higher spectrum because that means you shorten the range and all that kind of - - -

MR O'NEILL: But also, commissioner, all the other ships, international ships, that come to Australia have the same standard for VHF as we do, so it wouldn't be just a local issue. It would be all those other nationalities you would need to fall in line with, and especially with the systems we have in the Barrier Reef.

DR ROBERTSON: Yes, I can see that, but I was thinking that the ITU might find a way round it that would economise in the amount of spectrum you would need, basically.

MR O'NEILL: I think that's probably what is a likely outcome.

DR ROBERTSON: That would require people to change the equipment on their boats.

MR O'NEILL: That's right. I guess the other - and I don't even know if it would ever be an issue, but the state mobile radio networks are operating on 400 meg and I think the Victorian police operate on the VHF band. I feel there could be a situation where, if our VHF band was freed up, some other emergency services - land based like police, fire and ambulance - would want to get involved in that spectrum. I guess on an international issue, if the spectrum was freed up, then obviously it's open to debate. But as long as it is part of international shipping we would still want that preserved.

DR ROBERTSON: I can see that. But it is a possible way of dealing with it to

some extent, that the equipment could be changed, although that would take its time too, of course.

MR O'NEILL: A reduction of bandwidth.

DR ROBERTSON: Yes. I don't know whether I've got any more questions, actually. I must confess I had thought of a number of questions that relate to more of what one might call weekend shipping; in other words, small boats where you get into class licences and equipment, rather than the distress signal stuff which is bigger ships. Those questions are not relevant to you, as far as I'm concerned. Neil, do you have any more?

DR BYRON: No, I don't, just to summarise it. What you're basically saying is that the amount of spectrum for maritime should basically just be frozen where it is now; that no non-maritime uses be allowed to intrude into that.

MR O'NEILL: That's correct.

DR BYRON: If there's increasing demand for the maritime application, then that's going to have to be solved either by reducing the bandwidth through digital - - -

MR O'NEILL: Reducing bandwidth, digitised systems, or through the international process with the ACA, the International Maritime Organisation and the ITU, so that if there are any changes to the maritime spectrum it is on a global basis. That's basically where AMSA is coming from because we deal in part with international shipping, and all the equipment and infrastructure that is on board those ships is used worldwide. If we were to change some of the things that we do within the Australian region, then it would affect shipping as a whole.

DR BYRON: I just wanted to clarify that.

DR ROBERTSON: Did you have any comments you wanted to reassure us with?

MR TIMMS: No, commissioner, just to underline the importance from our point of view of search and rescue communications and maintaining the integrity of same. From our perspective, whether it be a large commercial ship or a recreational vessel or a fishing vessel, we would like to see their means of communicating in a search and rescue incident under emergency circumstances maintained at all costs.

DR ROBERTSON: At all costs could be a lot of costs.

MR TIMMS: It could be a lot of costs. I'm not quite sure how we might meet them all. Perhaps that wasn't a very good choice of words but I think you understand the message I'm trying to present.

DR ROBERTSON: Yes. That's an area where, as I understand it - that's to say the

weekend sailor, as it were - one of the problems is that they're not prepared to upgrade their equipment, and think they can cope with inferior stuff and then, when someone suggests they should move to another wavelength, it's an outrageous charge. There seem to me to be some problems there, that particularly the weekend sailor has to meet certain disciplines if he's going to have those kinds of services. One of them might be that he should move to a modern receiver-transmitter. I appreciate the point you're making but I think the bigger one is this question of making sure the international regime is effective.

MR TIMMS: Yes.

DR ROBERTSON: The others could be handled with more local transmissions and receivers than the international one can, I think.

MR TIMMS: I would support that point, commissioner, as well. Yes, the international frequencies, from our point of view, must be protected.

DR ROBERTSON: Yes. Okay, thank you very much.

DR ROBERTSON: Now we welcome the Wireless Institute of Australia, the representative of the hams, in my language. I wonder if you could, when you each start to speak, announce yourselves so we know exactly who we have got identified on the tapes.

DR BYRON: They can give their call signs.

DR ROBERTSON: Give their call signs, yes. You might understand that, but I don't. Would you like to make some opening comments?

MR HOCKING: Yes, by all means.

DR ROBERTSON: Fine, go ahead.

MR HOCKING: Good morning. My name is Ernest Hocking. My call sign for Dr Byron's benefit is Victor Kilo One Lima Kilo. I am representing the WIA in the role of the president of that organisation. Beside me I have Gilbert Hughes.

MR HUGHES: I am president of the ACT division of the Wireless Institute of Australia, and I'm also the federal councillor for the ACT. My call sign is VK1GH, for the record.

MR HOCKING: I thought I'd start by just identifying the fact that as hams we are somewhat unique as users of the radio spectrum. There are many aspects of the things that we do and the activities that we undertake which are really very little to do with radio directly. There is a much wider component of our hobby. For example, we have a very extensive community aspect that relates to educating people generally in the aspects of radio, whether that be electronics or propagation or also just talking to other people in the community and bringing them together.

We're also very strong on the technical component and electronics and in fact any aspect of the technical side of our hobby appeals to many people. We identify in our submission some of the activities that hams have been involved in over the years, including pioneering work in the use of satellites that has been taken up by the commercial organisations. Another aspect is the emergency value that hams bring to Australia and in fact worldwide. There is a group which is called WICEN - Wireless Institute's Civil Emergency Network - which is committed to providing emergency communications in the assistance of any group throughout Australia. In fact, this is picked up worldwide by all of the amateur radio groups.

As we see it, the current Radiocommunications Act poses perhaps a single major problem to the operation of amateurs here in Australia, namely that we're lumped in with the other users of the spectrum under the apparatus licence category. For some years now the Wireless Institute has been pushing for recognition of its particular role by means of a separate licence category. If I might give one example of the way in which this occurs, it is that of experimentation. We have a concern that

aspects of the hobby to do with the experimentation of either technical or propagation aspects to some extent are over-regulated by the current licence conditions determination and the act.

We would very much push to see this relaxed. We, as very technical individuals, and as a technical group, believe that we have the technology and the experience and the expertise to resolve some of the possible interference and interoperability problems that other groups might have, provided we're given a framework within which to operate. The other aspects that I'd like to bring to the commission's attention relates to essentially a change which is occurring I think in all government departments relating to making them more cost-effective. We, as amateurs, are very happy to take part and assume greater responsibility for the administration of our hobby.

Currently, for example, we administer our own examinations. By administration I mean we do the training, we set up the examination facilities, we run the examinations, we mark the results and essentially issue a certificate to individuals wishing to become amateurs. We still see a role for the ACA here, but there are additional pressures internationally to achieve harmonisation in terms of the education standards that amateurs need to comply with. So we are already in some sense very responsible in that area at the present time. We'd also like in the future to perhaps be able to take on greater responsibility, perhaps looking at the issue of licences and call signs, and this is something perhaps that a new licence scheme might wish to look at and examine.

Just picking up again on the issue of interference that was identified by the previous group from AMSA, amateurs - like all groups - are subject to radiocommunications or radiofrequency interference. Currently we believe we're very responsible corporate and community citizens and deal with the management of this interference a lot on our own abilities. However, the current act - and I think the ACA would recognise this - doesn't necessarily give either ourselves or them the powers to enforce some actions to reduce interference. Again, because of our international nature, whether that's using HF or satellites or even more esoteric aspects such as bouncing signals off the moon, we can quite readily cause interference and we recognise that and are very keen to reduce that both within the amateur service and to other spectrum users.

The final point that I'd really like to make relates to what we see in a sense as the community obligation of amateur radio. We've been very carefully and closely monitoring activities overseas and have our own views in terms of the future of amateur radio and it's value to Australia and internationally. If we look at the activities that are being undertaken in the UK, for example, at the present moment, the radiocommunications authority there have recognised the value of amateur radio for the sorts of reasons we've already identified.

They, together with the local institute there, the Radio Society of Great Britain,

have gone to great lengths to encourage the uptake of amateur radio activities amongst all parts of the community, whether this is the schools, other community groups or the elderly and aged. Certainly this is something we'd like to bring to the attention of the commission as one of the major benefits of moving towards a separate licence scheme that we can administer. With addressing the identification of the need to officially recognise the value that amateurs bring to all aspects of Australian life, I think I'll bring my short presentation to a conclusion.

DR ROBERTSON: Thank you. Why do you think that the ACA and other authorities earlier have in fact imposed such over-regulation - I think that was the word you used - of amateur wireless? Were there reasons for this that have gone?

MR HOCKING: Perhaps Gilbert might - - -

MR HUGHES: Gilbert Hughes. The reasons have their basis in history, that 50 years ago the access to the radio spectrum was very strictly controlled. It was for good reasons at that time, I guess. Traditionally it was over-regulated. The equipment was not of the standard that it is now, where now you can go and buy boxes off shelves that operate perfectly well and within the parameters which are designed and, 99 times out of 100, there is no problem. In the early days that was not the case. A lot of equipment was built by the owners and it was broad in its spectrum emissions; it was unstable. Even electrical safety issues for the operators came into force. There were all sorts of good reasons to have, in those days, a closely regulated amateur radio service; even inspections used to occur on commercial installations for almost the same reasons. The necessity to do that sort of thing has now gone.

However, in the case of the regulations governing the amateur service, many of them remain in one form or another. We are really, for a hobby service, quite regulated. Some would say over-regulated. The ACA has had their resources cut. We are a non-commercial group. There is no money in amateur radio and we, by necessity, have to fall to the bottom of the heap. The ACA really are limited in what they can do to assist the amateur service. They haven't got the resources. It is probably fair to say that we're even viewed as a bit of a nuisance. Let's be frank about it. Likewise we are a difficult, diverse organisation to deal with. We come from all sorts of backgrounds. We're spread all over the place in all sorts of different situations. There really is a need to do things better. We always have worked closely with the ACA and their predecessor as a regulatory authority, but it's time that we really took some serious responsibility for our own patch. I hope that answers the question.

DR ROBERTSON: Yes. One way around that, I would have thought, might be to in fact put proposals to the ACA about self-regulation. I assume you've probably thought of that.

MR HOCKING: Yes, we've already started on that particular road.

MR HUGHES: We're jointly moving down that track, but we take this opportunity to give it a push along a bit.

MR HOCKING: Yes, as I mentioned, we already deal with the examination service. I think both we and the ACA would see an ongoing role for them in terms of ensuring that we maintain the appropriate standard, but I think it's just recognising that the ACA are under increasing pressure in terms of their administrative workload and perhaps we can provide assistance there.

DR BYRON: Can I give you a metaphor, an example - I don't know if it's a perfect one - but hang-gliders: every pilot of every aircraft has to be licensed, but the Civil Aviation Safety Authority found difficulty dealing with God knows how many thousands of amateurs and all the rest of it, and eventually my understanding is that they have simply devolved the issue to the Hang-gliding Federation of Australia and say, "As long as they don't cause interference" - you know, no hang-gliders over Tullamarine et cetera - "and as long as they're competent and you have a syllabus and they're examined, go away and do it. All we want, as the over-arching regulator" - all CASA wants to know is that everybody who is out there in a hang-glider knows what they're doing and has been properly trained by somebody and is licensed by somebody.

If you had a similar sort of system as that, the issues that you raised in your submission about the cost of the licence - whether it's a one-year licence or a 10-year licence - those sorts of things would tend to evaporate because you yourselves would be licensing all the amateur users and you would in effect certify to the ACA that everybody that you had approved was competent. If there were any reports of cowboys out there who were doing the wrong thing you would come down on them, et cetera.

MR HOCKING: That's right.

DR BYRON: Is that the way it's going now?

MR HOCKING: That's only a good metaphor to adopt - - -

MR HUGHES: But that raises a point that as private citizens we have very limited powers to regulate amateurs. Whether they choose to belong or not belong to our organisation is up to them. Even if they do belong if we go knocking on their door and saying, "Would you please stop what you're doing," then they can say to us, "Go away." All we can do then is report our allegations to the ACA who will find it difficult to find the time and resources to go to some possibly remote place to gather sufficient proof of our allegations to proceed to prosecute someone for what is a very relatively minor matter. So that's one of the areas that would, in due course, need to be addressed: a more efficient way of dealing with people who deliberately choose to do the wrong thing, as occurs in any organisation.

MR HOCKING: I also understand that the act has legislative reasons or impediments to what you've suggested occurring at the present time, which is why our proposal is that we should be set up as a separate entity and administered in the way that we suggest.

DR ROBERTSON: Yes, the enforcement issue is always a difficult one. How do you enforce your hang-gliders? Does someone go around and say, "Can I see your licence?"

MR HUGHES: Yes, I can answer that. They get grounded. They are grounded.

DR ROBERTSON: But that doesn't stop them going and flying the next week unless you've got someone following them.

MR HUGHES: Well, that's serious business then. If someone who has been grounded flies that's upped it quite a bit. You can't ground an amateur. As soon as you're out the door, he'll press his button, won't he?

MR HOCKING: But notwithstanding that, the institute currently has a group called their intruder watch committee. They're based throughout the whole of Australia and they take an active interest in not just amateur frequencies, but essentially any radiocommunication frequency. Some of these people are really quite prolific in their coverage of the bands and would be able to help - certainly help us in terms of identifying interference and may be even of benefit to other groups, such as AMSA, in identifying their interfering sources.

DR BYRON: I was going to ask if you could elaborate a bit more on the foundation licence concept.

MR HOCKING: Yes. One of the things that's perhaps unique amongst - well, apart from the hang-gliders - one of the interesting things about amateur radio is that there is a requirement that you be technically proficient and certified to operate. It's not like the CB usage or class licence where you can just go and buy the equipment. The difficulty that we perceive at the moment, and also has been reflected in other countries in the world, is that with the proliferation of technology and the Internet people would appear to have less time to commit to that sort of technical education. That doesn't mean to say that in the future they won't educate themselves to the appropriate level; it's just that there are so many pressures on their time.

So one of the things that we would see as being of great benefit in terms of enticing people into that activity, and increasing the technical value, is introducing a very simple entry level licence. This was tried some years ago with what's currently known as the novice licence. The difficulty in practice is that the level of skill required to obtain a novice licence has been variously estimated as anything between 60 and 90 per cent of the level of skill required to gain a full licence. The current proposals worldwide essentially say you need to reduce that to something where

people can operate in a safe manner and in a manner which doesn't cause interference to other users of the spectrum.

So we're talking about teaching people how to understand the basics of electrical safety, the basics of how to put up an antenna system and build it in such a way that it complies with the current EMR regulations, to make them aware of the risks of interference to other users both nationally and internationally. There are a number of different aspects that we might examine in more detail, but basically it's encouraging people into the hobby in a more simple way. We see this as having a major advantage in terms of some of our emergency service contributions.

I was just reading with interest one of the local radio magazines called Radio and Communications and in that magazine there are probably about 60 or so pages, and some seven or eight were devoted to the incidents in New York and some of the figures in there make quite interesting reading in terms of the contributions that amateurs made to that whole incident. They're talking about hundreds of individuals working for 24-hour periods in shifts both using their own equipment and government-provided equipment to both provide the arms and legs in terms of emergency communications and also the planning aspects of that. In fact, in the US virtually all emergency communications are provided by amateur radio operators. This is something where we see we could provide great assistance, but we can only do that if we can encourage people into the hobby.

MR HUGHES: I might explain, for the benefit of the audience, that the number of amateurs in Australia is declining. The numbers are going down, and they're getting older. Young people find the traditional requirements to enter the hobby far too onerous and time-consuming. I've personally run classes for people of all age groups and even the young ones have so much pressure on their time these days, that the minimum requirements - if you come in cold - require quite intensive study. About eight out of 10 of them don't make it; they give up. It's all too hard in terms of time and resources needed to do it. The foundation licence - same problem in the UK and in Europe - and those places are introducing foundation licences that narrow this down considerably just to get you started under very limited operating conditions. Then there is the incentive to complete the traditional requirements to expand your operating capabilities.

DR BYRON: The foundation licensee can buy sort of standard, off the shelf type of equipment.

MR HUGHES: Yes.

DR BYRON: That doesn't raise the sort of hazards that you were talking about before.

MR HUGHES: That is correct, yes. Precisely, yes.

MR HOCKING: We've even had discussions that would suggest that there is a possibility for them to construct their equipment provided it was in a supervised manner and type-approved kits, rather than type-approved equipment, for example. So they would go to somewhere like Dick Smith's or someone else, buy a type-approved kit, get the enjoyment and the understanding from constructing it, and then have that certified by some electrical specialist to certify that it was within emission standards. So it's not as if we would exclude that. Well, it certainly is one of the options not to exclude it.

DR BYRON: I don't know exactly how much the licence fee is and I don't know how much the cost of the equipment is. Could you just sort of put it in proportion?

