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SENATE

ENVIRONMENT, COMMUNICATIONS, INFORMATION
TECHNOLOGY AND THE ARTS REFERENCES COMMITTEE

Reference: Australian telecommunications network

THURSDAY, 8 MAY 2003

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SENATE
ENVIRONMENT, COMMUNICATIONS, INFORMATION TECHNOLOGY
AND THE ARTS REFERENCES COMMITTEE

Thursday, 8 May 2003

Members: Senator Cherry (*Chair*), Senator Tierney (*Deputy Chair*), Senators Lundy, Mackay, Tchen and Wong

Substitute members: Senator Moore for Senator Wong

Participating members: Senators Abetz, Allison, Bolkus, Boswell, Brown, Buckland, George Campbell, Carr, Chapman, Conroy, Coonan, Eggleston, Chris Evans, Faulkner, Ferguson, Ferris, Harradine, Harris, Knowles, Lees, Mason, McGauran, Murphy, Nettle, Payne and Watson

Senator Moore for matters relating to the committee's inquiry into Australian telecommunications network

Senators in attendance: Senators Cherry, Moore and Tierney

Terms of reference for the inquiry:

To inquire into and report on:

- (a) the capacity of the Australian telecommunications network, including the public switched telephone network, to deliver adequate services to all Australians, particularly in rural and regional areas;
- (b) the capacity of the Australian telecommunications network, including the public switched telephone network, to provide all Australians with reasonable, comparable and equitable access to broadband services;
- (c) current investment patterns and future investment requirements to achieve adequacy of services in the Australian telecommunications network;
- (d) regulatory or other measures which might be required to bring the Australian telecommunications network up to an adequate level to ensure that all Australians may obtain access to adequate telecommunications services; and
- (e) any other matters, including international comparisons, which are deemed relevant to these issues by the Committee.

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GRAY, Mr Adam, Executive Officer, Agribusiness and Community Services, South Australian Farmers Federation

WAY, Mr Richard John, Chair, Community Services Committee, South Australian Farmers Federation

CHAIR—I declare open this public hearing of the Senate Environment, Communications, Information Technology and the Arts References Committee in relation to its inquiry into the Australian telecommunications network and welcome our witnesses here today. Thanks for giving your time today; it is very much appreciated. The committee prefers all evidence to be given in public, but should you at any stage wish to give your evidence, part of your evidence or answers to specific questions in private you may ask to do so and we will consider your request. You are reminded that evidence given to the committee is protected by parliamentary privilege. I also inform you that the giving of false or misleading evidence to the committee may constitute a contempt of the Senate. I now invite one of you to make an opening statement before we move to questions.

Mr Way—We would like to thank you for the invitation to come along. We apologise for not having a written submission. We have a number of issues with telecommunications. Telecommunications are very important for the running of any business these days. At the moment, we are particularly interested in pushing the broadband issue. We are reasonably happy with where we are now with the minor things that are causing problems, like mobile phones in some of the outer access areas, but we really want to make sure that the regulatory system is set up so that we do not have to do this every five years. We want to have some sort of regulatory system that keeps us reasonably up to date with what is available in the metropolitan areas.

Regarding the capacity of the Australian telecommunications network, we are not really all that technically inclined, but we believe that there is capacity and technology around—with new radio and satellite technologies—to deliver virtually anything, anywhere and at any time. We represent members from across the state who have varying access levels of communications. We have members in the city who have access to cable television, right down to members out in the really remote areas on old digital radio concentrator systems. We also feel that the mobile phone is fast becoming an essential tool of trade, and we have issues there with highway coverage—where you can see the tower but keep losing the signal. That is more important as more people are relying on mobile phones. There are fewer people out there running these big businesses that need constant communications. Despite upgrades to the backbones of exchanges, the last mile of copper really is a problem. We are finding more and more that, if you are not within five kilometres of the exchange, you are really limited in the services you can get, especially in relation to data. Data is one of our big concerns. The Internet and high-speed data is fast becoming something that we really need to have access to on an equitable and cost-effective basis.

On broadband, the technology is there to provide it but, unfortunately, to a fair degree it has not been taken up. We have problems with the cost of and access to the technology. There is a real situation if you live in a bit of a grey area between being close to the exchange and out in the really remote areas where you get subsidised satellite services. In that grey area, you almost

have access to it, but not quite. You do not get any subsidy, and the service you can get is less than optimal. A one-way satellite is a bit dodgy, really. It is good for downloading but you cannot operate a two-way Internet business. ADSL almost gets there. ISDN is referred to as the poor man's ADSL or the poor man's broadband because of its speed restrictions. These days, speed and data flow is really the issue.

We were fairly disappointed with the failure of the contestability projects that were happening around Mount Gambier, in the south-east and through New South Wales. Those projects had great promise of using new technologies to deliver the local loop service and on that, hopefully, give us good data services as well. That is something we were really disappointed in. We were hoping that they might have given us some light to go forward. We would be keen to see them continue and keen to ensure that there is some more money or rejigging it so that it is attractive to the providers. I believe that no providers tendered to provide that service. The theory is good but the practicality was not. I must apologise, because we did not have a lot of notice of this and we are reading it as we go.

CHAIR—We have the submissions you put into the Estens inquiry and the broadband inquiry. We have those notes in front of us.

Mr Way—Okay. If you could ask questions out of that—because what I have here is based on both of those submissions—that would be good. There are probably other issues that are stalling access to broadband. We have highlighted in our submission that there is no major killer application that is making people want it at this stage. It is a bit of a chicken and egg situation: unless you have the killer application to make everybody want it, the providers are not going to provide it; unless they provide it, there is not going to be that killer application to make everybody want it. We would like some encouragement to ensure that that technology is available in time for when the market wants it. It is a bit hard to argue. With anything like technology, and especially communications technology, unless that service has been there for a while the uptake does not happen. Mobile phones are probably a good example, as is even the current Internet technology that has been around for a while but is starting to ramp up and drive other uses.

I should highlight that line quality, cost and access are big issues stopping broadband. Until the cost comes down for those middle people, that is really going to impede access. With regard to the regulatory measures to bring the telecommunications up to an adequate level, we feel that the private ownership of Telstra or the sale of Telstra—whatever it is—is pretty much a political decision and should be considered separately from the issue of maintaining guidelines and regulations. If you want to sell Telstra, that is well and good, but that sits over there as issue No. 1. The regulatory system and the guideline system have to be set up to ensure that we do not have to do a telecommunications inquiry every five years. That is one of the key messages we would like to send.

The sale of Telstra is a political football. You can have it as a political football, but uncouple that from the setting up of the provision of service guidelines or developing some method to ensure that customer guarantees and levels of standard service are constantly and regularly automatically updated to take what is happening with technology into account. Having said that, we believe the government should not make any further move to privatise Telstra while there is

such a big gap. It is another chicken and egg situation: if you want to sell it, that is well and good, but we do not think you should until you have fixed up a few things.

I have covered earlier that we want our legislated standards to be tied to what is commonly available in metropolitan areas—with a bit of give and take, because we understand that technology and distance cost. But if your average home has access to a two-meg coaxial data stream and we have not, that is a huge gap in availability of technology. Therefore we strongly support a regular review of service standards and believe there should be some permanent committee of affected stakeholders to keep making recommendations and reviewing the standards.

The real issue we have—and I will say it again—is the equity of access to services. Up to T1, the first sale of Telstra, a lot of the country was operating on 1950s technology. We have made a big leap into 1990s technology. We do not want to see it stay at that point. We want to keep progressing. An efficient and equitable telecommunications service is vital for the wellbeing of all Australians. To a degree it is probably like roads. Even though it may not be economically sustainable to give everybody the same service, everybody has to be able to communicate, just like it may not be economically sustainable for me to have a bitumen road past my house, but for the tourists to go past my house to a tourist centre, it has to be there. As well as business importance, there is a fair bit of social importance to make sure that we have telecommunications.

We believe—and I think many believe—that broadband will become the fixed communication standard within the next 10 years. There are some estimates that 80 per cent of telecommunications market income will be through broadband services by the year 2010. Regional and rural services cannot afford to be substandard and left behind. One suggestion we have is that, if the T3 sale goes ahead, the proceeds should go to a ‘broadband for all’ scheme to ensure that everybody has good access to this new technology regardless of where they are. That is the end of our opening statement.

CHAIR—Thank you. I have a couple of questions. You talked about the contestability pilot. Could you explain briefly what that was and why you think it failed?

Mr Way—That was part of the T2 sale. There was this contestability pilot set up in an area down the south-east and in a couple of areas in New South Wales and Victoria where they opened up the local loop to contestability. They hoped that other providers would provide it and, instead of using copper wire, would use some more innovative means of providing that local loop service. It was fairly well subsidised and supported out of the budgetary system. It failed because no providers took it up. It was promoted as a way of encouraging new technology to come out to get over the reliance on the copper wire.

