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HOUSE OF REPRESENTATIVES

STANDING COMMITTEE ON COMMUNICATIONS, INFORMATION TECHNOLOGY AND THE ARTS

Reference: Wireless broadband technologies

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HOUSE OF REPRESENTATIVES

STANDING COMMITTEE ON COMMUNICATIONS, INFORMATION TECHNOLOGY AND THE ARTS

Wednesday, 10 July 2002

Members: Mr Pyne *(Chair)*, Mr Hatton *(Deputy Chair)*, Mr Baldwin, Mr Ciobo, Ms Grierson, Mr Johnson, Mr Pearce, Mr Sercombe, Mr Tanner and Mr Ticehurst

Members in attendance: Ms Grierson, Mr Hatton and Mr Ticehurst

Terms of reference for the inquiry:

To inquire into and report on the current and potential use of wireless technologies to provide broadband communication services in Australia, including regional Australia, having particular regard to the following:

- The current rollout of wireless broadband technologies in Australia and overseas including wireless LAN (using the 802.11 standard), 3G (eg UMTS, W-CDMA), bluetooth, LMDS, MMDS, wireless local loop (WLL) and satellite;
- The inter-relationship between the various types of wireless broadband technologies;
- The benefits and limitations on the use of wireless broadband technologies compared with cable and copper based broadband delivery platforms;
- The potential for wireless broadband technologies to provide a 'last mile' broadband solution, particularly in rural and regional areas, and to encourage the development and use of broadband content applications;
- The effect of the telecommunications regulatory regime, including spectrum regulation, on the development and use of wireless broadband technologies, in particular the Radiocommunications Act (1992) the Telecommunications Act (1997), and Parts XIB and XIC of the Trade Practices Act:
- Whether Government should make any changes to the telecommunications regulatory regime to ensure that Australia extracts the maximum economic and social benefits from the use of wireless broadband technologies; and
- Likely future national and international trends in the development and use of wireless broadband technologies.

WITNESSES

Committee met at 9.46 a.m.

ACTING CHAIR (Mr Hatton)—I declare open this meeting of the House of Representatives Standing Committee on Communications, Information Technology and the Arts. Today the committee will take evidence as part of our inquiry into wireless broadband technologies. In simple terms, broadband allows for high-speed data transfer, providing vastly improved Internet access with a far higher level of interactivity. Broadband also enables services such as digital video on demand, simultaneous phone and data, and a range of applications and content that can reduce the cost of doing business and delivering government services. Wireless technology can be used to provide broadband services over the airwaves, thereby providing unwired networking and online services, mobility and convenience for business users, an alternative to existing wired networks and a new range of specialist applications.

The committee is examining current wireless broadband technologies in Australia and overseas and the likely future national and international trends in their development and use. We are looking at the interrelationship between the various types of wireless broadband technologies and examining their benefits and limitations compared with cable and copper based broadband delivery platforms. The committee is particularly interested in exploring the potential for wireless broadband technologies to provide a last mile broadband solution in rural and regional areas; that is, to connect businesses and households which are currently unable to receive broadband services. We are also looking at how wireless technologies can encourage the development and use of broadband content applications. In addition, the committee is examining the effect of the telecommunications regulatory regime, including spectrum regulation, on the development and use of wireless broadband technologies.

[9.48 a.m.]

JOHNSON-BADE, Mr Kevin, Managing Director, Midac Technologies (Australia) Pty Ltd

ACTING CHAIR—I welcome Mr Kevin Johnson-Bade of Midac Technologies (Australia). Although the committee does not require you to give evidence under oath, I should advise you that the hearings are legal proceedings of the parliament and warrant the same respect as proceedings of the House. The giving of false or misleading evidence is a serious matter and may be regarded as a contempt of parliament. I do not think this committee has arrested anyone yet! Do you wish to make some introductory remarks before we proceed to questions?

Mr Johnson-Bade—Thank you very much for allowing me to come along. What I am here to talk about typifies a real situation in the bush. We are an R&D company. We were previously located in Sydney. Some nine years ago, we made the classic lifestyle choice, which communications should allow a technology company to make, to move to a new location and we shifted to the foothills of the Barrington Tops in the upper Monkerai area. We encountered numerous problems with communications then. We required three lines initially: one for voice, one for fax/data and another for data. After a three-year battle with the providers of the service to achieve satisfactory use of the lines for the purposes for which they were provided—modem communications and so on—we had to then shift to the location of Dungog, which was the nearest town.

At the time, the shift improved the situation in that we could achieve the kinds of communications we had been accustomed to. In Sydney, other people could use, say, modem communications. Unfortunately, we are now faced with a similar situation with the increasing importance of broadband communications to our business. I might just expand on what that is at the moment. We develop leading-edge technology and e-commerce software—online technology. It drives what we call gateway sites. A gateway site is a site that uses a common infrastructure such as ours to provide advanced e-commerce capabilities, particularly to SMEs; because of the common infrastructure, they gain high functionality at a lower cost. At this point, we have some 40 gateways running. We do the main regional gateways—for business and tourism in particular—for the Hunter region, the North Coast region and the Northern Rivers area. We have some 4,000 businesses using the technology and around 11,000 business instances in the different gateway sites.

We are currently carrying on the business in Dungog. Dungog is a town that has been adversely affected, initially by the end of the timber industry and more recently by deregulation of the dairy industry. I firmly believe that, with regional situations such as Dungog, uncapped broadband capabilities could provide enormous economic stimulation to the area. We are primarily a small R&D unit, so we are not a big company at this stage, but we have plans to expand. Being developers of technology, we provide a high level of local employment in IT. We provide local traineeships and so on, and we have produced a culture in the area that Dungog can excel at IT, not just try and keep up.

Our problem at the moment—and it would be great if broadband or similar technologies could resolve it—is that, whereas five or six years ago we had to shift our location from

Monkerai to Dungog in order to achieve acceptable communications infrastructure, we now face having to shift from Dungog to Maitland or perhaps Newcastle. So the town of Dungog will lose the opportunity of employment offers from us. Also, many other companies could relocate for lifestyle reasons from the likes of Sydney to an idyllic place like Dungog—which is a World Heritage area near the Barrington Tops—and we could have a major industry there if we had good infrastructure, whereas the reality is that there is no viable broadband facility available. At this point in time, the only thing we could look at is bidirectional satellite, whereas what we are really talking about is comparable technology at a comparable price. We do not feel that we should have to pay a lot more for less in the country, which is basically what we have been doing. So any technology that can resolve that problem would be very beneficial to Dungog and many other similar towns around Australia.

Although a great deal of our problem has been with Telstra, that is really because they are the main service provider. I believe that government policy could be changed so that, rather than being reactionary to a situation such as ours, we could plan a bit ahead and stop the slide that is occurring. We are seeing a trend where we have shifted a certain distance; now we have to shift an even greater distance to get acceptable services. In the future, when we have communications systems we have not even thought of yet, will we inevitably have to shift back to Sydney?

Despite Telstra's claim, supported by the government, that services have improved—and if you look at it in an absolute sense, yes, there is satellite communication available—when you look at it in a comparative sense and compare the real situation for a business regionally located with that of one in a city, the problem has worsened. That is the essence of what I have to say. With appropriate legislation, as we move forward with the prospective sale of Telstra, if there is some kind of funding arrangement set up to fund businesses which are providing employment in regional settings and which can prove a need for their survival for broadband or similar evolving technologies, I feel that there should be a government subsidy or some kind of grant that would be in place, like a B-RAP. We have a D-RAP in place, a regional assistance plan for the dairy industry. I think there should be a broadband assistance plan to encourage not just businesses like ours to stay where they are currently located but to encourage others to relocate to such locations.

ACTING CHAIR—How many people does your business employ?

Mr Johnson-Bade—There are seven of us in total—the proprietors, and we employ five others. Along with the gateway technology that I described, we have developed a technology designed for online call centre application. Our plans have been to set up a call centre facility in Dungog as well that would initially employ around 25, expanding to potentially a large number because such a facility with broadband being available can service clients worldwide, not limited to the telephone system when you compare it to a traditional call centre.

ACTING CHAIR—Given the nature of your business, it is ironic that the key problem you have is telecommunications, because you are dealing in e-commerce and the gateway products are necessary for that. I suppose, luckily, you do not have to be online to provide those. Do you provide those in a shrink-wrapped fashion?

Mr Johnson-Bade—No, it is an ASP. Midac has been a leader in a number of ways. Over the years, we have released a number of technologies that have led the world in some instances, and

we have been using an ASP model for probably four years now in delivering this technology. Naturally, our server cannot be housed in Dungog, which does present us with a problem. It is actually located—and I see Soul Pattinson will be speaking here later—at the NBN offices here in Newcastle, which presents us with problems, particularly if there are server glitches and so on that occur. It means that the service we provide to those many thousands of businesses—which, in essence, we are helping in their regional context to take advantage of e-commerce—is compromised because we cannot locate the server where we are.

ACTING CHAIR—Can you give us an idea of how, during the time of the business building—from the move from Sydney to the Monkerai Valley and then a move to Dungog and so on—the development of the business has been matched and then mismatched with the changes in the technology available to you?

Mr Johnson-Bade—First of all, in the city we were involved in quite a different area. We developed direct digital control systems for high-rise buildings. That is what we used to do in many of the buildings in Sydney—and other locations around the world run on our technology. We shifted when we made the lifestyle choice. I identified the enormous potential the Internet could provide in terms of commerce. We were one of the first starters ready to do web development work—there were not many around back then. We were certainly the first in the Hunter region. We naively, at the time—and I think Telstra just as naively—assumed we could just connect lines up and everything would be okay. But that wasn't to be. In fact, initially, the nature of the business when we moved there was that I was providing consulting services, helping corporations such as Boral and James Hardie to develop long-term technology strategies.

The course of the business was changed when we realised that the lines that we had connected and the equipment downstream were simply incapable of providing the service. The shift into Dungog was a major strategic change in direction. That is not to mention the building we built a kilometre away from our house which was to keep the business separate from our home but which is now largely occupied by snakes. And now, yet again, this decision is imminent, and we are faced with finding locations in Maitland or Newcastle for the business, which we do not want to do. It certainly does not fit with our original plan.

I can summarise by saying that the direction of our business has been largely dictated by Telstra and the services that they provide. We did not know that when we shifted to the country we were taking on a kind of silent partner. We had no idea that we had another entity who would be making these decisions. But it is not Telstra, as I said. What we need is appropriate legislation that can overcome the problem. It is deeply rooted in the debate surrounding Telstra insofar as, if we keep looking backward and fixing problems so that we can claim that we have made great progress—as we are doing at the moment with the Telstra scenario—I do not think it takes the country as far ahead as we could be going. We have got a worsening situation that we are right in the middle of—there is no question about it; it is real. We pay more at our current location for a single modem line connection, which we hobble along and just get by on. We pay more for that than a full broadband connection via cable in the city with five gigabyte of data, which is the kind of data that we are using. We pay more for a modem. Our only real option, since ADSL is not available, for commercial decisions made by Telstra, is if we were to upgrade to a bidirectional satellite, we would be paying something like six times the amount that we would for a comparable service.

ACTING CHAIR—So you are saying that the nature of the communications available to you is constraining what the business might do in the future, and that is why you are looking at a move?

Mr Johnson-Bade—Totally.

ACTING CHAIR—But it has also constrained what you have done in the past, because the nature of your business has changed. So when you went from the consultancy—

Mr Johnson-Bade—I could not sustain that. Bearing in mind that you have a situation where directions of large corporations are being formed on your recommendations for long-term strategic planning as far as technology goes, being located at a distance from where it is all happening is a major disadvantage. But when it takes two hours to send a six-page fax, and about 15 fax calls and 10 phone calls to make sure that they have eventually got all the pages, you cannot really carry on business that way. The writing was on the wall. And, yet again, we are having to change.

We are a small company; we are trying to do big things; we are adventurous; and we are usually doing things that have not been done before. In a way, because we are trying to do that, our existence will highlight where the problems are. I think that is unfortunate. If companies like ours are prepared to be leaders in technology and break new ground, and appreciate doing it in an idyllic regional setting for lifestyle reasons, that can only improve the regional economy. Lord knows a place like Dungog needs it.

ACTING CHAIR—Dungog is a very pretty town. As you pointed out, it has been directly impacted by the closure of the forestry operations. It is also fairly adventurous in its educational sector.

Mr Johnson-Bade—Yes.

ACTING CHAIR—It is fairly strong, but it is under pressure from changes. From talking to people in the local community, what sense do you have of their frustration with the dial-up service? What might they be able to do if they had full broadband access?

Mr Johnson-Bade—To be fair, the community has been reasonably well looked after; I must refer to the CTC. They had a very good coordinator and they got some good recognition for work in that area. The CTC has been very active in raising awareness of technology amongst young people and that has flowed through to the community. For a small country town, I think there has been a disproportionately high take-up of Internet use. When we moved to Dungog, we immediately set up as an ISP and started to provide local service; we do not do anything like that anymore. So the town, as a community, is quite aware, and a lot of young people coming up could be well employed in the local industry.

The CTC has a broadband connection—I forget the name of the program—that provides broadband to communities. So we are in the ridiculous situation where the government has provided and funded a bidirectional satellite connection for the council, the library and the CTC, whereas we, paying the taxes to fund that, have no access to it and have to leave town. As far as the community goes, the government has done well in providing facilities such as the CTC and,

more recently, the broadband connection that is shared with those other entities. But what is lacking is any consideration at all for industry, which is the future of the town. The town currently has negative population growth. So there are all these bods playing games at the CTC, getting familiar with computers and programming three-dimensional worlds for their game machine, which is good experience; they will all be leaving town. The community is quite aware of technology, but it is probably going to go nowhere.

ACTING CHAIR—We will go to a local community representative in the Hunter region.

Ms GRIERSON—Thank you very much. I think your presentation is the first one we have had that represents smaller communities. We know that, if we are to retain populations and grow economies in smaller communities, they certainly need access to broadband technology. It is freely available at the moment to non-profit organisations like the council. What sorts of incentives can we give to the government, and what strategies can we recommend, to make the service and infrastructure that are already in place available for organisations like yours?

Mr Johnson-Bade—First of all, it probably would not be practical for us to share the connection that they have, bearing in mind that we require somewhere between three and five gigabytes of traffic monthly. The bandwidth that we would be using would be significant; we would be the major consumer of that service. So, although it would be an improvement on what we have, sharing the service would not be the answer. The answer is a mechanism by which companies such as us, who are prepared to provide employment in such a setting, are able to apply for some sort of assistance to at least make up the difference between what we are forced to pay and what others would pay in the city.

Ms GRIERSON—And $600 per month would be a barrier and a disincentive to anyone going into that sort of business; is that correct?

Mr Johnson-Bade—No.

Ms GRIERSON—Is that what it would cost at the moment for you to access—

Mr Johnson-Bade—We did some costing yesterday off the Telstra site and worked it out. With respect to the monthly cost for the bidirectional satellite, which is asymmetrical, it needs to be borne in mind that a lot of our data is outgoing; because of the nature of our business, you have something like 128k out and 512k in. The price for that would be around $828 per month. That is what we would be paying for that service. If we compare that with the cable situation for five gigabyte at uncapped bandwidth in a city, we would be paying $169 per month. So we are paying a lot more but it is not even the same facility; it does not have the same bandwidth. It is a far more degraded service.

Ms GRIERSON—Currently in Dungog you could access a service but it would be at such a cost?

Mr Johnson-Bade—It would be an inferior service at an inflated price.

Ms GRIERSON—It still would not service your needs?

Mr Johnson-Bade—It would be an improvement on what we are doing, but we need to look at the long term. We need to look at the call centre operation that we want to set up as well, which will have a greater demand. I do not really see an answer in the current bidirectional satellite product that Telstra offers.

Ms GRIERSON—No-one else is offering access to spectrum at the moment?

Mr Johnson-Bade—No.

Ms GRIERSON—In terms of your presentation, you would suggest not just improved service but subsidy for that service so that you are encouraged to grow a technology based industry?

Mr Johnson-Bade—Yes. A provider such as Telstra is making a decision regarding the installation of equipment and infrastructure. They are making that on a commercial basis and answering progressively to the shareholders. We need some kind of mechanism by which the government can subsidise situations that meet certain criteria. In the same sense that there are other funding opportunities, I think there needs to be one that would cover broadband in a regional context.

Ms GRIERSON—You would be concerned that if it was always on a commercial basis the service would not be there and the cost competitiveness would not be there?

Mr Johnson-Bade—It will not be there. That is a fact. Telstra are aware that I was coming to address this group and of the nature of our complaint. They are simply not in a position to say, 'We'll flick ADSL on,' which would be an improvement, even if we had that there. It would stall the problem that we have. We could get back to work and focus a bit more on other things. We need something a lot better but they cannot put it in because they cannot justify it economically.

Ms GRIERSON—In terms of our role, the commercial value or the value in return to the community is a matter that government should be particularly interested in?

Mr Johnson-Bade—It has to be taken into account.

Ms GRIERSON—Or unemployment in regional Australia will continue to grow.

Mr Johnson-Bade—Yes, or else what we are seeing is just a worsening situation—this is a specific instance where we have got this radius that is just increasing. That is a trend. It is there, despite the fact that we have worked really hard. Admittedly, the exchanges that we ran off when we first shifted there have all been replaced and there is new gear and the rotten, old multiplexes that hardly worked are all gone. So we have improved the situation, but you cannot continue making plans for the future of the country by identifying where a problem is and legislating to improve that specific problem whilst the whole world moves on. That is what we have got.

Ms GRIERSON—Because you are not too distant from a major centre at Newcastle—and you have mentioned Maitland—if we were to see the roll-out that is being talked about by other

companies that are interested at the moment in Newcastle, what role could government play in expanding those commercial roll-outs to cover wider areas?

Mr Johnson-Bade—I think that is a much bigger question because it comes down to the question of responsibility of government for essential infrastructure. If they are not directly responsible to legislate so that the infrastructure adequately supports all communities—

Ms GRIERSON—Perhaps that is an opportunity we should look at in terms of public-private partnerships that might take a commercial venture a bit further. In relation to 802.11, you have not looked at using free spectrum in setting up some sort of system that would assist out there?

Mr Johnson-Bade—No.

Mr TICEHURST—What bandwidth do you need for your operation? You went there with three phone lines. What would you need today?

Mr Johnson-Bade—Something like a cable service would be quite adequate. I am not sure of instantaneous bandwidth. I can say that our need currently is traffic wise. At the moment we have a server which connects us via modem and stays connected during the working hours.

Mr TICEHURST—What speed do you get on that modem?

Mr Johnson-Bade—It would be 56K or something. Our technology is competing head-on with companies located in, say, Sydney, and so on, who would be shocked to know that we could achieve it. But it is a constant problem.

Mr TICEHURST—Is ISDN available?

Mr Johnson-Bade—ISDN is available but again it is a fairly limited service in terms of speed. I notice in some of the definitions here that it is not even classified as broadband. It goes up to 128K, doesn't it? It is not really broadband.

Mr TICEHURST—So you are saying that you need more than 128K?

Mr Johnson-Bade—Yes, I would say that we do, particularly when we are looking at expansion into the call centre facility.

Mr TICEHURST—You made some mention of ADSL. Is that not available?

Mr Johnson-Bade—ADSL is not available either.

Mr TICEHURST—You compare the cost of service in Sydney to rural areas, but you made a lifestyle choice. I did the same—I live on the Central Coast. I also set up some pioneering data server business. But I could never run it from my premises because of unreliable power and overhead unreliable phone lines. So I had to place a server elsewhere. When you look at what has happened in the USA, people want all those facilities. That is why they set up places like Silicon Valley where you get a lot of people together when the infrastructure is there. In my

area, they have set up Tuggerah Business Park, which is cabled with optic fibre. If anybody in that area wanted to set up a high speed, communication type of business, that is where they would put it because the infrastructure is there already.

The other thing we have to bear in mind is that, when you are talking about government providing funding and support, what you are actually talking about is taxpayers. What you are doing is certainly admirable in building high technology; I understand where you are coming from. I think that is the future for a lot of these areas. But you have got to look at the cost, at how many other clients would be in that area and whether it will ever be viable on other than, say, satellite. But what about some of the alternative providers? SPT are saying they have got a lot of sites all over the east coast.

Mr Johnson-Bade—We had a quote from them: $480,000 for installation or set-up costs. We really thought that was a bit high. We have spoken with SPT; we have a strong relationship with them. Our server sits in their facility, in their data centre. We have spoken on numerous occasions about whether a solution exists, and they do not have one.

Mr TICEHURST—What is the population of Dungog?

Mr Johnson-Bade—I think probably the shire population must be around 7,000 or 8,000, or something like that.

Mr TICEHURST—So whoever is going to provide a high-speed network will be providing that into a limited market.

Mr Johnson-Bade—Not necessarily. You would have to be basing that statement on the assumption that there are no other technology companies that would consider relocation to a lifestyle such as that at Dungog near the Barrington Tops et cetera. If there were a facility such as the one you describe—I have supported for many years now the establishment of a technology centre in Dungog where such broadband connection was available—I am sure there would be other companies that would go there. So you would have businesses relocating, which fits in with what state and regional development and the HEDC are doing to encourage business and relocation in the Hunter region for lifestyle reasons. If the Hunter can put forward an argument for relocation for lifestyle reasons, I would suggest that Dungog would be a jewel in that crown.

Mr TICEHURST—What about the Networking the Nation projects? Have any of those been applicable in that area?

Mr Johnson-Bade—Yes. The NTN funding is primarily set up for community benefit and so on—I believe that NTN originally funded the CTC; yes, that was NTN funding—but not as far as private enterprise goes.

Mr TICEHURST—So did NTN result in higher bandwidth into the area?

Mr Johnson-Bade—No, not the initial funding for the establishment of the CTC. Initially they had modem connection there. And it is only just recently through another scheme, which I forget at the moment—somebody here might know it: the one that provides for broader band

connections for the community in regional settings—that the bidirectional satellite has now been brought in for the council library and the CDC.

Mr TICEHURST—I notice where the state government have suggested access utilising the state rail.

Mr Johnson-Bade—Yes.

Mr TICEHURST—A transgrid, of course, would not operate in that area.

Mr Johnson-Bade—There is a lot of talk about that. Rail goes right past our location there. In fact, rail goes through one side, and there would be fibre there and on the other side of the road that goes past, we are located in the old dairy factory building. On the other side is a fibre that is the main feeder from Dungog that I think goes across to Gloucester or something like that. So we have two fibres going past us.

Mr TICEHURST—All you need do is tap into one of those optical fibres and your problem is over!