MR HUGHES: The fee is notionally $50, $51 per annum, slightly less if you buy a five-year licence. That's in Australia. There is no licence fee in America. They value their amateurs higher than we do in Australia. The equipment cost - if you buy some second-hand equipment you might get something basic for a couple of hundred dollars, or you could - if you are well funded and go into Dick Smith and other shops then you may well spend 6 or 7 thousand dollars. Not many can afford to do that, and certainly not young people.

DR BYRON: I'm just wondering whether it's the $500 to $5000 for the equipment, or the $50 a year for the licence that's the deterrent for entrants.

MR HUGHES: No, it's getting qualified under our present rules; getting your certificate of proficiency that allows you to go to the ACA office and get your licence. It's all too hard and takes too long.

DR ROBERTSON: You've got demography on your side. You know that, don't you?

MR HUGHES: Sorry?

DR ROBERTSON: You've got demography on your side.

MR HUGHES: Yes, we have. Yes.

DR BYRON: I think there is probably a parallel there with the hang-gliders, too, that to get a general aviation pilot you have to go through all the stuff that was basically geared for a commercial pilot. There's 50 hours of training and exams and all the rest of it, whereas if you want to be a Sunday afternoon hang-glider person, why do you need to do all that? You need to do some of it because you're sharing the same air space - - -

MR HUGHES: Yes, we'd agree.

DR BYRON: And there's potential for interference. But that's another argument, I

think, why the sublicensing approach seems to work, where - - -

MR HUGHES: Putting amateurs in the apparatus licence box because there's nowhere else to put them under the present legislation. We don't fit there. We're uncomfortable in that apparatus licence box. We argue then, as we did, there needs to be a separate category amateur licence. We're lumped in with the commercial world, and the regulators and administrators and bean counters say, "Well, hang on. You people are using spectrum. Why aren't you paying for it like everyone else?" and all these sorts of things. They don't appreciate where we're coming from worldwide - the hobby of amateur radio.

DR ROBERTSON: Have you seen justification for the US not charging?

MR HUGHES: Personally, no, other than thinking, "Lucky them."

MR HOCKING: The sorts of things that the Americans have put forward, and also the Canadians at the moment, not to mention other countries, is that the cost of administration is comparatively high compared with the revenue that they make in return. At the end of the day, the $50 per year multiplied by the number of amateurs, when you then take away the spectrum access tax and various other components of administration, leaves the ACA and the government with very little in terms of revenue. It's not exactly a big money earner. Therefore, there is probably good business justification in completely reviewing the way that that's administered and paid for.

DR BYRON: You mentioned also in the submission about reciprocal licensing.

MR HOCKING: Yes.

DR BYRON: Could you give me some idea of how many cases a year there might be of people who come for a few months and want to practise their hobby while they're here and, therefore, have to go through all these hoops to get an Australian licence?

MR HOCKING: I couldn't give you definitive numbers, but I regularly meet people here on holiday certainly from all countries. There are people from the UK; people from New Zealand are quite frequent visitors; large numbers of Japanese that visit hold amateur licences and are subject to those same constraints; again, a large number of Americans. But as an exact number, I wouldn't like to hazard a guess.

MR HUGHES: We don't know the numbers, because they'd have to do business with an office of the ACA to do it. They don't do business with us, so we don't have a handle on the numbers.

DR BYRON: It's very hard to find out how many people don't proceed because they're put off as soon as they find out what - - -

MR HOCKING: That's right, yes. I mean there are some reciprocal licensing arrangements that we have with other countries, and under those circumstances it's really quite straightforward for people, or comparatively straightforward. But if you compare and contrast that with the situation in New Zealand where, as an Australian amateur I can walk into New Zealand and I use my amateur call sign here in Australia and append the fact that I'm operating in New Zealand to it, I'm allowed all the privileges that I am in Australia, provided I don't extend my useful stay in that country.

MR HUGHES: You don't have to attend any New Zealand office or pay any money. You just do it yourself.

MR HOCKING: Again, if you look at the international emergency situation, there would be major benefits in doing that. We would then be free to deploy to other places, subject to people's availability.

DR ROBERTSON: What would happen if a New Zealander came in here and didn't say he was using his radio?

MR HOCKING: That's probably a question to ask the ACA, but I suspect there would be potentially quite large fines that would be due.

MR HUGHES: They would be operating illegally in Australia.

DR ROBERTSON: Would there be any risks on the other side, which is that people getting an amateur licence might use it for activities - broadcasting or something like that?

MR HOCKING: There is always the potential. The practical reality is that worldwide amateurs do keep very good control of their activities, and when people cause interference of that nature, either to broadcast or interfere with other services, they tend to be tracked down relatively quickly. The difficulty is actually enforcement. We rely upon the ACA to undertake that activity.

DR ROBERTSON: But do you think they don't have the resources to do that?

MR HOCKING: They've been very helpful in a number of circumstances, but we understand that within the amateur community they just don't have the resources to commit to dealing with every single incident that does occur.

MR HUGHES: The Americans have a system where the American amateurs, members of the American Radio Relay League - the ARRL - who choose to volunteer to do so, are trained up as basic investigators; how to go and do the legwork of an alleged offence, to present reliable information in a package to the FCC to save the time of FCC officers, who then do the formal investigation. That

appeals to me as something that could be used. Years ago there was an Amateur Advisory Committee in Australia where volunteer amateurs were prepared to go and have a quiet word to amateurs who were doing the wrong thing and, for various legal and other reasons, that was dropped. That doesn't occur now.

MR HOCKING: Yes, it's fraught with difficulties.

MR HUGHES: Too difficult.

DR ROBERTSON: Well, it is. It's like a vigilante group.

MR HUGHES: Yes. But they were very experienced older people doing it, who were very tactful. But it was dropped.

DR ROBERTSON: A lot of these things might work in practice for a while. The danger is they get taken over by the wrong type and then you're in trouble.

MR HUGHES: But like AMSA before us and all other spectrum users, we all have this problem of how to regulate the radio spectrum. There's not an easy answer to it. It's difficult. But it has to be done eventually.

DR ROBERTSON: I'm still a bit bothered about where we would draw the line if in fact there was a separate licence for amateur radio operators; whether a lot of other people wouldn't then go in it and try and use it for their own purposes.

MR HUGHES: Well, it would be in the interests of the amateur service to quickly expose those people. If you start broadcasting inappropriately on a band allocated to another group, you stand out like a lighthouse.

DR ROBERTSON: Yes.

MR HUGHES: Complaints do start to flow in. Then the only issue is (a) where are they located and (b) how we're going to deal with it. But you can't hide and broadcast on the radio spectrum. Too many people will hear you.

MR HOCKING: Perhaps if you're asking about maybe what we might call utility users of the spectrum, certainly there are adequate provisions within the CB band and other areas for people to do that. The sorts of things we're trying to encourage are not general chit-chat but the general concept of the amateur with self-education and self-improvement and technical investigation. I think in practice - and I've heard this said in other countries - where individuals want to use the bands for utility-type purposes, they're very quickly discouraged because very few people want to talk to them. They're welcome to broadcast, but no-one will respond, and they very quickly lose interest. So, yes, it is always a problem or a potential problem, but I'm sure that it could be managed appropriately.

DR ROBERTSON: But you'd still need back-up from the ACA.

MR HUGHES: Yes. The ACA has the legislative authority. They administer the act.

MR HOCKING: In many respects, it's of the parallel of a police force. As you say, whether you're karting or hang-gliding or whatever, the ultimate authority rests with the government authority, not with the people administering it on a day-to-day basis oftentimes.

DR ROBERTSON: Neil, anything further?

DR BYRON: No, I don't think so. I've just found it very informative, particularly about WICEN and about the technological innovations. Thank you very much for the submission. I found it very informative.

MR HOCKING: We're glad you enjoyed it.

DR ROBERTSON: Thank you very much for coming and making us aware. Thank you very much. I think we can now adjourn until 1.30.

(Luncheon adjournment)

DR ROBERTSON: We are back in session. We welcome the ACA this afternoon. I wonder, John and Geoff, if you'd mind when you first speak just announcing who you are so we can know who is speaking on the tapes. You are both welcome, and over to you, Geoff.

MR LUTHER: Geoff Luther. I'm the senior executive manager of radiocommunications in the ACA. Thank you, Dr Robertson. We'd just like to make a brief introductory statement and then stand ready to answer questions. First off, let me say that the commission's review of the Radiocommunications Act and the market based reforms is very timely in our view. It represents an opportunity to take stock of what has been achieved to date in spectrum management reform and to assess what future improvements can be made.

While we think the current legislation provides a basis for a very good system of radiocommunications regulation, indeed one of the best in the world, nevertheless we remain keenly aware that there is scope for further improvement. Overall, the Radio Communications Act and the objectives in that act remain relevant and provide a sound basis for spectrum management decision-making. Trade-offs between objectives are manageable through the open and transparent consultative processes that are provided for. The rationale for spectrum regulation is to enable interference to be managed and spectrum utility to be maximised. However, regulation has been significantly reduced in Australia and much flexibility has been provided to spectrum users.

Our system of spectrum management relies on several key elements: spectrum planning, to provide predictability and certainty and to establish a framework for minimising interference; licensing, to define the rights and obligations of spectrum users; standards, where these are the most efficient way of managing interference; licence fees, to encourage sufficient use of the spectrum and provide a fair return to the community for the use of a scarce resource; and auctions, to allocate spectrum where demand exceeds supply. One of the commission's questions was about delegating licensing functions and the ACA would like to say that it has no difficulty with the principle of delegating licensing functions if this was cost-effective, but notes that there would still need to be something in place to provide for interference management, a public register of licences and to protect classified frequency assignments. The ACA already effectively delegates a considerable part of the frequency assignment process to external accredited persons.

With regard to licensing, we believe that the sharp distinction between the licence types probably is no longer very useful. Additional flexibility could be gained by allowing licence terms and conditions to be varied to suit the particular case, rather than being determined by the licence type. Licence fees are based on a formula reflecting the amount and location of spectrum used or denied to other users. Because the formula involves some efficiency compromises in order to promote simplicity and administrative ease, the ACA's longer-term aim is to move to a more directly marked based approach to fee setting.

Security of tenure is an issue of concern to some apparatus licensees. Businesses, we recognise, need reasonable certainty of tenure to enable them to plan properly. Notwithstanding these concerns, however, clearance processes have worked reasonably well in practice. The ACA supports the view in the report of the radiocommunications review conducted by the Department of Communications, that the act should be amended to provide greater security of tenure for apparatus licences in certain circumstances. One part of the regime which hasn't worked so well is conversion of apparatus licences to spectrum licences. Processes have proved to be cumbersome and not always consistent with spectrum efficiency. Amending the act to improve simplicity and efficiency would be desirable.

Spectrum trading has advanced slowly in Australia but it's still in advance of most other countries. From our point of view the regulatory framework generally supports the secondary market in spectrum, but we are aware of claims that the taxation system may be impeding trading opportunities. Another sometimes controversial issue is whether adequate provision of spectrum is made for non-commercial use of the spectrum. In practice, however, despite this controversy, few public or community users have been required to move. While we support greater transparency and concessions to community groups, we are sensitive to government policies towards them. There would be merit , however, in restricting future concessions to the taxation component of fees, rather than also exempting them from licensing charges.

Provisions in the act to facilitate competition in relation to auctions have generally been effective. We note, however, that there is no explicit pro-competitive provisions for administrative allocations. Finally, while future technological change and convergence may have profound effects, the ACA is confident that spectrum management can keep pace with these challenges. Thank you.

DR ROBERTSON: John, were you going to say anything?

MR GRANT: No.

DR ROBERTSON: Okay. Good, thank you. Lots of questions; the question is getting them in a sensible order. One of the issues that's going to come up later this afternoon is one that I'd like to hear a little more about, and that's the assignment process for licences. Obviously some people think that the role of assigning licences for spectrum owners is blocked somehow by the way you can offer competing licences and indeed that the process isn't sufficiently transparent. I wonder if you could explain perhaps how this view might arise out of the way you operate assignment of licences.

MR LUTHER: Let me start off, Dr Robertson, by saying I absolutely disagree with that view and I think we've got some very good evidence. Currently I think the figure is about 63 per cent of frequency assignments in the apparatus licensing field

are conducted by external accredited people, and that's gone from zero a small number of years ago now, to nearly two-thirds of the licences. As has been pointed out in some of the submissions in some areas, it's more like 80 to 90 per cent of frequency assignments that are being made externally.

When it comes to spectrum licensing, where the broadly analogous process is device registration, all of those device registrations are conducted by external accredited persons, none by the ACA. So we think the evidence would not support a view that we're somehow blocking competition in this area; in fact we have been very strong proponents of competition in this area and it remains one of our key objective - to promote the external assignment market. We understand that there are some sensitive issues when it comes to that pricing. Our own internal charging regime is one factor. We're very conscious, when we are taking decisions about charging, that we not be seen to be acting anticompetitively towards accredited persons.

I'm aware of some complaints by some accredited persons about other issues, one of them being the lack of full external access to our database for accredited persons. Despite what you may hear that this is anticompetitive conduct on behalf of the ACA, I can assure you this isn't true. We're as keen as anyone else to ensure that external access is delivered and delivered quickly, and in fact we're hoping to see a system in place within the next month or two.

DR ROBERTSON: Fine, thank you.

MR GRANT: I might just add some comments - John Grant, executive manager of spectrum marketing group at the ACA. Accredited frequency assigners do in fact have access to ACA data and have access to data of the some currency as internal staff. The only part of the database to which they do not have access is the secure register used for assignments made in the national security interests. It's true that we will improve access to our systems. That's not for the purpose of accessing data, that's for the purpose of submitting data to the organisation. Our own costs are based on cost recovery, but without a profit element.

That said, because of the nature of the organisation, I think our costs are reasonable - they're certainly not cheap costs. We do publish our costs on the web site so that an intending licensee can look at what we would charge, can look at what an accredited person would charge and make their decision accordingly. I would also note that an intending licensee would be able to make a decision as to whom they should use - the ACA or an external person - based not only on cost but might also wish to go to an accredited person because such people can provide additional services beyond what we do - for instance, identifying sites for them, identifying sources of supply for equipment; things beyond what we are open to do internally.

DR ROBERTSON: Neil?

DR BYRON: Can I go back to the start of, I guess, the inquiry and the issues paper about objectives of the authority under the act, about the primary objective of spectrum management being "the maximisation of the overall public benefit defined from the use of the spectrum". Do you find that overall public benefit a difficult concept to operationalise or to measure even in qualitative terms?

MR LUTHER: It's certainly very open-ended, yes.

DR BYRON: The corollary is that you're probably well aware that some people have suggested that the ACA in some way may have its head turned by dollar revenues - not that you've been accused of simply - out to maximise receipts, et cetera, but how do you objectively attempt to operationalise a relatively subjective concept like overall public benefit?

MR LUTHER: It is an extremely open-ended concept and there are no clear definitions in there about what constitutes the overall public benefit. In these situations we inevitably - and I'm really talking about the authority who makes the decisions in these cases - but they inevitably have to weigh up a number of competing and sometimes conflicting aims and goals. I don't think there is any clear answer to your question. Inevitably we make judgments about the weight we give to the relevant competing claims. Very often people out there in industry won't agree with the weight that we give because they've got their own particular interests there to push, but we do take into account the overall spectrum efficiency, we do take into account the importance of gaining access to new services by Australian consumers. Revenue, as you say, is not explicitly one of the objectives that we abide by, but clearly it is, I guess, part of the overall equation about maximising the net public benefit.

DR BYRON: One of the things that I've really appreciated just in the last couple of months of learning about this is how difficult it must be with all the competing claims and when so many applicants can claim quite rightly that they have a special case or that they have a worthy cause et cetera. I guess to me that suggests a need for a strong independent statutory authority that has to make difficult judgment calls sometimes, and can rely on the most open, transparent processes. I mean, that's the Productivity Commission's defence for having to make difficult, contentious judgment calls that people won't necessarily agree with.

Do you think that you need more guidance from the parliament, for example, on an explicit sort of check list or a set of criteria or priorities or something and then the authority should be left clear to exercise its judgment independently as opposed to being, dare I say, second-guessed by the department? I mean, there's also been discussion about the role of the minister, and obviously the minister has to have a role in this, but what it's all leading to is how independent can the authority be in practice in making these difficult judgment calls?

MR LUTHER: It's certainly a very difficult issue. In terms of being

second-guessed by the department, as you've quite rightly pointed out, there are a number of decisions in the act which are there for the minister to make, so it's only appropriate that the minister seek a range of advice. I don't think we regard that as being second-guessed by the department. He's just seeking advice as you would expect him to do. In terms of whether or not there can be more explicit guidance given by parliament to the authority and then the authority left to make its own decisions, this is very much a matter for judgment.

I guess our view, which we put down in the submission, is that overall it's very difficult to set down in advance something which is really very much more explicit then we have already. There are already quite a number of different objectives written into the act which we weigh up. On the whole, we regard the necessity for flexibility as outweighing the need for any increased certainty as to the relative weightings we should give to those.