CHAIR—We have Agile Communications coming in later to talk about the Coorong network. Do you think that is the sort of thing that was envisaged in that circuit contestability trial?

Mr Way—Yes. I am not sure what the state of Agile Communications is at the moment—I know that one or two things had fallen over—but the trial was to develop that competition in the local loop market which currently we have not got. I could add that the technology of CDMA phones is capable of giving us 128 kilobytes of data using this technology. Instead of having a

fixed line you have something like a CDMA phone on the wall with an outside antenna. It provides your high-speed data and you can grab it off the wall and it becomes your walk-around phone. Those are the things that we were promised that this could bring out. We have new innovative ways of using things like CDMA and wireless technology to overcome the local loop limitation, which is copper wire.

CHAIR—With regard to CDMA, you talk about the desirability of tower sharing. Did you want to expand on the notion of trying to get operators to share towers?

Mr Way—From a practical point, and as consumers, it seems really silly that in a little town there are Vodafone, Telstra and Optus and they are all trying to access the same market using their own facilities. It would be a lot cleverer if there were perhaps a national telecommunications authority that popped up the towers and handled all that. It would give us all better coverage because you are combining your efforts to provide one decent signal—one decent coverage—instead of lots of little ones.

CHAIR—Do you know if the Farmers Federation put up any submissions to the government during the tender for the highways contract, awarded to Vodafone, to ensure that there was some sharing of capacity on those towers?

Mr Way—I do not know whether we did or whether NFF did—I am not too sure. That is another issue. Vodafone getting the highways contract is good, but we know that the CDMA Telstra is the better way to go for rural areas and we were all encouraged to get them. So you have a system here and another system there. We were a bit lucky that our analog system was a universal system. It was good that you could use this phone anywhere. If you had mobile coverage you had coverage.

CHAIR—You talked about the desirability of possibly even changing the standard of ADSL so that there is potential to market lower levels of ADSL delivery. Do you want to expand on that issue?

Mr Way—That was something that I read in one of the magazines. I thought it was quite a good idea. The current ADSL standard is high, and anything to do with data speed relies on line quality. If you drop your speed you need a lower line quality; therefore, you should be able to go further. That was the reasoning behind that—instead of having all your standard products up high, you could have a slower one that you could extend past that 5 kilometre limit. From this article, there is potential for that. It is a case of slower speeds for longer distances.

Senator MOORE—Is that equity of service?

Mr Way—It probably is to a degree. It may not be the best one but it is definitely better than what we have now.

Senator MOORE—It is getting closer.

Mr Way—Yes. Again, it is the old chicken and egg situation. Until you have people using something, they are not going to realise how good it is. If you get people using a lower speed then they will demand a higher speed as their usage ramps up.

CHAIR—Could you give examples of how lack of access to broadband or decent data speeds is impeding farming business, or improving it?

Mr Way—A lack of it means less time on the computer and more time out working. We are using the Internet more and more for market information, market services and technical information—for things like weed identification pictures and that sort of stuff. There are lots of information providers providing information on the Internet. As with anything, it tends to get more graphic and data intensive and therefore you need to have higher speed. There are lots of applications. Imagine you are out in the paddock and you see a weed or a crop symptom. You take a picture with your digital camera and zap it off to your agronomist. You can do that now, but big files take a long time if you have slow speed. So it is about bringing access to information and services that little bit closer. If everyone had broadband, you would see lots of service providers like that. There could even be online accounting. Instead of having your own stand-alone program, your data entry would be straight into your accountant's site. There is that sort of stuff, and things like recording and analysing production data.

CHAIR—Have you had any complaints or comments from your members about access to government services or banking services increasingly being done through the net, and about that becoming more difficult to access due to data constraints?

Mr Way—Yes, we have. It is common that these services are being put onto the Internet. To do that reliably requires better quality line speed. The bank sites like to have lots of pretty graphics and that sort of thing. You have to log on, then they load in their flash homepage and then you click on home banking. It all takes time. If you have bad lines, you are going to get data loss and it will take longer and longer. And it is a common thing. It is not just banking. Registration for cars and stuff like that can be done online. It is really good. It means you do not have to write a cheque or whatever and you can do it at any time of the night or day. That is the sort of underlying application that is driving the need to ensure that we do have access to it.

CHAIR—In what you have given us you did not seem terribly enthused about one-way satellite services let alone two-way. What feedback are you getting from your members about the effectiveness of satellite services?

Mr Way—It is probably a situation where it depends on what you had before. If you had a radio telephone that only worked marginally, to go to a satellite system is a fairly big increase and it depends on whether or not you are on the subsidised arrangement. Generally those who have it are reasonably happy with it, but there is the cost side of it if you are not within that subsidised band. If you are looking at the one-way satellite, that is only data speed down. It is not like being on a two-way link where you can send high-speed data up. You can only receive. The one-way link still uses your old telephone line as your output link, so if that is dodgy it is going to upset things as well.

CHAIR—You spoke about the need for the universal service obligation to keep up with the new expectations of industry. What would you regard as an appropriate universal service obligation at this point for rural consumers—in broadband for example?

Mr Way—I think we have one now, the data service obligation, which is 64 kilobyte. Just offhand I am not too sure. That is probably okay at this time. I will do some more research and get back to you on that.

CHAIR—That would be good. I was thinking about the suggestion in Estens that it should be a guaranteed service of at least 19.2 kilobytes per second through the phone system, and things like that.

Mr Way—We do not call that broadband. That is on your normal plain old telephone system. We really do not think much of that either, because that is just marginally better than sending the carrier pigeon out with a note tied on its leg.

Senator TIERNEY—You drew an analogy between roads and IT communications into regional and rural areas. I would like to follow that analogy along a bit further. You said that if there was a road going past a farm and the road led to some tourism centre or something like that, we would actually upgrade that road. But what you seem to be suggesting for IT is that, if that road is not leading to a tourism centre, we should still upgrade it—I think your words were: ‘Across the country, in the cities and outside the cities there should be the same standard.’ Given the state of the roads in this country, particularly rural roads, and the sparseness of the nation as well as the resources of the nation, I wonder whether that perfect ideal solution is really achievable. It is desirable, but is it achievable?

Mr Way—Technologically, it is achievable if there is enough money and will to make it happen. We all have to communicate with each other, and if one end of the communication stream is not going to work, it means that those others cannot communicate with me. We are keen to have some sort of equity so that one part of the market does not move so far ahead of the rest, because what then happens is that people think everybody has a two-meg data pipe and they therefore design all their services to work only on that two-meg data pipe. If you are running off a 19.2K system, trying to access stuff that is designed at that higher speed, that is going to make it very hard for you to participate in the electronic economy.

Senator TIERNEY—We really have a problem with rising expectations. If you go back 10 years, if people had a reliable, trustworthy telephone that actually worked 100 per cent of the time they would be deliriously happy out in rural and regional areas. Now of course technology has moved on—people want us to move to this level. I wonder how realistic the outcome is given competing government priorities. We do have a limited amount of money, and if we just focus that money in rural areas, how are we going to balance the money we put into the rural areas—for example, in terms of fixing up roads and telecommunications, educational services, hospitals? Where does it fit in that order of priorities?

I will give you one little cameo to illustrate the problem. I am a senator for New South Wales. There is an area called Kyogle, right up in the north, near the Great Dividing Range. This shire has 400 wooden bridges because of the water coming off the great divide. I said to the councillor, ‘How old are the bridges?’ He said, ‘About 100 years on average.’ I said, ‘What is the life span?’ He said, ‘About 100 years.’ There are massive problems just fixing up wooden bridges around Australia. You say that people need to be at the end of the pipe, but they also need to get across a bridge to get home, and they are the same people.

Mr Way—I guess that is why you are a senator and I am an elector.

Senator TIERNEY—We get solutions such as, ‘Just give us all the same.’ I am trying to point out the difficulties in government and seek your comment on that.

Mr Gray—I have a comment in regard to what we see as the value of rural communities. We have an ever decreasing level of people out in rural areas because the communities are diminishing. It started off with a decrease in essential services like post offices, banks and fuel depots. People have to do business, and because of diminishing essential services out in rural communities, they were forced to look towards increasing levels of technology. The average age of farmers is over 55 and to their credit they are picking up technology in farming and in their general business very well. However, if the services are not there to facilitate that, then they are hamstrung. We believe that the telecommunications network is essential, and it is becoming ever more essential as we have seen with the mobile phone uptake in this country. It is vital for businesses out in rural areas. It is an area of equity that we see is falling short.

Senator TIERNEY—It is probably an area where developing smarter technologies might deliver the solution. I was at the information association awards dinner last night and they were talking about new technologies for farmers. Farmers go up and down ploughing their fields and just sort of sit there. They have to use a lot of IT in their business and, with what is coming, they will actually be able to do that on the tractor—they will actually be able to work on it, as long as they do not go over the side of a hill or something while concentrating on the Internet.

Mr Way—The GPS will make sure that does not happen!