Mr Johnson-Bade—Maybe we should focus on that.

Mr TICEHURST—Yes, that might be a way of looking at it.

ACTING CHAIR—Maybe you should concentrate on that.

Mr Johnson-Bade—Yes.

ACTING CHAIR—Some of the submissions we have received make the point about what possibilities exist with the state government and running through the natural corridors they have with the rail network and so on. If there is that kind of facility, if you have full optical fibre, then it is a question of whether the town itself could tap into that. Bidirectional service can be provided through satellite or some other mechanism could be used. You can provide one by wireless through tapping into the optic fibre. That should not be that difficult, one would think.

Mr Johnson-Bade—Yes.

ACTING CHAIR—I want to go back to the question of subsidy. You are in business and therefore you pay tax, I suppose.

Mr Johnson-Bade—Yes.

ACTING CHAIR—As far as I know, businesses are effectively subsidised, as are individuals in a sense, by being able to claim their business costs back against the tax system. Why have you suggested there should be some kind of direct subsidy rather than looking at the fact that there is already a subsidy in place anyway?

Mr Johnson-Bade—Which subsidy? I missed the subsidy that you referred to, actually.

ACTING CHAIR—Being able to claim it back through the tax system, because your business costs are claimable.

Mr Johnson-Bade—That does not seem like a subsidy somehow— a reduced payment of tax does not seem like a subsidy. It seems more like we are subsidising government activities and so on. That is the way I see it. I do not really see any subsidy. But there are avenues for subsidy and we have received some subsidy in the R&D area with tax incentives. So that is fine. But here we are talking about something a little different. Let us take Dungog as a test case. That situation has a hell of a lot going for it in terms of lifestyle; it has nothing going for it in terms of infrastructure. The roads are rotten. With the way that Telstra have set up the telephone service—you will appreciate this—Dungog does not seem to have its own exchange as such. It works through one down the way a bit so that—and, to my knowledge, this has occurred twice—if the fibre cable between Dungog and Maitland is severed by somebody ploughing a field, we lose all communications, and not just out of the town but within the town as well. You cannot ring up the hospital, you cannot ring up emergency services; you cannot do anything. So, in terms of infrastructure in Dungog, the telephone service is not very good and mobile does not really work. I hardly ever take my mobile anywhere, because it does not really work in most places—and that is good, as you do not get bothered by the phone.

ACTING CHAIR—Is that CDMA?

Mr Johnson-Bade—I think mine is CDMA, but it is still not very good. In towns it is all right. But you really are out of touch if you are moving around—and I am moving around a lot, driving up and down the coast to our clients. So the telephone is not very good, mobile is not very good and the roads are rotten. But, with broadband infrastructure, you could create a whole booming industry there that does not need the blinking telephone lines or the roads; it does not need anything. You could have a dozen, two dozen, 50 or whatever number of businesses, in a similar vein to ours, working together, such as was suggested in a cluster situation like that. I really am convinced that, even bearing in mind the conditions of the roads and remaining infrastructure, if you could have space available—land like we have with the dairy factory sitting there—and very good broadband services, other businesses would relocate there. So I am really talking about something a little bit more than just subsidising an individual business. I am talking about a way to recover a centre such as Dungog, which is so adversely affected by dairy deregulation and so on. There is an opportunity there, with foresight, to achieve something a little more grand, I guess, than just reacting to the situation.

ACTING CHAIR—As one would normally see occurring as part of a structural adjustment package.

Mr Johnson-Bade—Yes.

ACTING CHAIR—So we have the forestry situation and dairy.

Mr Johnson-Bade—Yes.

ACTING CHAIR—Part of the usefulness of your evidence is that you are not working in the normal mode. Most people who talk about using broadband talk about sending very little information back up but pulling a lot down. The nature of your business is that you are

knocking out five gigabytes and so on. You are using a 56K-cable modem to do that, I understand. Given that the server is in Newcastle, do you have to feed that information into it on a continuous basis?

Mr Johnson-Bade—No, that is not the nature of our product. The technology that we have developed provides a tool for the users. They use that tool to manage their multiple shopfronts in this gateway scenario; and they use our application, which is located on the SPTel server. A good part of the data comes from them; we do not really have a lot to do with it. Our activities are associated more with our development of the technology, the upgrading of that technology and the monitoring and performance of the facility. Where so many businesses depend on this technology, and increasingly so, and with everything going with what we do, we work in a rapidly evolving industry. The good thing about that is that it provides all the answers; it is all self-contained. We do not actually have to leave Dungog or go anywhere. We do not have to go to conferences in Sydney to know exactly what is going on everywhere around the world, and we do not waste our time doing that. A good part of what we are doing also is in the area of research. It is just that we need to be in contact with everything that is going on out there as well, and so there is a significant traffic coming in and a significant traffic going out.

ACTING CHAIR—Regarding the five gigabytes that you are pushing out, are you doing that on a daily basis or a monthly basis?

Mr Johnson-Bade—It is between three to five at the moment on a monthly basis.

ACTING CHAIR—If you wanted to use the old sandshoe method and whacked that onto a DVD, which takes 4.7 gigabytes—they are available now—you could trot down to Newcastle and upgrade the server with that. Is that a possibility for you?

Mr Johnson-Bade—No, because—

ACTING CHAIR—Can you explain to me why?

Mr Johnson-Bade—we are doing stuff all the time. We are building gateways. We are constantly building new gateways and new structures, and that is happening on a day-to-day basis. Right at this point in time we are finishing off the Coffs Coast, which is a government funded project. That encompasses gateway sites for Nambucca, Bellingen, Coffs Harbour and the Coffs coast, and also the umbrella site for the entire north coast. We have a whole lot of activity that is associated with that on a day-to-day basis and night-by-night basis, with data going in and out constructing these things, making them work and testing them.

ACTING CHAIR—So it is the nature of the business that that is entirely ongoing; that is something you cannot escape. That is why you are looking at doing the physical move, unless you can sort the problem out?

Mr Johnson-Bade—That is right.

ACTING CHAIR—We will see whether our next attestees can tell us a little about sorting out those local problems in the bush. Thank you, Mr Johnson-Bade.

Mr Johnson-Bade—Thank you.

[10.32 a.m.]

BUNDROCK, Mr Tony, National General Manager, Telstra Mobile Convergence, Telstra

LANDRIGAN, Dr Mitchell, Group Regulatory Manager, Telstra Mobile, Telstra

ACTING CHAIR—Welcome. Although the committee does not require you to give evidence under oath, I should advise you that these hearings are legal proceedings of the parliament and warrant the same respect as proceedings of the House. The giving of false or misleading evidence is a serious matter and may be regarded as contempt of parliament. As I have indicated before, no-one has been put in the dock so far by the committee. But, if anyone is going to be, it is probably going to be Telstra—so the threat is there if we need to use it. Do you wish to make some introductory remarks before we proceed to questions?

Mr Bundrock—Yes, thank you, Mr Chairman. First of all, from my own perspective and from Telstra's, we are very happy to be here. I have seen many of the transcripts of your previous hearings, and it has been quite interesting to see the wide range of issues that the committee has addressed during its hearings. Telstra's views on the matter are, first of all, that broadband technology is capable of supporting a number of major and exciting corporate and consumer multimedia applications; they are virtually unlimited.

However, until recently, demand for broadband services in Australia has been relatively slow. Telstra believes the main reasons for this have been a lack of compelling content or applications and the fact that the majority of customers and consumers who have had access to broadband have really been generally satisfied with the lower priced dial-up services. This situation is starting to change.

The ACCC's recent report *Snapshot of broadband deployment* indicated 251,500 broadband services were connected across Australia at the end of March 2002. Growth in take-up has doubled over the past nine months since the last report in July 2001. Residential customers accounted for more than 75 per cent of that take-up. While more than 60 per cent currently use the cable services, it is a fact that ADSL is the fastest growing segment driving that take-up. Since that report in March, ADSL has continued to accelerate. I do not have the figures with me but it has continued.

Telstra takes very seriously the importance of Australia embracing higher levels of broadband take-up. That is a good indicator of the strength in the economy. To this end, we are currently actively engaged in a variety of promotional advertising initiatives and have also recently launched the Telstra Broadband Fund. This fund provides up to $60 million in cash and bandwidth allocations to stimulate and fast track development in innovative broadband applications, obviously suited to Australia, and the tools to attract more and more businesses and consumers to broadband.

Specifically in relation to wireless broadband, it is an important evolving area of the family of technologies to offer a potentially cost-effective way of extending broadband services to consumers and businesses, particularly where there are no fixed lines available. These

technologies can also provide effective competition to existing local access networks in urbanised areas. However, deployment of these technologies is not without substantial risk. There are a variety of providers offering innovative wireless broadband solutions employing a wide range of different business models. Each faces significant hurdles and substantial investment risk. These risks faced by Australian investors are not unique to Australia. Early wireless broadband investors overseas have faced considerable difficulties in getting a sustainable business model. For example, in the United States, the world's biggest economy, many operators face bankruptcy because of high start-up costs and sluggish demand.

It is Telstra's firm belief—and other parties have made similar points to this committee—that efficient broadband deployment necessarily involves using various options for delivery depending upon the circumstances. There is no single solution that will enable broadband to deliver to all users. Across Australia there is an enormous variety of consumer needs and demands. Not one single technology is capable of delivering services to meet all these needs. Not one service provider could or should provide all the solutions for each requirement. Therefore it is important that, as much as possible, the market is left to choose and deploy the most appropriate business model and technology in each case.

There must be flexibility for service providers to respond to new and emerging content, applications, services, technologies and, ultimately, consumer demand. Fundamental to allowing this market flexibility is ensuring that the regulatory or policy environment does not focus on a particular technology or technologies. This is only likely to impede the appropriate development and adaptation of new and emerging technologies to best meet actual consumer needs. Furthermore, a regulatory environment which provides the appropriate incentives for corporations to make significant levels of investment is essential.

Industry is only in its early stages. There are many technology related shortcomings of different wireless broadband technologies. There are numerous competing unproven technologies. Most current systems, with the exception of satellite, have only a limited coverage range. Interference from other goods or appliances restricts some wireless broadband technologies—we have heard of WiFi 802.11—especially for the more rigorous data applications.

New technologies are constantly emerging. Existing ones are evolving rapidly. All these factors point to the necessity for government decision makers to move cautiously when contemplating policy directions for wireless broadband services. Regulation which may favour one technology over another or one supplier over another could run the serious risk of distorting the structure of the market with resultant inefficiencies arriving in investment decisions. This will inevitably be to the detriment of consumers and public interest. A more detailed analysis of our main regulatory concerns is outlined in the submission.

Our understanding is that a key focus for this committee's work is recommending an appropriate role for government in promoting broadband—in particular, wireless broadband. Apart from urging caution in the regulatory area, we believe there are a number of other ways government can play an important role in promoting more widespread deployment of both wireless and wireline broadband technologies.

Firstly, governments have a legitimate role to play in providing funding to assist roll-out of products and services in areas where it is not commercially viable to do so. A good example is the $150 million Commonwealth government untimed local call tender, won last year by Telstra. This tender provides untimed local calls to around 28,000 customers living in extended zones, who previously had mostly timed calls. It also offers untimed local call rate dial-up access to at least one Internet service provider and subsidised Big Pond broadband two-way satellite access. A similar example is the $25 million highway tender, won last year by Vodafone, to provide continuous mobile phone coverage on major highways.

Governments can also work to facilitate partnerships between industry, communities and various levels of government to deliver much needed products and services and bring all the major players together. An example is the wireless west project announced in June 2002. It is a partnership between state and Commonwealth governments, industry, local community groups and Telstra to deliver an expanded CDMA network in Western Australia. This partnership or collaborative approach has been a key factor in the rapid take-up of broadband technologies in countries such as Canada.

Telstra believes there are opportunities for governments to work with industry and community groups on pilot programs aimed at stimulating the development of new applications and content, testing their suitability for various industry sectors or community groups, and promoting the awareness of broadband and its potential benefits. One example is the Launceston broadband project, jointly funded by the federal government and Telstra. The LBP was launched in 2000 to establish a multimedia laboratory providing high-speed digital access to homes and businesses, and develop experimental services in Launceston. I understand the committee visited m.Net last week; it is another example of a valuable pilot program being part-funded by government.

Government can also play an important educative and awareness role; that is, it can put in place programs aimed at educating potential users on what broadband is, what it delivers and how it can contribute to improved personal or organisational productivity. Again, using the Canadian example, their government adopted a deliberate strategy from the early 1990s to educate potential users on broadband technologies and what they can deliver. This is seen as a key factor in Canada's now very advanced take-up of those technologies.

Finally, government can play a valuable role as a user of broadband technology in its own right by providing leadership in delivering government services online, addressing gaps in existing public-access services, and supporting public institutions with equipment, technical support and training. Government should also look at opportunities to aggregate demand across a number of users—for example, schools—because this offers opportunities for better economies of scale for suppliers and, therefore, potentially lower prices.

To conclude, wireless broadband is but one way of delivering the advantages of broadband communications services. Different options within the concept of wireless broadband offer widely divergent features and benefits to consumers. Efficient wireless broadband deployment involves the consideration of a complex matrix of technology, suitability of delivery platforms, cost-efficiency of deployment options, and consumer demand driven by content and application. It also requires significant levels of investment. In such a dynamic—and, by nature, risky—environment, allowing the market to operate as much as possible is most likely to deliver the

optimal outcomes to meet consumer need. Governments can play a significant role in this environment through a mix of providing regulatory certainty, resisting temptations to choose or mandate particular technologies or wireless outcomes, and taking an active role in driving up awareness of and demand for broadband technologies. Thank you for the opportunity to put these opening thoughts to you. We are now happy to receive any questions.

ACTING CHAIR—Thank you, Mr Bundrock. I will start with the latest evidence we have had from Mr Johnson-Bade, of Midac Technologies Australia, which is located in Dungog. As he rightly pointed out, Dungog is a lovely place, but its infrastructure is appalling. The local roads in that area have not been properly maintained by the council. The shire has argued that it has not had the money to do so, and over a long period of time they have deteriorated. That has provided a set of problems for people in an area that has also been doubly impacted upon by the closure of forestry operations and by dairy deregulation. He indicated that he has a particular problem with his business—that the Telstra infrastructure that is there is not sufficient to cater for the nature of his business and also that the CDMA coverage is not good enough. So they have been hit from almost every direction. I note that Telstra is giving its evidence in regional Australia. A central focus of our committee is to look at regional and remote Australia and how that can be serviced, potentially, by wireless broadband.

I want to take up a couple of particular things from Mr Johnson-Bade's situation. There is a fibre optic connection that runs pretty close to Dungog. What is the future, in terms of regional Australia where you are close to fibre optic cable, for tapping into that and providing a better service than otherwise might be provided and linking broadband wireless onto that? Is that one of the ways of providing for the future?

Mr Bundrock—Fibre optic distribution to homes and businesses is the only potential, really broadband option, but it is—you will not be surprised to hear me say—quite expensive. It is not so much the cost of the fibre but the cost of the amplifiers that go at either end and the installation cost for burying the fibre et cetera. The conversion from the optical signal to the electrical signal, which all the computers use, also has a cost. I heard the previous witness say five gigabyte a month—whether that is enough to sustain that cost, I could not comment on at the moment. I do not know the distance from what you say is a broadband—

ACTING CHAIR—Sorry, my question might not have been clear. It is a little bit different. I did not mean linking in directly and using the fibre connection. But, in terms of Dungog as a town and providing access to it, it has got bi-directional satellite and some people are using it, but at a relatively high cost. There is a population of about 7,000 people, so probably wireless broadband might be a better way to do it. You need to get the signal there in the first place. Would one of the ways of doing that be to tap directly into that optical fibre cable and then run a wireless service out into that area?

Mr Bundrock—The major challenge is that so-called last mile—the distribution of broadband to the individual's premises or business. I heard the previous evidence that there was a fibre feed to a local distribution point—some multiplex arrangement or remote exchange in Dungog itself—so the town has a fibre running to it. The problem we would face is the distribution from that point to the individual premises. I do not know what the radial distance or otherwise might be. Obviously, BigPond satellite bypasses all that infrastructure by uplinking to the satellite, and then it is ubiquitously available right throughout Australia, so that is one

solution available today. To adopt wireless distribution technology, technically you could put in some form of wireless—and no doubt the committee has heard various options—at the point at which the fibre optic cable enters the town, and distribute it accordingly. Again, the cost and the distances that are being talked about would have to be considered. Generally speaking, ISDN is available in Dungog and that provides about 128 kilobits, bi-directional. So that shows evidence that the fibre has got intrinsic capacity as it is feeding the town, and in its distribution over the copper network to the individual premises. It is obvious that the distance or the nature of the copper is not sufficient to support ADSL technology. There are no coags, so you either have a wireless solution—whether it is 802.11 or the type of technology that Unwired has presented to you—or some of the other more exotic technologies that you have come across in the hearings. I am not too sure which would be the most cost efficient—and whether it would prove viable for the whole town, I do not know.

ACTING CHAIR—So in this instance Dungog is already ahead of a number of other country towns by having a direct optical fibre feed to start off?

Mr Bundrock—Maybe not. The more remote locations would probably not have that feed, but I imagine there would be one in the general vicinity. Most of those small towns would have a fibre feed to the local exchange—not 100 per cent of them, but there is actually more fibre optic in the ground in rural and regional Australia than is often recognised. It is true that, as you get more remote, the cost of providing fibre over long distances for a relatively small amount of traffic can become prohibitive, but Telstra tends to be putting in a lot of fibre throughout rural Australia.

ACTING CHAIR—So that $4 billion that you spent a while ago—Optus spent an equivalent amount—has provided the basic backbone, but it is the branching problem that is the difficulty in that last mile?

Mr Bundrock—Yes. You really need to look at it case by case, but that last mile can be quite expensive because you do not benefit from the aggregation of services and usage. Obviously, having a node point, you can feed a fibre to that node and have a lot of traffic going in and out that can justify the capital expense required. For local distribution you only have individual usage to sustain the capital investment required.

ACTING CHAIR—In terms of alternative technologies that Telstra is looking at to provide services and in terms of past investments, it is obviously a problem for you to deal with the copper network and its maintenance in regional Australia. I have read arguments over the last number of years that the maintenance of the copper network, particularly in regional areas, suffered as a result of the $4 billion plus that Telstra had to put in to provide that fibre backbone and that, belatedly, over the last couple of years, Telstra has gone back to do more of that upgraded maintenance. What is the situation, as you see it, of the copper network in regional areas?

Mr Bundrock—There is no doubt the maintenance of that network is a major expense to Telstra. I really could not comment on whether our fibre backbone network impacted the funds for that. I have no information. I would be surprised if that was really the way it worked, but it is an ongoing issue for the company to sustain the performance of our rural distribution network, our local access network—copper or otherwise. Distances can be large, population

densities can be light, and it is certainly well recognised throughout the high levels of the company that this is an issue. Without straying into rural service performance issues et cetera, I think Telstra has made major steps. We recently released a report, from the ACA's information, showing that performance in rural Australia has improved significantly.

ACTING CHAIR—I might stray into that area, though—Senator Lundy has done it previously—and go to the question of ADSL provision in regional Australia and the problems that exist with Telstra's use of pair gain technology and also RIM technology. Can you explain to me (1) why you use pair gain and RIM, particularly in regional Australia, and (2) whether it is a problem in that it actually stops you rolling out ADSL because of the existence of those two technologies.

Mr Bundrock—These are the technologies we use to provide the basic telephone service, as the most cost-efficient way. Of course, the basic telephone service did not encompass ADSL, which has come somewhat later and is now being implemented in Australia. The technology is just not suitable. I am more of a wireless person than a fixed-line person but, as I understand it, it causes problems in the performance. So we are looking for solutions in these areas where wireless could be more cost effective than going in and replacing some of those pair gains or RIMs. This is being looked at in detail, but a quick answer to the question is that they were put in place some years ago to provide basic telephone services cost-efficiently and, as I said, they are not suited to ADSL operation.

ACTING CHAIR—Because the ADSL operation is an enhancement of what you can pump through the copper network, it is basically dependent on a single line being available and, if it is pair gain, you have a problem—you just cannot do it?

Mr Bundrock—Yes, by and large, and distance is also a major factor. You are trying to push a lot of bits per second down a network and the copper pair itself was never really designed for those speeds. You are trying to push those bits per second down, and obviously the further you go, the less efficient you can be at doing that.

ACTING CHAIR—Is that 3½ kilometres or so from a digital exchange?

Mr Bundrock—It depends on the nature of the cross talk within some of the lines. But by and large that is a figure that has been used.

ACTING CHAIR—Wireless broadband is very important for Telstra as an alternative, particularly in regional areas because of the nature of that existing obstruction. Do you have any particular view about the different types of wireless broadband delivery that Telstra might finally settle on, or is it still—as you indicate here—so much in a state of flux that it is difficult to say at this stage?

Mr Bundrock—Telstra already uses wireless for some local distribution but it is narrowband. If we are talking about providing ADSL in rural Australia where distance is probably the main problem, you would have to use a wireless technology that could span that distance. It is like a law of physics: all else being equal, the further you want to go, the lower the bits per second that you can transmit. So we need to choose a technology that can use transmitter powers et cetera quite efficiently and that can sustain a reasonable level of speed without going to

multimegabit per second, but perhaps going to a couple of hundred kilobit per second. These are the types of technologies we are considering at the moment. Some of the technology—for example, Unwired's—Telstra is aware of and is considering it.

Another option is to completely get away from the terrestrial type of distribution and come back to satellites. Whereas we said that, once you have implemented a satellite solution to one point in Australia, you have effectively covered the whole of Australia. We have an ongoing program of talking to various players internationally that are evolving more and more specialised satellites which can provide higher speed services or, for a given speed of service, drop the cost. So that is another one that we would look at. It is probable that satellite services will continue to be provided either by the current technology or will evolve. Terrestrially, I cannot say any particular one would be the winner. But coming back to the issue of distance, we have to look at those ones that can span 10 or 20 kilometres in a wireless sense.

ACTING CHAIR—I note that you put a general argument effectively, as some others have, that the government should lay off, have a very light regulatory hand and let the market make its own determinations about what investments need to be made, and you can be pretty sure to trust the market to get on and do the right thing as is necessary. I am not filled with hope, necessarily, about that approach, given the experience of what Telstra did with ISDN. We had a product—provided to business—where there was a low take-up rate. I think one of the key drivers of that was the cost of the ISDN cards, where you are looking at thousands of dollars versus the take-up rate in Europe where the cost of the cards was in the hundreds. It took Telstra a very long time to turn around and make a decision to change to go to the lower priced cards. And there has been a better take-up rate since then. Are we likely to go through that experience again, or do you think it will be a bit quicker and a bit more open with wireless?