DR BYRON: But you've also got a difficult task in the sense of integrating the very complex technical engineering type of issues with very complex public policy issues. Do you think that the authority has been given enough guidance and, if necessary, resources to be able to do that very difficult integration?

MR LUTHER: We'd always like more resources. That goes I think for any public or private sector institution in Australia these days. If you speak to many people who are experienced in spectrum management, from whichever country, they'll always tell you that spectrum management, especially on the technological side, is more of a black art than it is a science, so inevitably the judgments that are made on the technical side are judgments made as a result of (a) experience and (b) extensive public consultation. I think my answer to your question would be that we would regard the open and transparent process as exposing ourselves to public consultation processes. That's really the best way of getting a handle on that. If we're going to make technical judgments which the industry disagrees with, they'll certainly let us know.

DR BYRON: Is there a lot of poaching of your best technical people by the private sector now?

MR LUTHER: There has been in the past a considerable amount or a reasonable amount of poaching of people, especially amongst our younger engineers, who perhaps don't have family or geographic ties holding them down. I would expect that to be declining somewhat in the current state of the industry, at least for a while but, yes, it's certainly an issue for us.

DR ROBERTSON: This is following on, I think, from what you were just saying in a way. You really have a dual role of managing telecommunications and radiocommunications together. Do you feel that in any way there's a tension between those two or that one gets more emphasis than another?

MR LUTHER: Look, let me say that I've certainly not noticed any tension between the two. They do intersect fairly significantly when it comes to providing a new spectrum for new telecommunication services, so there's clearly a degree of convergence between the two issues. In terms of overall authority resources or attention, I think the balance has been very good so far. There hasn't been any difficulty gaining attention to radiocommunications in the face of telecommunications priorities.

MR GRANT: I don't believe there is much further to add. In the context of the objectives of the act, one could ask: which is more important, to provide all Australians with access to a new technology like third-generation mobile, or to avoid disrupting point-to-point links used by emergency services and public utilities? Clearly there's a trade-off and it's a trade-off that we work with daily, but I don't believe there are any conflicts or major difficulties that we've struck. In my own area, the area which handles spectrum auctions, a lot of the attention obviously has gone on telecommunications, particularly in the mobile area. But, that said, we are mindful of the desirability of conducting auctions even in the small bands, for a single land mobile service, for instance. Applications close tomorrow, to use another example, for an auction of space licences to be used for satellite delivery direct to home-type services. So even in the spectrum auctions area, we look at the smaller end of the market as well as telecommunications. I don't think there's any conflict.

DR ROBERTSON: Okay. Well, continuing on that theme really, the Australian Broadcasting Authority in its submission refers to a scarcity of spectrum in its range, whereas I think on the whole you think there's still plenty of spectrum. Can you reconcile those two?

MR LUTHER: I don't know why you would think we think there's plenty of spectrum. It really depends on the band. There are a number of bands - John has mentioned land mobile - in the non-broadcasting services band which are in short supply, at least in some areas of the country. It really depends on the particular band you're talking about and just how much demand there is. It's certainly true that there are difficulties in planning broadcasting spectrum because there are not oodles of channels left lying around.

DR ROBERTSON: Would you think it would be a step in the right direction if broadcasting bands in terms of spectrum allocation returned to the ACA and the ABA was left simply to handle content?

MR LUTHER: I don't think we want to get into the question of which body is going to be responsible for handling planning matters. What I would say, though, is that I think we would clearly see some advantage in spectrum being treated more as a single product.

DR ROBERTSON: A whole?

MR LUTHER: As a whole, yes, rather than being reserved exclusively for one use or other.

MR GRANT: I should note for the record that already we work very closely with the ABA, for instance, in resolving interference problems in broadcast bands or reception difficulties, and we would expect to continue to have an ongoing close working relationship with them. But just returning to the issue of spectrum scarcity, it does vary from one band to the next. Below one gigahertz the spectrum is quite congested in the so-called land mobile bands. Land mobile services are used for instance by taxi companies, courier companies, mobile radio in cars. Spectrum for fixed services below one gigahertz is also extremely congested and possibly our prices there are too low.

If one reads the literature on the impact of convergence, particularly some UK reports, the prediction is that spectrum between two gigs and five gigs will increasingly become congested as a consequence of convergence. I don't believe that spectrum is in plentiful supply in any band. I think more or less every megahertz of spectrum up to 25 gigahertz or so is used and accounted for, so we don't have plentiful supply anywhere, but we are able to manage demand in the higher bands without undue difficulty.

DR BYRON: We've had a number of discussions in the hearings and in submissions in previous informal meetings about the pros and cons of time-limited tenure of licences, the suggestion being that licences which were very long or unlimited duration - whether you call it perpetual lease or freehold or something like that - would actually facilitate the workings of the secondary market, which would solve many of the problems which normally justify having fixed-term licence, namely that you might need to reclaim for some new purpose some new technology that hasn't been thought of or to encourage the flexibility and so on.

In the submission and in your opening remarks you talk about lengthening the tenure - the duration of apparatus licences, and it seems to me that that has implications for whether or not compensation would be warranted if for some reason that licence had to be revoked mid-term. I asked the question last week in Sydney, that we seem to use the word "licence" for anything from a permit to do something for 24 hours, where it's clearly non-tradable, non-transferable, no compensation if it's cancelled or not used, all the way through to something which has all the attributes of a property right in that it can be bought and sold and traded to third and fourth parties and so on.

Extending the duration of an apparatus licence from one to five years to 10 years certainly would seem to me to move it much more towards the property end of that spectrum, if I can use the word. The question: if we're going to extend licences from one-year apparatus licences to 10 years, why not make them indefinite? If you're going to make them automatically renewable, haven't you in effect made them indefinite? Does making them indefinite confer automatically the

right to compensation if it has to be revoked if there's a presumption that the licence will be perpetual? Does making them readily bought and sold in effect make them perpetual property?

MR LUTHER: There are a number of points I'd make in response to that, Dr Byron. First off, the ACA has been consistently an advocate of longer terms, not just for apparatus licences, as is currently set out in our submission, but previously when spectrum licences were 10 years we argued - in the end successfully - that they should be made 15 years, so our general presumption is that longer tenure offers certain advantages for businesses to enable them to run their businesses with a necessary degree of certainty. So that's our general comment.

Secondly, in terms of compensation, we've been very much concerned to make the case that whatever the length of licence term we don't believe that in itself justifies compensation. This is not a property right over the spectrum. It's, if you like, a right to access the spectrum for a defined period of time, so we don't believe that there is or necessarily should be any right to compensation. That said, we do acknowledge that - I mean, as would be familiar to the commission in other cases, when you have entrenched opposition to change sometimes compensation or those sorts of things can play a useful public benefit role. So we don't necessarily say that there shouldn't be compensation in any circumstances, but what we do say is that we don't believe there should be a right to compensation.

As for moving to even longer or indeed perpetual licence terms, I don't think we have any objection to longer licence terms. We certainly think the idea of perpetual licences is something that ought to be looked at seriously. My guess, however, is that the major impediment to perpetual licences will be in resistance by industry who will feel threatened by moving to perpetual rights. They'll feel their own position somewhat under pressure if large companies are allowed to buy up licences with perpetual rights.

DR BYRON: Wouldn't the current holders be able to sell their rights? If somebody came along with a new technology and could afford to pay twice as much for the spectrum, they could sell it to the new buyer.

MR LUTHER: Indeed, and that's why we're quite happy with the concept of extending the rights. I guess what I was really referring to there is the notion that you might have perpetual management rights over large amounts of the spectrum, which is a prospect which seems to worry industry.

DR BYRON: On the question of renewals and so on, I understand in other areas, like the licence to extract water from a river, if that annual licence has been renewed every year for 20 or 30 years then the lawyers will argue that it takes on the nature of a property right which is bought and sold and borrowed against, and so on. I think there are probably some very interesting legal battles in New South Wales at the moment. Even though at the time it was always stated that this was a one-year

permit to use a resource, it was not property and there would be no compensation rights, et cetera, but over time, through repeated renewal, it has sort of evolved into something which is now very close to being property.

MR LUTHER: You're absolutely right; there are some interesting legal arguments. Our legal advice to date has been very much, though, that we're not creating property rights in the spectrum. I'm quite sure that some lawyers will argue the opposite case.

DR BYRON: If you were going to go to property rights, it's probably better to do it explicitly and knowingly and sell them as such, rather than having them unintentionally evolving to that.

MR GRANT: I'm not clear what problem we would be solving by giving rights in perpetuity. I've thought about the issue since it was raised last week and I'm just not clear what problem would be eased.

DR ROBERTSON: No, it's a problem as I see it, too. Reading your submission, you say at one point that apparatus licences can be for five years but most people - a huge proportion - only take out a one-year licence.

MR GRANT: That's right.

DR ROBERTSON: Presumably on the understanding they expect to get another one and they're only committed to one year's annual fee. If you go to a long term licence - it doesn't have to be perpetuity, it can be just 25 years - would you collect a licence each year, accept a fee each year, or would they be expected to pay the whole lot up front? That exposes another risk, which is what value does spectrum have in 20 years' time?

MR GRANT: In fact, under our existing arrangements the licensees have a choice. If their requirement was for a five-year period they could take out a one-year licence and renew it four times. On the other hand, they could apply for a five-year licence and pay up-front or pay by annual instalments. Now, the regulatory risk in paying by annual instalments is that the fee will have increased and they'll have to pay at a higher rate. But licensees do have those options at the moment, notwithstanding the overwhelming preference is for licences of one year's duration. I think that reflects a fair degree of comfort by licensees with the current tenure arrangements.

DR BYRON: Sorry, this is probably a rather dumb question, but if somebody has an apparatus licence for five years and it's paid up-front, and then decides after nine months that their business model is not working, they can sell that?

MR GRANT: Yes, they can.

DR BYRON: It doesn't just default and forfeit back to the ACA?

MR GRANT: They can surrender their licence and get a refund from us. Alternatively, they could trade it if they wished, if they could find a buyer, so there's not an awful lot of risk for them in taking out a longer term licence.

DR BYRON: That was the risk that I was thinking of in terms of whether it's the company or the ACA that has the risk of commercial failure.

DR ROBERTSON: So if you had a licence in perpetuity you could still pay it annually or five-yearly or whatever you chose.

MR GRANT: I think we'd need to revisit the payment arrangements in the event that such licences were ever introduced.

MR LUTHER: A lot actually depends on who has title to the licence. This is a question not only in terms of annual renewal of apparatus licences but also in the auctioning of licences, including spectrum licences, where a lot of people will argue that they ought to be able to pay annually rather than paying a lump sum up-front. The difficulty that the United States got themselves into in that situation is that they sold licences with some annual payment conditions but didn't maintain a clear title to the licence in the event of failure. Consequently they're still arguing in the courts now with the US Supreme Court as to where the title of those licences actually properly belongs. So whatever we did for perpetual or longer term apparatus licences, that would clearly need to be spelled out.

DR BYRON: Changing the subject a little, the practice up to now for spectrum auctions has been to clear the spectrum first and to sell it with sort of vacant possession, so to speak. I'm just wondering how essential that is or if there is another model where, rather than clearing the spectrum first, the spectrum licence was auctioned with, so to speak, sitting tenants who would then pay the lease fee to the spectrum licence-holder rather than to the ACA.

MR LUTHER: It's not at all essential. In fact, you're not quite right in saying that all our auctions have been done through clearance. In fact, we sold spectrum at 500 megahertz with a small number of incumbents who were converted to spectrum licensing in that band, so that's one model. The other model is along the lines that you're alluding to and Dr Byron is - one that's been used by New Zealand, where they've sold management rights with some sitting tenants and the sitting tenants have had various rights in terms of length of tenure for their licences within that band. So that's certainly an alternate model that can be used.

DR ROBERTSON: I would like to add something. Quite frequently we auction a band and the clearance period hasn't yet finished. There could be a period of up to two years - possibly even longer, I guess - in which the incumbent's rights are protected. Now, in most cases the new buyer has asked them to move, but not in all cases. If the incumbent's use is compatible with the new buyer's use of the spectrum, I suspect that the buyer would be happy to have them sit there and earn a rental from

them, but I agree with you that in most cases the incumbents have been required to shift.

DR BYRON: If there were going to be incumbents or tenants who were paying a lease fee to the spectrum manager, is it important that there be some sort of parity between the fee that they would have to pay to the spectrum licence-holder and the fee that a similar sort of apparatus use would cost if it was bought over the counter at the ACA?

MR GRANT: Obviously a spectrum licensee who has acquired the spectrum at auction could afford - there would be very low commercial risk to that licensee in charging more than we would charge, than we have been charging. The reason for that is that there is simply a large cost in relocating to another band. It would be a matter for commercial judgment as to how high a fee the new licensee could ask, but I dare say that a reference point in those considerations would be the fee that the ACA would charge or has been charging for that particular spectrum and application.

DR BYRON: In that sense, if there were more of a market in apparatus licences, there would be more market information available on what the going rate was, rather than just the set over-the-counter rates in ACA.

MR GRANT: Yes. We are very keen to build up that information and it will come in time but it's a slow process for us to gather information on market values.

DR BYRON: I'm just thinking the market is a place that actually reveals how much people are willing to pay yourself - so the market not just a place for exchanging rights to use and so on, but the market as a massive generator of information on what things are worth at the moment.

DR ROBERTSON: Neil, that leads on naturally to the question of whether we've really got a market in some areas of the spectrum, and one of the key things to look at, it seems to me, is this question of a secondary market where there hasn't been a lot of trading in secondary licences and there seem to be some barriers. We've heard about capital gains tax and stamp duties in different states as a barrier. First of all, do you think those things are barriers or are they just excuses that people put up because there isn't dealing in the secondary market? Secondly, I suppose, do you see much chance of a secondary market developing, which seems to me to be an essential part of having a market in spectrum?

MR LUTHER: John probably wants to answer this one, but let me say from personal experience, from having sat down with a number of telcos while they tried to do some spectrum trading - almost horse trading - to rationalise their holdings, that the taxation impediments were certainly seen by them as a significant impediment to getting the trades done, even though there was a significant efficiency benefit for them in having the trades take place.

MR GRANT: I do have some other observations on impediments or features of the spectrum market which might differentiate it from other markets. The first is that I would never expect the market for spectrum to be as volatile as, say, the electricity market or real estate market, because to use the spectrum you have to face a fair lead time just to build your infrastructure and, for particular applications, to build a market. So I would expect at the very minimum spectrum could not be used for a period of some months and, at the longest, some years after sale. There will never be the volatility that occurs in other markets.

In respect of spectrum licences, we've already heard about capital gains and stamp duty, and potentially the amounts to be made could be large from spectrum licensing. But I think for apparatus licences the amounts to be made are relatively small. They're in the thousands of dollars maybe. I think the lack of large gains has been a disincentive to trading.

I think another consideration is that about 40 per cent of apparatus licences are held by government organisation who will be less responsive to a secondary market. If I need spectrum for air traffic control or for maritime safety or for deep space research or whatever, I'm not likely to sell that spectrum just to make a commercial gain. I guess many government users, whether they're Commonwealth, state or local, would be - well, there's no incentive for them to make a profit anyway, because it all goes back into the federal Treasury.

It's true that tenure, I think, has dampened the market in apparatus licences. I think the incentive to trade will always be less while you've got a relatively short tenure of no more than five years. I guess the final two factors are: for apparatus licences for some of the applications there will be alternative bands. If I can't get a fixed link in the two gig band I might be able to get one at seven gig or 10 gig, admittedly at a higher infrastructure cost than I would have to outlay a two gig, but there's still an alternative there and I think that dampens.

The final issue that's being put to me is that perhaps we have dampened the secondary market by underpricing apparatus licences. We may well have done so. It's very difficult for us to gain information on market values, but if we are underpricing spectrum I would hope that we can correct that. I don't think that applies universally in all bands. I also note that we are the highest, or possibly the second highest taxer in the world when it comes to spectrum, so I certainly don't think that on a global scale our fees are low.

MR LUTHER: I would just like to add one point, which is, Dr Robertson, you shouldn't assume that there is no trading taking place. In certain areas of the spectrum there's been a quite free market and I'm thinking of so-called low power, open narrow casters, which is like mini radio stations that are freely traded according to our - at least - anecdotal evidence.

DR ROBERTSON: No, I wasn't suggesting there wasn't any trading at all.

MR LUTHER: The other thing to say is probably we have significantly more trading than any other country in the world, I suspect, in spectrum. I'm not sure of the situation in the United States, but most other countries don't allow trading for a start.

DR ROBERTSON: No, my concern was that we've had auctions and we've had bands in those auctions which were not - I suppose you'd say economically efficient in the sense that people wanted to swap so they got broader bands for themselves, and then that was stopped I think by the tax element that - - -

MR LUTHER: It was certainly disappointing to us because we certainly would have liked - I mean, just in terms of sheer spectrum efficient - to have seen some rationalisation there.