Senator TIERNEY—Yes. But to deliver that to the farmer, you really have to do it through new wireless technologies or satellite technologies. Really, I suppose, in terms of getting the bandwidth you are after, it is probably those evolving technologies that might actually deliver your solutions.

Mr Way—I am fairly confident that technology will provide that. There are the low earth orbiting satellite systems—every three years someone says that is going to solve all our problems—and the higher ones that are providing the wider footprint. So the technology is there; it is just a matter of ensuring that it is used to our advantage. As Adam said, there is a social side to it, too, and a business and community side.

Senator TIERNEY—Don’t misunderstand me—we are desperately keen to keep people in country areas, but in such a vast country there is no easy solution. In countries like Singapore it is incredibly easy.

Mr Way—Yes, you just put one tower up and you’re there.

Senator TIERNEY—Yes. It is very different here.

Senator MOORE—I have seen the little grab that the South Australian Farmers Federation put out on representation, leadership, services and providing a united voice. How significant is the role of telecommunications to your members? Do they actually talk with you about their concerns? Do they see you as an advocate?

Mr Way—Yes, very much so. On things like mobile phone access, you might have a conversation in the pub and talk about that, as well as the telephone service. Internet service is something that we are being constantly asked about or asked to lobby about. It is probably not only about service access but also about call zones and that sort of thing. I had an inquiry from some members up in the Carrington area about call zoning. They were just outside one of the extended call zone systems, so they were in one of those little dark areas—their service town was nearby, but they were not in the extended zone system that gave them extra help. They were on these digital radio concentrators, as well, which are fairly marginal in the way they work at the best of times. So it is an important issue for our farming members.

Senator MOORE—Do you run any type of forum or meeting or feedback process where people talk to you specifically on this issue?

Mr Way—Not specifically, but our branch network is set up so that there are branch meetings. Any member can ring up the office and complain about the phone service.

Senator MOORE—If their phone works.

Mr Way—Yes—they might need to get the carrier pigeon out again. Quite often, from the branches, we will hear things like, ‘This is what is happening here,’ or ‘We would like this to happen.’

Senator MOORE—Is your service online? Do you have a webpage for the South Australian Farmers Federation?

Mr Gray—We do. It is currently being redeveloped.

Senator MOORE—Do people use it?

Mr Gray—Certainly, yes.

Senator MOORE—In your submission you talked about having an ongoing review process where stakeholders can be involved. How would you see that working?

Mr Way—We have not gone down to nuts and bolts, but we would envisage some sort of revolving system where, every 12 months or two years or something, the standards that are available across the whole community would be assessed to see if there are any major gaps. It would have to be some sort of system like that, where you look at what is available here and there to see what the standards are.

Senator MOORE—In some of the submissions we have received there have been recommendations for some sort of independent group that could provide people with advice on what the best thing to use would be, how they could use it and pricing and all of those kinds of things. They actually referred to it as some sort of independent advocate. That came up in a couple of places. Have you ever thought about something like that?

Mr Way—Not to that degree, but we do get messages from some of our members that they really would like something like that, because the whole telecommunications market is a fairly

confusing place at the best of times. I was in the situation, probably three or four months ago, where I was getting a phone call every other night from a competing provider saying, 'Are you on this? Well, we're going to save you lots of money.' Unless you really know—and I went through the process of doing up a spreadsheet, ringing up my current provider, finding out what it actually costs me and comparing it to what they were claiming, and then I knew—it is a very confusing marketplace. But whether something like that would ever work, I am not too sure.

Mr Gray—The National Farmers Federation currently have a sort of promotional membership deal with Telstra, and we offer discounts across the nation for people who register and are members of the NFF and state farming organisations. In that relationship we rely on the Country Wide representatives—and they have been very good in that—to provide us with information about how we can better our telecommunications service. The only problem is that we are relying on one business for that at the moment, and it is recognised that—in particular for Telstra CDMA—there is better coverage for our rural members. So we are caught a little bit in the organisations that we use to provide that sort of information. It is working well, mind you, I must add.

Senator MOORE—And that particular service covers the whole range so they can get broadband advice and processes like that?

Mr Gray—Yes, certainly.

Senator MOORE—I was going to ask about Telstra Country Wide because in one of your submissions you say that that process has been successful—having the local face of the company there. Can you expand on that at all?

Mr Way—Basically, yes, it has been quite successful, as it says in our submission.

Senator MOORE—And it has been well marketed?

Mr Way—Yes—well marketed. It is also good for the local user. They open up their local paper and there is an advert for Telstra Country Wide with a picture of the local manager and you can actually ring him up. You can ring up and say, 'Things aren't going too good,' and you can get something happening.

Senator MOORE—And they call back?

Mr Way—Yes, they will call back—they will ring you up, yes.

Mr Gray—Again, we have had a fairly good relationship on that side of things. The farming organisations have shared positions in local farming field days and things like that with Telstra, and telecommunications have been a big focus for our sites. And we do utilise Country Wide staff at our SAFF branch meetings to provide information—they bring along the satellite technology to demonstrate. So the two organisations have been very proactive in trying to assist our members in getting the best possible service and efficiencies they can from what is available.

Senator MOORE—You mentioned before the whole concept of people using a service and knowing about a service with regard to the fact that at this stage there is still not wide take-up of

some of the broadband services—you mentioned ‘chicken and egg’ a couple of times. We are doing a concurrent inquiry with libraries, and I was wondering whether you had any comment on or knowledge of your members’ use of library facilities across the state—because we know that infrastructure such as hardware and software has been put into public libraries—and whether there has been any promotion through the farming network to use those facilities.

Mr Gray—I can speak from a personal level, because I have a friend who works in the rural libraries.

Senator MOORE—That is useful.

Mr Gray—The library system, as far as I can see, has had to evolve, depending on the community and the type of usage that they are looking for. With the removal of some essential services and the declining numbers of people in rural areas, the libraries have had to evolve into different creatures over time. My friend has been particularly involved in education about Internet usage and things like that so people are able to access services. So my comment on that would be that funding should be directed to those areas, because they have to fill a gap that may be becoming wider as businesses start to leave rural areas. Rural libraries will probably need to evolve, become bigger and better, and look at specific regional issues. They would have to have the capacity to be very flexible so there would not be one area with exactly the same facilities as another.

Senator MOORE—Is there any kind of cross-promotion between your network and the libraries about what they have and what they operate?

Mr Way—There may be on a local level, but there is nothing state wise. The movement towards Internet based delivery of services is really putting the costs back on the receiver, and libraries are providing that receiving of information point. Many members of the community—not necessarily our members but the general community—cannot afford computers and Internet connections. That is the other side of this technological push—we have to provide some means for those who cannot afford it. We sell computers as a bit of a sideline, so we know both ends of it. There are a lot of people who would really like a cheap computer, but the cheap computer will not run the Internet the way the Internet will want it to run. So yes, you really have to have those public access points.

Senator MOORE—I have one last question. We have a submission from a group called the Institute for Telecommunications Research at the University of South Australia, and they are giving evidence later today. They have received significant funding for developing technologies which may be useful to rural and remote areas. Is your federation aware of that and have you been part of any discussion about what they are doing, how they are operating and how they could benefit South Australian remote communities?

Mr Way—Not that I know of—not on a formal level, no. But it would be good if we could, though.

Senator MOORE—One of the issues that has come up consistently through this process is that people are sharing concerns, talking to each other and finding out what is going on and then

being able to benefit from it. I think one of the roles of a committee such as ours is to ensure that people do know what is going on.

CHAIR—I have one final question about community size based selection criteria for Telstra services in regional areas. One of the issues you raised at the Estens inquiry was the concern about the extent to which telephone services reliability was being judged against community based criteria. Could you expand on where that issue is up to from your point of view and where it needs to go?

Mr Way—Our feeling is that with today's technology there should not be any issue around where you live or how big your community is in terms of how long it is going to take to fix up your phone system. If a contractor goes through, rips up the cable and cannot fix it for six months then that is their problem. What they should do is whack a satellite phone in the mail and that would be there in three days time. The fact that distance and community size have been used as an excuse to have lower standards is a real issue. On the Telstra side of it, there are also different standards for business and private customers. If you have a business line, you can get it fixed quicker than a private line, which is handy if you have one of each and they both go down. In the broader sense, we think some of the connection times and maintenance times are still far too long when there is the ability to put a satellite phone in a courier bag and send it anywhere around the country within two days.

Senator MOORE—I forgot to ask my question on the important issue of massive service disruption. Are you aware of that term, in Telstra speak?

Mr Way—That is when the backhoe goes through the fibre optic cable.

Senator MOORE—Yes, it refers to massive disruptions caused by such things as cyclones or floods. Is that something that you are aware of? Are you aware of how it works?