Mr Bundrock—I think a main influence there was the issue of having an Australian-specific solution compared to adopting a widely used international technology or standard. Certainly, from the wireless environment, we would like to go with the international applications and technologies that are being developed because, as you say, that does tend to keep your capital costs lower.

An important consideration for us is the subscriber equipment cost. If we can use technologies where the subscriber equipment is being mass-produced—in the millions—obviously that cost would come right down. In general, that is where we would like to go. It comes back to the ACA spectrum planning because certain bands get used internationally for these types of technologies, of which the ACA is well aware. Their submission was quite comprehensive on that point. So alignment with international frequency bands is a major starting point for that path and, secondly, choosing those particular technologies being comprehensively applied internationally. That is the ideal and hopefully that is the path that we will go down.

ACTING CHAIR—Thank you. Before going to the other members for their questions, I want to take up the issue of the hearing impaired. Yesterday in Brisbane we heard evidence from TEDICORE. Previously in Melbourne and Sydney we heard evidence from hearing-impaired groups and they made a number of statements which underlined their concern about the current provision for them. In the past almost every group belted the daylights out of the then government because the AMPS system was closed down. My memory is that that was on

the advice of Telstra and that we went to a full GSM digital system based on that advice. As far as the hearing-impaired people were concerned, that was a decision that was taken without consulting them. It dramatically impacted on them because the TTY technology that they use could be used with the AMPS system but not with the GSM system, which also had a problem in that it caused interference. They said that Telstra provided a bit of a solution for them in the mobile phone area by going over to CDMA and that seemed to work. But they say they have been caught again in the wireless area and they are very concerned about the introduction of the wireless local loop. They were not consulted enough, even though they were part of the trial. They say that they cannot access that with their TTY technology and they need some kind of bridging. Can you tell me what Telstra's view is with regard to the history of the introduction of wireless local loop and what problems you see there are in catering for the hearing impaired.

Mr Bundrock—First of all, there are a couple of issues involving hearing impaired. One you referred to is interference with hearing aids. My brother-in-law has a hearing aid, and GSM does cause unacceptable levels of interference. CDMA is much better. It is also possible that hearing aids can evolve to be more immune to interference now with the proliferation of mobile phone devices. I think the two halves are coming together, that the use of CDMA and better quality hearing aids will solve that problem.

The issue about TTY is one that Telstra is aware of. We are sympathetic because obviously this is the way these people with hearing difficulties need to communicate. I think the issue is that the type of technology being used by TTYs here in Australia is not consistent with the US. It again comes back to this issue of standards. The CDMA is a US standard. It was evolved in the US and is now a global standard, and any solutions there for TTYs do not immediately apply here. We are currently trying to source some modems from the United States—and we have regular briefings with the ACA on what our current plans are—that may get around this problem. There would be a modem between TTY and our CDMA wireless local loop that could control that interface. We are currently sourcing these, they will be trialled and then we will assess the results. More generally, I saw that Mr Phil Harper provided a briefing about a new standard called V.18 that has been developed under the ITU, the International Telecommunications Union, to try and get around this incompatibility of standards issue. That seems to be a pretty good way to go. We do not believe any of this is yet available commercially—any modems or otherwise employing this standard—but we are certainly considering it. If modems become available, we will trial them immediately.

ACTING CHAIR—I note that one of the key points made by the hearing impaired is that, rather than the soft regulatory touch, section 508 of the US Rehabilitation Act mandated that any equipment provided to government departments had to take account of those with disabilities. That has provided virtually a foundation for all of those with disabilities to be taken into account in the first place and, because of the size of the government, it has worked to the advantage of those who are disabled. Their argument is that it is very costly to do it the other way round—to try to bolt on solutions at the other end. They have suggested that we need to look at that kind of approach.

In terms of Telstra and the other providers working together with those who are hearing impaired, it seems that one of the key problems is the age of the technology and the low baud rate that is being used in TTY. I was not aware of the fact that it was incompatible with the US stuff but that is another obvious problem. The V.18 standard, and I think the V.21 that we heard of

yesterday, may actually help us move forward. At some time we will probably need some sort of cut-off point to jump to newer technologies, as we are jumping with broadband and the others. Would it be your view that we need a set of approaches to this because the technology that TTYs are dependent upon is basically a 1960s one? We were told yesterday that the hearing impaired took it up because it was cost free as it had been put aside by industry.

Mr Bundrock—There is no doubt that TTYs are, as you say, sixties technology. I am assuming, and probably it is preferable for all concerned, that there is a transition to a better and more advanced technology. Nevertheless, it is the current way for the hearing impaired to communicate. They have grown accustomed to it. We have to be sensitive to that and then try to work with the stakeholders to evolve the technology to one that is more compatible and probably more useful to them as well. These systems are in use today by quite a large number of people and we have to accommodate their needs. Telstra would be very happy to work with the government and the various other parties to evolve solutions.

Mr TICEHURST—Telstra is in a unique position: having been the first into the market with a monopoly and now that new technologies have emerged nobody has really come up to challenge that monopoly position—and they are probably not likely to for a long time. Is part of the universal service obligation to provide 64K minimum to anyone in the nation over a period time?

Mr Bundrock—I think it is to provide 64K to everyone.

Dr Landrigan—Yes, that is right.

Mr TICEHURST—What is the timing for that?

Dr Landrigan—It was originally to provide it to 96 per cent of the population, I think. I am not aware whether it has extended beyond that now.

Mr TICEHURST—In what time frame?

Dr Landrigan—I do not know. I can find that out.

Mr TICEHURST—That obligation would alleviate a lot of the problems in rural towns. As you said earlier, there would be a number of communication facilities required to do that. When we look at the situation now where satellite can provide that, is the cost of providing that satellite service related to the value of the asset itself or the actual cost of the data delivery?

Mr Bundrock—Telstra rents capacity on a satellite. Obviously, the cost of that capacity is driven by the large cost of building and launching a satellite which involves huge capital costs for those companies. We rent capacity and then, in addition, there is the physical infrastructure that we need to install on the ground to communicate to the satellite and then to the subscribers. By and large, that cost is driven by the use of capacity in the spacecraft.

Mr TICEHURST—You said that the USA provides subsidised satellite facilities. How is that subsidy worked out? Is it area based?

Mr Bundrock—It is for those people, if I understand it correctly, who currently cannot get ISDN. ISDN provides the 64 kilobits per second service that you are referring to. If that is not available, there is a 50 per cent subsidy on the installation of the infrastructure in the subscriber's premises.

Mr TICEHURST—The other problem you have is that Telstra is a wholesaler as well as a retailer, so you are, effectively, competing against a large section of the customers, particularly when it comes down to providing a lot of these services. You have said that Telstra is interested in working with other providers to provide solutions for various situations that are difficult—under Telstra's present requirements, I guess. You have two groups: taxpayers who own half of it and shareholders who own the other half. We find that people complain that it is difficult for them to work with Telstra because the facilities to link in are quite onerous. How do you see this being resolved and the fact that you are providing a wholesale service and a retail service, and then you have this difficulty of people not being able to link in and work closely with Telstra?

Mr Bundrock—Firstly, organisationally Telstra has a separate business unit called Telstra Wholesale, with direct reporting to the CEO of the company. So it has an internal structural separation that is quite separate from any of the other retail business units. Secondly, the ACCC and other institutions take careful interest in how Telstra operates in this area. As you say, by virtue of history, it has a lot of installed infrastructure—copper local access network et cetera. So they are quite interested in any dealings that Telstra has on this matter. Maybe Dr Landrigan can comment.

Dr Landrigan—It depends on which technology or which service you are referring to, but certainly across the broad base of PSTN services, whether it is the PSTN service itself or the so-called unbundled local loop—

Mr TICEHURST—I would probably say the ADSL service and also services to Internet ISPs.

Dr Landrigan—Those services per se are not declared, as we say, at the moment. However, the commission has indicated some interest in aspects of them. The underlying technology, however, is declared—that is, the copper service. In addition we offer a markedly growing wholesale service for ADSL in the form of Flexstream.

Mr TICEHURST—Also, in your submission, you made some comments about the ACCC and some of these declared services. Inasmuch as regulation is to a certain extent required, there is probably a more open view required on the ACCC so that new and emerging services and facilities are not actually tied. I did not realise that the ISP provision was outside the ACCC. We have had complaints of that.

Dr Landrigan—I would not say it is outside the scope of the ACCC. But, at the moment, it is not in the broad basket of declared services that I mentioned—the core PSTN services, whether it is PSTN originating and terminating access itself, unbundled local loop or a host of others, and mobile services as well. That means that, if terms and conditions cannot be negotiated commercially with Telstra or with any other party in providing that service for that matter, the ACCC can step in and arbitrate the terms and conditions of access to them. ISP services, whether it is ADSL or some other form, are not at the moment declared by the commission. But,

as I said, the underlying technology is, and over and above that there is a wholesale offering that Telstra provides that I think is flourishing.

Mr TICEHURST—At the end of the day you have one corporate group and it is difficult to be able to have a foot in both camps. As a major provider, what disadvantages do you see that Telstra has compared with some of your mates, your competitors, and maybe some of the smaller competitors, say in regional, unique areas?

Mr Bundrock—It is often thought that small providers can make decisions quickly, can perhaps be a bit more innovative and can be more flexible in dealing with individual customers. Telstra is a very big company with a huge customer base. Trying to keep that under control tends to have—

Mr TICEHURST—A bit of bureaucracy.

Mr Bundrock—I did not use that word. But it tends to have controls in place to get some uniformity in what we are doing and to make sure that standards are adhered to. I am not saying the others do not have standards but a smaller player can address individual users. We welcome competition. You mentioned before that we are a monopoly; we are not really. We have a large market share in certain segments but there is a lot of competition that is keeping us honest. If smaller players can come in and see a niche and address it successfully, good luck to them. We need to look at what we are doing at the same time.

Mr TICEHURST—Certainly the larger players have had difficulty. If you look at One.Tel and some of those, it was probably more management philosophy and the way they structured the business rather than, say, Optus, who have been reasonably successful.

Mr Bundrock—We make the point in our submission that telecommunications infrastructure is pretty expensive technology and the returns are not that rapid. People who want to enter this game seriously have to be patient and not assume that there will be a quick return. We referred to the risks that were involved with that investment—obviously the market risks—what your competitors are going to do, what the customers want and how much they will really pay. That is one risk. If the rules change at some stage in the future or if there is a risk that they might change, this is the other element of it. The payback periods in much of the infrastructure that we put in are not particularly great, so patience is required.

Mr TICEHURST—You mentioned also that in America a lot of companies went bankrupt providing wireless. Is that because other wire based and optical services are just so much better because of their more concentrated populations and that it was easier for them to provide other than land based links?

Mr Bundrock—There are different technologies serving different niches, for example, the WiFi 802.11 technology. They only had a small radius; they put it into coffee shops et cetera. They just need the users in that radius to pay for the installation. They just could not attract enough customers with enough laptops, or whatever, who would use the technology. So it was a market failure. There was not any particular alternative competing technology. It was just that the numbers of people wanting to go to a coffee shop and use their laptops were not sufficient. Other ones were trying to provide this local distribution service to the homes and offices using

wireless and there they did have competition from the existing player using copper cable—a coax cable distributor. So it was just which technologies prove to be in, and which the customer is happier with. That was the other problem they had there—the competing technologies.

Mr TICEHURST—Do you see in some rural areas where you have got a CDMA infrastructure later on providing a service that might be like they are always on GPRS, so that people would pay for the data that they use on the network?

Mr Bundrock—Telstra is having a good look at that option as we talk. It is under quite careful scrutiny. It is a question of whether there will be enough people that would use the service and pay enough money to justify the investment. Certainly, GPRS has been pretty slow to take off in the cities and in major country towns since we have installed it. So given that experience, we have to be cautious with this. It could be a question of timing or total cost. We are looking at these aspects at the moment.

Mr TICEHURST—In relation to the range of CDMA, I was a user of CDMA until earlier this year because I was involved in travelling in the country. I was under the impression that CDMA had a similar range to analog and yet I had situations where I could see the local cell—a 6K line of sight from where I was operating the phone—but it would be searching for a link. Initially, I thought it was a problem with the phone, so I swapped handsets and I had the same problem. It seemed as though there was a connection between the number of users that are on that cell at the one time and the range or the fact that you could not actually get on to it.

Mr Bundrock—The number of users can affect the availability of a channel when you want to make a phone call but should not affect the ability to lock on to the base station. It can be influenced by interference from many other users, but analog amps could also suffer that effect. I do not know if it was with a particular base station that you experienced this problem. It almost looks like a fault. If you could physically see the base station—6 kilometres—it should be working well. In those sorts of situations, it is worthwhile giving a call to customer service.

Mr TICEHURST—I tried that and I did not get anywhere. Then I swapped over to a GPRS phone on GSM. I got around it that way.

Mr Bundrock—It sounds like something is not working properly.

Mr TICEHURST—Something was wrong within the Telstra lines.

Mr Bundrock—I am a CDMA user myself and I get the occasional story. My problem is that I have never really experienced this except at a local base station once, so I complained and they said, 'Yes, you are right'.

Mr TICEHURST—Well, I did. I went to the local Telstra office and said, 'Show me one of your latest CDMA phones and let's see what signal strength you are getting,' and I could prove it was not the handsets.

Dr Landrigan—Would it be helpful to go back to your original question about the USO? My colleague has just provided me with additional information.

ACTING CHAIR—Yes.

Dr Landrigan—It is currently an obligation that in fact extends to 100 per cent of the population. However, the remaining four per cent—as I mentioned before, it was originally 96 per cent of the population that had to be covered under that particular requirement—receive a special digital data access service, which is the equivalent. However, it is also subsidised to half the cost of meeting that particular obligation in those areas. I think, though we can clarify this, it is up to a value of $1,100 in those areas.

Mr Bundrock—And the satellite solution would be covered under it.

Dr Landrigan—Yes.

Mr TICEHURST—Fair enough. On the ADSL you said you had a $600 million fund there. That is part of—

Mr Bundrock—Sixty million.

Mr TICEHURST—Sixty, was it? Wishful thinking to have $600 million.

Mr Bundrock—I wished to correct the record!

Mr TICEHURST—Is that just to get some user bases going?

Mr Bundrock—Yes, exactly. It is to try and stimulate local usage to create some interesting content and services and to encourage people to take up broadband.

Mr TICEHURST—Is there special pricing that goes with that as well?

Mr Bundrock—It is effectively a subsidy for people who want to come in with a good idea for development. There is a committee, not only of Telstra people—Telstra people are on the committee—but of many industry players, to see about administration of that fund. It is virtually a grant, provided others are contributing as well. They get access to bandwidth. They get free bandwidth for a period of time while they can test the services that they are developing.

Mr TICEHURST—So it is not like the free email or the free Internet bank costs where, once you had got on, you were locked on, and they said, 'Okay, now there is a fee on this'?

Mr Bundrock—No, the idea is that this would stimulate people to develop some particular service or content which is then available on a usual commercial basis. It is to get stuff onto the network effectively, and to encourage people to take up broadband. At the moment, many people might ask, 'Why should I do that? I'm happy with what I've got.'

Mr TICEHURST—Yes.

ACTING CHAIR—I might come back to that later.

Ms GRIERSON—Welcome to Newcastle. It is wonderful to have Telstra present to this committee in regional Australia. I hope you flew in through our regional airport and had an opportunity to research the problem I brought to your attention recently regarding mobile access. It drops out at our entry point to this city and to this region, and certainly it is not the optimum for visitors coming to Newcastle. I have to give that further attention, and I hope you will too.

ACTING CHAIR—It happened to me.

Ms GRIERSON—It happened to you?

ACTING CHAIR—Just this morning.

Ms GRIERSON—That's right. It is very difficult when our access point for the city has that problem. We have heard this morning presentations that come to the heart of this committee's role, and that is how we get service that is required—maybe not demanded at the level that is perhaps commercially acceptable—in regional and rural Australia. It is easy for us to look at the need, define the need and, therefore, say the need is justified when we look at education, health, emergency services and transport, but we also have to look at the commercial service to people, such as we just had presenting from Dungog. From what you have said, it seems we now are approaching a point where satellite access, CDMA and cable service have networked this country, so it is available to the majority of this country. Is that correct? The infrastructure is now there?

Mr Bundrock—Yes. For a start, the satellite services that we provide are available in 100 per cent of the land area in Australia. The other ones are much less, and the only way you could get 100 per cent is with satellite.

Ms GRIERSON—All right. But the CDMA roll-out has been extensive as well, hasn't it?

Mr Bundrock—It is one of the largest networks in the world, with over one million square kilometres of coverage.

Ms GRIERSON—So now we should be ready for the next challenge, and that really is either using wireless or extending cable, wherever we can, to more communities. Here we are, not very far from a capital city—and Dungog is not very far from the regional capital either—and we still have this issue of commercial enterprise not being able to afford those options and not having access to those options. You mentioned in your presentation that the example of the extended zone customers, and that tender that you won, was a good way that government can bring it about. That was not really a public-private partnership; I am assuming that was a commercial tender, or was there a government contribution that made that tender attractive?

Mr Bundrock—Yes, there was $150 million funding from federal government. Tenders for that funding were called for, and obviously Telstra ultimately won that tender.

Ms GRIERSON—What would the percentage ratio be from government and commercial in that tender?

Mr Bundrock—I have to apologise, I do not have that particular information. It may be a commercial-in-confidence figure as well.

Ms GRIERSON—It may be, but if that was a successful model I suppose it is the sort of thing the committee wants to know—just how much government has to put in to make a commercial operator take up that option. It is fairly essential for us to understand what is required for a commercial operator to say, 'I can make that work.' We can perhaps access that ourselves from the government sources and maybe we should. Did that tender get completed on time and is it providing a satisfactory service now?

Mr Bundrock—I think it is currently being implemented. I am not aware of it being behind on any commitments that we made. I believe it is generally adhering to the commitments.

Ms GRIERSON—Would you suggest that we need more partnerships like that where the government is prepared to put in a major contribution to get commercial operators to take up services to regional and rural Australia?

Mr Bundrock—If the demand is there and the cost or whatever is prohibitive for the operators then it is obviously an option for the government to consider how it might use funding. The government contribution, as I said, is $150 million. The exact detail of Telstra's contribution is commercial-in-confidence but we have stated publicly that it is more than $150 million, so it is more than fifty-fifty.

Ms GRIERSON—Returning to this problem with Dungog though, you talk in terms of demand and that is often a commercial demand. We are learning now that the demand will never be enough to be commercial so the need is perhaps what we concentrate on. Taking the Dungog example, that has the opportunity to create jobs in a declining rural or regional area. The cost-benefit has to be a government measured one of social dividend and sustaining a community that perhaps could not be sustained, and not a commercial reality. How does government take on that challenge and how do they tap into existing infrastructure when the demand is very small? How do we make that palatable to government and to commercial operators?

Mr Bundrock—I think tendering is an excellent way because that does stimulate people to come up with innovative solutions and try to be cost effective in the use of their own infrastructure so they can come in with a competitive bid.

Ms GRIERSON—You would need a critical mass for that sort of tender to be attractive, wouldn't you?

Mr Bundrock—You do need some significant incentive, that is true, but the type of problem that you refer to may well exist in other country towns. Across Australia or across New South Wales there might be a significant number of users who would benefit from such a solution. Tendering is one way to squeeze out the efficiencies that you are referring to. Exactly how far apart we are I do not know. I would like to talk to the individual who presented because he does have ISDN access, which is 128 kilobits a second. Obviously it is not suitable for his—

Ms GRIERSON—For e-commerce, yes.

Mr Bundrock—I am not too sure exactly why; nevertheless, that is an option that I want to make clear. There is 64 kilobits available, but it is more than that—it is 128 kilobits a second in that area. Coming back to your point, a tendering process is a way of creating efficiencies. Someone needs to do the research to work out how much the gap might be and try to come up with a total proposal for that. The path that is followed by the untimed local call could be a good model.

Ms GRIERSON—Another option we have talked about is using the infrastructure that may be managed by government, like rail or highway. We have talked about the national highway infrastructure. Maybe there are ways to tap into that infrastructure as well. We have also heard presentations from community network operators in Brisbane and Melbourne and they are talking about using free spectrum for their own communication and information needs on a non-commercial basis. We have also heard commercial operators saying that sort of traffic is unwelcome. The community network operators are suggesting that there should be a registration system where they can register—not purchase licences but register—as a user of that free spectrum and at least be logged on some database and, therefore, be able to be managed so it is not a problem for other networks. Do you have a viewpoint on that? They are using the 802.11.

Mr Bundrock—Access to that is subject to some broad licensing conditions, and Telstra thinks it is quite appropriate that certain bands are allocated for ad hoc use or for a wide range of uses. It just would not justify the cost of administering licences for applications we use. The problem, though, with this relatively open access is that technologies have to be the type that can accommodate other users being in the same band and adjust themselves accordingly, self-adapt to the environment. This technology, 802.11, does do this. That can compromise performance in those areas. That is an issue the ACA could look at—the trade-offs there—but Telstra thinks it is quite appropriate that such bands exist.

Ms GRIERSON—Coming back to the Newcastle region, we perhaps are more fortunate than other areas of regional Australia in that we have critical mass, and I am aware of three proponents interested in providing broadband services commercially to Newcastle, none of which are Telstra at this stage. One would be a wired option and two would be wireless. It is very hard for a community when they are offered the choice of three different commercial technologies. If you give planning approval to any of those and they are willing to risk that commercially, then that service gets up. Are there any problems that this committee should give more consideration to in relation to the different technologies that people are willing to try at this very initial stage? Do you envisage difficulties if different technologies are all put in place in the one region?

Mr Bundrock—There is an obvious difficulty in splitting up the total market.

Ms GRIERSON—It is a commercial difficulty. Yes, there is a risk.

Mr Bundrock—I am not too sure what submissions you are hearing. Probably, they would like to get some guarantees that there are not going to be further operators. Telstra already provides broadband here.

Ms GRIERSON—Yes, you do—at a fairly high cost.

Mr Bundrock—Putting the issue of market—slicing up the pie—to one side, if it is wireless technology, then you need frequency planning, by and large. Notwithstanding what I said about 802.11 being able to share with other users, to really get the best performance out of radio distance and speed it is best to have the exclusive spectrum, and the ACA does address this issue with its spectrum planning policies and how they apply. They tend to be uniform in their allocations across the nation. You need to be sure that, within Newcastle, you have access. The bands are there to be used and, under the ACA licensing structure, here in Newcastle. Other local planning issues are related to the installation of infrastructure for cable, I am assuming, or copper wire, as I think you said.