DR ROBERTSON: Yes. We've spoken to people who have tried to set up secondary markets and clearly they haven't had very much - I mean, there is secondary trading but it seems to go on - - -

DR BYRON: Bilaterally.

DR ROBERTSON: Yes, bilaterally rather than in a marketplace sense. But it does seem to me that if we're going to get a real market in spectrum then you're going to need to see some more dealing, as it were, which is why I put that question.

DR BYRON: One of the major rationales for having the time limited tenure, say five years, is because with changing technologies and changing markets, the authority might have to resume or not renew. The exercising of that right seems to me to be contradictory to saying, well, the default will be renewal. You are putting impediments to your own proposed action in place that - it just seems odd to say, "Well, we're only giving you a short-term licence because we may want to take this back in five years' time, but don't worry, we probably won't want to take it back." I mean, it's confusing signals. If it were a longer-term licence, after five years if there was some great new technology that was willing to pay a great deal more for the use of that spectrum, presumably they'd just buy out the incumbent or pay him to shift. So I'm still sort of stuck on the issue of the pros and cons of limited term tenure versus longer term.

MR LUTHER: Look, I think you're right and despite our best endeavours some licensees do get mixed messages or do tell us that they're getting mixed messages about what we're saying to them about spectrum and in very many cases, you know, the message you give is the right one. But we're saying that we may want to resume this but - or we're reserving the right to come along to you at some stage and saying we may want to resume this spectrum, but at the moment we don't see any need to. But I guess that's the message we're trying to give. For all the reasons we've gone through before, I mean, I think your point is valid and we would certainly be inclined

to support longer tenure.

DR ROBERTSON: You mentioned, almost in passing in your submission, this idea of going to a single licence with multiple conditions, as it were, different sets of conditions. I wonder if you'd like to elaborate on that a little bit more. That intrigued us a bit.

MR LUTHER: The acts sets out some - what are very clear distinctions between apparatus licences and spectrum licences, and it really - as much as anything for historical reasons that the apparatus licence was the sort of - if you like, the default licence type. It would be one where some fairly limiting technical conditions are imposed as to sites and power and the other technical conditions; whereas spectrum licensing was seen as much more flexible, tradeable - when apparatus licences at one stage weren't tradeable - form of licence.

In our view, that distinction is just too stark. We believe that all licences ought to be tradeable, as they now are. They all should be as flexible as we can make them. The notion that you have these sort of two very clearly distinct products is really probably no longer relevant. We believe that the overall case for market reform would be strengthened by allowing us to make apparatus licences, if you like, more like the spectrum licence. Our view would be, well, why have these two quite clearly distinct products when really what we're after is more flexibility, more tradability, more freedom for licensees to use spectrum in the way that they think fit, and isn't that best - you know, can't that just be handled by really a single licence type? In some conditions you may want to impose tighter technical conditions on the licence and there may be sort of very sound technical reasons for doing that but still allow more flexibility.

DR ROBERTSON: Wouldn't that in some ways impede the market in the sense that somebody might want access to a bit of spectrum through, say, what we now call an apparatus licence, but the conditions weren't quite right, so they'd have to take it back to you to see if they could change the conditions?

MR LUTHER: It happens now. Precisely that happens now, where - I mean, I can talk about MDS licences which were traded in the market and licensees have come back to us seeking more flexible conditions anyway, so that happens. If you could build in the flexibility up-front then you might tend to lessen the need for them to come back.

DR ROBERTSON: I was just thinking that in the past they seemed to be restricted in some ways - an apparatus licence - and then if you wanted to purchase it from somebody else then you might want to change the conditions under which it had been issued, in which case in fact you'd be buying it off somebody and then taking it back to you to reinterpret, and possibly even have to pay again.

MR LUTHER: You might. As I said, it happens now.

DR BYRON: For clarification, those comments - are you talking generally or only in terms of commercial users? The sort of hybrid or the blending of the attributes of spectrum and apparatus licences - do you see that as something that could apply to non-commercial users, or are we only talking within the commercial realm at this time?

MR LUTHER: In principle I can't see why it couldn't apply to non-commercial uses as well. It probably doesn't apply in what we call the non-assigned licence type, which is like amateur radio or outpost radio or the previous marine radio, things where specific frequencies aren't assigned. There doesn't seem to be very much point in additional flexibility under those circumstances but for most other sorts, I couldn't see why you wouldn't apply it to non-commercial as well as commercial users. I mean, I think we're about increasing flexibility for users.

DR BYRON: Just on the subject of amateur users, you know that they were appearing this morning - the Wireless Institute. I'd just like to get your reaction to the idea of the possibility of devolving amateur licensing to an organisation like the Wireless Institute to set the standards of proficiency and to monitor and regulate - whether you see that as something that would basically simplify the life and existence of the ACA while providing them with exactly what they want.

MR LUTHER: I think the short answer is yes. We'd be very interested in working with the WIA precisely for those ends. The one question about that is whether - I mean, what makes WIA the body, given that only a proportion of amateurs are members of the WIA, but in principle we certainly think it's an idea well worth exploring.

DR BYRON: I mean, you can't force people to join a voluntary organisation.

MR LUTHER: Yes.

DR BYRON: But I think those sorts of issues have probably been dealt with in a similar licensing problem with the hang-gliders and the ultra-lights and those sorts of people, where the licensing function has been I think almost completely devolved to an agency.

MR LUTHER: There is still at the moment, I think, a legal impediment on WIA actually issuing a licence under the terms of the current act. One solution to that would be to amend the act, and another one would be for them to do everything short of issuing the licence.

DR BYRON: They send you a list of names.

MR LUTHER: Yes.

DR BYRON: Thanks.

DR ROBERTSON: We've had appeals, and you've heard some this morning, for non-commercial services to be given some kind of preferential treatment. Some people say they shouldn't have to pay licence fees, some say they need special clauses in the act that mean that they can get what they want. The impression I get, coming at this as a complete outsider, is that the demands are being made for more directions and it's pretty significant demand on spectrum that should be provided free. I suppose the question to you is: do you think that the present supply of spectrum to community services and non-commercial activities are adequate, or that they need to be strengthened in the sense of saying that there are certain categories that will get preferential treatment, or whether in fact it would be better to switch, as we have, from one speaker - to switch from a situation of, as it were, protecting spectrum for certain activities - or charging them the same as anybody else and making sure that governments funded it through subsidies?

There are certain difficulties with that, particularly when it comes to dealing with state and federal relations. I wonder if you would care to comment on how we should handle these community services? The thing is they stretch so far. They can stretch from emergency services and fire brigades and that kind of thing at one end, and lifesaving groups and all that kind of thing, to state governments saying, "We need access in order to take up data transmissions," and so forth, which seems to me to be directly competitive with the private sector. So it is almost an open-ended request that's being made. So I think we have to deal with it one way or the other, which is either to get them to pay and then the government to refund the money or provide a subsidy, or alternatively, to find protection under the act. I wonder what you thought about that.

MR LUTHER: There are a number of different points in that. First off I should say that one of the predecessors of the ACA - namely, the Spectrum Management Agency - did seek to make all users of spectrum pay on the same basis. That's going back to about 1995. There was a major outcry by these groups which are currently now entitled to fee exemptions or concessions and, in the end, following advice from the government that its view would be that concessions ought to be granted, the SMA has gone down the track of allowing fee exemptions for volunteer safety of life bodies. I think there's little doubt that the theoretical best approach would be to charge everyone the same, and that leads to best market outcomes, and to reimburse these groups through some other means, if that's the government's objective.

However, the fact is that that hasn't been the government policy to date, and we certainly have no intention of changing it while government policy remains the same. One additional factor, though, is that we have found - and, Dr Robertson, you talked about the demands on us - with some of these bodies that because they're exempt from all fees, including our new issue charges, there's absolutely no incentive for them not to come along and take out new licences. Very often we hear stories that a surf-lifesaving body might get a donation of old radio equipment which is no longer

useful via the commercial enterprise, so they come along to us and seek a licence and, because we do it for free there's absolutely no incentive on them not to do that.

For that reason, while not wishing to change the current system of exemptions for annual licences, we do believe that there is a case which can be made out that at least initial fees ought to be charged for issuing licences. As John points out, the penalty there is that this equipment uses spectrum which other users could usefully use and, given that in some areas - particularly Sydney and Melbourne - spectrum is in very short supply in the land mobile area, I think that probably does have some harmful effects.

You asked whether or not there is sufficient spectrum made available for these groups. My general answer would be yes. Across the board, I can't really see that there is much of a shortage for any of the public or community service use. However, there is one caveat to that, and you also mentioned data transmission by state agencies. A lot of the state police forces would like to upgrade their mobile radios to make them more data capable than they currently area, for obvious things - like sending fingerprints through a mobile radio or pictures or whatever.

The form of technology which is probably most popular around the world for doing that is called tetra which is a European trunked land mobile standard, and it is certainly true that the bands in which tetra is deployed in Europe have not been readily available in Australia, largely because spectrum is used by the Defence Department. So that is one specific case where we are unable to meet - sorry, not unable, but we have some difficulty in meeting the demand for spectrum for a specific public or community service.

MR GRANT: I think the point to note about public and community services is that, by and large, they do not use dedicated bands, but they use spectrum which is widely used by the community generally, so that a surf-lifesaving group or a volunteer bush fire brigade group will be using the very same bands as are used for general commercial traffic. In the country areas, that doesn't really cause us any major problems, but it may well cause real supply problems in the major cities.

DR ROBERTSON: Do you think that there should be something in the act, though, that defines these services? I'm worrying again about this data transmission stuff and, indeed, remote education which all seems to me to be part of the education budget. Should that be provided to the states free, or would it be better in fact that you said, "No, that's not included in the exemptions that we give"? I know you're going to say, "We'd have to get the government to agree to this." But should we limit it in some way, define it?

MR GRANT: I believe the definition in itself creates real problems. We have found many such problems. Our determination of who gets an exemption in fact has been carefully worded. I think it's organisations involved principally in the safety of life. Now, we had to put in the word "principally" because a bush fire brigade, for

instance, isn't likely to use its licence during the winter months, and it may well be - and some have been - used for commercial purposes. I think that any definition would very quickly come undone, and I would be reluctant to try to define the groups - to try to widen the definition to pick up some of the other education or health bodies. I guess the ACA's view remains that our preference would be to charge everyone the full price and to have assistance delivered in the form of a publicly visible grant rather than a hidden subsidy.

DR ROBERTSON: Thanks.

DR BYRON: I was thinking about a minimalist model of spectrum management. In the submission you say, "Well, the essential basic fundamentals have to be interference management, public register of licences and a protection of classified frequencies." Does a government agency have to perform all those functions? I'm particularly also thinking of the pros and cons of New Zealand's approach in selling management rights over spectrum. Is it possible that you end up with an ACA which would merely provide the very broad overarching umbrella structure and then most of the spectrum would have been - the management responsibility for big hunks of spectrum would go to 50 or 100 spectrum managers, and they would handle all the interference issues within that.

They would look after the sub, sub, subtenants and licensees and lessees and so on. We've got all sorts of non-governmental providers of registry services. Computershare or something would probably offer to maintain a register for a reasonable fee. What's the absolute minimum level that only government can do in all this business?

MR GRANT: I don't know that there is a minimum level. All of the maintenance of a register, resolving interference, even the classified register, could conceivably be delegated or contracted out to some other party. Whether the classified licensees are happy about that, that's something we'd need to talk about with them.

MR LUTHER: I think their gut reaction would not be favourable, but I absolutely agree with John. There's no reason in principle why all of that couldn't be delegated. The one area which I guess I'd want to think about more - even then I'm not saying it's not possible - is in our international obligations. We do have treaty obligations, as to whether or not a private sector organisation could undertake those treaty organisations, and then would be seen to be operating in the national interest. As I say, I would need to think about those issues a bit.

DR ROBERTSON: This question comes back to one or two things we've said, I think, which is that the ACA does, I believe, impose its own restrictions on the amount of spectrum it grants to a licensee. We saw that in the - I never get these numbers right - 1800, I think. This is the one where they've been trying to shuffle around in the secondary market. What powers do you have to do that? If you do, it could be used, for example, in connection with what I was talking about previously -

public and community services - if you've got the power written into the act.

MR LUTHER: I need to correct you, though. This is not something we actually have a power to do. It's something we only do on direction from the minister, and that's quite explicit in the act. We can't impose those conditions unless the minister has directed us to do so.

DR ROBERTSON: Right. So it's the same power, in effect.

MR LUTHER: Yes, that's right.

DR ROBERTSON: The same power he uses already to exempt these community and public services.

MR LUTHER: Yes. In effect, that's right.

DR ROBERTSON: Okay, thanks.

MR LUTHER: When we do sell spectrum, or for that matter convert spectrum, one of the things the act explicitly says that we can do is to reserve spectrum for public or community use, and in that case it's public or community use as defined by the minister under section 10 of the act. But he's never made any such definition.

DR ROBERTSON: All right, thank you.

DR BYRON: I guess this is going back over ground we've already covered. I don't know if I'm pushing things with the metaphor of the analogy with land, but you could imagine that if you were going to develop a thousand hectares in the south of Tuggerawong or something you can say, "Well, first we'll put in place all the basic infrastructure." In the land case it's roads and drainage, easements and all the rest of it; in the spectrum case it might be police, emergency services, railways and so on. "We'll set aside some parks." Again, we've got the spectrum analogy with parks because that's public use. You could say, "Well, the rest of it is for commercial use," and then we can either have the government agency that divides all the rest of it up into individual blocks and sells them and decides what each owner can do on it, or you can just say, "Well, we'll give it all to a company" - whether it's Jennings or Mirvac or someone like that - and say, "Go ahead and do it."

Now, in the land case, the crown basically gets out of all the commercial development, having set aside the reserved areas for the social public infrastructure and community services. We don't really need to know the detail, and yet in the spectrum case the crown has always felt obliged to maintain a very direct hands-on role, not only in the subdivision but in determining what could be used in the subdivisions and also the right to resume when some new better purpose arises.

The question I keep asking myself is, why is there such a difference between

land and spectrum that when it comes to land we can basically just assign long-term property rights and let the market take over - if I want to get some industrial land to build a factory, I don't have to go and see the government lands department; I can just go and buy it in the marketplace - and yet in spectrum, the people who want this input into their production process have to come and see the ACA. They don't just look up the classified ads in the Sydney Morning Herald and decide where to go and get it. What are the really special features of spectrum that make that analogy break down?

MR LUTHER: If it does break down, I think it only breaks down in terms of interference management. There are sort of spillover effects. Broadly speaking, what you're describing is the way that the spectrum management reforms have gone; that we've set down some overall rules for managing the spectrum in order to minimise interference. We've set aside some public parks or reserved some spectrum for community services, and the moving to spectrum licence, large parts of the spectrum where the spectrum licensee is really then the manager of that spectrum. So that, broadly speaking, is the analogy we've been following.

As I say, where you need to be careful is in terms of interference management. You can't contain spectrum very easily to within neatly defined borders like a factory on - well, even a factory on land I guess has spillover effects. But that's the danger that has to be managed - is the spillover effects of spectrum use onto your neighbours.

DR BYRON: In the land case the onus is on the owner to, if you like, enforce the sanctity of his boundaries, and if an intruder strays across, then there's some sort of legal recourse that - - -

MR LUTHER: Broadly speaking, that's how spectrum licensing works as well. It works both ways. The onus is also on the owner not to spillover and intrude on his neighbours.

DR BYRON: I guess the impression I had was that - also Ian Hayne's submission this morning was in the same vein - spectrum licensing is less common. I mean it's certainly a lot more common than it was 10 years ago, but is it the default or are we still mainly in the apparatus sort of micro-management type of approach?

MR LUTHER: I suspect Ian and I would have fairly similar views about this, excepting about the pace of change, where I think he would argue that we need to move faster than we have. You have to remember we were starting from scratch. Really I think in 1997 we issued, from memory, our first spectrum licences, so we're starting from a zero base to where we are now, where we have significant parts of the spectrum and in many ways arguably the most commercially attractive parts of the spectrum are now spectrum licensed. Ian would no doubt wish us to move faster on that. I would like also to move faster in terms of making more spectrum available. There are a couple of restraining factors, however. One is the impact on incumbent

users of the spectrum who normally, as a knee-jerk reaction, don't react kindly to us coming in and suggesting to them we're going to take their spectrum away from them and put it up for auction or for some other form of allocation. So that's a significant impairment.

I think the processes that we have to go through are very consultation intensive, if I can create a word. There are a lot of steps which have to be gone through before we can get to that stage, and I think the thing that would disappoint both Ian and myself is that those processes have taken a long time. But, as I say, we've started from a zero base only about four years ago.

DR BYRON: When you say only four years, it's easy to forget that it's all that recent.

MR LUTHER: Yes, because it took us a long time. Let me again be frank about this. It took us a long time from when the act was passed to figure out how we were going to make spectrum licensing work. This thing had never been tried anywhere else in the world, so we didn't have any precedent really to guide us.