Mr Way—Not particularly, but I know in my local situation that when a backhoe did go through the fibre optic—and with Yorke Peninsula, being a little leg type thing, the fibre optic comes in but does not go out—just north of Gawler, it took out the whole of the phone system covering the Yorke Peninsula. Some exchanges are so unintelligent that they cannot even make calls within the exchange, so it virtually isolated the peninsula for some six to eight hours. It took the whole lot out, including mobile phones and everything—unless you lived by the coast and could bounce your CDMA off Adelaide. I guess we are really keen to make sure that there is some sort of redundancy built into the system so that that one catastrophic event—that is, a backhoe going through the fibre optic cable—cannot wipe out a whole region.

Senator MOORE—Are you aware of any other occasions where services went down and it was considered to be an MSD? I hate to use that term, but it is just quicker.

Mr Way—That is the only one I can think of.

Mr Gray—On that point, six to eight hours might not seem important if you have the perception that farming is just watching a crop grow, but we are talking about international markets now and live export. There has been a huge development of things like aquaculture

where they are having to sell product to a market within an hour of reports of pricing. This is not small potatoes; this is a big thing for the community. We are talking about people's livelihoods.

Senator MOORE—It is people's livelihood.

Mr Way—As perhaps an example of this, during harvest the mobile phone is beeping all the time with market updates coming through on the SMS. So yes, we rely on it. If your fax or the Internet goes down for a day and, say, the canola price drops \$50 overnight, which it is a bit prone to do at times, or the price of beans drops or whatever—

Senator MOORE—You need to know?

Mr Way—You need to know before it happens, really.

CHAIR—Thank you, Mr Way and Mr Gray, for your evidence this morning. It is very much appreciated by the committee.

[11.06 a.m.]

MANN, Mr Ian Robertson, Mayor, Mid Murray Council

WILKINSON, Mr Steven Paul, Accountant, Mid Murray Council

CHAIR—Welcome. Thanks for giving us your time today. It is very much appreciated by the committee. The committee has before it your submission, which we have already published. Would you like to make any alterations or corrections to that written submission at this stage?

Mayor Mann—There is just one slight alteration. We do have one town with a population just in excess of 2,000.

CHAIR—New census results, was it?

Mayor Mann—It has always hovered around that area, and at the moment it is over.

CHAIR—The committee prefers all evidence to be given in public, but should you at any stage wish to give your evidence, part of your evidence or answers to any specific questions in private, you may ask to do so and we can consider that request. You are reminded that the evidence given to the committee is protected by parliamentary privilege. I also inform you that the giving of false or misleading evidence to the committee may constitute a contempt of the Senate. Mr Mayor, I invite you now to make an opening statement before we move to questions from senators.

Mayor Mann—Thank you, Mr Chairman. Mid Murray Council is a fairly large regional council based on the River Murray, in South Australia. I would like to submit to you our strategic plan, which has all our statistics and also identifies telecommunications as a very important part of our stream. I have marked that with red dots.

The problems we have are documented in the submission. Because we do not have one central, large regional area which the council is based at—we have virtually our head office at Mannum and branch offices at Cambrai and Morgan, which is some 120 kilometres north—our present link between our offices is by a single Telstra line, which has a cost of about \$22,000 per annum. While initially that was found to be almost adequate, it is now really a long way below the capacity we need. We thought about purchasing another line, for almost as much money again, but with the need for videoconferencing and things like that we found that the capacity still would not be there.

In actual fact, we were pinning our hopes on a Networking the Nation project that was put in by the Murray and Mallee Local Government Association, the two development boards and the Mallee community task force. This would have set up a radio link right throughout the Murray and Mallee, and would have met our needs very adequately. It was well researched and well presented, and had the backing of all the community, but unfortunately it was rejected. I think the reason for the rejection was that it was not cost efficient, but we thought that was probably what Networking the Nation was all about: to actually help isolated country people with some

infrastructure. I hear you have Agile Communications giving a presentation this afternoon. They have got a very successful operation in the Coorong with the Rural City of Murray Bridge council. This project was to expand that through the whole region so that we could have got affordable links in that way.

Following that failing—even before that, we realised that the likelihood of success was quite small—we started to do some research into what we needed for our offices. We currently have a system almost ready to link up, which will be on a radio basis. We have four radio towers that we are paying for ourselves at a cost of about \$300,000 just for the tower part of it. Council has a budget of only \$8 million in total income. It is pretty stiff for us to fund. It would have been a lot better for us to contribute some in kind and some funding for the overall project. I know that other councils have gone their individual ways. This was designed for our own use and not for the use of the community, which is a shame because we could have addressed all the needs of the community and the council in one hit. I would like to introduce Steve Wilkinson, who is our IT man—if we have one. He is really our accountant, but he is the best thing that we have to an IT person. Steve has worked very hard to get the new project in place.

Mr Wilkinson—At this stage, I do not need to add much to what our mayor has already said. We are very happy to answer any questions you have about our submission.

CHAIR—With regard to the issue of the NTN project, what round of NTN was that?

Mayor Mann—It was under the BARN component. It is the same one that the Coorong council were successful in getting up. They have an almost local call link right through to Adelaide from Tintinara, which is some 200 kilometres away. The other real issue that we have is the lack of mobile coverage in the area. We had digital phones and we have just recently all changed to CDMA's. While a couple of us are reasonably happy with them, the majority of the staff have a lot of problems.

CHAIR—I may put this question to Agile Communications later on: is there a business case for expanding the Coorong net up into the mid-Murray area or would that not be viable?

Mayor Mann—It was to be part of this overall project. It was a large project and required funding of about \$7 million, from memory, of which about \$5 million they were asking for from the Commonwealth. The state was prepared to put some in. There would have been some local input as well.

CHAIR—What relation does the council have with Telstra Country Wide in your area in dealing with local telecommunications issues?

Mayor Mann—It is pretty good. Laurie Mortimer is the manager in that regard. We have had a bit of success in the region with mobile phones with the establishment of the cell at Alawoona, which gives a little bit of coverage on the Loxton and Murray Bridge link. We have granted development approval for a link at Chucka Bend, roughly 30 kilometres north of Mannum, which will certainly service it. Whether or not that will be successful is dependent on funding for this current year. They certainly have the design and development approvals in place. As soon as they okay it, that will go ahead. We also have a problem because we have such a lot of holiday type people in our region. We have over 2,000 holiday homes, which people who live in

Adelaide use only on the weekends. The houseboat industry is very large too at the bottom end of the Murray. Communication along the river is quite a problem for those people.

CHAIR—My in-laws managed to drink their way down the Murray on a houseboat. Has ADSL been rolled out reasonably well through your exchanges in your council area yet?

Mayor Mann—I think we have a problem getting any broadband access to Murray Bridge. Can we, Steve?

Mr Wilkinson—No. We have no ADSL at all within our council area, from what I have been reading, and Telstra are saying 90 per cent of residents will—

CHAIR—You are under 10.

Mr Wilkinson—Yes, if you are within three or four kilometres of an exchange, but I guess, with regard to that 90 per cent, most of the people live in the Adelaide metropolitan area so they can cover themselves there anyway, especially in South Australia where most of the people live in the metropolitan area. We have very few out there. ADSL appears to be mainly in the Adelaide metropolitan area and the larger rural centres—Murray Bridge has it and I think Port Pirie has it—and those places with a close population base.

CHAIR—What impediments to the council's business has flowed through because of the constraints of ISDN coverage?

Mayor Mann—Currently with the link we have between our offices, if someone makes a phone call and the computer is putting stuff through, the computer has to stop, so it is far from satisfactory. A lot of staff time is wasted while they are waiting for stuff to load up and come through. It is very poor. We will get over that with this new system to a certain degree.

CHAIR—The new system is entirely funded by council money and that will take you out of the Telstra network for the purposes of your radio connections.

Mayor Mann—That is right.

Senator MOORE—We have had a lot of evidence from local governments that they talk to their community about what the major issues are. One of the things we are trying to find out is whether people talk to you about telecommunications and access to phones and broadband and whether this is a major issue for the people that you look after.

Mayor Mann—They certainly do. We have had some slight improvement whereby little places, like Swan Reach, have been able to establish some videoconferencing facilities from their library—Swan Reach has a shared school-council library—and a few small things like that. But generally they feel pretty left out.

Senator MOORE—Does the council run any kind of meeting or feedback process whereby people have a chance to tell you whether or not it is important to them?

Mayor Mann—I suppose nothing that is proactive, but we probably should be doing more. Our communications are that poor that we cannot do it.

Senator MOORE—We are in a privileged position of being able to listen to people from all over the country, and it has come out from a number of local governments that, in their process of talking with their community, they have come up with different ways of establishing what the priorities are. Your plan has lots of things in it about working with the community. One point talks about a strong, vibrant and cohesive community. It would seem that communication is a key element of making that work.

Mayor Mann—That is right.

Senator MOORE—Senator Cherry asked you about the ADSL probabilities and you gave the answer that you do not fit those now. Have you spoken with Telstra about whether you will fit in in the future in terms of your access to getting improved services in the different parts of the world in which you live?