Ms GRIERSON—If Telstra have broadband available—and my understanding is that take-up is not as high as you would like—why do you think other companies are still interested in providing that service here?

Mr Bundrock—It is a question of projecting from today. You would not necessarily make an investment based on take-up today but on what you think it might be in two, three or five years time. So they would have their view of that future and, obviously, they would conduct some sort of business case around that. As we mentioned in our submission, we are now seeing acceleration of broadband take-up on our ADSL and we hope that is going to be sustained. That will raise the general community awareness of broadband and the applications. Other players might want to install infrastructure and try and tap into that basic demand.

Ms GRIERSON—Do you think the extra players will improve demand? Is that one of the potential spin-offs—that they will increase demand?

Mr Bundrock—That is a fair comment. Telstra cannot be all things to all people and having more players involved, I think, would stimulate overall demand. Telstra is happy that there is competition in this general area.

Ms GRIERSON—One thing that has intrigued me as a member of the committee is seeing people investing in technology that is, in many ways I suppose, unproven in our local context and yet they are willing to go so far. I would also point out to you that we had a presentation from the Gold Coast Council yesterday, which has a regional base of 450,000. They were struggling to get that sort of interest in providing a carrier for a broadband service to them. It seems that government does have a lot more to do to convince commercial operators and the public that there is a benefit in that sort of service. Finally, the disabilities groups that did make a presentation raised not just the problem with TTY old technology but technology that is very extensive and widely used—that unless there is an affordable replacement they would like to retain it. They also mentioned their need for instant and spontaneous communication. A presentation included some Swedish developments with a relay service, which was an interface between many different technologies that was compatible with different people's disabilities. Do you know of any pilot project with government or Telstra—any pilot program like Networking the Nation—that is concentrating on the needs of the disabled in Australia?

Mr Bundrock—No, I am not aware of any pilot program working with government generally in the areas of the disabled. On the specific issue we mentioned with hearing impaired, there is certainly dialogue between us, the department and ACA et cetera on solutions.

This V.18, to which I think you might have been referring, will come under that. But I am not aware of a general overall program.

Ms GRIERSON—But perhaps a pilot program would assist? It seems that the market would be small in terms of commercial and therefore, perhaps, a government-led initiative may assist in that way. You would agree?

Mr Bundrock—Yes. Taking an overall view, it could only help.

ACTING CHAIR—My view is that one of the benefits of owning more than 50 per cent of Telstra is that we can actually keep a choke chain on you when it comes to regulatory matters and approaches.

Ms GRIERSON—Absolutely.

ACTING CHAIR—In terms of the area of provision, there is a set of problems here that are not readily solvable in regional areas, in particular. There are areas which demand intervention by the company, companies or the government in order to sort it out—and we have seen that with the remote provision, particularly. You cannot otherwise provide it because it is uneconomic, and Telstra has had a long history of cross-subsidising services in the bush and so on.

I want to finish off with a couple of things. One, very strangely, is to ask you a question about wireless technology and actually get on to your particular expertise. We have had evidence indicating that, although there is a sort of wireless gold rush out there, if you look at all the activity and so on, there has been an argument that currently and over the next year or so a lot of that technology is still very flaky. But it looks as though it could be much more stable and reliable in three to five years. Do you think that is a reasonable depiction of the current state of technology? If that is so, and if the prediction is right, what is the fundamental basis for the argument that the technology will be so much better in a short period of time?

Mr Bundrock—In general, I think that is right. Many technologies that we and other witnesses have talked about are currently evolving. The reasons for that are the general level of take-up of broadband globally and the application of wireless services to support those wireless technologies. To get stability into a particular technology, you are looking at mass international take-up of that technology. Once that happens, there are large amounts of investment into high-level integrated circuits and suchlike, mass production costs come down and, for better or for worse, there is a coalescence around a particular technology. Then everyone can benefit from the economies of scale, and people can invest in solutions to particular small problems with that technology and get around them.

With the ones being used comprehensively—whether they are wireless or some other technology—you could point to a theoretically or potentially better way, but that is not necessarily adopted quickly because it does not have that critical mass. I think that is where we are with wireless today. As the demand for broadband services increases, not only here in Australia but also throughout Europe and the major world economies, particular companies will invest in technologies. One way or another certain technologies will become widely adopted, and then the technology will be more stable. I think that is the major driver here.

ACTING CHAIR—Hopefully their accounting practices will be better than WorldCom's! This rolls into the question of demand as well. This is before you reach the stage where you have a mature industry and the money has been put in—and, hopefully, gone to positive purposes. I take my example of ISDN. You indicated that our problem was that we tried to do it all locally rather than linking in with the world standard, and therefore it was a lot dearer. The take-up was very slow and it was not being pushed and marketed. You make the comment in the submission that there has generally been a lack of compelling content out there in terms of taking up broadband.

The second thing is that you say that there has been general consumer satisfaction with low-price dial-up services. Well, maybe; I would query that. I have noticed—as a user, and from talking to other members of the committee and people generally—that it is the latency effect. The slow-speed dial-up services might be all right if you did not have the problem of having to sit there forever. I will give you a simple example of a problem that is finally being addressed. We went to Windows 2000 in our electorate offices and expanded the number. There are up to four computers linked to the network in each electorate office, and there are 224 of those around Australia. It is always on. In most offices, it was almost like going back to the 286 in terms of the dial and wait: you wait almost forever. There are problems there, not so much with the system but with the way it is designed. That is an extreme example, I suppose; it could not get much worse than that. In general terms, there is potentially open-ended pricing with dial-up access. People have difficulty with the fact that they have to wait. The general behavioural thing is that people do not want to wait so much. Yet, when it comes to making the jump to broadband, people think, 'I am not looking at $50; I am looking at $80 or $100.' Do you think that psychological thing is one of the key problems with making that jump?

Mr Bundrock—I can agree with many of your comments, just from my own usage. You mentioned the psychological factor. That is households rationalising how they are going to spend their money, as everyone does every day. Now that digital cameras are becoming popular, I find that sending images back and forth is a good way to communicate, and I notice the slow speed of dial-up. I am currently going through the process of getting broadband into my house and I am sure I will benefit in other ways—getting Web pages faster and so on. That is what we are referring to. This particular application—image transfer and sharing—is the one that is driving me. Other users—businesses, for example—see other ones. The switch will happen, but it is true that everyone has to pay to have it installed in the first instance. I come from a cellular mobile background. That had a pretty slow start and then mushroomed as we brought down prices. People saw that it was not just a high-tech sort of thing but actually quite a useful device, and then there was mass take-up. I think that is what will happen with broadband.

ACTING CHAIR—As Mr Ticehurst pointed out, JPEG or JPEG 2000 helps where you have got still images and the new compression technologies are helping. But one of the possibilities is that now more people have digital cameras and even analog cameras but particularly digital movie cameras at home there will be a lot more information pumped around as time goes on with people putting movies out as well. You could not have predicted that a little while ago.

Mr Bundrock—Exactly. So MPEG4, the compression technology for moving image, certainly reduces your requirement from might otherwise have been the case, but the requirement for capacity is certainly much greater as soon as you try and transmit moving

image. If we can sustain that on our network with a reasonable pricing structure that people can afford, then that is the direction that everyone will move.

Ms GRIERSON—Is Telstra entering into very many private-private partnerships, or partnerships with the private sector, regarding the development of new technologies and options, where your profit margin may be set at a certain level to encourage you to take on something and other private partners may be able to carry a different risk factor? Are you entering into any private-private partnerships that might provide a way forward to regional Australia if government partnerships are not as forthcoming?

Mr Bundrock—Telstra tends not to enter into any partnership based on a basic manufacturer. We would prefer to be reasonably catholic in our ability to choose from any manufacturer, so there may be certain instances, but, by and large, we do not enter into partnerships that are around manufacturing a particular technology. We tend to enter into partnerships where the other player is bringing a particular aspect to the table—it could be a particular service, it could be ownership of some infrastructure. So we will enter into those sorts of partnerships, or just make straight out business investments: we think that this is a good area, it is consistent with our general business and we can benefit by that. We do get involved—for example, m.Net is an example of a federal government initiative, doing research and applications of wireless broadband here in Australia, and we are partner in m.Net. That is designed to take some local view about development of wireless services.

Ms GRIERSON—Thank you. Yes, that would be typical for most companies.

ACTING CHAIR—I will finish on what I suppose is a 'chicken and egg' thing: the question of cost and the number of people you need to have broadband accepted here. We have seen this in other countries: Singapore has put the effort in and they have got an extensive broadband facility to most of the people in their society, though, so far, they do not seem to be doing much with it; and is a similar example with Korea and there is a bit of movement in Japan. But there is still the question: once you provide this, will things just automatically happen; is there a great demand? Australia's take-up has been slow, but you have indicated that it has started to pick up. Do you think that dropping your price—which I know telecoms are averse to doing because you put the money into providing the services—would be an incentive for people to jump into this? Is there a sweet price point?

Mr Bundrock—I am told that, in the work being done in the Launceston, price did not seem to be the major barrier. It was a 'what am I going to use it for?' type of issue. But, ultimately, price must be a major factor. Certainly when I look at assertions about particular services that might be highly popular, the first thing that I do is work out what it would cost the individual, and that gives you a pretty good idea whether something is going to be successful or not. So in terms of where your 'chicken and egg' is at, there is no single answer to that question. Take-up will drive volume production et cetera, that will bring down costs and you get into this virtuous circle. It is a question of what is the value for the money and, of course, people have only so much disposable income anyway. Coming back to the central point of your question, I think the slow take-up of broadband so far has been not so much because of the cost but because of the services and applications you might use. I think we are now on the cusp of that equation changing. People are seeing more and more value in broadband, and take-up will accelerate.

ACTING CHAIR—Once people have experienced the speed and the immediacy of it, it may be more enticing. And possibly because of the older attitude to the Internet that everything there should be free, there is still a bit of that approach in terms of using 802.11 in its various parts. There is an underlying reality, though, for Telstra and for every company that looks at investing in this area. You have indicated the costs are very high. The consumers I do not think have much idea of what those realities are. Could you tell us a little about the problem that a telco has when they are looking at investment in this area—the cost of providing the bandwidth that people will want? Can you practically give us some idea of it?

Mr Bundrock—ADSL is the current technology that is evolving for broadband. The cost of that we have seen reflected in the comments about Dungog, for example. The copper network as provided was not originally designed or installed to support these types of services. ADSL needs a certain quality of the copper line itself and, secondly, it has only got a certain radial distance. So we would have a huge cost to go to X per cent of the population, whether it is 96 per cent or whatever, to re-engineer that network. I have no figure for that, but I guess it would be in billions. I do not know if there is any other figure. Wireless, it is thought, may be a way of getting around that cost, but that has its own costs. You have to pay for the infrastructure, the transmitters, the towers, the antennas, the cost in the customer's premises. So you need to aggregate traffic through your base stations that you install sufficient to pay back that investment.

Coming back to your point, how much will people pay? Having got used to dial-up being effectively free, when we go to broadband, there is a different pricing paradigm where you charge per month with some limit on usage, but basically it is a monthly charge. It is true that, once you have installed that infrastructure, the incremental cost of people's usage tends to be quite low. It is a fixed up-front cost. Wireless is not quite like that because, if I am providing capacity to an individual from a wireless tower, it is not available to someone else, so there is an opportunity cost of usage which will be factored in. So wireless needs to have, first of all, the fixed infrastructure paid usually by a fixed charge per month and a usage charge based by volume.

Within the area covered by the wireless base station, it needs sufficient usage to pay it back. When you get to low population densities, that equation becomes less attractive. It is quite a few hundred thousand dollars for our cellular base stations. Some of the other new technologies being promoted to you claim lower costs because there is less tower and transmitter power, but they are shorter range technologies. It does not answer your exact question. We will have to provide the quantitative information later to you.

ACTING CHAIR—We might explore that further in Sydney. Mr Bundrock and Dr Landrigan, thank you very much for your evidence today and for the quality of the submission that Telstra put in. There is plenty of material in there which we will be able to explore aspects of later, particularly the regulatory questions and so on. My apologies to Mr Bernard from the Hunter Economic Development Corporation, because we are late, but I think that was useful. Your submission directly relates to a lot of the things that we have been talking about.

Proceedings suspended from 11.54 a.m. to 12.13 p.m.

BERNARD, Mr Edouard Levier, Information and Communications Technology (ICT) Project Officer, Hunter Economic Development Corporation

ACTING CHAIR—Welcome. Although the committee does not require you to give evidence under oath I should advise that the hearing is a legal proceeding of the parliament and warrants the same respect as proceedings of the House. The giving of false or misleading evidence is a serious matter and may be regarded as contempt of parliament. I believe you wish to make some introductory remarks, based on a very good paper that you put to us, before we proceed to questions.

Mr Bernard—I am very happy to present that submission to the inquiry from the Hunter Economic Development Corporation. It highlights some achievements over the last couple of years in our work with rural communities as we try to improve their situation. I have prepared a statement and I will go over the major points.

The communities of the Hunter and, in particular, the upper reaches of the valley have poor quality infrastructure. This was evidenced by a report funded through Networking the Nation back in 1999. As a coordinator for the Community Technology Centre program, which is funded through the office of information technology, I travel around most small towns in the region and receive many complaints and a lot of feedback about poor service delivery in the community. Most of the complaints stem from the poor customer access network. For example, people complain about noisy lines. I do not think it is a secret that a lot of the copper in the ground in rural areas is fairly poor and has probably been there for in excess of 50 years or so.

One of the major complaints is that there is poor access or low connection speeds to the Internet. Typically, in some circumstances, that has been as low as 12Ks to 20Ks. Last year I called communities there and got some feedback. I got them to connect to the Internet and then rang them back, and they told me what the connection speeds to the Internet were. It is a very frustrating situation for them. I heard my colleagues from Telstra talk about demand and access. I would suggest that one of the reasons for people not connecting and sticking with it could be frustration.

Other problems present in the customer access network are the remote integrated multiplexes, the RIMs, and the pair gain systems. Basically, a lot of those are put in there for cable relief. It is a way of concentrating a lot of connections on one cable pair. If these country towns have access to ADSL—and some of them do in the Hunter region—anybody on one of these RIMs or pair gain systems cannot get connected to ADSL; you cannot connect if you are on those sorts of devices.

To set the scene a little bit, the HEDC has worked hard over the last couple of years to assist communities in bridging some of these access issues. This has been achieved through some programs through the federal government, setting up of community technology centres; they are known also as telecentres. These facilities are usually located in the main street of a town and provide access to high-technology computer facilities, and they have a broadband connection. These facilities are made available to the entire community. They give people access to high bandwidth, and so they get a taste of this speed that we have been talking about this morning.

This year the broadband connection to all these facilities will be upgraded by a two-way satellite service. That is being funded through a project through the State Library of New South Wales and is called the Rural Link project; it is also federally funded through Networking the Nation. This will provide a hub site, which is the two-way satellite service. That is being provided by Telstra—they won the tender for that—and two 802.11e radio links to two other not-for-profit organisations in those communities. So, essentially, in New South Wales there will be 90 of these sites set up and, potentially, that will mean 270 locations will be covered with increased bandwidth in those rural towns. We are fortunate in the Hunter in that quite a few of these community technology centres will be connected to satellites.

One of the other high priorities of the Hunter Economic Development Corporation has been the attraction of SaskTel, an international telecommunications carrier, to the region. They are planning a large broadband cable rollout in Newcastle and in the Lake Macquarie areas, basically passing 100,000 homes and 16,000 businesses. We see this as a major achievement from a lot of the work we have been doing over two years to attract a carrier here. One of the big things is that this will provide major competition for Telstra and it will also remove the cherry picking that has been going on in Newcastle over the last five years.

Over many years a number of carriers have come up here and given us all sorts of promises. Really, all they are after are the large corporate and government customers such as call centres and things like that. So they will come in and lay cable, service those customers and then move on. You do not really hear much about them after that. That is one of the things we have been battling.

These are just some of the things I believe could improve the situation in the rural areas of the Hunter. Telstra have talked about their CDMA network. I understand that wideband CDMA, which is their third generation mobile network, can deliver up to two megabytes of data rate. That means that customers, from small towns in some of those outer reaches, could get access to a reasonable bandwidth. That could be one option.

A better allocation of the spectrum could allow carriers access to portions of it not used in country areas. As you know, when the spectrum auctions occurred and companies like Unwired Australia bought the 3.4 gig spectrum for wireless technology, they basically bought the Sydney licence, which covers the Hunter. So they got Newcastle and the Hunter. But on a lot of occasions these carriers buy the spectrum but do not ever roll out the technology in the country areas. That really precludes any other carrier perhaps wanting to set up in the region. I see them being disadvantaged in that respect. Maybe the ACA, through government policy, could change that situation and perhaps allow local carriers access to spectrum. It would probably have to be subsidised or some arrangement would have to be made, because I do not think local carriers have the capital to spend on spectrum; but they could achieve connection in rural areas, if they had a help along.

One of the other interesting technologies—I have not heard anybody talk about it yet—is power line technology. This is starting to move in the US and in some parts of Europe. A combination of this sort of technology, which utilises the utility's powerlines to deliver broadband, could be one of the solutions considered in rural areas. As you know, there are four or six wires that go into a house on a farm. It is a lead-in copper cable that comes off the Telstra Customer Access Network or powerlines coming off the power. Using that power infrastructure

would be another way of delivering broadband, and there could be a wireless power line technology combination to do that. I know that in New South Wales companies are looking at trying to set up some trials around that sort of technology.

In conclusion, to improve last mile access to homes in the Hunter, I believe there needs to be a shift in government competition policy to somehow allow competing carriers, willing to provide service in rural areas, breathing space to establish themselves. Under the present system, it is uneconomical for these carriers to provide service without some form of government subsidy. In essence, recommendations need to come from this inquiry to ensure that regional and rural Australia's needs are met into the future. In other words, we need to future-proof regional and rural Australia, or they will always be playing catch-up.

I have just a few more comments. I have worked in the telecommunications industry for a long time. In my view, all that has really happened is that the network has been upgraded regarding exchanges and infrastructure to exchanges, like the interexchange networks and so forth, but not a lot of work has been done past that point. This is really what this inquiry is all about: that last mile delivery and finding a mechanism to provide service to some of the people in the country.

ACTING CHAIR—Thank you. First questions go to a local federal member of parliament, the member for Newcastle, Ms Grierson.

Ms GRIERSON—Thank you, Mr Chairman. Certainly I thank HEDC for presenting, and Mr Bernard particularly. He is very highly regarded in our community and provides excellent advice to people like me, who have had to learn a great deal in this area. Starting with the Telstra broadband facility that is here: low take-up, invisible marketing and high costs. How do you think Telstra could have done it differently to make that broadband service perhaps more user friendly in this region?

Mr Bernard—When they first launched ADSL in Newcastle, they had a lot of technical difficulties in the network. I think that had something to do with the procurement of equipment they got from a particular manufacturer. That put a bad taste in a lot of people's mouths. People that had got onto earlier adopters of that technology or had very bad experiences. We saw Telstra do a backflip and actually provide rebates to a lot of those customers. The other thing, I think, is the cost structure. I believe that the cost structure bar is set a little too high. I think the basic offering that they are providing at the moment is a little out of the ballpark for a lot of community members. There is the issue of where it is installed in exchanges. It does not always cover particular areas of Newcastle. Even though they say they have 96 per cent penetration, sometimes I wonder how they derive that figure. Also, I think there is the lack of marketing. I think there was a strategy behind that. I do not think they had a lot of equipment in the network at the time. I think there was a danger that, if they marketed it heavily, they would not be able to meet commitments on delivery and that would then cause problems for them.

Ms GRIERSON—So those sorts of experiences perhaps have delayed the take-up; and unfortunately we probably would have liked to see that being done differently. The other thing you have raised, which I think is important for the committee to consider—and it was reinforced earlier by the Dungog presentation—is that the existing infrastructure does not perhaps match the promise. Telstra keep telling us about the service being available all over

Australia. But we are hearing that the copper service is old and it is not highly reliable. You are talking about speeds as low as 12Ks in some areas, and that would be exceedingly frustrating for rural and regional Australia. Do you think our region would be unique in experiencing that?

Mr Bernard—No. I think that is ubiquitous right across regional and rural Australia. I do not think that is new to the Hunter. I just use the Hunter as an example because I work here. I know that, over the last few years, Telstra have made a lot of inroads with their CAN 2001 project and their distribution area rehabilitation projects. But that is only the tip of the iceberg. I think a figure of a few billion dollars has been mentioned here in connection with trying to repair that network. I think it would be very difficult for Telstra to get that network up to a condition that could deliver reasonable services—out in rural areas of this valley anyway. In the townships, it is a different kettle of fish. It is when you get 12 or 20 kilometres down the road and up laneways. Cable on private property that was put in by Telstra years ago is now breaking down, and a lot of rural communities are a little unhappy about that situation.

Ms GRIERSON—You have talked about SaskTel. I know the work that has been done in trying to attract and assist investors who will invest in broadband. That is a service that one would think would provide some cost competition for Telstra. I am aware that the federal minister has been unavailable to that investor. I must say that the chairman of this committee met with SaskTel when they were in Canberra recently, and I am very pleased to see that interest extended to them. What do you think federal government could have done to assist that sort of investment? I know that the state government has had to assist with planning and all sorts of other regulations. But you talk about a moratorium or a break for companies in their initial phase. Could you perhaps expand on that?

Mr Bernard—I think one of the major problems with telecommunications carriers is that sometimes they are looking for a fairly quick return on their investment. Typically, they would be looking at a business plan over three years and wanting to break even after that time. While that attitude is in the marketplace, it makes it very difficult for a company to justify to their boards coming into a rural area. I think SaskTel have a little bit of a different mind-set and are looking for a return on investment over quite a long period of time. That is yet to be set up, and only time will tell what happens there.

The first part of that question was about what the federal government could have done. When they first found out about the project, they were pretty excited. I got a call from DCITA. I put them in contact with the right people, and they went down to Canberra and met a few people. But things fell away after that. I did not see any real action. There was no, I think, substantial help for that carrier from the federal government. Here we had a carrier—an overseas carrier—willing to come to a large regional area that has not been well serviced. I think the federal government could have done a lot more to cut through some of the red tape. They had a lot of issues about pay TV. That is before the ACCC at the moment and it is looking a little bit more positive now.