DR ROBERTSON: I'm going to refer to one of the items in the terms of reference that we give too little attention to perhaps, and that is we're expected to assess - "In assessing these matters" - reporting on the appropriate arrangements for spectrum management, that is - we should have regard to, where relevant, "the effects on the environment, welfare and equity, occupational health and safety" - blah, blah, blah - it goes on forever. But the one thing you mention in your submission is in fact the environment.

The Australian Broadcasting Association refers several times to social and cultural matters. Do you think that there's anything special we should take into account in looking at the act and indeed your operations in terms of the competition policy on any of these issues, but particularly the environment? I know you've had one particularly sensitive area.

MR GRANT: I think the environmental issues are particularly difficult, and quite often what is good in terms of, say, visual impacts within a city might be bad in terms of exposure to electromagnetic radiation, both of which are different aspects of the environment. So the environmental issues can be very awkward to manage and, indeed, in many ways spectrum use is constrained by environmental issues. We frequently hear from clients that there are no frequencies available on the major fixed link routes between Melbourne-Sydney, Sydney-Brisbane and Brisbane-Cairns. It's not that there is a particular shortage of spectrum in the country; it's just that in Australia we don't have that many mountains, and mountain tops are the best place to site fixed links.

Plenty of spectrum would be available if people could take another path, but of course to put a road up new mountain tops, to put a power supply up there, construct

a building and a tower, causes a fair bit of environmental damage. We haven't had to pay attention to those issues because the fact is that very few sites have been opened up on those routes, and I suspect there are environmental limitations. National park managers, for instance, wouldn't be too keen about having new mountain tops opened up for communications services. So I don't really have an answer to your question, other than to observe that the environmental issues are somewhat difficult frequently to manage.

DR BYRON: I was just going to ask can you think of an example where you might have done something, or not done something, differently had there been an explicit environmental clause in your objectives in the act?

MR LUTHER: I think the answer to that is no. I certainly can't think of any case and, as John says, it's more the issues haven't arisen for us specifically. Another area we do deal with in the environment of course is electromagnetic radiation, which has been an area of increasing community concern. Once again my own view would be, even if there was the word "environment" written explicitly into the objectives of the act, I don't think we would have done anything differently in that area.

DR ROBERTSON: In effect, you wouldn't learn about these things because people wouldn't be looking at the routes from Melbourne to Sydney through your offices. They'd be doing it directly and being knocked back by New South Wales or Victorian environmental protection agency or whatever.

MR GRANT: That's right.

DR ROBERTSON: That's a good excuse for us not to have to deal with it at great length. Neil, do you have any more questions?

DR BYRON: We have talked very much about the performance of the auctions. We've had a couple of submissions from people saying that they thought that the simultaneous ascending multiple round was too sophisticated, too complex for some new players, and that some of the larger or more experienced or more alert organisations who did their homework very well got the results they wanted but some of the others who were less well prepared found the process extraordinarily difficult. You really have two items in your bag of tricks at the moment: the incredibly simple naïve English open outcry option or the very complex simultaneous multiple round ascending, et cetera. Would it be useful for you to have a couple of other items in your armoury, apart from the very simple and the very complex?

MR LUTHER: At the moment it is pretty much of a binary choice for us - one or the other - so I guess any suggestions would be welcome. Can I just react, though, to your suggestion that these forms of auction are very complex for small players. In fact, in our very first simultaneous multi-round auction, we had several private individuals bidding - this is at 500 megahertz. They managed to understand and cope

with the auction system reasonably well. I don't believe it's quite as complex as people make out, though. There is a degree of bidding strategies as in almost any form of auction, and I suspect that people who seek professional advice probably will do better than those who just wing it on their own.

There is another form of auction which I know my friend and former colleague Mr Hayne is a keen supporter of, combinatorial auctions. They've never yet been tried in any spectrum auction around the world. The FCC has been planning to use one. We will certainly look at that if it takes place, but my own view at the moment is, if you think simultaneous multi-round auction is complex, the combinatorial one is significantly more complex again, so it's not likely to overcome your problem.

DR BYRON: We talked before about some of the spectrum purchasers trying to get together and do some horse-trading deals to rationalise a few inconsistencies. Does that suggest that the auction process meant that many of them didn't actually end up with exactly what they wanted, and that an ideal outcome - that sort of horse-trading afterwards to tidy up the loose ends wouldn't be necessary?

MR LUTHER: I think it's hard to argue against that proposition that it wasn't an ideal outcome. That's not to say that an ideal outcome couldn't have been achieved during the course of the auction.

DR BYRON: On the other hand, if it's not very expensive to do that horse-trading at the end of it, then you still had an ideal outcome in two steps - with an auction plus horse-trading - rather than with a very complex auction.

MR LUTHER: Yes.

MR GRANT: I don't think the problem we saw was a problem with the auction design. Quite clearly, some of the bidders in that auction had the opportunity to reorganise their spectrum within the auction to get more contiguity but didn't take it, and I think the auction allowed for efficient outcomes but I doubt that the bidders made the most of the flexibilities that they had.

DR BYRON: It may have been a problem with the players rather than with the rules.

MR GRANT: I don't believe there was any problem with the rules. I would also say that despite the anecdotal evidence that you have obviously heard, I don't believe that the simultaneous multiple-round auction is complex. I think that with half an hour's tuition most people could understand it sufficiently to bid quite competently in an auction, so I think perhaps the complexity has been overstated.

DR BYRON: Can I change it slightly?

MR GRANT: Yes, sure.

DR BYRON: A different element of the discussion about auctions is the reserve prices and last week in Sydney we had a few submissions with people talking about the number of lots that went at reserve, and of course they would say that, wouldn't they - but the suggestion that the reserves have been set too high. Is there a legitimate point of discussion about whether it is really necessary to have a reserve if the auction is purely to get efficient allocation rather than to raise revenue?

MR GRANT: I suppose the view of the authority has been that it would not be efficient to allocate below a given price. That's arguable. I guess if you go back to the objectives of the act, "maximise the overall public benefit", I don't think excludes some fair return to the community for the private use of a community resource. I am aware that one of those parties who have suggested that the reserve price was too high in the 3G auction was one of the parties whose CEO announced, when he saw our reserve prices, "I think this is proper recognition in Canberra of the changed market conditions." Fairly clearly he was happy when we first announced the reserve prices that they were reasonable.

DR BYRON: The SAT has been compared in some ways to a resource rent tax in the mining industry.

MR GRANT: Sure.

DR BYRON: If there is no rent to be made by using the resource you can't really levy a resource rent tax on it and if, because of the location or because of the physical characteristics of that part of the spectrum, there is not much in the way of profit to be made by having the right to access that spectrum then it may well be that the fair return to the public at large as owners of that spectrum might be $1 or less if there are no great profits to be made out of the use of it. I guess it's a sort of philosophical point of the reserve because, if the reserve is actually more than what the market price would have been, we're indirectly cross-subsidising between the two different lots that the buyer takes. If they're forced to pay a bit more than the full market value for one, presumably it's a bit less than they paid for one that is very attractive.

MR LUTHER: As you say, it is an interesting, philosophical question; in fact some auctions in New Zealand where they have sold spectrum around about $1, or $6 - or numbers to that effect - all we can say is that the government clearly has a policy of trying to seek some sort of return for the use of this resource. The problem you identified with perhaps in some areas the resource rent tax being at or near zero is in fact reflected to some extent in the way we set reserve prices. We do set reserve prices lower in sort of less attractive areas and, indeed, in our apparatus licence fees where there is a very substantial lessening of fees once you move out of the higher demand areas.

DR ROBERTSON: Is this an area where the ACA actually has the say on the

prices?

MR LUTHER: Yes, the ACA does - the authority itself - formally set the reserve prices.

MR GRANT: Once again we can be directed by the minister, but I can't recall, off the cuff, any instance where that has happened.

MR LUTHER: Naturally though the authority does consult with a wide range of people before setting the prices, it is only fair to say.

DR ROBERTSON: Of course.

MR GRANT: But could I just observe - and it comes back to Dr Byron's first question of the afternoon, I think - if we were looking to maximise the revenue there would be far easier ways to do it; notably by constraining the supply, for instance at two gigahertz, instead of offering 60 megahertz paired we could have increased the returns to the Commonwealth by offering only 40 megahertz.

MR LUTHER: Indeed, some consultants suggested to us that was precisely what we ought to have been doing.

MR GRANT: The fact that we did offer the full parcel of spectrum - the same parcel as has been offered in most countries around the world - and the fact that we set reserve prices, which may have been high but the market was happy to pay them, I don't think they were beyond market values, otherwise the lots would have been passed in, or more lots would have been passed in. Most spectrum did sell and many of the lots went for above the reserve prices, so I don't think there was anything wrong with the setting of the reserves there.

DR BYRON: What happens to the passed-in lots?

MR GRANT: Essentially they can be re-offered and we'll do so if and when we get indications that the market is ready for them.

DR BYRON: But if they are small fragments, either in spectrum or spatially, the value of the fragment might not be very much.

MR LUTHER: And its value may be limited to a small number of players who can - - -

DR BYRON: Neighbours.

MR LUTHER: Yes.

MR GRANT: That said, in the Australian 3G auction we saw the entry of a new

player to the Australian market; that was a racom. A racom is not interested in 3G. Its service is more, if you like, a supplement to 3G. It is called "a broadband wireless data service" and, while I know very little about their service and what it offers, I do know that ours was the only auction worldwide in which a raycom was able to bid because of the way we had packaged the spectrum.

Our licences are technology-neutral and that happened to suit a racom. Secondly, whereas in most countries the regulator decided the size of the licence - say, two by 15 megahertz, plus five meg of unpaired - in Australia we didn't. We offered the spectrum in building blocks, licensed building blocks, and let the buyers decide how much spectrum they needed. Now, a racom's requirement was for a very small parcel of spectrum - five megahertz - so I mention this because while it's true that we do have a fragment and while the fragment would be no good to a new 3G mobile player, it may well be suited for other purposes, and the fact that we were able to attract this new bidder to the Australian market - new player to the Australian market, who was unable to bid in any other 3G auctions around the world - I think is testament to the features of the Australian system.

DR BYRON: That it wasn't prescriptive that the spectrum had to be used only for 3G mobile?

MR GRANT: Yes. Australian consumers will be the ones to get the benefit of that feature of our auctions.

DR ROBERTSON: What you have just said reminded me of an article I read last week actually, which was a bit baffling to me and I am technically not able to understand it, but it related to the ABA and this question of what is called "datacasting". Is that similar to racom?

MR GRANT: Datacasting is a wireless - sorry, within the meaning of the legislation it's a wireless technology transmitted in the broadcast service bands. I'm sorry, I can't remember the definition.

MR LUTHER: They would serve broadly, very broadly, similar purposes, but the difference is that the datacasting is really configured for services using existing population of television sets.

DR ROBERTSON: So it's pictorial in its presentation.

MR LUTHER: Yes, although there is no necessity for it to be particularly pictorial but, broadly speaking, that's what you would expect, yes, but it is deliberately designed to hit the typical PAL television receiver, whereas the racom thing is really more aimed at business data applications, I think.

DR ROBERTSON: Because this article was going on about how datacasting had been squeezed out by monopolistic behaviour or oligopolistic behaviour, which is

something you probably don't want to comment on, so I won't ask you.

DR BYRON: Changing the subject quite substantially, I would like to put to you the same question I put to Mr Hayne this morning. In his submission - this is my summary of what I thought he was saying - he suggested that there were three tasks: to finish unfinished business from the earlier reform agenda; to resolve a few problems, either arising from or emerging subsequently to the last set of the major reforms and, thirdly, to move forward, anticipating issues that are just sort of coming over the horizon now, and whether or not you would agree that there are those three classes of issues to address in our review of the performance of the ACA under the act and, if so, if you would have any suggestion to us on how much energy we should be looking at for the completion of the sort of 1990-92 micro-economic reform agenda, or tidying up loose ends from what has emerged in the process, or do we just move on from all that and look only forward to a whole new set of issues that maybe weren't even on the horizon in 92 and, if so, what might those issues be?

MR LUTHER: It's a bit hard to comment specifically without having heard Ian's presentation. I'm not quite sure what he had in mind, but let me say I think that seems like a reasonable categorisation there. I think there is some unfinished business, if you like, some tidying up of the existing reforms. We certainly have argued that, both here today and in our submissions, that there are some issues which still could usefully be addressed.

Looking to the future clearly is something that is very much at the forefront of our minds. I mean, I think the thing that worries me, I guess, as a regulator, when I'm lying in bed, is what happens if there is a sort of major technological shift, which completely undermines our entire rationale for managing spectrum, and there are certainly some futurologists, if you like - people with a visionary aspect - who would argue that that may happen.

I have certainly heard it argued that the era of spectrum scarcity will end and, because of new technology using the spectrum much more efficiently, all of a sudden we'll have lots of spectrum, in which case we can relax and, in which case, yes, I think we would certainly need to think long and hard about what we need to keep out of the existing spectrum management regime and what we can do away with. I might say that people have been saying that for at least, to my knowledge, the last dozen years or so and we're no closer to that age of spectrum abundance yet.

DR BYRON: I guess that also leads into the question of technology neutrality, in that if we know how much it costs to dig a trench and put a kilometre of fibre-optic cable or something, and a point-to-point microwave or something is a very good technological substitute to deliver the same service from A to B. If we are going to have neutrality across the economy it's very important that the allocation and pricing for the spectrum based alternative isn't in any way distorted - either up or down - if we're trying to get efficient resource allocation across all the different ways of delivering.

MR GRANT: We do in fact look at alternative delivery mechanisms and see if we could possibly use shadow pricing as a guide to the setting of fee levels for spectrum. But what we've found to date is more problems than answers and if I might describe, the analogy you used, point to point links versus cable, is quite a good one. When you look at our fees, we charge higher in the cities than we would in regional Australia, but when we looked at the prices charged by carriers for bandwidth on cable, what we found was that the carriers charged low in the cities and high in the bush. If we therefore went for parity with cable prices - we charge high in the cities because there is demand, there is congestion. But the carriers charge low in the cities because they can amortise the cost of the cable so much more quickly.

DR BYRON: But maybe that's telling us something sensible like we're all better off if we use cable in the CBD areas and spectrum in the bush, because the most efficient way of moving the bits of information from A to B varies depending on geography.

MR GRANT: Sure, yes. I don't - - -

DR ROBERTSON: There's no shortage of spectrum in the bush, though, is there? So the price would be - - -

MR GRANT: Except in particular bands on particular trunk routes. That's right. I think even - no matter whether you're looking at the city or the bush, there is a place and a demand for both cable and spectrum. Each has their own place. Even carriers who have rolled out cable in the bush still retain microwave links as redundancy, in the event that a tractor digs up their cable, or whatever it might be. So I still think there is a place for both.

DR BYRON: It seems to me that there is a lot of different ways of delivering content to the public out there and this is not necessarily a complete list, but I was thinking of free to air TV, cable TV, satellite TV, the Web, radio, you know, web TV, web radio, getting race results, stock exchange things over your mobile phone or weather forecasts, and all the way down to newspapers. I mean, there are N different ways of delivering information from A to the public. Presumably what we want is a certain amount of - being non-prescriptive, of technology in neutral about that whichever means works best and all the rest of it. So if decisions about how much you charge for spectrum tends to grossly favour or discriminate against one of those possible modes, then that might be a cause of concern. I don't know - I guess it's come back to the point you were just making about the difference between in the city and in the bush, that there is no simple answer to say that you have a direct conversion factor from dollars per metre of cable to dollars per megahertz of spectrum.

MR GRANT: For many applications there is no substitute - no readily identifiable substitute to spectrum. Earlier this afternoon I referred to these land mobile services, or the radio in taxis and used by courier companies and so on. I can't readily think of

an alternative to spectrum. I guess a taxi company could use a mobile phone for instance, but even that doesn't allow a group call facility, for instance. So there is no readily available substitute and for many wireless applications we've struggled to find substitutes. I think it's easier to talk of substitutes where you are talking about direct to home services, or office based services, where spectrum can act as a true substitute to cable.

DR BYRON: Yes, obviously anything that requires mobility is going to be through spectrum rather than through wires and cables. It may well be that the things that we want mobility for are things that we used to be content to do at home or in the office, like watching TV for example.

MR GRANT: Sure.

MR LUTHER: There was in fact an academic called Negroponte who proposed something called the Negroponte switch which was - his theorem basically was that - precisely for the reasons that you're talking about - sort of in the end all mobile, all sorts of spectrum uses would be for mobile purposes and all fixed delivery would be through wire based means, because there is a greater bandwidth available through cable, et cetera. It's an interesting theory and one that I was quite attracted to at the time, but I've got to tell you that there is still a very big demand for spectrum to deliver services to fixed locations.