Mr Wilkinson—Yes. It has been some months since I originally made inquiries, but they could not tell me when it was going to happen or if it was going to happen. I gathered from that that we are not big enough, so they do not want to know us.

Senator MOORE—So you were not given any indication about why you were not big enough, and it was just left as ‘not sure at this stage’ and ‘no news is good news’?

Mr Wilkinson—Yes.

Senator MOORE—One of the other things we have found is that all local government people are talking about these issues—this is one of the common streams. In your local government associations, both at the South Australian level and the national level, is there a joint sharing of information and outcomes across the different small areas?

Mayor Mann—Yes. We have a strong regional organisation that supports the region. At a state level there is a lot of information that we can access and there is a project up now which is helping smaller councils develop their Internet sites and things like that, which is really great, but that does not overcome the problem of the links in between.

Senator MOORE—Does your council have an Internet site that your people can use?

Mayor Mann—We are developing it now. I do not know whether it has started yet.

Senator MOORE—The IT man looks a bit worried. Is that part of your job, Mr Wilkinson?

Mr Wilkinson—Through the local government association they did have some grant funds to help us out to develop our web site. We were getting there, but all of a sudden we had to have some training. They wanted to come up and give us some training and they found out that we did not have enough speed for them. We do not have enough broadband access, but we are working to try and improve it. There are number of methods we are looking at. We have a consultant working on it for us. Hopefully in the near future things might improve.

Senator MOORE—So when you get your radio microwave communication system up, that will give you more capability?

Mr Wilkinson—That will improve it between the offices, but it will not improve it with the outside world. We are looking at trying to improve that.

Senator MOORE—It is the next step. Your submission talks about a range of things you have. If you could say what the biggest single issue is for telecommunications in your area—the biggie—what would your response be? It may be different for each of you.

Mayor Mann—The links between the office and the efficiencies of office staff, in my view, would be our biggest problem.

Senator MOORE—That is for the council. What is the biggie for you, Mr Wilkinson?

Mr Wilkinson—The cost. Being an accountant, I guess I am always worried about the cost of communications.

CHAIR—It is not just accountants who are mentioning costs at this inquiry.

Senator MOORE—Your submission said that to double the ISD would increase the ongoing cost by 90 per cent. That is a very big jump. Do you have any idea about how many people in your community have access to the Internet and computers? Across your very widespread community, what number of people have that facility at home?

Mayor Mann—That sort of question was in the last census. We might be able to get some information from that. At this stage I doubt that we have ascertained whether we are average, below average or above average. We had an LGA project about the community's satisfaction with their council and scored reasonably average with that. But that is not specific to the question.

Senator TIERNEY—What is the extent of the radio microwave communication system? Who is going to have access to that in your area?

Mayor Mann—In the first instance it will be just for council to link up.

Senator TIERNEY—Do you have a plan beyond that?

Mayor Mann—It depends on how much capacity we need. Steven and I have discussed that there might also be some ability for the community to participate in that. We would certainly like that to happen. Until we get some experience, we do not know. I think the actual capacity is something like 20 times what we currently have, so we might have some spare capacity.

Senator TIERNEY—I reckon you might have! Given the difficulty of setting all this up in sparser areas and given that you would not want to duplicate infrastructure and scarce resources, it would seem that, as you are one of the central bodies in the area, it should be something that can build off the back of what you have established and assist local businesses.

Mayor Mann—I might be wrong—Steven might correct me—but the biggest expense has been the towers. We had to have four of them. How tall are they?

Mr Wilkinson—Two of them are 30 metres, one is 32.5 metres, and one is 15 metres high.

Senator TIERNEY—What sort of range does that give the tower?

Mayor Mann—We need to have the four. We have one at the Mannum office. That links with one in the eastern hills, which is highly elevated and can beam down to Cambrai and also beam to another one at Blanchetown, which is a bit further up. The Blanchetown tower can get through to Morgan. That is a range of about 50 kilometres.

Mr Wilkinson—The largest range would be about 50 kilometres between Whyte Hill and Blanchetown.

Mayor Mann—That is usually due to the topography of the land as well.

Senator TIERNEY—The Mount Lofty Ranges are between you and Adelaide. That should give you an advantage on microwave in terms of direct line of sight, shouldn't it?

Mayor Mann—Yes, it does. All the offices are virtually at river level except for Cambrai, which is slightly elevated. Using the higher one at Whyte Hill gives us the topographical advantage of the Mount Lofty Ranges. Although that is probably the major cost, it may not be that much more terribly expensive to upgrade the microwave dishes to have more capacity. Do you have an opinion on that, Steve?

Mr Wilkinson—We designed it to meet our immediate needs, and we also have to look into the future so that when we design something we know with the way the technology is going that in five years time there is not going to be enough bandwidth. Things are changing.

Senator TIERNEY—But in five years time you might have a totally different technical solution.

Mr Wilkinson—I hope so.

Senator TIERNEY—You might be running it off a different technology that is not even invented yet.

Mayor Mann—Five years is a long time in IT, isn't it?

Senator TIERNEY—Exactly. You have so much capacity, and you have not considered the fact that you could recover a fair bit of your costs by on-selling that capacity.

Mr Wilkinson—I have already had discussions with another crowd, and once with Agile. Once it is up and running, they are going to come and have a look at the system. The Whyte Hill tower in particular is relying on solar power and a bit of wind power for its generation, so it may be a limiting factor, depending on how much we want to use it.

Senator TIERNEY—Is there any coordinated effort between local government authorities on this? I look at where you are on the map: you are beyond the densely populated areas, but there is a whole range of other areas that are similar to you in terms of density. Is there any cooperative effort on this between the councils to share costs?

Mayor Mann—Certainly there was with the project that I mentioned—the Networking the Nation project was a regional LGA. There are eight councils in that, and virtually all of them would have gotten links with that.

Senator TIERNEY—With this one, is there any consideration to build a broader network across the council areas?

Mr Wilkinson—When the Networking the Nation one failed, we were in diabolicals, as we have said. Also, I believe some of the Riverland councils, like Berri-Barmera, have already gotten theirs in place. Because the regional bid failed they virtually started to do their own thing. But it is only for the council itself and not the community.

Senator TIERNEY—You should not consider it so much as having failed. There are always more projects than money to fund them in any area of government. It is just a matter of prioritising.

CHAIR—Not getting the money is called failing, I think.

Mayor Mann—We have put in about three applications, one after the other, and we have had three knock-backs.

Senator TIERNEY—Perhaps we might sell off a bit more of Telstra to create the funds to do Networking the Nation.

Mayor Mann—To be quite frank, I believe that, in that particular component of Networking the Nation, doing that project would have consumed about 70 per cent of the remaining funds.

Senator TIERNEY—Do not give up on it. Fundings change, priorities change and it can come back again a bit further down the track. In relation to what you said about CDMA—I have a CDMA phone—we were promised that the technology would have the range of the old analog with the power of the digital. That was what it was sold on. I find that if you get out into areas of western New South Wales it works better, but you seem to be having a different experience with it.

Mayor Mann—I had an analog phone and changed to CDMA.

Senator TIERNEY—So you bypassed digital? You went straight to CDMA?

Mayor Mann—Yes: before CDMA came in I had a dual phone that would cope with CDMA once the analog dropped out. While there were differences in the reception, I have to admit that overall CDMA had a better coverage. The problems we seem to have are with the dropout rate, which is quite high in some circumstances. Even though the signal might be reasonably strong, the dropout rate is quite high. Steve, you indicated there were some problems with—

Senator TIERNEY—Even though the signal is strong?

Mayor Mann—Yes.

Senator TIERNEY—Have you had a technical explanation from anyone about why that happens?

Mayor Mann—I do not know. You are in Canberra; do you have any problems in Canberra with CDMA? That is one area where I have problems with CDMA dropping out.

CHAIR—I have two questions. One is about massive service disruptions. Has your area been subject to notifications by Telstra of massive service disruptions, where large chunks of the network have gone out and they have notified customers accordingly?

Mayor Mann—No, I do not believe we have had too many problems of mass disruption. I think they have got some alternatives: there are the Murray Bridge-Adelaide links, there are Mannum-Adelaide links and there are probably links from further up that go direct to Adelaide, so I cannot say that our whole council would be out with just one link.

CHAIR—I will have to put my other question on notice because I have lost it. I would like to thank you for your time this morning; it has been very helpful to the committee. It is a very interesting project and it has been interesting looking at the different ways that councils have had to deal with different situations and how people have increasingly had to put their hands in their own pockets to fund them. Thank you for your time this morning.

[11.34 a.m.]

BARBULESCU, Dr Sorin Adrian, Institute for Telecommunications Research, University of South Australia

CHAIR—Welcome. Thank you for giving us your time today; it is very much appreciated. What is your specific role at the institute at this point?

Dr Barbulescu—I am a senior research fellow with the Institute for Telecommunications Research.