Things like those issues can jeopardise a project like this in Newcastle. If SaskTel believe that they could not get access to pay TV they might just walk away from the whole thing and we would be left in the same boat as most other regional areas. The predominant carrier here is Telstra. We have a few local loop carriers that have tried to do their best with the amount of capital they can actually invest in the region, and most of the others are basically resellers of

services. There is no real true competition in that market space that services households and this is the first company that has come along to actually offer that deal. There are other carriers on the fringe that are now showing some interest because an international carrier is interested in setting up. That is an interesting one, whether they would have come if SaskTel did not want to invest here. I hope that answers your question.

Ms GRIERSON—For the committee's information they are 100 per cent government owned. It is interesting to see those entrepreneurial ventures from other government owned telecommunications companies. You mentioned Unwired owning spectrum here and not using it, therefore limiting other people's access to it. In terms of our regulations, do you think that the licence was given for that without enough conditions and should we be able to buy back unused spectrum like that?

Mr Bernard—One of the things the ACA could do is that if a company does not use that spectrum after a certain amount of time it could be recovered and reallocated to somebody that wants to use it in a regional area. Again, if we want to get out to the small towns in the region—Dungog was mentioned, and Scone, Merriwa and Denman are all small communities—it would take some sort of subsidy from the government for a carrier to go out there and roll it out. It gets back to the demand issue, and the awareness issue of what technology can do for people. With the Community Technology Centre program we are trying to address those issues of awareness and training so that people can start using the Internet as a tool. We are encouraging businesses to get online to start thinking about the information economy and how they might build efficiencies in their business using e-commerce and so forth.

Ms GRIERSON—You gave us the example of the State Library of New South Wales Rural Link, a partnership between federal and state government using state infrastructure. You mentioned the rail service and the fibre that travels with that. Do you see some extension of that into a partnership with the private sector? Is there enough capacity in that sort of service to deliver to small communities—where that infrastructure is available—on a commercial basis?

Mr Bernard—Where the fibre ends there is definitely a capacity for people to buy that bandwidth commercially. Where you have that sort of technology extended out via radio, the capacity of the links used and how you back haul that into a small town could be limiting factors. What is built to each small town will decide the customer base size, because as you load up a system you get reduced bandwidth. It is a hard one to answer. I think leveraging off government infrastructure is a good way to go because it does get something out into the bush that is not there and I applaud the New South Wales government's initiative in starting to look at that area.

Mr TICEHURST—You were talking about the telecentres that have been set up in some towns through Networking the Nation. Were they major centres around the Hunter area?

Mr Bernard—I will name the communities. We had Scone, which is a business centre in the valley. I think it has a population of around 3,000 people, maybe a bit more than that. Merriwa is another one; it has about 2,000 people. And Gloucester has about the same. So we are talking about reasonably small communities. Part of the guidelines for funding these things is to do with population size and how big the towns are, although we do have one in Port Stephens,

which was funded under a special program for youth unemployment, so that one was granted. They have usually been established in the smaller centres.

Mr TICEHURST—How were those towns selected to have this upgrade?

Mr Bernard—We promoted the program through Networking the Nation to the communities. My predecessor did a lot of community forums there in late 1999. Applications by communities and local councils were put in through Networking the Nation to establish those centres. My role was to assist those communities in the set-up phase of those centres.

Mr TICEHURST—We heard from Telstra earlier on that they have a universal service obligation to provide 64K. I am not sure whether that has been measured at users' premises, but that probably should be done.

Mr Bernard—That is how I understand it, really. When they say 64K, that is a basic ISDN channel.

Mr TICEHURST—To your knowledge, is that available in your area?

Mr Bernard—In some towns it is but, of course, the price was quite high. I have not got any figures here, but I know that communities were looking at the best option to get broadband delivery to the centres. Some of them did take up ISDN options. With these centres being set up, they had to produce business plans because they have got to demonstrate that they can be sustainable. So they have to be very careful about what technology they can put in there and whether they can afford it.

The Merriwa centre set up a point of presence because, at the time they got funded, there was no local call ISP access. They got extra funding to set up a point of presence and they had ISDN links put in to service that point of presence.

Mr TICEHURST—In a lot of regionals there is virtual ISP, so you can get local call access just by having a virtual presence in a town.

Mr Bernard—At the moment, a lot of communities and ISPs have got that virtual ISP access through different carriers, so they are all local call now. That happened about mid to late 2000. It has affected the local points of presence up there that relied on the business from local calls. So once the bigger carriers set up these virtual ISPs, it caused a problem or it introduced competition for those localised smaller ISPs.

Mr TICEHURST—You said in your submission that there should be more government subsidies, but the government is really the taxpayers. Networking the Nation was a federally funded project. If there are other towns that do not have Networking the Nation, were you suggesting that some of these other towns should be funded by some other government means?

Mr Bernard—No. I think any initiative that the town takes on has got to come from within the community. If you impose something—for instance, one of these community technology centres—it will not work: you just cannot go into a town and say, 'You're going to have one of these and we're going to give you this.' It is really up to the community to want one and to build

a business case to demonstrate sustainability and to show how the community will use it. That is how it works. It does not work when somebody goes into town and says, 'Well, you're going to have one of these and you're going to have this and you're going to have that,' because if people are not consulted and informed, they will not use it. The thing will fall over.

Mr TICEHURST—On pay TV, you were talking about the SaskTel and that they wanted access to other pay TV, but I thought in all these regions Austar were providing a pay TV service.

Mr Bernard—They do. Foxtel actually services Newcastle with their satellite option but SaskTel is providing a cable option. With that comes all the other add-ons that you get with cable—for instance, cable modems, ADSL and VDSL, telephony. It is a complete solution and provides competition.

Mr TICEHURST—Essentially in this country Foxtel and Austar are really the two providers of pay TV.

Mr Bernard—In the upper reaches it is Austar and Newcastle is covered by Foxtel.

Mr TICEHURST—I know there is some link between Foxtel and Austar in certain service provisions. But there is probably not enough business for a third, so I can understand why they would not want to be providing access to pay TV to another competitor.

Mr Bernard—I guess it is SaskTel's business model and the way they see that business model might work. They would obviously be looking at packaged services to sell their products and service, rather than some people taking on the cable just for the cable TV. Some of them may be attracted to the packaged services—for instance, telephony, broadband, pay TV or whatever. That may be the attraction—not only selling one of the services separately but also having it bundled.

Mr TICEHURST—And then they were looking at a particular area. As we are moving around Australia talking to different groups, you would say, 'Okay, in this area, SaskTel were looking for federal support or government support,' and if you went to another area there might be somebody else. You get to the stage where you are duplicating a lot of services that exist on current day providers. How do you see that it is the government's role to pick winners?

Mr Bernard—I can see where you are coming from. From my own experience, I have not got pay TV, but if there was a cable TV operator who was going to offer cable modem services as well as an alternative phone service, and you could get that on one cable, I might consider going on board. If I was wanting pay TV to look at the sports channel, maybe I would pay for a satellite service, because that is all that is available to me. So I am locked into a very narrow choice of operators. If I want pay TV I have got to go to Foxtel, basically—that is it. But if SaskTel comes to town, maybe I have got a choice of two. It is competition; it is about having the choice.

I am not suggesting that every time a telco comes along and says, 'We want to do this,' the federal government gives them a bag of money. I do not believe that is the way it should be done. I think there should be serious consultation with local government, community and eco-

nomic development organisations to see what the best solutions are for a town if they are going to get some sort of grant to actually set up in the town. I do not think the government should be handing the money out just because somebody wants to go there. They have got to demonstrate what they are going to do for that community and how sustainable that service will be within that community.

Mr TICEHURST—If you look at the experience with cable TV, Optus Vision set up in a few suburbs in Brisbane, a few in Sydney and a few in Melbourne. In those major centres, you have got thousands and thousands of users, but they have not seen the benefit in extending into other areas. They have not gone past their initial investments, so it makes it very difficult for an operator coming into a regional area, where there are less users, longer distances. If they cannot justify extending the cable—I agree with you that it is certainly the best way to go—in the major centres, it is much more difficult to do that in a regional area. So, if you are looking at government funding, if it is not commercially viable it is not a good deal for taxpayers either, I would not think.

Mr Bernard—If you put a network in there and it does not get used, it is wasting taxpayers' money. It gets down to the number of carriers you have got in the area. At the moment—I am talking about Newcastle and the region—we have really only got one carrier servicing us, and that is Telstra. I understand what you are saying about the competition side of it as demonstrated in your example. If there is room for another carrier in Newcastle or in this valley, I still think people would take up the services of the new carrier if they were given an alternative. That is my personal belief.

I think most people here in town deal with Telstra, and I think a lot of them are unhappy and they want choice. Now SaskTel have come in and basically they are not asking for government assistance—they are funding that themselves and through joint venture partners. I guess Newcastle could be partitioned off as a little bit different to, say, the Dungogs, the Scones, the Merriwas and those sorts of situations. I would not advocate a cable roll-out in Scone or Merriwa or places like that; it has got to be a radio solution or a combination of maybe a bit of cable and radio. But in Newcastle it is a little bit different than when you start looking at towns of around 3,000 to 5,000 people.

Mr TICEHURST—We have seen technology submissions that would provide a good link from where the local exchange has been upgraded. There is some pretty good technology around now that could actually take it to that last mile and do it radio wise, but whether it is commercially viable is yet to be seen.

Mr Bernard—Talking about that, in the Dungog example you have got an exchange in the town but Telstra is not really doing much beyond that on the customer access side of it, so people have not got a choice in being offered anything because it really is not there. If people do want something badly enough and they want to pay the money, they probably could get what they want, but that puts it out of the realm of a lot of businesses.

Mr TICEHURST—We have seen some technology that is available now that could actually fulfil that purpose, providing it is worth while for the entrepreneurs to get in and do it.

Mr Bernard—That gets to my point. Do you believe that they are going to do that? I do not believe that they will. Here we are, two years have gone since I have been in this job, and I have not seen anything happen. We have had a lot of promises from carriers coming here to say that they will do this and do that, but nothing has happened. I believe that, if this inquiry does not come up with some sort of solution, in two years time we will come back here and I bet you we are in the same boat.

Mr TICEHURST—Hopefully you are not right.

Mr Bernard—I believe that if the government does not stimulate this somehow we will be in the same boat.

Mr TICEHURST—It is a bit like that chicken and egg solution before. There are certainly some areas being set up as technology centres, and I used the example before of the United States with Silicon Valley. We have got some national phone companies and our mobile service in Australia is certainly a lot better than what existed in the US up until a few years ago, and the same thing with the ground wire system, but they have concentrated areas. You cannot provide a huge broadband service to every location because it is just impossible with our population, but somewhere there has got to be a balance. I am not sure that it is government's responsibility, but you have got to have the services that people require, or that they demand. If the demand is there, then you can provide a feed for them. I guess it is a little bit like highways: you find small back roads to small towns and larger roads and freeways linking major centres, and somewhere there is balance. Where you draw the line with telecommunication is to be determined.

Mr Bernard—With the talk of the sale of the next part of Telstra, I believe there is an opportunity for moneys to be set aside for a big project. How that might pan out in the long term is yet to be seen, but I do believe that with that sale there is an opportunity for some really concrete things to happen.

Mr TICEHURST—Yes, you are probably right—absolutely.

ACTING CHAIR—Time for me, on exactly the right point. I might just point out that 50.1 per cent of Telstra is still owned by the government, half having been sold off. The only bit that was hypothecated was the money that went to the environment, and that was $84 million more than what had already been there. The government has told us over and over and over again that if they do go through with T3, that money will go to pay off $50 billion worth of debt; they will not hypothecate anything. We will see what else they come up with to try to convince people to do something with it. I want to make that point because I noted the argument you put, just before you made it verbally, in the report. At least one of the other groups that submitted made the same point. And I think it is almost a gratuitous bending of the knee to the government: 'This is what you are going to do and we hope you will do something with this.'

The other side of this is that the money flowing back to the government is in the order of $1 billion to $2 billion a year in terms of income from Telstra and it is open to any government to actually spend part of those moneys if they wish to, because they are receipts, to try to fix up problems within rural and regional Australia. If you have got that kind of income indefinitely out there then the point that the Deputy Prime Minister made not long ago is that whatever

situation you are in, year on year there will be needs Australia-wide in the telecommunications area. There will have to be money spent on budget, so that is a little balancing up.

I want to take up a couple of points to finish off with before we go to a much abbreviated lunch. I note that this morning Telstra validated what you had said about pair gain problems and RIM problems and that actually does stop the take-up of ADSL in country Australia. That, therefore, is a major reason for them to look at wireless as providing for that.

I want to ask you about a couple of comments that you have made. First, a correction: in terms of fixed wireless access you put the argument that Unwired bought part of the spectrum and they are not using it. We have had a look at their operation. They have given some evidence. They have got a pilot project in Paddington. So they have bought the spectrum, they have got a pilot project and they have indicated to the committee that it is their intention to not only go to the major cities but to go regionally as well, but I take it you have half made this argument. You are advocating a 'use it or lose it' approach to this, so that if they do not do something after a certain period of time then that spectrum could be reallocated. At the moment, I think from the evidence given to us there is about a 15-year period that the licence is valid for and there are questions about what the government should or should not do or whether or not that 15 years is actually too short. Can I ask you for your opinion on that with this tag to go through it, that the arguments we have had put to us are that the capital investments here are very high, not just from Unwired but any of the groups becoming involved in this, and there is a worry that if they do not have the licence for a long enough period of time and if that is not renewable enough then you might not get that reinvestment all the time.

Mr Bernard—I might suggest that their spectrum is bought for other reasons as well, to lock out competition. I believe that some carriers would stoop to that; I will not name anybody. But what is a reasonable time frame for a carrier to come and set up in a region if they own the spectrum? Is it three years, five years? A lot can happen in five years. The government is pushing the e-economy and they want businesses to get online. The only way that will happen is if there is reasonable access to broadband technologies. If that does not happen that could affect growth in the economy here, locally and through Australia, because there are a lot of projections about the effect on gross domestic product of the participation in the e-economy. A lot of that GDP does come from rural areas of Australia so, if they are not serviced to the degree that they should be, the growth in the national economy is going to fall. I think that really needs to be looked at and that can all go back to the way government policy is implemented to allocate spectrum and the way they regulate the telecommunication market.

ACTING CHAIR—You have spoken about SaskTel. They were to give evidence this morning but they have not appeared. Has there been any indication that the way in which they expect to deliver the technology caused any worries that you have seen within the community. It is a cable roll-out, so that reminds us of some cable roll-outs in the past and a pretty big community reaction, almost Australia-wide.

Mr Bernard—I agree with what you are saying there. There are some bad memories with the Sydney roll-out in 1992-94, where Optus and Telstra just went full bore with a parallel roll-out. That is what my experience is. They really got councils and government offside. A lot of things have changed since then. Technology has moved along. I would suggest that things are a lot better managed these days and with the SaskTel experience, working with them over the last

couple of years, they have taken the councils along step by step all the way with a full consultation process. It has been very professional. There are still concerns from the community about overhead cabling, and that is a legitimate concern. SaskTel have indicated that if people in a street do not want the cable down there they will not put it down there, so they have been pretty flexible about it. They have actually presented their master plan for the roll-out in Newcastle and it is available to the committee from the council here.

ACTING CHAIR—How has the technology changed? Has the droop been taken out of the cable?

Mr Bernard—When you look at the technology, it may be the way the boxes are put on the poles, and the size of the boxes and the cable. Things like that may be a little more streamlined and smaller. The cables will still be on the pole and they will be three foot, or one metre, under the run. The cables are basically a little bit thinner than the backbone cables they are running around Sydney at the moment. They are actually smaller than the diameter of the powerline that is running on most of the poles today in Newcastle. They have suggested that where there is underground infrastructure—and this is written in their plan—they have to go underground. So, if service is underground, they go underground, and that is a cost to their roll-out. But the environmental sector of the community has a concern and that will have to be managed through by councils and the company.

ACTING CHAIR—We have heard evidence from Telstra this morning that the optical fibre roll-out is very widely spread throughout Australia, so the backbone is there. We have also seen the reality that there are a lot of other companies that are providing regional fibre. In southern New South Wales, for instance, there is a large loop being put in, and in Victoria we have seen the same sort of thing operating. So we are getting a doubling up and possibly a lot of redundancy in that area but certainly a great deal more capacity. In your submission you talk about Transgrid and the proposal to run fibre along current New South Wales railway lines and so on and the New South Wales government using that to take their services to schools. That is an extra form of provision. You also make the point that if you link that with wireless there are technologies overseas where you can get up to 52 megabits a second, with between 1½ and six megabits to individuals. Can you explain that a bit more?

Mr Bernard—That was going back to that powerline technology. I have read a couple of papers from overseas and actually had a meeting this morning with somebody who has been rolling out pilot projects in Australia with new powerline technology. If you do not mind, I will not name the company. He has demonstrated that they can actually deliver 25 megabits to customers over this technology. In America they might have higher rates, but their power transmission infrastructure may be a bit different. Typically they can deliver customers about 1½ megabits per second on a shared sort of backhaul line in the network. The technology is out there, but it has not been adopted widely in Australia. I believe there is room for it in rural areas. It is going to need commitment by power authorities to actually take it up and run pilots and so forth to see how it goes. Until that happens, it may not be a popular technology.

ACTING CHAIR—Specifically in terms of the last mile problem, my guess is that they can run that powerline technology over long distances in order to get it to towns and so on, but, if they are going to then run it out to individual properties, wouldn't the price of that be prohibitive—

Mr Bernard—If they have got the powerline technology?

ACTING CHAIR—Yes. Isn't that where you would then use wireless transmission?

Mr Bernard—You have to be a network designer to work out the most efficient way to get it to the major backbone. I guess they look at technologies like blown fibre, that you can attach to the neutral transmission line. It is a round tube and they have a machine that can blow single fibres through it. Or you can lay an optical fibre cable and clip it to the neutral wire, and that is fairly economical compared to stringing it or digging it in. The technology is out there—that could happen. It would not be that expensive to roll it out.

ACTING CHAIR—So blown fibre may be another solution for Midac Technologies—who knows?

Mr Bernard—It could be.

ACTING CHAIR—Thank you very much for giving your evidence today.

Proceedings suspended from 1.00 p.m. to 1.41 p.m.

SIMMONS, Mr Michael, General Manager, Soul Pattinson Telecommunications (SPT)

ACTING CHAIR—Welcome. Although the committee does not require you to give evidence under oath, I should advise you that the hearings are legal proceedings of the parliament and warrant the same respect as proceedings of the House. The giving of false or misleading evidence is a serious matter and may be regarded as a contempt of parliament. Do you wish to make some introductory remarks before we ask questions?

Mr Simmons—Yes, Mr Chairman. Soul Pattinson Telecommunications is quite a new company operating in the telecommunications market in Australia. We are an Australian company and a member of the Soul Pattinson group, which celebrates 100 years listed on the Australian Stock Exchange this year. It has its origins here in the Hunter Valley in Morpeth 130 years ago and branched into telecommunications two years ago with the need to roll out a broadband network for its sister company NBN Television. In that short period of time we now operate Australia's second largest regional access network between Melbourne and Cairns. There are over 120 points of interconnect and we now focus on the regional communities of Australia in delivering broadband services. We operate profitably, which is a rare commodity in today's market. Not only that, we actually pay income tax. We understand we are one of only two telcos in Australia that today are fortunate enough to pay income tax.

ACTING CHAIR—We appreciate your consideration.

Mr Simmons—The reason for raising that, though, is that the general theme of our position with regard to regional broadband initiatives, not just wireless, is that commercial viability is an important ingredient in any consideration. We can roll out all the networks that people desire, but they need to be commercially viable. Commercial viability is established by a number of factors, but primary in those is having a market. A market is determined by having products and services to deliver on that market. We have seen many instances where people have leveraged off existing infrastructure or capability to try and introduce some telcos products but have not delivered products and services that have been either demanded in the quantities they have taken to market or demanded in the type of product they have taken to market. That is an important consideration in your deliberations.

Ms GRIERSON—It is excellent to see SPT presenting today. I can honestly say that today has had very much a regional Australia focus, and I would be very remiss in not pointing out to the committee that SPT won the contract to provide ABC's Asia-Pacific services, so they certainly have some flexible application of their abilities. I take your last point. In your submission you also point out that people have taken advantage of leverage and offered a service that has not delivered, and that is perhaps one of the reasons why broadband is not being taken up and some of the technology options are not being taken up quickly. In Newcastle the relationship with Telstra would be fairly important. Can you tell us more on how Telstra's infrastructure can be accessed or needs to be accessed and what the commercial arrangements should be for that, or what government participation in that should be?

Mr Simmons—We do use a number of Telstra services. To put it in perspective, our spending is less than $100,000 a month at the moment on Telstra services, and I suspect we would be one

of the smallest spenders with Telstra. We predominantly roll out infrastructure wherever we possibly can. The ACCC has done a fine job in assisting in the deregulation of the market. The establishment of the price of access to the Telstra network has been managed well and handled adequately. Those prices are competitive with alternative technologies. Our only concerns relate to the process that is required for gaining access and some of the inflexibility in gaining access to the existing assets. I think we cited one example in our submission with regard to DSL, but there are a number of instances where the process involved is cumbersome and expensive—whether it be moving through various tiers within Telstra or negotiating a contract, or the terms of access to ducting or to exchanges.

Being a small telco, we avoid negotiating contracts and we sign the document that is submitted to us without debate. We do not have the capability to go through a longwinded negotiation process with a bevy of lawyers. It is much more efficient to sign the document and get on with it. A more efficient access regime—and I set that apart from a pricing regime because the ACCC continues to do a great job in regulating pricing—will help us and other parties to deploy broadband more efficiently in terms of costs and speed in regional communities. That means utilising existing infrastructure, not overbuilding and using things like new technology, such as wireless local loop or wireless broadband point-to-multipoint—using those other technologies where there is an existing infrastructure deficiency, rather than seeking to overbuild what already exists.

Ms GRIERSON—You are very supportive of a radio wireless—an antenna based wireless system?

Mr Simmons—It has a part to play. At the moment, we use fibre, microwave, satellite and copper—all forms of technology—and we deploy them all other than copper, where we use the existing network. Each of those technologies has a place depending on the customer, the bandwidth that is demanded and the location of the customer. We have seen that wireless local loop or fixed wireless access point-to-multipoint is not competitive in a reasonably populated region or in a capital city where there is existing infrastructure. The cost of deploying that network, in our experience, is prohibitive. You cannot go to market at a better rate than you can by either accessing Telstra's network or deploying other infrastructure. If that was not the case, Optus would be operating their network today. AAPT would be doing the same and there are a number of others contemplating market entry but who have not entered the market, and we know that Austar is exiting the market in this area. That is because it is not competitive in particular locations; however, it is competitive in others. A good example is the Hunter Valley, where the studs and mines are. It is particularly applicable where you have larger distances, it is more expensive to deploy fibre, there may not be the fibre in existence and you cannot get line of sight for your technology—then it has an application. The important thing is not to be technology dependent, but to deploy all forms where they provide the best solution, depending on a lot of things.