DR ROBERTSON: I don't know whether I'm not talked out. How about you? I'm sure lots of questions are going to occur to me on the aeroplane going home but I haven't got any more at the moment.

DR BYRON: I may be flogging a dead horse but on page 9 of the submission you point out that there are approximately 90,000 separate persons, government bodies and businesses spread through every sector of the economy who hold apparatus and spectrum licences. I can imagine that there may well have been times in the past when that number was much greater than 90,000.

MR LUTHER: Indeed.

DR BYRON: Before you went into class licences and so on. I can imagine that - this isn't intended to be derogatory, but for a public service department, one of the claims to fame would be how many customers or how many people do we deal with, et cetera. I was just trying to think of the pressures and the ways that you can respond in terms of the number of people that you have to deal with; the number of organisations that you have to have contractual or serious commercial relations with. Those are all contacts that need to be managed and I guess that takes me back to the earlier points about the possibilities of devolution to hive off areas where the amount of paperwork involved is probably trouble that you could do without. So the question is: do you see that 90,000 clients, or people you deal with, as increasing or decreasing or would you be trying to substantially reduce that by devolving some

functions?

MR LUTHER: I think there's absolutely no doubt that our intention would be to decrease it. You need to remember where we started off, like every country in the world; we had a heavily regulated system of radiocommunications where everything had to be licensed and - speaking with slight exaggeration - that was the overall model. So you are right, we did have many more licensees than that, and we've progressively class licensed significant areas of the spectrum. We did that with CB radios, we've now done it with marine and aviation licences. That number has gone down and we would certainly be more than happy to examine cases where we thought we could reduce that further. We're looking at areas where we don't believe that there is a legitimate spectrum management reason to licence the spectrum, and if we find those we'll continue to recommend class licensing.

It's not always a straightforward case, even with the marine licences. I mean, we got involved in a lot of discussion with interested people in boat clubs and what have you, about whether or not there was any safety of life reason that they needed to continue to be licensed individually. There was certainly a view amongst some of those organisations that there was, in the end. I think we came to the conclusion as did many of them after a lot of talking to them, that no, there probably wasn't. So it's necessarily straightforward, but yes, we'd certainly see that process continuing to lead to a reduction.

We talked earlier on about perhaps devolving licensing activities to the WIA or similar bodies. We've already devolved the setting of examinations for operators very significantly outside the ACA and we strongly are encouraging that.

DR BYRON: The maritime safety people this morning were saying about the consequences of not having a register of call signs.

MR LUTHER: A register of call signs is slightly different to whether or not you need a licence, but we certainly had been talking to them about it - a register of call signs is a - - -

DR BYRON: Yes, but my reaction to that was that if they see a need for it and you don't, then maybe it's they who should be doing it rather than you.

MR LUTHER: I think I'd be inclined to agree with you on that.

MR GRANT: And that, in fact, is the outcome that we've achieved. But, look, in relation to the effort involved in licensing, our charges are developed through activity based costing. The charge for renewing a licence - and that's the major licensing activity - was costed at $20. It then dropped to $11, $9 and I think it's currently $8.80, and is to fall further in the near future. So I would expect that we'll make further gains in that as we introduce web based licensing so our costs are continuing to fall. Licensing is a fairly automated - reasonably automatic process. When we

were talking about the number of licensees, the point we were really making was the difficulty that we've got in consulting, in having effective consultative mechanisms. That really is quite a difficulty for us.

I've been to see some companies and said, "Look, you've got $20,000 worth of licences that you're renewing annually," and their reaction was, "Have we?" They just weren't conscious of the outlays that they were making on spectrum. At the end of the day that company, like so many others, was not interested. The spectrum issues were a bit difficult for them and they didn't want to be consulted.

DR ROBERTSON: We have quizzed you. Do you have any final comments you'd like to make?

MR LUTHER: No, I think you've covered the ground pretty thoroughly.

DR ROBERTSON: Thank you, anyway, for all your time and patience.

MR LUTHER: A pleasure.

MR GRANT: Thank you.

DR ROBERTSON: We will break for 15 minutes or so and then reconvene.

DR ROBERTSON: I declare the session reopened. Now we have the Australian Electrical and Electronic Manufacturers Association. I wonder, when you first speak, whether you'd mind saying who you are so that we can identify you on the tapes, please. Would you like to make some introductory comments and perhaps remind us of the key points in your submission in summary, so that we can go from there.

MR GOSMAN: We can just make some very brief comments. Alex Gosman here. We're addressing you on behalf of the Wireless Technology Forum within AEEMA, which represents major users and major providers of radiocommunications product. It's been a major part of the association for the past 30 years and is probably one of the more representative parts of the industry. Just some very brief opening remarks. It's worth noting that this month marks the 10th anniversary of the Horskotski report, which really kicked off the whole debate about spectrum allocation and spectrum pricing.

Over the last two decades we've seen very much exponential growth in the mobile industry, so it's forecast in about 2002 or 2003 that the world will hit the figure of 1 billion mobile subscribers. It's just worth noting that it's taken 20 years to reach that figure, whereas it's taken over 100 years for fixed line to reach 1 billion subscribers, so that shows the dramatic growth in the mobile industry and that has placed stresses on the spectrum allocation process over the last decade with that growth, and it has by necessity reduced the time frame people have in terms of policy responses and in terms of spectrum allocation.

Generally I think the association believes that the current spectrum allocation processes have been working well. We believe that the ACA has done a good job in administering quite a complex system over a period of significant change but we do have a couple of areas where we think that the stresses of the change indicate the need for policy change into the future. We won't go into those in detail now. We'd be quite happy to take some questions but we have addressed issues such as tenure, competition limits; by necessity, what we believe is potentially some deficiencies in the skill sets within the ACA, which also matches some of the areas where there's emerging skill sets within the industry. We also go on to talk about secondary trading and issues to do with technology convergence, so we'd be more than happy to answer any questions on any of those subjects.

DR BYRON: Yes, the areas that you want to talk about are exactly the ones that we wanted to discuss with you, so that's a good start.

DR ROBERTSON: What sort of stresses do you think are appearing in the ACA or in the act, I suppose, rather than the body?

MR GOSMAN: I suppose, to start off just with the act, we think the objectives set out in the act are broadly acceptable. It's probably difficult to establish a set of hierarchy of those objectives, the structure which they've got, but I suppose we really

believe at the end of the day that the whole thrust of spectrum policy should be towards the greatest utility from the use of the spectrum, and that revenue raising aspects should be secondary to the efficient allocation of spectrum.

DR BYRON: Have you seen any evidence that the ACA would disagree with you on that or is behaving other than that?

MR GOSMAN: No, I think the ACA has always held that. It's been very strong on that. I think one of the major pluses that we would see of the ACA - and I may be speaking on behalf of Graeme. Graeme and myself were both involved in some of the processes involved with the allocation of the two-gigahertz spectrum for 3G systems, and there was an extensive process of public consultation. A number of large committees were established - working groups - and it was a transparent process that allowed those who had an interest to participate and shape what was eventually an approach that the government accepted by and large. I think that's been fairly symptomatic of the way the ACA has approached spectrum allocations.

MR KING: This is Graeme King. I confirm that the ACA always approached this on a technical and administrative basis and was never seeking to construct auctions to maximise revenue from our point of view.

MR GALLOWAY: James Galloway. Another area of possible stress, if you like, in terms of the administration act is the area of product standardisation which comes up from time to time, and that is the stress that is caused when a national regulator within a particular jurisdiction is looking around for the means by which they can regulate global technologies. There are legitimate areas where they might seek to apply regulated parameters to those technologies, but we've noticed in our interactions with the ACA, when it comes to the question of how they live up to their responsibilities under this act in terms of product requirements, it becomes very very difficult and problematic when you're dealing with something which is inherently a global technology.

I think that's certainly been evident in a lot of the technical work that we've done in relation to product standards. As I say, the ACA has generally responded very well to those sorts of pressures and recognised that globalisation does place certain limits on its ability to regulate aspects of the equipment.

DR BYRON: Are you saying there would need to be a very good reason for having an Australian standard that departs from a global standard?

MR GALLOWAY: That's certainly a view that we share with the ACA in the approach to product regulation, and it's certainly something that they've made every effort to adhere to in trying to select the best way to administer the heads of power that they're given in relation to the products we're concerned about.

DR ROBERTSON: Would you accept the priorities that the ACA has used or

would you suggest that there should be a reordering of some of their objectives? You've just said some nice things about them in terms of their global technology and the second place for revenue raising, and the transparency of the process of releasing spectrum and so forth. I just had a feeling that there was a degree in which you thought perhaps some priorities were out of order.

MR GOSMAN: Maybe possibly Graeme is better qualified to talk on this one than myself. Some of what the ACA has to actually operate - some of the conditions that they have to operate are given to them by the minister or by the minister's department, and particularly in terms of say some of the spectrum allocation processes. I know Graeme has got some ideas in terms of time frames. Maybe he'd like to expand upon them.

MR KING: I guess we saw the ACA under the act as given a number of objectives which are in conflict with one another and it has to try and trade-off and balance those. I guess from an industry perspective sometimes we're not always all that happy with the outcome because they're trying to balance - we've got our members with commercial interests. They're trying to balance off national objectives, also kind of social objectives like emergency service access to spectrum and things like that. So I guess at times we're concerned about the time frame from which decisions are actually made.

Radiocommunication standardisation and spectrum allocation globally has been kind of a long sleepy process in the past and it's taken inordinately long periods for things to happen in the ITU. The world has changed a lot in recent years, where much more standardisation now happens outside ITU organisations in bodies run by industry, and they're moving very quickly. Also we see quite a bit of proprietal standards come into position, with comparatively short time frames out of almost nowhere, and making demands for spectrum. It puts a lot of pressure on the ACA to be able to respond very quickly to those, and also to have kind of a licensing and standardisation framework that does have the flexibility to react to those in a very short period of time.

One good example of the proprietal thing was LMDS. Do you know what that is? Local multiple distribution system. Five years ago that basically didn't exist and all of a sudden it became kind of flavour of the month for a long period of time. It's mostly less popular again today than it was even a year ago. But that came up very quickly. The ACA had to react, find spectrum, allocate it and then deal with some unhappiness about the first auction. People wanted more spectrum released and try and fulfil all the demands, so all that stuff requires a very fast-moving mindset and I guess historically the ACA and its predecessors haven't actually been that reactive but we have seen them now start to be able to react in that kind of - - -

DR ROBERTSON: Has the ITU yet made any definitions or proposals? In other words, did the ACA go quicker than the ITU?

MR KING: Yes and no. I think in the end the ITU caught up but the whole process was moving very quickly, with ITU considering about what bands might be recommended globally for these technologies at the same time as regulators, including ACA, around the world were allocating spectrum for it. So it was all happening very quickly, in the sense that the technology being developed - industry looking for a band that looked like it might be globally available and gone for it, then regulators had to try and react to that.

DR BYRON: But if the industry does act that way and gets its act together, then it will actually drive the whole process, and the national regulators and the ITU will adapt or catch up to it, rather than the other way round.

MR KING: Certainly we want the ACA, or whatever it gets called in the future, to be able to react in that way.

DR BYRON: I think the timeliness is really important. I mean, I can see how the old sort of Commander control type of mechanisms were fine 70 years ago when things moved at a glacial speed but, as you say, the emergence of new technology is now - and many of them are of very short duration themselves. They go from a rooster to a feather duster in a couple of years. To have a regulatory process that is still thinking about it when the thing has sort of come and gone isn't going to be terribly helpful. In future the pace of technological change - well, I don't think it's likely to slow down much, is it?

MR GOSMAN: I think we need to distinguish between say the radiocommunications and the standard setting for the actual product. I think you could probably say the actual international standard settings being run by the ITU is under huge stress, as is, for example, the International Electrotechnology Commission in the electrical area. Because of that pace of change and because there's such a growth of industry consortiums, you do have a - Microsoft, for example. You know, Windows becomes the standard sort of - and I think there's probably a lot of doubt that they'll actually ever be able to get back into a position of primacy.

If you look at radiocommunications and the allocation of spectrum, and the setting of spectrum bands into the future, we see a huge advantage that that's done at the international level and that that's coordinated via the ACA indicator in Australia, so that there's a considered view being put forward. I think it's been a big success for Australia in terms of the adoption of new services and industry development that we have followed the international alignment. If you, say for example, compare it to the US case in a number of the new technologies, they're still struggling to work out what bands they're going to be able to introduce new technologies into.

The challenge, as we said in our opening remarks, in terms of the skill set, as Graeme said, the pace of change is such. The ACA, like most Commonwealth agencies, is under extreme financial pressure and so with the pace of change it

probably necessitates more time overseas; more getting out to actually understand it. I would think that they're under pressure to actually be going the other way.

DR ROBERTSON: Is there a role for industry to help out on that? Do you send delegations along with - - -

MR GOSMAN: Do we what!

MR KING: The industry has been a very active participant in the process, and is in Australia and overseas. One thing that's happening in the restructuring of industry we're going through today is expertise is being lost from Australia, more and more, and the level of expertise industry can provide to assist the ACA is decreasing, I think.

DR ROBERTSON: What's this, migration?

MR KING: I think standardisations processes are now being driven by multinationals, largely, and they have groups that - I mean, there may be some Australians involved from various locations. They're part of a global group that's pushing the whole issue forward. For some companies they'll be here, some they won't, so in a lot of areas we have very limited expertise in the country these days, so that's going to become another factor in the future - is that the process is fast-moving.

The Australian participation level in technical standardisation areas is small, in fact almost non-existent in a lot of key areas these days, so it takes time for that knowledge to flow down and back to Australia as kind of an implement of that technology, rather than somebody developed it, so we tend to get, in the industry side, behind the game a bit here as well, whereas we may in the same corporation have people in Europe or the US or whatever who are actively participating in developing the new technologies in the standard but that knowledge doesn't flow back down to Australia quickly.

MR GOSMAN: I think another thing - and it comes back to the growth in the mobile industry over the last 20 years - is that Graeme represents Nortel, it's a fine company; I represent Ericsson. We have different points of view and we have our own delegations coming to Australia and making presentations to the ACA and the department, and at the end of the day we'll have quite significant differences in terms of when technology will be taken up, and what should be the spectrum allocations and so on. That's right across the industry and so therefore, at the end of the day, the ACA has sort of the wisdom of Job in terms of making some of these decisions.

I think by and large they do a very good job but you can see that they're under more pressure in terms of cost constraints and so on. That's been a significant change in the industry. I think five years ago you would have seen the industry having a much greater consensus on many of the issues. Now the mobile industry is so big, it's worth so much to participants, the opportunity to get that consensus which

makes the ACA's job easier is much reduced.

DR ROBERTSON: We won't go into the brain drain.

DR BYRON: We did have some discussion earlier today about the difficulty of retaining enough sort of technical expertise within the relevant Commonwealth departments, given opportunities in the private sector both domestically and offshore, and making sure that the technical expertise that we do have isn't too fragmented or too isolated from the policy expertise. I guess that's one of the things that you're alluding to in the submission about the alleged continuous erosion of expertise out of organisations like the ACA, but I suspect your companies might actually be contributing to some of that, in terms of poaching occasionally.

MR GALLOWAY: I think Graeme's point earlier was that the companies are also experiencing that erosion themselves. It's a fact of Australia's place in the world today that the maintenance of levels of technical expertise which once existed here is no longer sustainable.

MR KING: To build a new network of some kind for radiocommunications network here now, I mean, the initial phase of that is kind of winning the contract for somebody which is probably a marketing and semi-technical purpose, but once it gets to actually building the network there are teams of people now that most organisations have flown in to do the design job, do it in one country and leave, and go and do it in another country. So there's no real need to retain that expertise in a country for a long period of time. The people with the expertise are a smaller and smaller group of people and are more and more mobile basically.

MR GOSMAN: But I suppose, Neil, to follow up: what you're saying in a sense is that the expertise that might be residing is a sort of public good. There's always a risk that at some point in time somebody will decide, I will take that public good to myself, and that is what happens.

DR ROBERTSON: Yes, I don't know whether it's very different actually over history. You know, a country like Australia has always lost people overseas, and others come back.

MR KING: We're not necessarily saying the Australian expertise is going overseas, it's just not being maintained here.

DR ROBERTSON: Yes.

MR KING: The people who may have had the skills and ability to keep the skills are just not being maintained.

DR ROBERTSON: Is that consistent? I mean, I don't want to argue with the experts, but it seems to me that we're in the lead in dealing with spectrum in terms of

trying to get a market system up, the ACA's system of auctions and so forth. Surely we must be providing a least an experimental situation for other countries. I mean, Europe's release of spectrum is chaos compared with ours. They may well come and pinch Australians - and they don't have to be Australian nationals but people working in Australia - to go and help them out and it's just a natural process of the market, it seems to me. I don't know that it is necessarily a disadvantage.

MR KING: I think we're trying to say that for the ACA to do the things it's been doing is in the technical parameters for spectrum auctions and that - the expertise for industry to comment may well not be that readily available in the future.