CHAIR—The committee prefers all evidence to be given in public, but should you wish at any stage to give your evidence, part of your evidence or any answers to specific questions in private you may ask to do so and we will consider that request. You are reminded that evidence given to the committee is protected by parliamentary privilege. I also inform you that the giving of false or misleading evidence to the committee may constitute a contempt of the Senate. I now invite you to make an opening statement before we move to questions from senators.

Dr Barbulescu—Thank you. Firstly, I convey apologies from my colleague Dr Sylvie Perreau. Some medical issues took priority.

CHAIR—I should advise you that we have received your documentation outlining the RAP concept as well.

Dr Barbulescu—Excellent. A general statement would be that in that documentation there are two distinct parts. One is a concept which is technology independent, and the second is an example of how to use it. Probably a second general statement would be that the driver to achieve cheaper communications is not technology as such, but other social, cultural things that would be required to achieve this aggregation of communication. I can elaborate on any of the topics if you want.

In part of the submission I mentioned that we have a project on the table which is in cooperation with the Desert Knowledge Cooperative Research Centre and the CRC for Sustainable Tourism. Basically the objective of this proposal is to find a way to link together all interested parties, because in our experience you can talk to hospitals and schools and everybody has this request for more bandwidth. I think there are substantial savings that can be achieved by bringing together all these needs. The solution is not a one-size-fits-all solution. It can be applied only in particular cases where you have communities above a certain threshold with certain needs. At the end of the day, it is a business case if the needs for that community can be sustainable in the future. I do not want to go into any technical things at the moment.

CHAIR—You can go into a little bit of technical detail.

Dr Barbulescu—I can give you one simple piece of arithmetic which would help prove my case. The current value of satellite bandwidth, which everybody is so scared of, depends on who you ask and what time and what kind of details. Roughly speaking, for the sake of this example,

you are talking about \$120,000 per year per megahertz. This would be the cost if you wanted to have access to one megahertz of bandwidth for one year. The arithmetic I was talking about is dividing this by the number of months, days in a month, hours in a day and seconds in an hour. You end up with around 0.4c per megahertz per second. If you compare this number with what current satellite services charge per megahertz per second, which is around 17c, that will give you a factor of roughly 40 in reduction of the cost if you are able to provide continuous service covering one megabit per second. It is just a matter of putting into perspective what you need and how much need can be aggregated in a single rural access point, as you called it. From then on it is just a business case to put forward.

CHAIR—A key part of your proposal, reading through it, was the whole notion of demand management. I wonder how that would go against people's expectations that they can do whatever they want when they want—speed now and capacity immediately.

Dr Barbulescu—There should not be any restriction at all. For example, the typical Internet user is not the biggest consumer of bandwidth. In our view, the bigger consumption is, for example, where you want to provide telehealth services and a wide range of data rates, depending on what kind of service it is, such as data transfer for businesses. You can arrive at a kind of smart scheduling for these main services. You can go with a very low level of prioritisation of these services, allocating different priorities to individual packets, basically, which are sent over the satellite link.

I can give you an example. Two years ago, the university looked at connecting the Mawson Lakes campus with the Whyalla campus, and we did not have the technology developed to the stage where it was ready for commercialisation. At that stage, we compared the two options—having either a Telstra cable or a satellite link—and, basically, the cost of each was similar for the data throughput they required. That particular link was required for students. As you know, when students use it there are some peaks during the day—for example, in the morning and maybe the afternoon—and apart from that the link is not utilised. If you want to have particular telehealth programs, such as conferences or diagnostics or treatments, you can schedule them between these peaks, for example. There are many ways to manage the distribution of these services. Different services have different priorities—for example, emergency services can basically be given top priority on the list—and so the management of how each particular user is serviced can be addressed at a very detailed level.

CHAIR—We have had a few comments about the general effectiveness of current satellite packages that are out there—there are one-way and two-way satellite services—and questions of reliability and so forth. What are your general comments on the likely uptake of satellite into the future? Do you think it will become a more popular form as costs come down and better solutions are found?

Dr Barbulescu—There are different ways to answer this question. If you look at the past, for example, there was a company in the US called Starband, which provided two-way satellite Internet services, following the model where you want to serve individual users. They started in 2000 and achieved a database of 30,000 or 40,000 users, and filed for bankruptcy in 2001. It is not sustainable. You need a very large number of individual users who are willing to pay quite a premium for this. You find when you read the fine print of current offers of two-way satellite services from Telstra that you are charged something like 17c per megabyte for a 256-kilobit per

second link. You need only four seconds to download one megabyte at that rate, and if you multiply it by one or two hours a day you have to pay quite a significant amount of money. In the submission there are two cases. One of them is the case of Oodnadatta, where they have a few individual satellite users—

CHAIR—I think it was 20.

Dr Barbulescu—It is simply not sustainable to provide this kind of service to everybody. First of all it is very expensive, and it really does not make sense efficiency-wise.

CHAIR—We have had a bit of evidence, as the committee has gone around, about trying to aggregate demand for telecommunications in regional centres and the difficulty that causes, because governments often have their own net established—state and federal governments have their own separate ones—and some of the companies will have their own ones established. Is it already too disaggregated, in terms of people doing their own local thing, to look at aggregating demand in regional centres to make these sorts of projects viable?

Dr Barbulescu—I do not think I have enough information to make a comment. In my view you can always change. The most difficult part of this whole process to achieve aggregation is: what is the process? Nobody has come up with a model on how to work it out. Who do you talk to—local government, local businesses? Who is the driver of this process? Basically this comes back to one of the recommendations from the Broadband Advisory Group's report to encourage a brokerage system where people are specifically targeted to bring together all these community needs. But at what level you can do this—government or individual business—I really do not know.

CHAIR—What are the impediments—either commercial, bureaucratic or government—in trying to get this sort of project off the ground or even considered at this time?

Dr Barbulescu—In terms of technology, we have been involved in the last five or six years in quite cutting-edge technology for satellite communications. We did projects for international organisations, overseas organisations. With some of the projects the intellectual property belongs to those who paid, while in some, such as this case, it belongs to us. With some of the technology that is now implemented, such as Inmarsat satellite phones, the technology was developed in our institute, which is remarkable. In this particular case we tried to find a manufacturer of modem equipment in Australia but, frankly, we could not find one. The majority of equipment used is designed in either the US or overseas; we simply purchase complete equipment. All the VSAT services—the individual satellite users—are based on either Gilat or other American-Israeli technology, so we found it very difficult. Our solution was to try to find a partner and that is exactly what we did. Again, it is an American company, but we are on an equal footing. We have an interest in developing this technology, so I have to declare my bias in this.

Senator TIERNEY—I would like to start by exploring where we are going in the future with satellite technologies. With mobile phones we are now moving through to the generations with cameras, we are downloading pictures—it is all starting. We are getting to a hand-held device with Internet and all sorts of things. Given the bandwidth that that is increasingly going to require, what is the future of satellites in delivering this sort of service in a country where we are

driven mad by drop-outs caused by the vastness of the country, the lack of towers and that sort of thing, whereas satellite can obviously deliver due to its position? Is the technology coming where, apart from the commercial aspect, it is technically feasible to do a lot of these new applications in the hand?

Dr Barbulescu—If you are talking about mobile phones—

Senator TIERNEY—With add-on services—delivering pictures and Internet.

Dr Barbulescu—Like the Japanese service.

Senator TIERNEY—Yes.

Dr Barbulescu—They are still terrestrially based services. To have a satellite phone like Iridium, for example, you are talking about a different kind of technology. In the case of a terrestrially based mobile system where you go from analog to digital, 2G, CDMA, GMA, GSM and now to what is called 3G with higher data rates where you can download images or things like that, you are still bound to a terrestrial system so you will have poles everywhere.

Senator TIERNEY—In a vast country you can never put up enough towers to deliver that.

Dr Barbulescu—That is what I was trying to get to. The increased demand in bandwidth for mobile phones, like going from audio to video services, is overtaken by what is called wireless LAN technology, the 802.11 standard, which allows you data rates up to 11 or 54 megabits per second. So there is the first change in technology, from mobile phones to wireless LAN. Both these types of technologies have a limited local area access. If you want to move towards a satellite type of service, you are looking only at a few satellite operators. In the last two years there were something like four or five systems advertised that would start to operate commercially. Globalstar, for example, went through a few changes in business plans, from 300 satellites to 60 something, then to 11 and then they put it on hold. Iridium went through bankruptcy and was revived. Basically there is no other system which can prove that it is commercially viable to provide mobile satellite coverage. From this point of view, I cannot see that you can get this sort of mobile communication everywhere in Australia with the satellite phone. You cannot make it is commercially sustainable.

Senator TIERNEY—Put the commercial issue aside, because databases, sizes of markets and the take-ups will keep changing through time. Initially, I am really asking whether it is technically feasible to do a large portion of this off satellite.