Quality of service is another very important consideration. If you were carrying real-time video from one point to another, you would not use fixed wireless point to multi point —whether it be licensed or unlicensed—if it was a critical application such as a broadcast television application because it does not have the quality of service that is required. It is shared bandwidth. So that also is an important consideration.

Ms GRIERSON—It has been suggested to us that the licensing of spectrum has led to people buying that licence and therefore restricting access to that spectrum. They not only do not use it to roll out in regional Australia but also restrict anyone else from using it. Do you think that that is a real issue in terms of perhaps having more conditions on licences and should the government be able to repurchase and reallocate that spectrum on performance criteria?

Mr Simmons—I think a condition of use is important but I do not think that is a reason for the delay in the roll-out. But a condition of use is important because there will come a time in a particular location—and we have one looming in Coffs Harbour—where, if a licence existed between two points, we could provide a service to a customer today but there is no spectrum there. If we could move on that by applying for spectrum that has been licensed and is not being utilised or has sat idle for two or three years, whatever the mechanism is, we could obtain access to that. It would be beneficial but I do not think it is an excuse for the delay in roll-out of wireless applications to date. I think commercial considerations have been a major factor in that. The withdrawal of funding by capital markets for telco initiatives has been a major issue and the uncompetitive nature of wireless in certain applications and in certain regions is also a contributing factor.

Ms GRIERSON—The committee has had many submissions that suggest that commercial viability is a major factor limiting the expansion of service. You are suggesting that, if it is the case that it is not as commercially attractive in regional and rural Australia, there should be some sort of rebate or tax break or government incentive. Could you elaborate on that for the committee?

Mr Simmons—When I mentioned commercial viability it is very important to emphasise that it is viable in certain regional areas. It is not viable in the CBD of Newcastle but it is viable in the Hunter Valley. Incentives to encourage deployment, if they remove the commercial risk to carriers, would be an incentive to a speedier roll-out. It is very important though that there must be the products and services that can utilise that infrastructure, and the recipient of the funding needs to prove a capability to deliver products and services and not just basic Internet access. If we are talking long-term utilisation of broadband, we need to focus also on development of applications other than just raw, basic Internet on demand.

Ms GRIERSON—If government were to assist in infrastructure deliveries and carriers were to invest, how would you suggest we monitor quality of service and therefore set up penalties for unreliable service?

Mr Simmons—That is a very good question. I would have to take that on notice and think about a regime to do that.

Ms GRIERSON—I can understand that you are suggesting we should do a feasibility study before any assistance is given, but certainly when assistance is given there must be ways to link to outputs and delivery as well.

Mr Simmons—It may be that the assistance is to the user rather than to the carrier, but it makes its way back to the carrier via the user.

Mr TICEHURST—Are your end users companies or individuals?

Mr Simmons—Of our broadband applications they are predominantly corporate and government carriers and carriage service providers. The carriers are organisations such as Primus Telecom and RSL Com. The carriage service providers—ISPs—are customers. And corporate and government, education, health, virtual private networks, or VPNs, for corporates and Internet access are our broadband customers.

Mr TICEHURST—You are acting primarily as a wholesaler rather than as a retailer to domestic situations?

Mr Simmons—We are delivering end products to consumers, including Internet access. We are also managing video and near video content. We manage that content, store it on the end of our network and deliver it to the end consumer. Our heritage is in video, so we are very skilled in managing and enhancing that content and then distributing it to an end consumer. So it is not limited to Internet or our customers' data network. Delivering broadband services to the household community, we are not doing other than your standard DSL type products that you see at the moment.

Mr TICEHURST—Do you have any voice products?

Mr Simmons—We do as a reseller, as a straight resold model. We do not have enough customers or have enough confidence in the long-term margins in the voice business to deploy our own infrastructure. We have taken a standard resale model that is adopted by the majority of carriers in the market but for voice predominantly access other carriers' networks.

Mr TICEHURST—You mentioned in your submission doing some research work with datacasting. Were you looking at datacasting on the analog TV system you are currently using?

Mr Simmons—No. On the new digital network that we have deployed for broadcasters we have a number of free to air broadcasters as customers of SPT. We have access to high sites, to digital transmitters and to the necessary technology to adopt datacasting in a trial mode. It is not commercially viable and it is not something we would do on our own as a pilot project. But it is an opportunity to deliver broadband applications if we can identify those and deliver those broadband applications in a trial mode, which I think we identified in our submission.

Mr TICEHURST—Do you see that as being more efficient than the VBI transmission on analog?

Mr Simmons—You are referring to the vertical blanking interval?

Mr TICEHURST—Yes.

Mr Simmons—The amount of bandwidth that we believe would be required for those applications means that it would be more efficiently done, yes.

Mr TICEHURST—Do you see a possibility there that you could do something like the satellite Internet links now where you would have a land link that called up a service and then deliver it via datacast in digital?

Mr Simmons—The essential ingredient would be the back channel to request the data. That back channel could be a standard ISP service, dial-up or 56k dedicated modem.

Mr TICEHURST—So it could be a quite efficient way of getting that sort of service out into rural areas?

Mr Simmons—It certainly can be. Up to 45 meg out of a transmitter, our engineers assure us.

Mr TICEHURST—On the area covered by your facility, I think you said you have got backbone from Cairns to Melbourne.

Mr Simmons—Yes, with in excess of 120 points of interconnect today. We deliver broadband services into some very small regional communities. One that comes to mind is a place called Stuarts Point at Kempsey. I am not sure of the population but I think it might be a few hundred people. We have a customer there. We are about to deploy to Casino, which is another very small township.

Mr TICEHURST—Would you link into, say, a Telstra exchange and then have a link from there to your client? Is that how it works?

Mr Simmons—Predominantly, no. Our most popular approach is to create our own POP, or point of presence. We deploy a customer access network at that POP, and that enables us to run other services into that customer access network. So not only are we developing points of presence but we are putting a customer access network there, somewhere where a customer can run some other form of technology into our customer access network. One of our customers in Lismore is running a wireless local loop or point-to-multipoint network adopting some Austar spectrum that they have been able to access from Austar to run the sort of technology we are talking about today. I believe they will be viable and deliver a good service in that region. That service can access our customer access network, which then has connectivity with the rest of Australia on our backbone. That is probably a good example of an application in this particular wireless area of interest occurring in the next few months.

Mr TICEHURST—Does your customer access network link in to Telstra's customer access network so that people can have phone calls?

Mr Simmons—We do not have a voice interconnect with Telstra. We only have broadband interconnect with Telstra in various exchanges throughout regional Australia. We use that to provide connectivity between our customer and ourselves.

Mr TICEHURST—In your submission, you said you had great difficulty in organising links to Telstra. Why do you think that is the case?

Mr Simmons—Gaining access? I am not in any way alleging that there is an intentional delay process—it is just the process and the time that it takes to gain access to infrastructure other than through an established mechanism. If we wanted to buy a megalink or an onramp service, there is a standard process and it is quite efficient, taking within 40 days. But if we want to do something a bit out of the ordinary, such as gain access to a high spot or deploy some infrastructure in exchange, the process is quite cumbersome and it is very expensive to negotiate

agreements and to offer up security. The terms of access are much more stringent and difficult than they would be dealing with other carriers. We can gain a point of presence in another carrier's location in a matter of days; you would never gain access to Telstra's network in that sort of time. And you would be asked to put up a $50,000 guarantee or enter into a bank guarantee and all those sorts of things to gain access to that infrastructure.

Mr TICEHURST—So it is a little like a smaller company dealing with something much larger?

Mr Simmons—Yes, and what we tend to do is avoid all that and sign whatever they want us to sign and get on with it, because the cost of negotiating is more expensive than whatever saving you may obtain.

Mr TICEHURST—I understand. How far west and north-west does your area cover?

Mr Simmons—As far west as Dubbo, Bathurst, Armidale, Coonabarabran—we are chasing a customer in Coonabarabran at the moment that we are hopeful of signing. That is the reach of the network; that is the backbone. The spurs from the backbone to create the CAN—the customer access network—are then deployed when a customer is signed. That is one of the reasons for our profitability: we invest in the revenue streams, not the infrastructure. It is a very important consideration. As the customer arrives we deploy the broadband to the customer's premises, and we hope then that, if we do not have a point of presence, we can use that customer's point of presence to bring other services in. So it is eventually like a spider web rolling out, I suppose.

Mr TICEHURST—So if you want to provide broadband into a place like Dungog, how would you go about that?

Mr Simmons—We would do a spur off our site at Dungog. Putting my other hat on as NBN Television, we run a translator at Dungog and we would run a microwave point-to-point link into Coorei and then we would run a spur off that—probably a 34 meg link. We would try to anticipate future demand in Dungog and not go too high too soon. One of the beauties of wireless is that you can always pull it out and move it, which we would do if the demand grew beyond 34 meg. We would put some sort of routing or ATM switch to hand off traffic to our customer—if it was our first customer, say a TAFE campus, a high school or a hospital location in Dungog would be a typical customer—and then run other services into there for other customers in the region.

Mr TICEHURST—So you have a lot of flexibility?

Mr Simmons—Yes. I think that is probably a secret of what we have done. We do not limit ourselves to a particular method of deploying network; we are not vendor dependent in terms of the technology we adopt. We are not technology dependent either—all mediums are used.

Mr TICEHURST—Very good. You have got an ISP—Kooee. Is that one of your companies? Is that wholly owned?

Mr Simmons—It is a wholly owned subsidiary of SPT. It is our resale company: any resale activity that is non-network deployment is done through that Kooee brand. SPT carries some of those services that Kooee offers on its owned network, but SPT is the infrastructure builder, owner and operator. It is the company that operates the network Melbourne to Cairns, and the customer access network. That is done by SPT, which is the licensed carrier. Kooee is about winning customers in this field and generating business for later migration.

Mr TICEHURST—Fair enough.

ACTING CHAIR—I am still not sure about this. You go from Melbourne to Cairns; have you laid your own fibre?

Mr Simmons—No. It is point-to-point microwave. It is carrier grade microwave. It has a gigabit of capacity. It utilises the existing infrastructure of underlying shareholders. So it is all microwave on the backbone and then we deploy microwave and fibre tails, predominantly. We provide some services on satellite as well for more remote locations.

ACTING CHAIR—Is that point-to-point microwave set up by you? Is it owned by you in the first place?

Mr Simmons—Yes; by SPT or its underlying shareholders. Those people, including ntl Telecommunications, WIN Television and Southern Cross Broadcasting, are all owners of some of the infrastructure that is used on which that network is run. So the underlying broadcast television involvement is retained.

ACTING CHAIR—Was that how the demand for this started? Using that as a pipe to run it out—

Mr Simmons—It was a reason for deploying the broadband. As regional television broadcasters, we required broadband capacity in regional communities and it did not exist. That was a driver. So do we buy it or do we build it? The only party to buy from was Telstra, but what we required did not exist in the locations or the quantity as a total solution. So we have seen it as an opportunity not only to enter the telco market, but also to meet the demand by the broadcasters.

ACTING CHAIR—Right. So you have been able to basically leverage off that original investment which served another purpose. Once that is done, you can then create greater commercial value by using what is there.

Mr Simmons—We had some customers that helped secure a revenue stream to enter the market.

ACTING CHAIR—There are two other key things. We have heard a lot about PoPs and now CANs. Can you explain what a point of presence is in infrastructure terms? What is it? What do you have to do to build one or make one?

Mr Simmons—We refer to PoPs, PoIs and CANs. A PoI is a point of interconnect and a PoP is a point of presence. Everyone bends the meaning of these a bit, but we regard a point of

presence as somewhere not only where our customer can interconnect into our network but where we can provide some other services, such as co-locating their equipment or handing off more peculiar traffic or more customer specific traffic. The point of interconnect often has the same functionality as a PoP except all it is is a point of interconnect: it is just plug your network into our network and your traffic is carried between the two. The point of presence often has an environment where our customers can locate—like airconditioning, a diesel back-up; battery back-up, possibly some technical resource in terms of personnel located, sometimes as much as 24 by seven monitoring. It is often a secure environment. That is what we mean by a PoP.

ACTING CHAIR—And the CAN?

Mr Simmons—The CAN is really just a box that connects our customer with our customer access network. The connection from our network and the connection from the customer's network are brought together through that one box, whether it be an ATM switch, a multiplexer or a router. They tend to be the type of technology.

ACTING CHAIR—You have grown pretty large. If you are second to Telstra, there is no-one else in the game—only two of you.

Mr Simmons—In regional coverage, in terms of points of interconnect.

ACTING CHAIR—You actually pay tax, which is a good thing. Governments like getting some income from this sort of thing. You have made the strong point that you can have as much infrastructure as you want and, if people are not using it or do not want to use it, there is a significant problem. We have seen elsewhere in submissions that there is a key problem here. There is the expectation that there may be a lot more usage, but companies have to face the fact that they really do not know.

In Telstra's evidence this morning, they indicated that it is really an area in flux and that no-one could fundamentally predict what was going to happen with the market, so the whole thing is a bit tentative. We know that there is possibly a great unmet demand in regional Australia, or an expectation of that, but you will only move to, effectively, larger entities once people put their hands up—an institution or a business—and say, 'Okay, we want to interconnect to you, and we'll take that service.' Can you envisage doing any more than that and setting up services for regional towns, where you are looking at household residential stuff, or do you think that niche will be filled by others?

Mr Simmons—I think applications will drive that. I am not aware of the Telstra evidence, but I suspect they were saying that the demand for bandwidth that was predicted four or five years ago never arrived. It still has not arrived; it is increasing slightly, but I think Ziggy was quoted a couple of days ago as saying that corporate data revenue was down. It is probably partly because the demand has not arrived to the extent that we expected, and probably some new market entrants are pinching a bit of business from him as well. I agree that certainly the bandwidth demand has not arrived. Really, the major consumers of bandwidth are Internet, email and then any customer specific data interchange. New applications will drive that bandwidth, and applications to households will drive that. At the moment, most households seem happy with dial-up Internet. With DSL broadband rollout, the numbers have been mediocre in terms of the take-up, and then you have some technical impediments as well. I think applica-

tions will drive that bandwidth and drive that demand and, once that demand is there, it will be self-feeding. As for what those applications are, a good guess is video-streaming and audio-streaming over the Internet. We are starting to see those applications coming through in Australia.

ACTING CHAIR—There is a question I forgot to ask.

Mr Simmons—Before you ask your question: yes, we would be prepared to expand our rollout to households in various forms of technology to meet that demand. But there is no use deploying network in the hope that revenue will be there. If it does not eventuate—

ACTING CHAIR—In that direction lies bankruptcy which, of course, you do not want. There is a question I forgot to ask Telstra earlier today, so I will ask you because you provide some DSL services. With the rollout of DSL, have you found problems with the technology? We have had some evidence in submissions and also a lot of anecdotal evidence that the early rollout of DSL was problem plagued. Most of that seems to be fixed, but there were some recent problems. You have been linking in and providing some of those services. Have you had any problems with that?

Mr Simmons—We have experienced the same problems that others have experienced. There needs to be one or two necessary developments to speed up our DSL deployment. L2TP, which is the layer 2 tunnelling protocol to enable us to use DSL as a tail rather than just as a means of Internet delivery, will certainly see the speed-up of DSL. That is starting to happen and there are a number of parties using it. It has definitely improved; Telstra has overcome the impediments within their network, and their Flexstream product functions well in our recent experience. Does that answer your question?

ACTING CHAIR—Yes, it does because we know what problems there are in regional Australia.

Mr Simmons—Distance is a great impediment and enabled exchanges are an impediment, but I am sure Telstra are working on it and it is in their own interest to roll it out quickly because they have customers waiting. They have spoken publicly of their wholesale strategy so I am sure they are working as hard as they can to bring it to market.

Ms GRIERSON—We heard this morning from Midac Technologies in Dungog and they were using some of your infrastructure but it was not cost-effective for them to provide a service as a small company in a regional town. We also had a presentation from Hunter Economic Development Corporation who talked about aggregating demand in small communities. If small communities could be convinced to link with the demand that is there for, say, the high school or medical services, and there were some way to spin off so that small companies and home users get some benefit from that, could you see a role for government in absorbing some of those costs? You can provide to the high school perhaps but because the commercial operator or business owner makes a profit they cannot access some of the broadband that is there. Can you see any way of aggregating community demand in a way that might encourage you to provide a service and can you see a role for government in that?

Mr Simmons—Taking a customer access network to a community for the first time requires spurring off our backbone and putting a point of presence or a point of interconnect in a township. If that was promoted in advance of our customer, yes we would do it and it would provide a pipe or a broadband connectivity into that town. There is one further important barrier in the tail or the last mile to that consumer. Unless everybody is happy to live together in one home, you have a problem in that tail. As far as provisioning the point of interconnect in that township, yes we would go to places like Ashford with 600 people who are asking for the product.

There are also a number of opportunities in the market at the moment that we are pursuing in government services where, if an alternative carrier was selected for government services in lieu of the incumbent, it would mean a second carrier developing a broadband access point in a community. Then, over time, we can look at wireless or other forms of accessing our network. Rather than being a handout that is simply spreading the business around into alternative carriers, it means that we will be deploying a customer access network to service the government business. We would still need to overcome the tail issue. A wholesale ISDN product out of Telstra would be of great benefit for us. If we could access ISDN at more competitive rates as a wholesale product and as a wholesale carrier, it would enable us to deploy 128k or 256k ISDN services to households if there was a home office type application.

Ms GRIERSON—Are you suggesting that if Telstra were to offer that to other carriers as wholesale product that could be a way for you to provide a service?

Mr Simmons—It could be a way of overcoming the tail problem for higher speeds.

CHAIR—Thank you, Mr Simmons.

[2.20 p.m.]

BUDDE, Mr Paul Gerard Theo Maria, Managing Director, Paul Budde Communications Pty Ltd

ACTING CHAIR—Welcome. Although the committee does not require you to give evidence under oath, I should advise you that the hearings are legal proceedings of the parliament and warrant the same respect as proceedings of the House. The giving of false or misleading evidence is a serious matter and may be regarded as a contempt of parliament. Do you wish to make any introductory remarks before we ask some questions?

Mr Budde—Thank you. I listened to the tail end of the previous evidence and got a little bit of the flavour. That actually prompted me to give you a slightly different sort of intro than I had thought of doing. If you look at the telecommunications market over the last 100 years, you see that telecommunications has very much grown out of social needs. It was not big business that at certain stages started it; it was very much a national interest element that started off telecommunications, and that has driven telecommunications for the last hundred years. It is only in the last couple of years that we have started looking at it from a different commercial sort of angle. That coincides with major changes that have taken place in the telecommunications world whereby you are moving away from telephone based service to what we now all call the broadband based service. It suddenly starts putting a lot more emphasis on the possibilities of this technology.

At the same time I would argue that the national interest is only increasing rather than decreasing. It is not just for big business, who rely on telecommunications. The social sort of elements, tele-education and telehealth, as well as government, are involved in building the lifestyle of people in the country, and broadband is going to greatly contribute to that, specifically in areas outside metropolitan Australia, where you see that there is a limited choice of restaurants, cinemas, football and whatever. So at a certain stage you see that having access to an alternative way of improving your lifestyle, as in broadband entertainment, is something that is not just a fancy sort of thing; it is an important element as well as the telehealth and the tele-education. I fully agree with the minister that the government is not there to fund a gambling system or a porno system, but these are tiny elements of a broadband network. The majority of the network will be community, entertainment, social or economically based sort of applications that are happening. So I would argue for a very strong sort of national interest element in that.

Australia is one of the few countries in the world that is privatising its national telecommunications company. I can only think of the US, the UK and New Zealand, but all the other OECD countries have a very large part of their telecommunications carrier in government hands. I am not necessarily saying you have to have government involvement in it, but it clearly indicates that lots of governments are seeing telecommunications not just like another chocolate factory that you can flog off and earn some money on but that it has a national interest element to it. How you protect that national interest element is a different sort of thing. You can do it through ingrained government legislation, as some countries have, so that it is absolutely not possible to sell more than two-thirds of the national carrier. Some governments have that in

their legislation. On the other side, if you have got a sound regulatory environment that protects very particularly the non-metropolitan areas of Australia, you could also argue that you do not need to have government ownership in that company as long as you make sure that you get equal access to it.

That is what my greatest fear is. I do not think we have any problems with broadband in Sydney, Melbourne, Brisbane or Adelaide—and perhaps not even in Newcastle—but if you start looking beyond that, it becomes an absolutely major problem. It will be impossible, without government guidance, to provide the same sorts of services outside these big cities. It is the same across the world, it is not only in Australia. It even occurs in small countries. I am just back from a European tour. The Netherlands is one of the most densely populated countries in the world. There is a government plan in place that clearly says that they have to provide fibre optic broadband services—they are well beyond the DSL and cable modems that we are talking about here. They are talking about a fibre optic network that has to cover every single household in the country, and they understand that it is necessary for the Dutch government to invest 1.8 billion Euro in the network to ensure that they get equal access throughout the country. And we are talking about a highly densely populated country so, if you start looking at Australia, there is no way around it—without billions of dollars from the Australian government, it will be absolutely impossible to deliver broadband outside metropolitan areas. There is no Soul Pattinson or Telstra in the world that is going to provide those sorts of services in that area.

There is an enormous amount of unmet demand. Around the world, every single broadband system has customers waiting. Every single broadband system in the world has a list of customers that are waiting to be connected. So the demand is there—we do not have to wait for fancy video-on-demand systems. The simple sort of thing that people want is high-speed Internet. Twenty five per cent of all Internet users that have had Internet for more than two or three years are totally fed up with the dial-up service and are more than happy to pay what is quite often $10, $20 or $30 more a month to have high-speed Internet access. So it is a no-brainer for most people. The unmet demand there is 25 per cent. In small business, the unmet demand is 80 per cent. Eighty per cent of small businesses who are connected to the Internet and using either email or who have a web site want to move onto broadband if it is available to them. The demand is there; it is just that the networks are unable to go into it.