DR ROBERTSON: It's funny, I expected you to say quite the reverse, which is that the ACA had been losing some of its talent and that industry was going to be able to fill the gap.

MR GALLOWAY: It's by no means certain. Over the last four or five years we've had a lot of interaction with the ACA in the lead-up to the individual auctions, looking at the auction processes, the initial concept of price based allocation and they were very useful, fruitful sessions for both sides and I'm sure that's the case. But changes have occurred over that period and the ability of industry groups, if you like, or even individual companies to maintain that level of interaction and provide the advice and receive the feedback that we have in the past, can't be assured into the future.

DR ROBERTSON: That is something of a worry that I hadn't really thought about. I understand that a lot of people leave, but I thought we were probably doing quite well in terms of breeding new ones, given our - - -

MR KING: I think we were kind of observing from within industry association, the people who contribute to our forums actively, and basically we're seeing fewer participants. Not all of them are people that have left the industry, but their employer may now see in the current environment there are things that are higher priority so they're less able to contribute. We're seeing those kind of decisions being made, so that in our own forums and in putting our own submissions we're seeing far fewer contributors than we would have seen a couple of years ago.

MR GOSMAN: I would have estimated probably two years ago, when the ACA had a working group looking at IMT 2000, which was the title, they probably had a working group of 40 people and that broke down into smaller drafting groups and so on, and I would say now with the state of the industry you'd probably be lucky to get 25 people come along. The company who does go along, that's probably better, but that's just the nature of what's happened.

DR ROBERTSON: Yes.

DR BYRON: On the subject of licensing, the ACA in its submission has talked

about the possibility of a blend or blurring the distinction between apparatus and spectrum licences, and you've talked in your submission about a continuum of licence types. Is that different, or is it consistent, or are you - - -

MR KING: The two are consistent. We see that the ACA needs and has actually in the past created more flexibility than the two licence types have really given. They're just different words saying the same thing. We do have a different view on class licences which we think should be dropped altogether and replaced by rules.

DR BYRON: That was going to be the next question.

MR KING: Yes, replaced by rules, as has happened under the Telecommunications Act. I mean, the term "class licence" is very confusing to most people because they think they actually do get a licence still, and they don't; it's just a standing set of legal rules for a particular apparatus or activity.

DR BYRON: I was going to ask if you could elaborate on the bit about "consideration should be given to a head of power to create rules".

MR KING: Okay, under the Telecommunications Act there are things that do the same purpose as a class licence, so if you're a cabling installer, and install building cabling for telephone use, then these are the set of rules you have to abide by. The similar thing would be here if you're supplying mobile phones to the market then these are the rules the mobile phone - in terms of technical requirements that must be complied with, or if you're a CB radio operator then these are the rules you must - as somebody operating a CB radio must comply with. So it's just a standing set of rules. It's mainly a change in terminology, but it makes it a bit simpler for people to understand because I think if you're not part of the industry the term "class licence" is very confusing. I've seen, in my previous role, people come up with this framed certificate saying, "Here's my class licence," and you think, well, you can't have one.

DR BYRON: But I guess the phrase "class licence" is to maintain the idea that every emitting device or operator needs to be licensed.

MR KING: But the class licence gives that message, but it's not supposed to give that message. It's not that every operator is licensed, it's just that if you're an operator and you come within the terms of the licence, you're supposed to behave in a particular way. It's not that you have a licence as an operator. So that's the kind of problem that it creates, I think.

DR BYRON: But it's sort of playing with words. The intent of what it does is exactly what you said and that's even how it actually works in practice, but for the words you want to maintain the general proposition that all users are licensed, when in fact most of them aren't.

MR KING: Yes.

DR BYRON: Okay, I just wasn't sure about the head of power point.

DR ROBERTSON: We're going back to a pet subject of mine which is secondary markets. We keep talking about having a market system for allocating spectrum in Australia and obviously within the terms of the national competition policy, of which this inquiry is part. Clearly, we would prefer to use a market system. Obviously there are certain things that fall outside that, such as public and community services and you have to find a way of dealing with those. But put those on one side for a moment. Do you think we will get a sensible and effective market system for spectrum in Australia without an effective and operating secondary market?

MR GOSMAN: I think possibly it's one of the areas where in our opening remarks we said that there were potential issues coming up that needed to be resolved, as we moved into more sophisticated use. I think you're right: if we don't get a secondary trading market going where it allows speedy reallocation of spectrum according to demand between users, that will be a point of inhibitor. As we understand, there are arrangements in place that fall outside the radiocommunications portfolio that are potentially quite significant inhibitors to people undertaking secondary marketing in taxation arrangements, capital gains tax.

DR ROBERTSON: Sales tax.

MR GOSMAN: Yes.

MR KING: I think it would be true to say that we haven't become aware of any country in which secondary trading is allowed, where it has become a particularly active activity.

DR ROBERTSON: I think that is probably true.

MR KING: There are some analogies where governments don't interfere as such, but it's kind of access to capacity, so in terms of analogous things, it would be access to wavelengths on an optical fibre and there are brokers now appearing in overseas markets where they actually trade - you know, "I'll give you this wavelength on this fibre between here and here if you give me one on that fibre over there," type deals. So you can see that happening but they don't change the ownership of the entity, just the right to use it. So it's not as if you gave that piece of fibre to somebody; you just give the right to use it to somebody else.

DR ROBERTSON: So they're just exchanges; they're not actually buying it.

MR KING: No, they're just allowing somebody to use a particular part of it; in fact, a particular frequency on it.

MR GOSMAN: I suppose that comes from a situation where they both have a

desire to trade.

MR KING: Yes.

DR ROBERTSON: But, you see, that's one of the things that has been suggested. I mean, some companies have said to us that they tried to rationalise their holdings of spectrum where they were sitting side by side and they wanted to have contiguous bands that were the sizes of the two separate halves and they wanted to bring them together, and that's where the question of stamp duty and capital gains tax came in and apparently was prohibitive. Have you heard any of that in your side of things, because obviously the people we're talking about are the operators rather than the engineers and producers?

MR GOSMAN: Nothing from the operators' perspective.

DR ROBERTSON: No.

MR KING: Yes, I've heard it from the operators and there were recent articles in industry newsletters about that being one issue. I guess in some ways it's an artefact of the type of auction system we run here. The particular problem they've got is that they've got less than optimally efficient lots at the end of the auction. In some auctions overseas they've actually had a multi-stage process where they've actually sorted that out at the end, so that when people finally get the licence allocated they get an efficient allocation, so that this kind of a multi-stage - in the first stage they bid for a certain amount of spectrum, and then there may be another stage where they bid for particular efficient lots built around the kind of size of allocation that they've achieved.

So it's kind of an artefact that the ACA process is very efficient but it's kind of caught up by taxation law in Australia at the end. If secondary markets worked well and there weren't those impediments to it, then it should solve itself automatically. But there seems to be that problem. I think in the past at least one of the carriers suggested there should be some kind of interim period after the auction whereby they could get together and do deals and if they both agreed, then the final licence allocated would actually reflect what they'd agreed as a group after the auction.

DR ROBERTSON: Yes. We understand one of the problems is that the Treasury gets it both ways - gets a cut of each of them, so they get it twice.

MR KING: Yes.

DR BYRON: Is one of the factors inhibiting secondary market the duration of tenure on the life of the - I mean, if we have a 15-year spectrum licence and it's got four year to go or something, at the end of which it evaporates and is going to be re-auctioned, I imagine that would greatly reduce the number of people who would be queuing up to bid for that on a secondary market, whereas if it had indefinite or

perpetual life or something akin to freehold, then people who had a new compelling business model application for that would come in and buy it at any time.

MR KING: I guess I can make an observation. One of the things I can't explain is that I think one of the Western Australian based ex-mining companies bought some radio frequency spectrum that the ACA was due to auction about nine months after they got the licence, so it had very limited tenure on it and they still went ahead and did it. Of more concern to the industry is that as licensees get towards the end of their tenure period they're going to be much more reluctant to invest in the infrastructure and to keep taking it forward, so although we haven't included it in here we've suggested in the past maybe some form of rolling review so people are knowing it a reasonable period out from the end of their tenure, say three to five years, where they are told what's going to happen to them so they can make decisions about whether they invest or not. It actually leads to a more optimal outcome than having this date where you basically say you've got to write all your assets off down to zero because there's now a high risk that you mightn't get the spectrum to continue your business forward and somehow or other trade that off - that you might be able to eliminate that uncertainty.

MR GOSMAN: I think there are two arguments in what you said. Whatever period of tenure you had and you were to the last five years, there still might be people who would be interested in trading into that spectrum and being prohibited by the taxation arrangements, and they might have a different business model that could make that worthwhile to keep on investing. They might take it down market or something like that. There's been a lot of talk for example say with the One.Tel spectrum about how that could be operated as a low-cost carrier network or something like that. You still need to resolve that argument so the people are still given that option, but I think on the tenure, as an association we were probably the body that was successful in getting the original 10-year limit on tenure increased to 15 years, so we generally had argued for quite lengthy periods of tenure.

MR GALLOWAY: We'd have to say that as far as tenure is concerned we don't believe there's any correct number, whether it be 10, 15 or whatever, and we've always looked at supporting extended periods of tenure, and there has been a whole series of reasons associated with that, and we still I guess are of the view that tenure should be a bit more open than having an arbitrary number attached to it, and taking more account of the useful life of the assets and services that are going to be delivered via those assets, and even to some extent, when we were particularly concerned about the hype surrounding the auction process, be cognisant of the payback period on the investment that's going to be made. We had some real concerns about just the hype and interest surrounding the speculation about revenue during a number of the auctions.

MR KING: I guess the other kind of conflict we have as an association is that tenure, if it becomes too long and too fixed, then you lose the flexibility to replan the spectrum to another need, so if you've got a spectrum that's full of a lot of different

users and you have something like mobile phone services coming in over the top, as we've seen - if you have a whole lot of people with long tenure, then it's very hard to change the use of that spectrum and reallocate it. So somewhere in between there is a very difficult balance to be achieved.

MR GOSMAN: I suppose this is also one area - because we haven't seen it happen yet, but it has the potential for the conflict between the objectors of the act, which is the spectrum efficiency, and the revenue raising.

DR BYRON: Yes, but if you have long-term licences which have the nature of property rather than the nature of a permit, and those licences are tradable, then presumably a new operator with a great new technology and a superior business model can come in and buy up licences, aggregate and pay them to move or whatever is necessary, and the market will deal with all that.

MR KING: I think that's kind of the theoretical - we've seen in the US a number of attempts now to have industry clear the spectrum after an auction or in some bands have an industry based clearance system for some unlicensed bands, but they've required a lot of regulatory support to make them happen - about what the maximum price might be and things that stop the last man on the block getting extortionately high prices before he gets it and things like that. I saw examples in their PCS auction when people were talking about two fixed links, three fixed links, for a fire service or something, and they wanted complete brand-new state of the art equipment and another band, plus $10 million, and these were licences they were paying a thousand dollars a year for.

So there are a lot of difficulties that when it comes to moving people that the person that you want to move sees no benefit in moving, they've got a system that works fine, and the cost of moving them compared to the cost of their licence fee can be a hundred times different because you've got to put a whole new system in, and if it's in a different frequency band you've got shorter distances so you've got more base stations and everything else you've got to try and link together, so the costs really go up dramatically and it's very hard for industry to necessarily resolve those issues.

DR ROBERTSON: There are problems with this on both sides really, aren't there, because you suggested that one of the things that should be taken into account is the investment payback period, the duration of the equipment and so forth, and that sort of assumes a degree of certainty that none of us have? It could be that just round the corner there's an invention that's going to wipe out that equipment in five years, and let's assume that it's twice as efficient, and so you put that in and then you've got the spectrum that you already held, so you've got to be very careful about trying to tailor the duration to the equipment and the current use when the future use may be quite different. I don't know how you handle that. I'm just putting that in as another factor.

MR KING: I think we were trying to deal with this kind of idea, rolling reviews,

where all the time you're looking at five years after the licence is issued or three years. You have another look and just see what's happened in the meantime.

DR ROBERTSON: An adjust the licence fee.

MR KING: Yes, maybe adjust the licence fee, or certainly give them some idea about what's going to happen at the end of their licence, so if they've got a seven-year licence, in say three or four years you'd do a review and say, "Well, from what we can see, looking forward, we'll renew it out. It will be 10 years now," and then we'll do another review in three or four years and have another look and just see how the scenery has changed.

MR GALLOWAY: An inherent part of a rolling review is constantly asking this question, "Is there a better alternative use for the spectrum?" and that really is a public consultation mechanism. It's got to take into account the interests of service providers, end users, equipment suppliers, perhaps national interest objectives, a whole range of factors, but it's not a question that's left off to the side. It's got to be an active part of considering terms of licence.

DR BYRON: I guess I was just thinking that if the licences are all on the market, the market is revealing that sort of information all the time. I keep coming back to the land analogy, but if there's a certain type of real estate that's half the price of everything else, people will start asking the question, "Well, maybe I should put my factory down there, where the land is half the price." The system itself generates the information that encourages people to look around and it also makes those who are owning particularly valuable assets fully aware of it, and if I'm sitting on a property in the central business district that's worth millions and I don't need to be there, maybe I'll sell it and go somewhere else.

MR KING: I don't think we've seen that in radiocommunications. We've seen people sitting on particularly valuable assets that have done everything possible to stay there rather than move, and you can understand that. A lot of them may be government agencies that have trouble raising funds for new equipment. They've got an asset that may be largely depreciated that works fine for their purposes and they're not going to move unless somebody pays the full costs, and the full costs aren't just what the spectrum is worth. As I said, there's all the infrastructure costs. They may want to have a way of replacing their service.

DR BYRON: That point did come up a couple of times this morning and also last week in Sydney - that if you're a government agency, what's the point in selling off some surplus spectrum if it just reduces your budget allocation next year? You might as well sit on it. And so those rules of getting the maximum out of your assets that apply in a private-for-profit company may not apply so well if it's government. As the ACA told us just an hour or so ago, a very large number of the apparatus licences are actually in the hands of government and are nonprofits, 40 per cent or something.

MR KING: But even if you are a full profit organisation, if you've got a link of some kind that meets your needs but you could have another technology that allowed you to get four times as much data up it, which would improve the efficiency of the spectrum, we wouldn't do it because you have no need to do it, and there's no financial incentives to do that really in the system. For a lot of these things I think the licence fee as compared to the cost of upgrading are so far apart that there's no pressure to move.

DR ROBERTSON: What about the auctions? Of course you don't get involved in the auctions so - - -

MR GOSMAN: I think we do in the sense that we're involved in a lot of the ACA working groups.

DR ROBERTSON: Okay - in other words, setting the sort of reserve prices and things.

MR GOSMAN: Well, not the reserve prices but more so we provide advice on the lots and for example, taking a company perspective, we had certain views on what was - just say it was two gigahertz. We had certain views in terms of what should be the minimum spectrum allocated to the carriers to provide an efficient service, and our views differed from other people's views, so we were involved in that aspect of it - certainly not in the reserve pricing, no.

DR ROBERTSON: No. Well, we haven't been able to wheedle that out of ACA how they set those.

DR BYRON: Your two criticisms, as I understand it from the submission, are about the reserves and about the bidding limits.

MR KING: Yes, the competition.

DR BYRON: Do you want to elaborate a bit more on the competition limits?

MR KING: I guess our concern about the competition limits is that it's not a transparent process. The minister sets the limits on the basis of advice from the ACCC, which is taken in the context of the normal Trade Practices Act type criteria, advice from his own department and from others, and makes a decision to the ACA that goes or can go far further than the Trade Practices Act and be looking at driving other objectives like basically guaranteeing opportunities for new carriers, et cetera, rather than incumbents, and I guess we feel now the industry has got to such a highly competitive state with a reasonable number of carriers competing against one another in a market the size of Australia, the need for decisions that go outside those that might be made under the Trade Practices Act has gone.

DR BYRON: We've had suggestions there are a few cases where the ex ante limits that were opposed were far stricter than what section 50 of the Trade Practices Act would have imposed or things that were ruled out before the auction were subsequently permitted after the auction when the TPA rules were applied, in which case why didn't we just apply them at the front?

MR KING: It just provides a degree of uncertainty and a kind of inconsistency in the framework.

MR GOSMAN: I think if you look at the areas of policy convergence and so on, a lot of the arguments that the Productivity Commission has brought up in its telecommunications review are equally applicable to what we're discussing here in terms of where do you put in regulatory intervention. Do you try to keep it to the bottom X? There's costs involved with regulatory intervention and I think if you look back in hindsight it probably would be doubtful that people would have put competition limits in where they did put limits. And I suppose, if we maybe just go on with the convergence, that sort of leads on to the other point that from an industry perspective where you have concerns that you see spectrum treated differently for telecommunications, then treated differently for broadcasting and different agencies having responsibility for the administration and increasingly that has costs and I think increasingly that needs to be looked at in terms of having convergence and how it's dealt with at the policy level.