Dr Barbulescu—Technically it is—the answer is yes. All these systems were based on technical analyses about whether it is possible. You have all these constellations of low earth orbit satellites. Technically speaking, you can communicate very easily with a simple hand-held phone to these constellations and the signal can be rerouted to wherever you want.

Senator TIERNEY—Let us move on to the other aspect of it. There has been a number of operations like Iridium that started but failed. Given the absolutely massive market that has developed in terms of mobile usage, uptake of the Internet and people wanting to have mobile

technology, with all of that and looking to the future, what is the block that is stopping this happening? If the supply is possible and the demand is there, why isn't this linking better?

Dr Barbulescu—Probably I would question your assumption about demand. You extrapolated demand that was observed with mobile phones. The mobile phone itself met a very significant and important demand: to be able to communicate from wherever you are at whatever time. How much you need to communicate is another thing. Probably you are aware of the speech Dr Ziggy Switkowski, the CEO of Telstra, gave the world IT congress a year or two ago. There was an experiment in Launceston where they provided fibre optics free for a limited amount of time. The experiment was specifically targeted to measure how much bandwidth people would use if cost was not a problem. I come back to the point about the mobile phone: it met the demand that you want to communicate at any time and any place. But how much you want to communicate is the driver for a new technology like the videophone. How many video conferences do you think you have time to do? Or how much data do you need to transfer from an individual terminal? There is a different scenario if you talk about how much data you want to transfer from one business to another through the Internet. That is probably unlimited. Coming back to your question on a satellite based phone system, I do not see there is such a big demand that everybody in five years will have a satellite phone and will communicate everything with it.

Senator TIERNEY—Surely there will be as we move from audio to video, with the applications that are possible with that. Even though usage by minutes, as you are saying, is not going to expand all that much, surely usage by capacity, with what people want to download and the amount of bandwidth that that takes, could go up absolutely dramatically over time.

Dr Barbulescu—Exactly. It could go up from the point of view of a service provided to your home or business. If you want video on demand, for example, or those sorts of applications, you will need to have access to a huge amount of bandwidth.

Senator TIERNEY—Why then wouldn't satellite become commercial over time in that expanding environment?

Dr Barbulescu—Because you have to pay for it—

Senator TIERNEY—I understand that.

Dr Barbulescu—and when you have to pay for it you think twice whether you need it so much.

Senator TIERNEY—But as you get a bigger market your cost units come down. That is the story of telecommunications. I am trying to figure out why it would not happen with satellites.

Dr Barbulescu—That is a valid question, and many people would probably ask that question. My tentative answer is that there is a limit to how much need you have to communicate. The experiment I talked about before proved that, even if people are at home and have free bandwidth access. That was one case, and you might argue that people in different regions have different needs. But that was one example of a whole city, so you had a diversity of interests there, and it proved that people were not so keen to take on too much bandwidth.

Senator TIERNEY—At this point in time. You are talking about community attitudes that are evolving relatively rapidly. You do something in Launceston—and we have been to Launceston to have a look at this—and suddenly people have to change the way they go about doing things. Are they going to shop or bank online all of a sudden? Within a one-year period they might not do that, but over a five- or a 10-year period they might. So you cannot say it fails.

Dr Barbulescu—In this context, the only technology which gives you this flexibility is satellite technology. It is so much easier to ask now for extra capacity from a satellite than to get cable, fibre optic or anything else installed.

Senator TIERNEY—That is the point I want to come to: the alternatives can be so expensive—rolling out optic fibre across Australia to remote communities, for example, is not really an economic option. So I am trying to explore that satellite, given our vastness, could do it.

Dr Barbulescu—But, again, if you go and ask how much real need is there, you would be surprised. Technology is a very minor factor in this. I am coming more from a philosophical point of view here.

Senator TIERNEY—I understand that and I would like you to stay at that level.

Dr Barbulescu—For example, this is a democratic system and you could think about expanding it so that every individual could vote on an issue, but there are so many issues that, as Oscar Wilde said, who would have the time to do all that? It is like that: you want to go towards a perfect system which has the capacity.

Senator TIERNEY—But isn't the history of technology, particularly computer technology, that we just grossly underestimate demand? When IBM started with computers, I think it was the then head of IBM who said that there would be the demand for about five computers worldwide?

Dr Barbulescu—Yes, that is true.

Senator TIERNEY—This was from the head of the company! Don't you think you are doing the same thing here? The applications over the next 10 years could be so incredibly diverse and the bandwidth they require could be so vast. Take something like downloading movies on demand with parallel processing and what sort of computing power you need to drive those sorts of systems. I am a bit surprised that you are saying that it is not going to be there.

Dr Barbulescu—I confess my limitation in trying to predict in such an area.

Senator TIERNEY—Okay. If I can turn to your institute: you have a CRC out of the University of South Australia and you are the core partner. Who are the other partners in that CRC?

Dr Barbulescu—There are other universities and other businesses.

Senator TIERNEY—How many universities are there?

Dr Barbulescu—The University of New South Wales and the University of Queensland, and then there is the CSIRO, small businesses, Vipac—we have a list of 30 or so contributors to the CRC. Basically, geographically they are spaced in three nodes—in Brisbane, Sydney and Adelaide—and the headquarters in Canberra.

Senator TIERNEY—CRCs usually run for about seven years. How far into that span are you?

Dr Barbulescu—We are in the fifth or sixth year of our CRC term.

Senator TIERNEY—So you would be coming up to the point of reapplying, or is the plan to spin off what you are doing and get other non-CRC funding?

Dr Barbulescu—The objective of this stage was to create the expertise in Australia in satellite systems. You are probably aware of the FedSat—the Federation Satellite—which was launched on 14 December. We are very proud of that. We play a significant role in the communication control centre. Obviously there is the issue of finding new applications for this and proving that it can be used very well for specific types of applications.

One of them, for example, is the use of buoys—that is their name—which are two-metre tall, 30-centimetre diameter probes which are thrown in the ocean and are let drift wherever the currents take them. They measure the temperature, pressure, salinity—all sorts of parameters—and once they are saturated with data they pop up at the surface. At the moment they receive a beacon from the satellite, they download—or upload, in this case—the data to the satellite. Then they continue as they did before, at different depths. When the satellite is in view from Adelaide, we can download the data. All these kinds of applications are very useful for science and research.

Senator TIERNEY—The whole idea of CRCs was to build these partnerships where research moves into application.

Dr Barbulescu—A lot of expertise was focused in different corners of Australia and the purpose of the CRC was to bring it together. There are experiments which were put together by different groups.

Senator TIERNEY—But the purpose of the CRC was to deliver outcomes in terms of development of new high-tech products or whatever and therefore growing business and helping the Australian economy grow through this process. You just mentioned an example in terms of your CRC and its commercial application. Could you give us a broader picture of how that is going in terms of delivering new products and new business?

Dr Barbulescu—The CRC, as far as I know, is not for developing business.

Senator TIERNEY—It is in partnership with business.

Dr Barbulescu—Yes, to encourage business—

Senator TIERNEY—Can we just backtrack a bit? What business partnerships are in your CRC? You mentioned the universities.

Dr Barbulescu—Yes. Vipac is one of the main contributors.

Senator TIERNEY—What is their product? What are they developing?

Dr Barbulescu—They are a systems engineering company, so there is a wide range of products. There are a few departments from CSIRO—I do not know if you can consider them businesses—which contributed with the antenna design, the RF chain, all these things.

Senator TIERNEY—But I take it there are a number of businesses that are part of the CRC.

Dr Barbulescu—There are some other businesses, like Dspace, a local company in Adelaide which was involved in software design. Probably there are many others which I am not aware of at the moment.

Senator TIERNEY—These private businesses are not doing this just for the good of science, are they? They are actually doing this to make their company develop product and be more profitable.

Dr Barbulescu—They want to build expertise in this area. It is not as though they will launch a satellite by themselves. The main focus was to bring together all these separate entities to join this effort and develop the expertise in Australia together with new PhD students who focus on areas related to this CRC. Later on this will have an input into the real economy and be able to contribute.

Senator TIERNEY—That is what am trying to explore—what that input into the real economy is from your CRC.

Dr Barbulescu—At the moment, we know how to build a satellite, to put it simply. It is a huge task. We built modems for 10 years and we said, ‘We know how to do it.’ When you talk about building a satellite, you are talking about some very hard environmental conditions. You are talking about radiation hardened devices, which allow you only a limited amount of space, and you have to come up with new algorithms—more efficient, with more performance—to do things.

Senator TIERNEY—What is the motivation of these private companies to be involved with the CRC and to put their time and effort into it?

Dr Barbulescu—I assume that the expertise they gain in this process will help them to acquire new business in the area. It will make their bid competitive, on an international scale or in Australia, if there is a new satellite. Regarding FedSat No. 2 and No. 3, we already sold the communication part of the platform on the satellite to Singapore and Korea. I think it is opening up new possibilities in this area. It puts you on the map like one of the satellite equipment providers.