There are all sorts of reasons, one of which is that they have bet on the mobile network. They have spent billions of dollars on it and they do not get the returns that they thought they would, and therefore they are running out of money. Then they scored this fantastic shareholders issue so that Telstra is not looking further than the next quarter. Can it make a profit next quarter? Traditionally, telcos have to plan five, 10 or 15 years ahead. Investments in the past have been made on cycles of up to 25 years . I am not saying that that is the case any more, but this is a long-term business; this is not something you can think of on a Saturday, implement on the Monday and get the money on the Tuesday. That is not telecommunications. If you let it be totally shareholder driven, then what will be the case when they say, ‘What is next quarter’s profit? If it is not good, then I am not going to invest’? That would be very dangerous for our country because telecommunications, as I began in my introduction, is something whereby you talk about national interest. Of course there are a lot of business matters, a lot of things that are quite easily covered in an economic sense, but on the other side, what happens if the shareholders are no longer happy with Telstra? Are we going to turn the switch and say, ‘Oh, sorry, we don’t have telecommunications’? If you look at the return on investment in

telecommunications, it is not all that fantastic. You would be better investing your money in Woolworths or in Shell.

So what are we going to do if it is no longer interesting for shareholders to invest in Telstra, and they all jump to Woolworths or to Shell? Are we going to flick the switch and say, 'There are no telecommunications in Australia any more'? Of course we will not. The government will have to step in with billions of dollars to rescue Telstra. That is what you see happening around the world. We see BT, where the government has stepped in—there is a parliamentary inquiry into nationalising the network again. The Dutch parliament is doing exactly the same. In America—you know, the capital of capitalism—Bush was on television the other day talking about the importance of broadband, basically indicating to the FCC, 'Get your act together as a regulator and start working on it.' It is exactly the same as in Australia. There are 40 per cent of Americans who will never, ever get broadband if it is not properly organised on a government level. So, it is not a hands-off approach from the government; it is very much the same as in roads, health care and education—there is an infrastructure that does need government guidance and government vision.

Mr TICEHURST—On your last point, you were talking about government becoming involved. Do you think government should be providing funding to get broadband into rural and regional Australia?

Mr Budde—There is hardly any other way. I was talking yesterday to somebody from TransACT in Canberra about it and I have got exactly the same stories from people in Canada and other places around the world. As soon as people get broadband, there is no turning around. There is no churn in broadband. People who get broadband will buy it—they are not going to give it away anymore. That is how people judge broadband. What happens is that, once you get through to people about what it is and they start to understand it, they want it.

In Canberra, there are communities that are not yet connected to TransACT. They tried to bribe TransACT to roll out the network in their suburb first because they wanted it. There are communities that are uneconomic for TransACT to connect to the network because of all sorts of environmental reasons—there might be rock or whatever. There are people within those communities who have come to TransACT and said, 'Here is $5,000. I will pay for some other people in my suburb, if you will bring the cable to my suburb.' There is a very large community driven feeling behind broadband once people actually get it.

What I see happening is that, once people start to understand what broadband is all about in Australia—we are one of the lowest in the world, by the way, in penetration—you will get community pressure to get broadband going. How these communities are going to do it, I do not know; it could well be through government funding, local funding or fundraising. There will be several options that will be used, but there is no way around it that, without government assistance, a very large proportion of Australia—roughly 40 per cent of the population—will not be able to get the start of broadband in a normal commercial way.

Once it is there, it becomes self-funding. But, as the previous speaker was saying, it depends very much on the first push to actually get the broadband to the community. From that moment on, even small communities like Dungog, as you mentioned, will be in. I sent an email around in Bucketty, which is 100 kilometres from here. There are 180 people living in Bucketty. I sent

an email around to push Telstra into broadband. From the 180 people, we now have 30 people who have said, 'Yes, we want broadband.' This is a very small community.

Mr TICEHURST—What do these people want to do with the broadband?

Mr Budde—They want high speed Internet access. There is one architect who has large files, so he has a clear application in that respect. The rest of the community say, 'I've got two kids who are on the Internet. It costs me a fortune. High speed Internet will limit the amount of money to $50 or $60. It is for the high speed. It is always on,' et cetera. Ninety per cent of people want the high speed access because they want to be permanently connected to the Internet. That is the entry application.

After two or three years, people will say, 'What else is there?' That is where I totally agree with Telstra and all the others that after that period, yes, you will have to come up with content. Do I worry about it? Absolutely not. If there is 20 per cent broadband penetration, you will see these people coming out of the woodwork bringing content. Entrepreneurs are not stupid. They come up with all sorts of movies and entertainment and documentaries and applications—things we have not dreamed of. These things will automatically follow, once you have got the infrastructure in place and people start using it. The good thing with broadband is that people want it. They say, 'Here's $50' or 'Here is $100 from my business; please link me up.' The next step is to bring in that content, which will always follow two or three years later.

Mr TICEHURST—That is very different from what Telstra said this morning. They reckon there wasn't demand there to drive it. With regard to Optus and their cable, they put in cable networks in certain localities in Brisbane, Sydney and Melbourne and they provide pay TV as well as high speed Internet. If what you are saying is correct, why hasn't there been a great demand to extend those cable networks to just add on to what is already there?

Mr Budde—There are a couple of answers to that question. First of all, these companies, Optus and Foxtel, have been totally stupid—there is no other word for it—in spending $8 billion without having a good plan of action.

You need an application; you do need something. If you deliver more of the same crap that I get on free-to-air television, why on earth am I going to pay $50 for it? No other country in the world charges $50 for its cable television system. In the US, it starts at around $US10 or $US15; in Europe, you end up somewhere around $A20 or $A22. In 1996, I predicted that, if you have a pay television system that charges $50, you will never get more than 25 per cent penetration; it is now 20 per cent. If you bring the price down from $50 to $25, you will instantly get 60 per cent penetration. People are not going to pay more for the same television that you normally get free of charge. There is nothing extra in it. That is the first problem.

If Optus and Foxtel then overinvest in duplicating those works and paying this extraordinary amount of money—the initial contract between the Hollywood studios and Australia was for $25 billion of content—how on earth are you going to earn that back? That is why the pay television and cable television prices are at least twice as expensive as in any other part of the world. If you had to pay $100,000 for a car instead of $50,000, would we then be surprised that people are not buying cars? No, we would not. The same applies to a pay television service.

Ten years later, it is old technology. Optus will have to invest $200 million or $300 million to upgrade the technology. They knocked on SingTel's door, and SingTel said, 'We've invested in Hong Kong, Indonesia, Malaysia, Sri Lanka and India; we're not going to invest any more in Australia. We already lost on Australia with investments.' If you look at the price they bought Optus for, it is now worth one-third or one-quarter less than they paid for it. So they are not going to invest extra money in a long-term investment.

Optus wants to get out of the residential market in Australia; that is my reading of the whole situation. They have not come back with an argument against me on that. They want to get out of that situation, and the first step is getting rid of that content. If they are serious about the residential market, where is their plan for an upgrade of the cable television network? This is long-term stuff; this is not something you do tomorrow that happens the day after tomorrow. You have to have a plan in place now to upgrade your cable television network in order to grow into the broadband network. Where is the plan? There has been no announcement. We have been waiting on it for two or three years; it is not coming. They are not interested in the residential market; they only want to be in the corporate market, and in the mobile market a little. That is where Optus wants to be, so do not rely on them for Australia's future in broadband.

Mr TICEHURST—You said that there was unmet demand: 25 per cent of Internet users and 80 per cent of businesses would take up broadband. How do you support those figures?

Mr Budde—We have our own research. One of our commercial activities is operating the largest telecommunications research network in the world. We have 45 researchers and over 1,000 reports on the Internet following the telecommunications market. If you want to know what is happening with pay television in Mongolia, you get it from us. We cover the whole area. Within that framework, we gather information. We look at what is happening around the world. I have been involved in this industry since 1978. I am absolutely, 100 per cent independent. I am not listening to BS from a lot of companies; I have learned my lesson and I make up my own mind. When I listen to Ziggy or Chris Andersen, I hear what they are saying not by what they are saying, but by putting it in a total context. We have a lot of background, and the predictions we have made have never failed. Our 1996 prediction about pay television was spot-on; we invented the slogan 'WEP is crap', which travelled around the world. We did not say that when everyone else said it two years later; we made the announcement in 1999. People pay us for what we are saying. We are still in business and still doing well despite the crisis. That is the sort of credibility I can give to the sorts of predictions that we make.

Mr TICEHURST—Why do you think Telstra are not listening to what you are saying about all this unmet demand?

Mr Budde—Of course, Telstra has its own agenda. The most-heard term from Telstra over the last five years is 'shareholders' value'. I am pretty sure that Ziggy has spoken to many more analysts than he has spoken to customers and that clearly shows where the emphasis of Telstra is. Telstra is there to make money for its shareholders; Telstra is not there to deliver telecommunications services. At one stage they even said, 'We might move into other markets because telephone services are not all that interesting.' You have to be very careful. At this moment they are making a $4 billion profit—it is absolutely obscene the sort of money they make—and they are not prepared to invest anything back into the long-term infrastructure in

Australia because they see it as risky. Then the next day they go to Hong Kong, spend $5 billion, write-off $1 billion, and in the deal they do with CSL another $1 billion is gone. From the $5 billion, $3 billion is left and I guarantee you that within the next two or three years at least half of that will be written off as well. Here you have a $5 billion investment that goes to Hong Kong or elsewhere overseas of which perhaps one or two billion is salvageable. I am not even talking about making profits—just salvageable.

I have been on the broadband crusade for many years and I have said that broadband is a goer—we now have 300,000 customers. That is happening. Despite the fact that we are running behind the rest of the world, broadband is currently growing with 10,000 users a month. There is demand. I have always said that and that is where you should invest—not in 3G. I am not running Telstra, they do not have to listen to me and they do not listen to me, but those are some of the things that I see happening. You have to ask yourself what is the interest of Telstra? If you ask that question, and perhaps they have said it this morning, they will say, 'We have to look after our shareholders.' I am not saying there is anything wrong with that, but in telecommunications there are two issues. There is the national interest and there is the shareholders' interest. Too much emphasis has been given by Telstra and by the government on the shareholders' interest and not on the national interest.

Where is the government's vision for telecommunications or broadband in Australia? Japan has it, Singapore has it, France has it, and Sweden has it. Where is the government's vision of where we want to see telecommunications broadband going? We have a bushfire brigade when somebody in Dubbo cries—here is $25,000. We have to do something in Broome, here is another $100,000. Poor Aboriginals, here is something for you. There is no vision, there is no strategy and that is what we need as a country. We need vision from the government. Where do we want to go? What is the goal? Telstra is also not helping us there—I am not blaming just the government. You could have expected that the largest telecommunications company in Australia would have come up with a vision of telecommunications in 2010. It does not have to be 100 per cent correct. What is the vision? What do we want to get out of it? What are we doing with tele-education? What are we doing with tele-health? We have this haphazard approach. From the money that the government has invested now in telecommunications—the rural fund—I guarantee you 75 per cent of that is wasted because there is no vision, there is no strategy and there is no coordination. A lot of that money is simply wasted. If you had vision, if you had a strategy then you could have said, 'Where are the blank areas on the map? Where can we actually fix the problem? Can this be done through Optus or through Telstra or through Soul Pattinson or whatever? Let's have a bigger plan.' There is no way in the world that anybody is going to duplicate the network in Australia. Forget about infrastructure competition, it is never going to happen. Across the world—this is not unique to Australia—every single country faces exactly the same sort of situation. That is why you are seeing that most countries are walking away from privatisation, most companies are coming back to government funded visions and strategies in that area. You cannot walk away from that; it is going to happen.

Mr TICEHURST—How do you see 2A satellite functioning as a provider of wide area service?

Mr Budde—We are coming back to the wireless theme of the day here. Wireless has been around since the 1960s but let us say in a commercial situation since the 1970s. Ever since 1977

or 1978 I have heard, 'Next year is the year of satellite communication—next year, next year, next year.' It is now 25 or 30 years later and we have not made any progress there whatsoever.

Satellite is fantastic for television pictures. It is a one-way distribution to mass devices around the world and around the country. It is fantastic technology. As soon as you go into one to one it becomes a very expensive business. An example is the VSATs—you can do it, but it is going to cost money. If we still have not figured that out after 20 or 30 years, we have to start saying that perhaps the technology has its limitations. Do not say that tomorrow it will be invented: that is rubbish. We have heard it so many times. It is not going to work. Broadband wireless, in general terms, has been around since the 1980s, and yet where is it? As soon as you have to put up an antenna anywhere, it costs money. So it will always be more expensive to have wireless systems—satellite systems or other wireless systems. They will always be more expensive than fixed networks. That is the problem with satellite: it fits; it has a nice niche market; I am pretty sure that if you pay your $5,000 or $10,000 on a remote station in Australia you will have good satellite reception; but how many people are going to spend $5000 or $10,000 for the equipment, plus paying for the running costs of the whole thing, which are at least four or five times higher than for people in the city? That is the problem. It works, but because of the cost involved in it and the limitations and the high maintenance of the technology there is this problem that it is never going to be viable outside that niche market and as an add-on approach.

Mr TICEHURST—So are you suggesting that it would be best if it was cabled for rural areas?

Mr Budde—Yes. I think the limits now start around 1,000 households, and that is coming down. Again, to give you an idea, in the mid-1990s we were talking about it being economic to run 2,500 households or buildings within a community with a cable network. That has now come down to 1,000 households. That is the American way of looking at it. So price is coming down and, therefore, the fixed networks are becoming more and more interesting for smaller communities. Beyond that there is no way in the world that you can run cables in an economic way; beyond that you have to go into wireless. Then there are two things. You will either have to charge the users more—so you will have to say, 'Guys, this is going to cost more: are you prepared to pay more?'—or you will have to come in with government subsidies and say, 'Okay, we will fill the gap.' But that is not an economic way, beyond these fixed networks. Of course, there are always exceptions. I am talking in black-and-white terms, and you may find a pocket of 600 people where it is very profitable to run a wireless system. Anybody can come up with exceptions, but in general terms it would be very difficult to run something like that without government subsidies.

Mr TICEHURST—I live in a semirural area where I have a neighbour 800 metres away and we are probably about four kilometres from the exchange. Are you suggesting that for areas such as mine cable would be an option or are you looking more at residential areas?

Mr Budde—Yes. it still is an option, and I am talking to Telstra Countrywide as we speak about situations like that for our own community. At the moment it is a combination of things. As you know, no community is exactly the same. If you have houses 400 metres or 800 metres apart, it is much better than if they are two kilometres apart. Obviously, that is the case. Nowadays there are RIMs, which are small forms of exchange that they can put in a network. They are very high quality, and using RIMs you can actually overcome the problem of people

being too far away from the exchange. So there is huge development going on to develop these RIMs to a level of quality that lets you have them in the network in rural areas outside the network.

The second development is that these RIMs get a boosting sort of facility whereby you can actually overcome the distance: you can see the distance going from four kilometres to six kilometres to eight kilometres out. The more that happens in that technology, the more rural customers will be able to connect to this network. I see that happening within the next two years. I see these developments happening very quickly. There is a lot of emphasis now on this fixed broadband network because it is the growth market in telecommunications and so there is a lot of money going into that particular area, which means you do see companies like Alcatel, Ericsson et cetera improving their equipment so that Telstra can then use it to overcome the problem.

It is on a case by case basis and, therefore, it is important that broadband wireless be seen as an infrastructure technology. If I am an infrastructure provider such as Telstra, then I look at a map of the area to see the topology, the demography and whatever: here is a river, here is a rock, here is this, here is that. So I design my broadband plan so that ADSL is here, cable is here, broadband wireless is here et cetera. It has to be an integrated part. You cannot just hive off the broadband wireless and give it to somebody else. That would be totally foolish, because nobody else can make that work. The only thing that an existing infrastructure provider could say is, 'I patched this up with a bit of wireless broadband in this particular area.' The infrastructure provider should have a choice of infrastructure options to use, and they can balance it out. In that sort of a balance, you can say, 'This might cost a little more, but you get a bit of cross-subsidy from this particular technology,' and therefore we can charge all the customers the same. Those are the sorts of advantages you have as an infrastructure provider if you have all the choices to build the best possible network for a particular area.

We have learnt our lesson so many times in Australia: do not regulate technology. For heaven's sake, do not regulate technology. You cannot say: 'This year, this is what you can do on digital vision and this is what you can't do. This is what you can do with MMDS and this is what you can do with satellite.' Mr Chair, you and your predecessors have made so many mistakes in this area; let us not do that again. Let us not regulate technology. Regulate the use of the technology. Regulate so that kids cannot get pornography; no problems whatsoever. Regulate so that rural people get proper access to broadband—not to the telephone, to broadband. If you want five, 10, 20, 40 megabits by 2005, 2010 or whatever, specify that. As to how they deliver it, it does not really matter. If they deliver it in a wheelbarrow, who gives a damn? It is not a problem for the government. It is not a problem for the citizens: 'I am not asking for ADSL, cable modems or broadband wireless; I am asking for high-speed Internet access and video on demand.' As to how you deliver it—Telstra, Optus, whoever—nobody gives a damn. So do not regulate technology. We have fallen into that trap so many times. Let us not do it again.

Mr TICEHURST—I agree.

ACTING CHAIR—Maybe they were not just regulating technology. Maybe they were flogging spectrum. Maybe they were selling licences to different kinds of services. Maybe they were taking advice from the major provider, the government-owned monopoly, that the way to

go was to knock off AMPS and put in GSM. It is not as simple as saying, 'You should not regulate technology.'

Mr Budde—No, I know that.

Ms GRIERSON—Now the committee understands a well-known phrase in Newcastle: 'Welcome to the republic of Newcastle.' We are rather independent in our thinking, and certainly that is to the benefit of this country. So I welcome your submission today, Mr Budde. I am interested in your proposal that, once people have access to broadband and realise its benefits, the loyalty factor just locks in. If that is so—and you have the data to say that is so—do you think that our service provider at the moment, the most common one being Telstra, is overpriced and that if the price were lower the take-up would be higher?

Mr Budde—No, I do not think so. I think the current pricing we have in Australia is really good. I am very happy with it—and I have been advocating for price for many years. For me to say that Telstra has a good price is something special, believe me. What they are charging is very acceptable on an international comparison. It is enough to bring in that first 25 per cent. I would love to get the poorest people in Australia on broadband tomorrow, but let us be honest: that is not a reality. Unfortunately, these people will have to follow a little later. Those are the economics of the society that we live in. Yes, it would be better if Telstra would do it for free and give everybody free broadband access, but that is not the reality. If you look at the entry-level price that we have now, it is very acceptable and it is low enough to bring in the first 25 per cent of the population. Once we have that level of broadband take-up, then hopefully the competition and the dynamics will play a role. I believe that, in five years time—perhaps I am too optimistic; let us say in eight years time—broadband access will be free of charge; we will not pay for broadband access any more. It will be paid for by the services that we buy. I am not paying to drive on the road here in front of the town hall. I pay for the car and I pay for all the fancy things but I do not pay for the road.

Ms GRIERSON—I hope that is true because it would make some of the present frustrations bearable, if that were to be the way it went.

Mr Budde—I am 100 per cent sure about that. We will see that happen. You see it already happening with the rebalancing that Telstra is doing with its telephone charges et cetera. You can see this sort of situation, for example, when you look at broadband and think about its impact for Coles Myer. Coles Myer would have the opportunity to talk to everyone individually regarding their shopping. I call this 'permission based': I give permission to Coles Myer to tell me what I should buy. I tell Coles Myer that I like Indonesian and Chinese food, this that and the other, that I have five kids et cetera. They would follow me for a while and by the end of, say, two or three months they would have a pretty good understanding of how much sugar, milk and bread I use. I give them permission—it is permission based—because I see the advantage. I do not like to shop for an hour in Coles Myer, come back home and find out that I forgot the sugar. So if I can go to Coles Myer and on the way home at 4 o'clock and there is a box of shopping that I only have to pick up—there is no enjoyment whatsoever for me to have to go through the aisles. If Coles Myer were able to deliver that service, do you not think that Coles Myer would use broadband?

Ms GRIERSON—Yes; I am sure that they would. That is an interesting scenario.

Mr Budde—If they use broadband, they will be prepared to pay for that. They are going to pay for you, as a customer, to have this service available.

Ms GRIERSON—What you have illustrated is the unlimited availability there would be of information and the marketing use of that. Certainly, that should be attractive to major corporations.

Mr Budde—Sixty per cent of broadband access will be paid for by corporate organisations. Similarly, a newspaper might cost $5 and you pay $1. Television is free but it costs money. The same will happen with telecommunications as they will be partly funded by this commercial use of the network.

Ms GRIERSON—A lot of the submissions we have seen view the use of the 802.11 spectrum as for the business traveller and for mobile young people, particularly, who want instant access to their entertainment and communications needs. You think that is a limited niche market and that, perhaps, if we wait to be able to service that niche market—the wireless market—we are neglecting our duties in just getting access, no matter what infrastructure is there, and making the best of it. Are you saying that governments should get into it and get that broadband service using a flexible approach rather than finding one method—particularly, with wireless et cetera—and that, if we delay much longer trying to service that niche market, it really has very little relevance to rural Australia?

Mr Budde—I rest my case. I was in Melbourne yesterday and I selected a hotel with wireless access. I have a little $35 card—it does not cost much—plugged into my laptop. I sit in my hotel room and do not have to worry about cables whatsoever, and it works. There are only two hotels in Melbourne and two in Sydney with this access, so it is very limited.

Ms GRIERSON—I did not stay in that one last time I was there.

Mr Budde—It is lovely; I love it, but at the same time it has huge limitations. It would be a hornet's nest for the government to become even slightly involved in licensing because it is not licensed and because there are dozens of technologies that fit into that category. Let the entrepreneurs sort it out; it is none of your business. If people want to use it, if it fits into their situation and they can get it to work, there is no problem whatsoever as long as you do not lift it out as a technology and say, 'This is what Australia is going to do' or 'These are the special regulations for it.' I think that would be wrong. Let technology run its course. I have been involved with 802.11 since the 1980s. It has now been hyped up again, but in 1986—15 years ago, it was exactly the same—there was a big hype that everybody would use that technology and then it all petered out. Once again, after two or three years, only the airports in Australia, two hotels in Sydney and two hotels in Melbourne have the technology. If there is such a fantastic business case for it, where are they?

As I mentioned, I was in Europe, in Tallinn, the capital of Estonia. The marketplace has 802 technology because none of the buildings has fibre optic cable. So you see these people in business suits—not tourists—sitting there on the terraces working at their laptops. I could not believe it. They were sitting outside because the square had access to broadband, but their office building did not. That was interesting. There are niche markets, absolutely, and if you are the right entrepreneur with the right technology at the right time, go for it; you will make a buck.