MR KING: Yes, certainly when the different pieces of spectrum are used for exactly the same purpose. It's very inconsistent.

DR ROBERTSON: We did actually write the broadcasting report, you may remember, 18 months ago.

MR KING: We thought we'd give you a free kick.

DR BYRON: Just coming back to the bidding limits, the constraints, do you think that would work well in areas where there's no existing market such as 3G, or maybe that hinges on the assumption that 3G mobile is going to be different from 2G or 2 and a half or something else? Before you can impose these sort of competition limits in a market, you have to define what is the market we're dealing with, and I guess for 3G a decision was made that this is in fact a completely different service from what was there before.

MR KING: Well, if the judgment was made on that basis, it was mostly wrong, I guess, because 3G can be provided in all the 2G spectrum equally well, and there are other bands, so to treat one lot of spectrum as just for 3G and saying, "Well, we'll make a decision on that and ignore all the other bands," is incorrect, because 3G exists or will exist in the 1800 spectrum, 800, 900, so it will exist in a lot more bands, so it is actually just part of a market that exists already, I think. Its main difference is that it provides higher mobile data speeds, but the same capabilities will

be provided in bands that have already been allocated. But I do recognise under the Trade Practices Act the market is one of the hardest decisions to make.

DR BYRON: Yes, and to find out to what extent it's a substitute product or an equivalent product.

MR GOSMAN: That was part of the difficulties that the ACA had at the time: if somebody wanted to be a first mover, they'd really have to go for the two gigahertz band, but then different people had different views on when other bands would be open. So the ACA again had to get to the bottom of that. That would have fed into the ACCC in terms of their considerations and the department.

DR ROBERTSON: You've got here compensation.

MR KING: Yes. We have come to this issue a couple of times now. One of the problems with planning the spectrum is that you have incumbents in a lot of the desirable bands, particularly at wave frequencies and competing uses, and if you want to change the use you have to move incumbents out. I think we raised compensation here, although we did recognise in the fuller version of the paper that there are a lot of problems with that. In fact, we'd failed to identify as a group a scheme that actually worked.

But at the same time it is an issue that, if you don't have some way of making sure that licensees are well aware of the potential for being moved out of their band, you don't give them a reasonable time to write off their investment, then compensation is always going to be hanging around there as an issue. It's been a major impediment and issue quite often to ACA decisions to change the uses of bands, even though there are long-term notification periods and planning periods. I don't think people took them too seriously until the last couple of years.

DR ROBERTSON: Maybe they will in future.

MR GOSMAN: For example, only two years ago during the ACA working group we had one of the fixed links operator saying he thought it wasn't proven yet whether mobiles were a technology of the future or not, so that was the extent of some of the arguments that were being made. But I think it's also probably our view that all the major auctions are going to have significant implications for the fixed link operators or broadcasters probably being concluded for a period of time.

DR BYRON: Would it be fair to say that the length and duration of the existing licences strengthens the hands of the incumbents and actually makes it more difficult for a new entrant with a new technology to come in, and likewise, reassuring the incumbents that if they're bumped they'll get compensation. It's also going to make it more likely that they'll stay and more expensive or more difficult or more time-consuming for the new entrant with the new technology to come in. So while there may well be very good cases for offering longer duration and compensation for

an incumbent who's moved, don't both those things have the effect of making it more difficult to upgrade to new technologies as they come through?

MR KING: Yes, I agree. They do make it more difficult. The role compensation may play is where there's a change that nobody has anticipated, and somebody who's been told they may have an extended licence period suddenly comes under pressure to move because there has been such a rapid change that some kind of tool may be beneficial in that area. I agree that in most circumstances it creates more problems than it solves most likely, but there may be circumstances where it is a necessary tool, just because there is such a rapid change. Basically somebody is going to get a shorter-term notice to quit than their licence period, so maybe if somebody has just had a five-year licence issued and suddenly found two years down the track that the best use of that spectrum as evaluated by the ACA for the Australian community is to use it for something completely, in that case having a compensation tool would be very useful.

DR BYRON: Or have a marketplace where you sell it at full market value and move onto the next thing. If I buy a farm and somebody decides it's a great place to put a factory, they don't have to compensate me. They just buy the thing.

MR KING: I think we're yet to see that kind of thinking take place in radio frequency spectrum, in the thought that you could actually use it as an asset and trade it around and be allocated it. People seem to largely treat it as a sunk cost. They've got it, they're using it, and they forget about it now. That's not an issue until there's a change which we just have to do and we'll just leave it to do what it is.

DR BYRON: I don't want to sound like an ideologue on this but markets reallocate assets from people who value them less to people who value them more all the time, whether you're talking about real estate or cars or works of art or anything else. That's basically what markets do is change the ownership to people who value an asset more, and we're talking about the right for access to spectrum as an asset, as a class of property, and yet we seem very reluctant to use the way that we deal with transfers of property of all other kinds.

MR GALLOWAY: The spectrum itself isn't all that valuable. It's the service that you can deliver over that spectrum. You're acquiring a piece of spectrum. You've got capital costs in order to deliver that service. It may not be as readily transferable an asset as perhaps you're suggesting.

MR KING: Or it may be that until recently, in the recent auctions and the high prices paid for spectrum, we never saw it have an intrinsic value so high that people did think about using it efficiently and whether there was a better use for it than they were making of it. So it may be that there is a change of thinking to come. But I think we're saying we haven't actually seen it so far.

MR GALLOWAY: We haven't seen it at all.

DR ROBERTSON: No, we come back really to this question of whether there's a market, even an incipient market I guess. Are we still really living in an age of regulation rather than in a phase where we would hope that the market would efficiently distribute spectrum across all the activities?

MR KING: I haven't personally heard of any market in spectrum in Australia so far, apart from licensees from auctions trying to get their lots lined up to be more efficient to deploy. There's been the odd block of spectrum people sold and sold-on, so we saw bits and pieces from various auctions, but there's been nothing where people have just sold off apparatus licences to other people and things like that that I've seen.

DR ROBERTSON: In which case we're still living in an age of regulation almost.

MR KING: Yes, I think so.

MR GOSMAN: I think there's also the element to sort of come back to Neil's analogy. You talked about land for a factory. I think it's more like you're putting a highway through, and it's a patchwork quilt, so you've got a whole lot of people you actually need to remove rather than one, and then you've got also the issues of interference and so on. So even if you can move it to a market base, you're still going to need some degree of administration, I think, to nut out some of those aspects.

MR KING: Sometimes you've got the problem that even if you could move all the occupiers of a piece of spectrum, you've still got to go to the ACA and get them to change the technical arrangements of that piece of spectrum for you to be able to use it the way you'd like to use it. So if you want to change its use efficiently, you're going to have to go through that process as well.

DR ROBERTSON: Depressing thought - that is that the market is not as close as we thought it was.

DR BYRON: At the risk of belabouring the point, one of the points you make in the submission is that there shouldn't be sudden unexpected changes in fees, and I think I know the example that you're probably thinking of - the 170 per cent increase. But that may have been a very dramatic overnight adjustment to where the value of the right to use that spectrum had been increasing gradually over five years or something, and it may well have gone from a low initial value to being fully priced, approximately, but it shouldn't have been done overnight perhaps. Now, if there had been a process that continuously reveals what is the value of that, then you don't get nasty sudden surprises and, again, one of the things that a market does is continuously reveal what the going rate is. So the people who held those licences would have been quite well aware of the gradual increase in the value of the right to use that bit of spectrum as the auction price and everything else was going up, so it

might not have been such a nasty overnight sudden shock to them.

MR KING: I think there have been other examples, and during the 90s I'm aware of where similar things have happened. But they also indicate that the kind of pricing mechanisms aren't giving the correct signals that they can give to people at the same time. Some of our members mightn't like their - most probably prefer their fee to go up one step having had four years of no price increase, but it's not in terms of market efficiency signalling to the people that have got that spectrum what the true value of it is. In the regulatory framework it's a missing signal.

MR GOSMAN: As long as there is flexibility for it to be adjusted both ways.

DR BYRON: Yes.

MR GOSMAN: Because given market conditions at the moment and the rationalisation within the mobile industry, potentially in some areas of spectrum there would be less demand than there was a couple of years ago.

DR ROBERTSON: And some of it is just sitting around doing nothing anyway.

MR GOSMAN: Well, a lot of it is sitting around.

MR KING: Then the pricing signals may be all wrong - worth far less than everybody thinks.

DR ROBERTSON: I think they were wrong when they did that. You three gentlemen are all involved on the equipment side. How do you see the competition between cable and radiocommunication?

MR KING: To a large extent they're substitutable. You can do a lot of things, but I mean the wireless side, it's main advantage is portability in urban areas anyway. That's because the advantage is you can have a mobile roughly equivalent service. Cable has much higher bandwidths than mobile can ever hope to achieve, but then there's a limit to what the individual wants anyway in a particular circumstance, particularly if they're moving around. Once you get into rural areas, then it becomes a different question altogether, because radio has lots of advantages about wide coverage, and then satellites come into play as well, and they have very wide coverage and they're very efficient at serving either a lot of people with the same service or disperse users with their own service. So to an extent convergence means they're substitutable but in certain circumstances one will be more preferable than another.

MR GOSMAN: So we would argue that circumstances where you're time dependant or location dependant will favour mobile technology, and a lot of the hype around 3G would have had people equate 3G - you would do on your phone what you would do in your desktop computer, and that was never the case. You were

never going to go to the Encyclopaedia Britannica on your phone.

DR ROBERTSON: I was hoping you were going to disagree, one of you at least with the other two.

MR KING: We may see people browsing the Internet in 3G or corporate Internets as a business proposition, I think, but you won't see the normal consumer busily doing that. But corporate Internets for sales, marketing, logging, inventories, things like that, it would be very efficient to do for that. But there will always be a price premium in the foreseeable future for having a mobile service over a fixed service.

MR GOSMAN: And of course the technology of a handset will change so much probably. The handsets that will come down in five years time we probably can't even grasp what they'll be liked, and the influence that they will have and the change in people's behaviour - I think before to Neil I gave this example: Years ago I went to football in Melbourne in the early 1990s and the phone rang during a game, and you got abused. People called you a wanker. Yet if you go to a grand final now, the premier event, people are on their phone the whole time. You know, 10 years ago you would say, "Why would people do that?" and it's because they can.

DR ROBERTSON: I'm still 10 years behind then.

DR BYRON: The issues of technical neutrality across media or modes of delivery - whatever we call that - and also between different forms of content are going to exercise us a bit, I think particularly with convergence between broadcasting and datacasting and what you'll be able to get over your mobile phone in terms of sporting results and news and weather and stock exchange and all the rest of it, then it becomes very important that these things are not predetermined by regulators or that the prices that are charged for spectrum shouldn't greatly discriminate for or against use of fibre optics or something else. I mean, I don't think any of us know which way the market is going to take the technology over the next five or 10 years, but I think the people who are developing it probably are better placed to guess and to take the risks and the consequences than we bureaucrats.

MR KING: Agreed.

DR ROBERTSON: Do you have any more questions, Neil?

DR BYRON: That last comment should have led up to a question about convergence but - - -

DR ROBERTSON: It's getting near the end of the day.

DR BYRON: A comment without a question, yes.

MR KING: I think if you looked a little bit outward to the future you'd say that the

Internet is going to provide TV type experiences that are going to be the same as you get over free-to-airs, except that the user is going to be paying in a different format most likely; not paying by watching but maybe paying by - paying. Depending on the market demand they may have access to far more material and far more tailored material than they used to. I think it's more a timing issue now rather than a technical issue, but I think people can demonstrate a lot of this stuff now, but it's a matter of the market building up to sufficient size and proving that those types of services do generate the income to pay for the infrastructure and the R and D that supports the infrastructure.

DR BYRON: That was what I guess I was just thinking: whether the technology development has got ahead of the business model of what the customers actually want. There may well be things out there that are technically feasible to deliver now, but whether people actually want it enough to pay the right price is - maybe it's a question of the demand catching up with the technology capacity.

MR KING: Yes, well, the technology always goes through several stages, first of all where it's directed at corporate markets who are willing to pay a lot more, and then you go through a kind of commoditisation phase where you reduce it down basically to a very low cost where it becomes a normal consumer driven product that is competitive with other technologies. There are kinds of steps in demand and you have to wait for the improvement of each stage. They can all be done, it's just a matter of finding whether consumers are willing to front up and pay for the services.

In different countries the consumers have had different histories of paying for them, so you might suggest that some of these things might be more successful say in the US than Canada, where they have a long history of cable TV and fronting up with money rather than a country like Australia where there has been less of a history of doing it so far. But a lot will depend on the services that are provided - is my belief. The consumer couldn't care how they get it; they'd like to get it as cheap as possible and with a performance that matches their expectation, but it's really going to be the types of services they get rather than the technology that determines its success.

DR BYRON: Does that mean we can anticipate what the next wave for the consumers is going to be by looking at what's being introduced to the big corporates now?

MR GOSMAN: I think it gives a hint. I think a lot of it also differs by country, because there are different socioeconomic habits and so on. But iridium is a good example. If you went back 15 years ago, that was a technology everybody said couldn't fail and just no-one forecast the growth in cellular, and it ended up being written down to nothing virtually, given away.

DR BYRON: Was it the docomo - the Japanese one at the moment. I can sort of understand it being a great hit in Japan but I'm not sure it would be an equally great hit here at the moment. But you were saying about different consumer markets.

MR GOSMAN: I think if you look at Japan, where people typically have three to four hours commute, a lot of the functions that are being very successful, the games and so on - whereas in Australia and in Canberra particularly we don't have that commute, but that doesn't mean we'll have a slower take-up, it'll just mean we'll have something of a different nature.

DR BYRON: A different application of it.

MR GOSMAN: Yes. Hutchison signed up the cricket side - well, you know, cricket in Japan - you would die a death, but - - -

MR KING: With broadband services the countries that you see have more success are ones that are starting to tailor services to make them kind of an essential for life in a sense. Korea has got amongst the highest take-up of broadband in the world, per head basis, and that is largely because education is provided over broadband, and you're seen as depriving your child if you don't have broadband access.

So they'll have no dial-up ISPs by the end of the first quarter next year, you'll only be connected to the Internet by broadband. But then, you know, all levels of school do their homework online, they have Web competitions, they're teaching the elderly and people who normally wouldn't come in contact with PCs and the Internet, how to use it. If you're doing extra training as a worker you may be using chat rooms on the Internet for tutorials and all those kinds of things to make use of it and that seems to produce a culture which is hard to predict - which countries will do that and which ones won't - but they've found something that works there and so broadband is becoming just a standard - - -

DR BYRON: Way of life.

MR KING: - - - thing for them to have, yes.

DR BYRON: We haven't asked you anything about satellites.

MR KING: They're satisfactory.

DR BYRON: Okay, that's that.

DR ROBERTSON: Have you seen the ACA's submission that's on the web site? Because you're talking about this idea of a continuum of licence types and they have a proposal that they refer to as generic licences, which would be the same licences with different conditions attached, so I just wondered if you'd seen their proposal.

MR GALLOWAY: We've had several discussions about licensing arrangements. Everyone accepts that there is a level of complexity associated with the existing licences and it may be possible or feasible to have one licence to which a range of

attributes could be given depending on what we're talking about. We've discussed that with the ACA in the past at various times, but we've never really sat down and tried to fully develop it and work out just what this unified licence system would look like. We certainly alluded to it in the fuller document that we will leave with you, but I just have to say it's something we need to give more thought to. It's probably best done in consultation with the ACA.

MR KING: I think the main advantage the ACA have with generic licences is that it gives the flexibility to have licences with lots of different conditions, if you like, under a generic licence. I guess the advantage of giving them different names is that you get a bit more information from the name about what it may actually involve. So we all know an apparatus licence is for a piece of apparatus of particular frequency and particular location - it's pretty straightforward - except there are exceptions to that.

A spectrum licence is for a defined piece of radiofrequency spectrum and a particular geographic area and we know that's quite different to an apparatus licence. With one generic name it may take a bit more careful inspection of each licence to work out what it is actually applying to.

DR BYRON: Yes, but you might end up with licence type 1 through to licence type 257.

MR KING: Yes, and we're saying that having that kind of continuum is a good thing, and I don't think we care whether it's generic or whether - it's a generic licensing power that allows them to create lots of different licences. I think that's the kind of solution we'd see, rather than having radcom licence type - radcom licences. The only difference between them is very complex conditions which may make them behave quite differently.

DR ROBERTSON: Thank you very much, gentlemen. It's been interesting to get another perspective from the equipment side. Thank you very much.

MR KING: Thank you.

DR ROBERTSON: I can declare the meeting closed for today and we will reconvene tomorrow morning.

AT 5.02 PM THE INQUIRY WAS ADJOURNED UNTIL
TUESDAY, 30 OCTOBER 2001

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