But as soon as those buildings in Tallinn have a fibre optic network, all those people will disappear from the square and go back into the buildings.

Ms GRIERSON—We had some presentations this morning from HEDC, suggesting that the state government, a federal program and the state library program are going to use cable infrastructure that is already there to service New South Wales. Do you see more flexible use of those sorts of infrastructures that are already there as being of benefit?

Mr Budde—It is absolutely critical. I see an enormous role for local government and state government rather than for the federal government, to be honest. This is community-driven stuff. This is about what people in a community want, and one community is different from another. Education in one community will be different because of the distance, for example, or, because a community is agricultural, it will be different from a town. It has to be very locally driven. I saw this and I mentioned it to the people in Canberra: 'Think a little bigger.' But it starts there. It starts from a suburb, then it goes to a city and then it goes to a state. We have a lot of state assets, such as the utility network and the rail network. I believe that state governments and local governments have a lot more to offer, and they do not even have to have the money. They can just stimulate the growth happening in that market and allow all the people to come into that market. I absolutely believe there is an enormous, untapped opportunity there. It is awareness that is needed. How many local councils would understand what broadband is all about? Very few. It is down to us all to make sure that they understand what it can do for their local community. The same applies to the state governments.

Ms GRIERSON—I hope your community of 30 users has access to a wonderful, high-speed service very soon, at an affordable price. Thank you.

ACTING CHAIR—There are some interesting anomalies here. You have told us that government should not have made any choices in the past, and they should not be making any choices about technology in the future. But if the government is the entity that is going to pay the money to subsidise the technology, my guess is they will be making some choices about what the technology is, based on the advice they get from whoever is going to win the services. I imagine that was done with a number of the rollouts recently. They can be technology neutral, but the minister would want to be asking some very serious questions about what kind of bang they are going to get for their buck, and they would have to be assured of the quality of service and the nature of the technology that would provide that and whether or not it would be a good investment. Is that true?

Mr Budde—I could not agree with you more. That is where my vision comes in. That is where I would like to see a high-level government body—not just the minister for technology but for education, health care—that actually says, 'What do we want to do with all of this? What do we want? Do we want telemedicine, do we want tele-education?' Different applications require different technology or different parameters of the technology. This is high-level stuff; this is not nitty-gritty sort of stuff. What do we want as a country in 2010? How do we want to grow to that sort of a situation? Once we have that, once the government has a vision, it can turn to the industry and say: 'This is what we want. Help us fill it in. What is needed to fill it in? Will it be one national network? Do we give it all to Telstra, nationalise the network or open up the network for anybody else to compete—or whatever we are going to do. What is the role of the regional operators? Is there a role for them? Is it economically viable for

them to do anything at a regional level? If yes, how can we stimulate regional telco developments into happening? And what do we as a government have to do?'

Quite often, it is not just about money, it is about stimulating—Queensland is good at that—government services, anchor services on the network so that they actually start developing that. Once you have that picture in place, then you can say, 'Forget about all the politics; what makes sense technology-wise?' For example, it is obvious that in cities you do things in a certain way. Then, when you start looking at regional areas, involve the local communities, because they know more than Telstra. If Telstra needs to know what is happening in Bucketty with the cables, they go to a local and say, 'Where is the cable?' They do not have a clue where the cables are. The locals know better than Telstra where the cables run in a particular area. So use the knowledge of the local community as to what works or does not work, and then start filling it in technology-wise. I absolutely agree that the government needs to approve the overall plan, but, if companies start using 802, 3.4 or WAP within the parameters of that plan, that nitty-gritty is not something the government should be involved in—apart from an auditing process. At the moment, we are missing an Australian government vision of where we want to go; a blueprint for the country for this technology.

ACTING CHAIR—That is a well-made point. But governments have had visions in the past that were based on the current state of knowledge. A previous vision was to retain a monopoly, regard that as a service in the national interest, and say that this needed to be continually pushed out and that it was one company's job to do it. But then they had another vision. There was a bit of argument about it, but they decided that they would have one competitor for five years and then everybody else could climb into the act. The result of that vision was that $8 billion was spent—that was the point you made—rolling out two fibre-optic networks, which have been dramatically underutilised ever since. I am not surprised that nobody has put their hand up during previous evidence and said, 'That is not the case; there was no problem with that.' But, when we asked Optus about it, there did not seem to be a dramatic overuse of the capacity of their network. That was part of the vision at a particular time. You have to make some decisions. Looking back at that, isn't it a serious problem that you could have done other things if that vision had not been in place?

Mr Budde—True; but I think the vision was too narrow at that stage—we only looked at pay television. I would like to look at the whole lot: telecommunications, pay television, free to air broadcasting and wireless broadcasting; look at it as a whole. This is all technology; it is only a means to get anywhere by virtue of what it can and cannot do. We have been saying, 'You have to use satellite for pay television, free to air for broadcasting and copper cable for telephone; if you want to mix, forget about it.' We regulate it so that it is impossible. That is not the way. My vision goes one step higher: forget about the nitty-gritty of these cables and what have you; what do we, as a nation, want to do in that respect? Then we can start filling it in. A cable television network might work in some areas.

When it started in 1994, my argument was that it was developed in the United States in 1948. Obviously, we were at the tail end of a dying technology with cable television, and that is what we are facing now. That is why Optus is not going to invest in it any more. Telstra is in an ideal position—it should be in an ideal position. It can mix and match. It can say, 'It makes sense for us to use ADSL here and cable here.' Again, it comes back to my infrastructure concept. An infrastructure provider should have unlimited use of all infrastructure, so that it can say, 'This

makes sense here; this makes sense here; this makes sense there.' An issue we have not discussed yet is that we are living in a world that has a democracy in favour of competition. The last thing we want is one big company like Telstra as the gatekeeper to all our information, education and health care. At this moment, you cannot do anything without Telstra; from a democratic point of view, that is totally wrong.

We have to create a situation where you have the infrastructure, and anyone who wants to use it does not have to get permission from the government. I do not have to get permission from the government to drive my car on the road. There are rules on how a car should be made—and car manufacturers have to make cars in a particular way, otherwise I cannot drive them—but, apart from that, I am free to do it. The same should apply to the broadband network, so that entrepreneurs who come up with good services can create them and customers who want these services can have them. The government should create an environment where you do not deny it if there is a monopoly in the infrastructure. You accept that there is a natural monopoly and then say, 'Now go away. How can we still create competition, based on the fact that there is a natural monopoly in the infrastructure?'

ACTING CHAIR—I gather you are roughly arguing along the lines that have recently been put forward that you should put an axe down the middle of Telstra and hive off the commercial parts that have recently been accreted onto it, all the Hong Kong stuff and the rest of it—and I totally agree with your analysis of that situation—and that Telstra should go back to being the national infrastructure provider; that that is the reality, that they should be tasked with that and that should be fully government owned?

Mr Budde—That is the global trend at the moment, yes. We can stop it for a while, we can hamper it for a while in Australia, but it is the natural trend because across the world everybody now agrees that it is a natural monopoly. If something is a natural monopoly, it might take the government in Australia a couple of years longer than the governments in Europe, but then at a certain stage also the Australian government will face it and then we will have to ask, 'How are we going to treat that?' Hopefully, Telstra in the meantime is going to give in, and the first signs are looking better than ever before. But to just rely on shareholder value issues to rule the national interest in that would be wrong. Hopefully, Telstra is going to allow others on the network on viable terms. That would be a great step forward. The government should monitor that process but, at any stage, be open to step in and say, 'For the sake of the country, we have to do this.' The natural trend at the moment—and it might take five years; I am not saying that it is happening overnight—is that you will indeed get a national infrastructure company that will be highly regulated most of the time or partly private and government owned. On the other side, you have free enterprise—Telstra retail, Optus and anybody else who can utilise that network in that respect.

ACTING CHAIR—The complication at the moment is with the half private ownership. What the government have available to them, if they want to, is effectively—and it is a term I used this morning—a choke chain, the type you would use on a dog to pull it back into line. That is sometimes very necessary, particularly when a full monopoly has been released halfway into the market economy. If it is sold off entirely, that choke chain will not be there at all—you can pass some regulations, but you have a problem—whereas if you go back to a fully owned network backbone and they have to provide that then government direction, as of old, can de-

termine, (1), that it gets built and the service is provided; and (2), that the access has to be totally open and transparent for all of the other potential providers.

Mr Budde—There are a couple of issues there on the choking side. Which companies are suffering the most? AT&T lost so much of their business. Is that government owned? It is totally privately owned. Is WorldCom, the second largest telecommunications company in the world, government owned? It is totally, 100 per cent, privately owned. BT lost $60 billion. Is it government owned? No, it is privately owned. The whole thing of choking is something that the government and Telstra invented, but it is not the reality in the market out there.

ACTING CHAIR—My point on choking is that, if you have a choke chain on a dog that is extremely vicious and nasty and that could potentially hurt young children and so on, you can pull on the choke chain.

Mr Budde—Yes.

ACTING CHAIR—You can control the entity.

Mr Budde—Yes. Privatisation is not the only way. You can have a good set of regulations, and the minister made a good start with that with the virtual separation. But then the whole thing went quiet, and now it looks like Telstra, together with the minister, is rewriting that legislation. If that is the case, that would be wrong. It should be a national interest regulation, not in the government's short-term interest of getting the most amount of money out of the privatisation. I think the share price is secondary to the national interest in privatiSingTelstra. It looks like the government position at the moment is favouring privatisation, getting the most money out of it; that the Treasury has the upper hand there rather than the people who are looking after the national interests of telecommunications.

I am not necessarily against privatisation. You can achieve a lot through good regulations, but I am missing the good regulations. The regulations are not in place. If you look at privatisation 10 years ago, the business world of Australia said, 'Privatisation of Telstra: 100 per cent agree.' At the moment it is only 50 per cent. A recent survey from ATUG, the Australian Telecommunications Users Group, indicated that 50 per cent of the capitalistic big business in Australia are against privatisation of Telstra because they all rely on Telstra more and more for their business and they see that Telstra is not investing properly in the network, that it does not deliver good services outside metropolitan areas. Everybody is complaining about that, not just rural people. If you talked to Westpac and asked them how their branch offices were, they would complain bitterly about it. The rural network has been underinvested in for the last 15 years.

In 1986 I had a meeting with Mel Ward, who before Frank Blount was the MD of Telstra. We were talking about introduction of home banking for the Commonwealth Bank. I was there with the Commonwealth Bank and a couple of technical people and Mel Ward. The Commonwealth Bank wanted to install this home bank network throughout Australia. This was in 1986. Mel Ward said, 'Listen, we can't deliver it now through the whole of Australia because we are currently 30 per cent under international benchmarks regarding the quality of our network.' Pair gain is an issue that recently came out of that sort of situation. Because of the nature of Australia, some things have been done on the cheap. To get a cable to another part of the world, to

make it thinner costs less. It does not matter if it is over five metres, but if it is over 500 kilometres it makes sense. Unfortunately, rural Australia is now suffering from the fact that we have got very thin cable out there, and who is going to upgrade it?

In 1986 Mel Ward said, 'We've got a multi billion dollar upgrading program in place.' That has never been implemented. Frank Blount came and said, 'Privatisation is the issue. Forget about investment. We want a clean balance sheet.' In 1999 Ziggy picked it up again and started to implement it. We got $1 billion invested before the Olympic Games, and the whole thing died again. Telstra's capital investment is going down and down and down. So the long-term future of the network in Australia looks very bleak. I am not saying that they did not invest at all but they have underinvested over the last 15 years. Who is going to pay for that? A privatised Telstra is not going to pay for that. Believe me, honestly, why on earth would they upgrade this 500-kilometre cable out there to five customers? Nobody is going to do that. It comes back to the government. So the government, under political pressure from the rural lobby and whatever, will be pressed into action to get these people onto the broadband network. Now you have got a possibility to address that issue. If it is privatised and you do not have proper rules in place, who is going to do it? Nobody is going to do it.

ACTING CHAIR—I have not seen a government yet that has been able to direct private companies, which is part of the problem. You mentioned pair gain. We discussed that with Telstra this morning. They said that pair gain and RIM technology actually stop them getting ADSL out in the country areas and that is a problem. You suggested, however, that the RIM technology and changes to the RIM technology can actually do the obverse. Can you explain that a bit more?

Mr Budde—I am not an engineer, so do not expect any technical details from me. Basically, with what they have been doing in RIM technology, if you replace the RIM with the latest technology—again there is another upgrade coming in, and that is always the problem, that you have to do that—then you can actually do it. On a case-by-case basis Telstra will look into that. They will say, 'Listen, if there are sufficient customers there, we're going to upgrade this RIM.' They would have to upgrade all the RIMs, for example, to bring it to that level. If we were to ask Telstra to do a total upgrade of the network so that everybody, and that may include wireless broadband, has access to the network, it would cost at least $5 billion to upgrade that. So you can do it, but who is going to pay the $5 billion? Telstra is not saying, 'Here is $5 billion. Let's do it.' They will do it on a case-by-case basis, and perhaps over a period of 10 or 15 years they might spend the $5 billion in upgrading that sort of thing. If nobody regulates Telstra in that respect and there is no commercial incentive for Telstra to do it, if there are no customers, why would you do it from a commercial viewpoint? If I were Telstra and I were privatised, I would not do it because there are no customers for me there. That is where the national interest comes in. You need $5 billion, not the $187 million that the minister proudly announced to the press a couple of weeks ago. We need $5 billion.

That is what we need. I understand that nobody can say, 'Here is $5 billion.' But let us come up with a plan. I am not asking it for $5 billion now, but to come up with a vision and say, 'It costs $5 billion and this is how we are going to pay for it over a period of time.' Not have a $250 million subsidy with T1 and a $500 million subsidy with T3, and $50 million here and there. That is wasted money. If we have this vision—we know it is $5 billion, the government cannot pay the $5 billion, Telstra cannot pay the $5 billion—how are we going to do it? We are

a rich country; we can get it. Lots of people are prepared to pay money as well, but if we do not come up with a vision and a strategy, how are we going to pay the $5 billion? How are we going to do that? It is not going to happen.

The RIMs are there but Telstra is not going to do it if it is not pressured into it or if there is no commercial reason for it to do it. Once again, I can understand that. But it is the role of the government, I think, to give some guidance and some leadership on how we are going to address that problem.

ACTING CHAIR—Some visions can be like fractured fairy tales: fragmented, a bit distorted, a bit hazy. I think Networking the Nation is a good example of that because instead of having a structured approach to building up the network and the infrastructure, we had bits of money thrown out here, there and everywhere to communities. The idea was to go to communities and ask what they wanted, but we have got example after example of video conferencing technology being put into place—old technology, very costly—when that money could have been put into basic infrastructure improvements and something else better. Would you agree with that?

Mr Budde—Yes.

ACTING CHAIR—What has been your experience?

Mr Budde—I also agree with you about vision: Hitler and Mussolini had a vision, so I realise that. But the reason why I mention it so frequently is because we have not even got a fairytale vision. We have nothing. I am really looking for leadership from the government to come up with a vision in that respect. Let us be honest about our Prime Minister. How many times has he used the word 'broadband'? I can only remember once, in February, that he used the word 'broadband'. George Bush is on television talking about broadband. With Tony Blair, broadband is a common theme throughout his speeches. We miss that sort of leadership from the government in that respect, in that vision. I realise that it can be a fairytale, and it is a bit iffy whiffy, but it gives everybody something to work on. Once you have got a vision and you start filling it in, the reality will come and there are plenty of people underneath who can actually start filling it. And it should be flexible. What technology that is in today will be different tomorrow? I think it gives everybody something to work towards. Now everybody is fighting against each other. Telstra is fighting Optus; Foxtel is fighting Austar; Labor and Liberal. It is one nation, we are all Australians.

Mr TICEHURST—One Nation?

Mr Budde—Not one nation as in One Nation. You know what I mean.

ACTING CHAIR—Not in that sense—the fundamental underlying sense in terms of providing some basic infrastructure. You mentioned the OECD experience, and we have had a period of time when privatisation has been all the go. You have argued that, fundamentally, that has broken down in the private arena—this company has gone bust, and so on—and they have recognised this as a long-term investment situation. The argument here has been couched still in the old fashioned way of everyone heading into privatisation. You have said most countries in the OECD have still got full monopoly of their telcos.

Mr Budde—Not full monopoly, no.

ACTING CHAIR—Half or so is the average?

Mr Budde—Yes, exactly.

ACTING CHAIR—They have kept that, and they have not had any problems really with running both at once because there is a fundamental national interest thing. In relation to Holland—that has got a comparable population to Australia, but a very small base—you indicated they had mandated a fibre optic connection for the whole of the Netherlands. I am interested in the technology approach they might take to that because it is readily understandable that you can have fibre optic backbones running right through the whole of Holland, from Amsterdam through to s'Hertogenbosch and out to Nijmegen, and even to a little town like Boxtel.

Mr Budde—I lived in Oss; that is not far from where you are talking about. You are doing very well in your geography there.

ACTING CHAIR—I get around. Been there, seen that. How do they intend to get the fibre optic directly into each home? Is it the blown fibre technology that people are just starting to talk about?

Mr Budde—Let me tell you more about the Dutch situation because I have just got back from it. They presented their report only two weeks ago, so this is really hot off the press. It is very similar to our broadband expert group that the minister established in February. I only came back last week. I am going to translate the last part of it and make it available to our broadband group.

ACTING CHAIR—If you could make it available to the committee, we would be very grateful.

Mr Budde—I will do that; no problems. It is mainly the conclusion of that report. They are taking a long-term vision to 2010-15. That is their end use. They are saying that, for the next couple of years until 2007-08—and do not quote me exactly on these dates, but that is roughly what it equates to—the old technologies will be the main technologies: the ADSL, cable modems and things like that. They estimate that by that time the trend will be that 25 per cent of people who have had broadband for two or three years will be ready to move on the content business—because of the 25 per cent pent up demand that I mentioned.

The two major content applications that this Dutch group found are videoconferencing between families—for instance, birthday parties. Australia with its migrants will have an ideal application for this as well as for video on demand. They are the two commercially driven applications. However, the Dutch government sees the costs for health care, in particular, and for education as a shift in spending rather than extra spending. They see that by that time, with a more knowledgeable population, they could actually shift some of the money from the health care and education budget into the technology project. You should not call it broadband—it is tele-health or tele-education. By that time they estimate that the commercial applicability for that will be there, that 300,000 Dutch people will be ready to move to the fibre optic network,

and that there will be sufficient money in the kitty to give it a commercial edge. At the same time they estimate that 1.8 billion Euro will be needed to take it from there—and they estimate that they will have the growth—and to look at the regional unprofitable areas. They will have to come back to the local communities. The local councils will have to be involved in that and they will have to start pushing it from that particular angle as well.

They do not talk about specific technologies, as far as I know. There might be something in it, but I have not read it. It is technology independent—it has to be a fibre optic network. I was talking to the utilities yesterday. Everybody around the world has started to agree that the next proven technology will be fibre optic. That will be with us for another 25, 50 or 100 years. Slowly the telcos will start to understand that it is safe to invest there, unlike 3G, Web and 802 where everybody is iffy about it. Across the world people will start to say, 'Fibre optic is the way to go. This is a proven technology. It is safe to invest.'

Blown fibre is ideal when you have got an above ground network. In Holland it is all underground—there are very few above ground situations. Then it comes to the nitty-gritty of what you can do. Blown fibre is ideal: you blow it in and blow it out, and there are good opportunities there. At the same time PLC, power line technology, is possible. It is not proven. There are tests. Will it be a possibility in two or three years? Is it useful? Be flexible: if it can deliver 50 megabytes, fine, we will use that sort of technology. This is the first mile. We should not talk about the last mile. It is the first mile that is the most important mile, not the last mile. The last mile is how telcos look at it, but we should look at the first mile.

The first mile is the critical element, but also we should have the flexibility to say, 'For the time being, ADSL is working fine. For lots of customers, to 2008 or 2010, ADSL is fine.' But have the flexibility to have this first mile changed to fibre, PLC or other technologies, if applicable in that sort of situation. Up to the kerb, you can be sure that you can use fibre networks.

ACTING CHAIR—We have looked at some general problems with the network, but we are concentrating here on wireless broadband. You have said of satellite communications that, year after year, people said that that technology was going to be it and you said no. Stewart Fisk said to me recently that year after year people have said it is going to be wireless and he says, 'No; it is going to fall over.' From a broad view of things, do you think wireless has matured greatly? Do you think it will mature technologically in the next three to five years or so, as some of the evidence has indicated?

Mr Budde—If you talk about wireless, what are you talking about? Are you talking about satellites, 3G, 802, or 3.4 from Unwired? What are we talking about—LMDS? There are so many different sorts of formats of it; there is not one standardised broadband facility. There are lots of other things with it, like the security level. It is not the same security level. There is the instability of the network. I was on the freeway, driving in to Newcastle, and the system dropped off. It works all the way from Bucketty and then suddenly, when you drive in to Newcastle, it does not. You do not expect that. That is typically wireless. That is the sort of thing that you cannot have.

I was talking about 802 with some people from PricewaterhouseCoopers the other day. These consultants are running around from business to business and, ideally, they would like to see the

consultants with a simple laptop with an 802 card that can go from building to building and work. But in building X they have technology XYZ and there is another standard. These guys need eight or nine wireless cards to walk around with eight or nine PC settings. I had to reset my PC this morning because yesterday I used 802. I have asked my IT manager about this many times. Every time, he says, 'Paul, I don't know why it is happening. It only happens with your laptop.' That is technology for you. Do you like that? No, I do not like it; I hate it.

So that is wireless for you. It works in a closed user group. If BHP says, 'We have 50 or 100 sites. We all have wireless; all the PCs are exactly like this. This is the card. This is the manager you can phone,' great, it will work. In this scattered approach, such as what you are used to in telecommunications, I can grab the phone wherever I am and I can make a phone call. I do not have to reset it or whatever; it is just working. That is not going to happen with wireless. Therefore, wireless will always be an add-on and a specialised, niche market: always. There is no way in the world that that is going to improve to such an extent that you suddenly have the same telco grade facility as you have on a fibre optic network. There is no way in the world.

ACTING CHAIR—Mr Budde, dank u wel, and may the fibre be with you. Thank you to everyone who gave evidence.

Resolved (on motion by **Ms Grierson**):

That this committee authorises publication, including publication on the parliamentary database, of the proof transcript of the evidence given before it at public hearing this day.

Committee adjourned at 3.34 p.m.