Senator TIERNEY—The product and the profit outcomes might be a fair way down the track for some of them, I take it?

Dr Barbulescu—Always in this sort of thing—

Senator TIERNEY—And perhaps there is a risk that they may not do that.

Dr Barbulescu—Usually the first CRC is structured on a seven-year period; I think you can then apply for a second term.

Senator TIERNEY—That is right. Or what some of them do is like the photonics one—

Dr Barbulescu—Generally speaking, the focus during the first term is to acquire the knowledge and the expertise—it is more focused on research. During the second term you transfer that research to business. Basically, you evolve the CRC structure into some business entities that can carry on all the expertise.

Senator TIERNEY—They do not always get a second term. Some of them, like the photonics business in Sydney, developed very quickly and commercialised after the first seven years. But I hear what you are saying—with some of them you might need to do that.

Senator MOORE—I have a couple of questions. They are mainly to put into focus the information we have and the data we have already received. There is something here from your companion about the RAP process in South Australia. It is a media release from 25 November 2002, which talks about the possibility of having the RAP process saving so much money. The headline says that the technology is available; we are just waiting for funding to get it to work. Has anything happened since 25 November to get something actually working?

Dr Barbulescu—Yes: two things happened. Firstly, the last part of our submission was a PowerPoint presentation made in cooperation with Foursticks. Foursticks is an Adelaide based company which is involved mainly in the network part of the system—if I can break it up into the network part, which deals with computers and traffic, and the physical part, which is equipment such as the satellite modem. Foursticks is currently applying for substantial funding based on this RAP concept. That is one of the avenues, and we hope to commercialise this. Secondly, as mentioned before, we implemented this technology and started a joint venture company with a US based manufacturer which basically takes commercial off-the-shelf equipment and integrates into it this daughter card, which is the implementation of the turbo coding.

Senator MOORE—And that has happened?

Dr Barbulescu—This is happening as we speak, basically. We hope to be able to do some real satellite tests this month. Once these field trials are past, it is open to business to sell it. So we try to take the technology to a stage where we can get some commercial returns out of it.

Senator MOORE—It is just that, reading your submission, there was a significant expectation that this would be a way of going forward—and, based on what you have given us

today, it could be—but I am trying to get my head around whether we have anything now that shows that it is.

Dr Barbulescu—Technology wise, we have; business wise, we are just trying to put it together. I think this is the most difficult part, maybe because I know my technology and I do not know the business, but proving the technology is probably five per cent of the whole process you have to go through.

CHAIR—Is there any government funding program at the moment that this would potentially be eligible for that you are seeking to pursue?

Dr Barbulescu—Not that I am aware of. We applied to the Telstra Broadband Fund with a submission but we were unsuccessful.

Senator MOORE—You failed—we just had that conversation with the previous witnesses. In the information you gave us about your whole area, you talk about attracting students so that there is a high research component in the institute. Do you have trouble attracting students? Is this an attractive area of study for people to go into?

Dr Barbulescu—I think it depends. When economic conditions are better, it is more difficult because you have to provide incentives to students to work on a scholarship. We were more successful in attracting overseas students than Australian students.

Senator MOORE—Your submission says you are very keen to attract postgraduate students into this particular field. Would they be postgraduate engineering students?

Dr Barbulescu—The answer is yes. The reason is that the institute has something special about it that you do not find in the many other similar institutes across the world. Our focus is not only on research but on research and development. We have a strong focus on what you might call applied research—taking the research from a simulation model and this sort of thing down to a proof of concept level where you have the hardware. Many people like to kick the tyres, as they say. And then the last stage would be exactly what we are doing now—trying to get a commercial vehicle to sell the technology.

For example, we had a contract with Intelsat, an international satellite organisation. They wanted to improve their efficiency by 100 per cent. It was a significant contract. We did the research and constructed the proof of concept hardware. We went to Washington and presented it to the board of governors and their technical people, and everybody was impressed. We were so full of hope and then the next thing we heard was that Intelsat was going to be privatised. Nothing happened. So that was about timing. But I wanted to emphasise that we had the research, with very good results, and we went through the engineering phase. We have a strong engineering group to efficiently implement that research into proof of concept hardware that people can look at and test. Probably, we were not good enough to take it to the last leg, which was the commercialisation. I think that is where we are trying to improve now.

Senator MOORE—Do people who go to the institute have a high employment option when they complete their work with you?

Dr Barbulescu—I think the answer is yes—and, to complete that, not in Australia.

Senator MOORE—One of the things we are looking at is the research and development aspect, in terms of developing the technology and the expertise. Are you aware of any other organisations in Australia that provide this kind of opportunity for students to develop their knowledge in the general area of telecommunications, not specifically satellite?

Dr Barbulescu—There are very good institutes. The Australian National University, and RMIT, in Melbourne, are very good and they focus mostly on the theoretical aspect. Do not misunderstand me; our students are focused on the theoretical aspect, but we as an institute try to balance that theoretical focus with a more applied focus, as shown by the fact that 80 per cent of our contracts are from private companies, big international companies like Inmarsat and Intelsat.

Senator MOORE—I notice that one of your partners in a range of your activities is Telstra. Does Telstra employ people who graduate through your processes?

Dr Barbulescu—I do not know. I do not think Telstra played a significant part, either—maybe in earlier days, more than five years ago.

Senator MOORE—I know it is difficult because Professor Miller has put his apologies in, but as part of our package of information there is a statement from Professor Miller—in a media release, which again is always difficult, dated 29 May—which states:

Professor Miller said concepts that were once considered flights of fancy would be trialled in Adelaide by 2002 in an environment that made ... a state of the art test bed for the commercialisation of tomorrow's communications technologies.

Professor Miller was hoping that in Adelaide, by 2002, there would be some practical examples of things that would be a result of the kinds of work that were being done under the CRC.

Dr Barbulescu—What is the date of that statement?

Senator MOORE—That media release is dated 29 May 2001. It is just part of the information we had. I am interested as to whether there have been some practical examples of these 'flights of fancy' now working in the communications industry.

Dr Barbulescu—Let me make a comment: Professor Miller was the director of the Institute for Telecommunications Research until November 2000. This is part of his role as chairperson of mNet Corporation, if I am not wrong, and I think he was talking about a 3G North Adelaide precinct, which is a different business from what we are focusing on at the moment.

Senator MOORE—I just thought it was all part of the developing of the technologies.

Dr Barbulescu—Yes. We had some input into the 3G technologies and we had students working on this. The particular technology here is based on some existing 3G hardware, and our contribution was more at the simulation and study phase of the network protocols and how we could improve the efficiency of these. But we did not have a direct output in testing things.

CHAIR—Thank you very much for your evidence this morning. It has been very helpful to the committee. Is it the wish of the committee that the submission from the Institute for Telecommunications Research be published? It is so ordered. Thank you for your time here today.

Proceedings suspended from 12.25 p.m. to 1.36 p.m.

HACKETT, Mr Simon Walter, Managing Director, Agile Communications

CHAIR—Welcome, and thank you for your time today at such short notice. It is very much appreciated. The committee has received your submission and, it being the committee's wish that it be published, it is so ordered. The committee prefers all evidence to be given in public, but should you at any stage wish to give your evidence, part of your evidence or answers to specific questions in private, you may ask to do so and we can consider that request. You are reminded that evidence given to the committee is protected by parliamentary privilege. I also inform you that the giving of false or misleading evidence to the committee may constitute a contempt of the Senate. I now invite you to make an opening statement before we move to questions.

Mr Hackett—Thank you. I have provided a written submission, so the paper copy I have here is just a reference copy for you for today. I am not going to walk through the entirety of the submission, but instead I am going to summarise the key points and then invite any questions you may have. With regard to the committee's terms of reference, I will be focusing on points (c) and (d)—notions around investment requirements and looking at regulatory and other measures that may improve the landscape in telecommunications and broadband terms.

By way of a brief background, I am the managing director of two organisations. One is Agile Communications, which specialises in building telecommunications networks. Typically, it builds them in order to achieve outcomes that we cannot otherwise buy. The other company I am managing director of is an Internet service provider called Internode. By the end of June it will be servicing about 10,000 broadband customers around Australia. Interestingly, more than half of those are outside South Australia. We are based in South Australia but are national in extent. The key thing about those broadband services is that we offer them at a lower cost than Telstra retail services and without caps and excess fees, which are very contentious things in the take-up of broadband services. One of the things we aimed to prove was that it is possible to deliver services without them, and we are in fact doing that. The only problem with that is keeping up with demand.

Significantly, in the context of this inquiry, we have built a network called the Coorong Communications Project. I understand that the committee has already studied some information about that project today. Another piece of submission that I will make reference to today, because it is relevant to this inquiry, is a 19-page submission I provided to the Broadband Advisory Group process last year, on 16 July 2002. I have attached a copy of that with the electronic copy of the submission, to save you looking it up, but it is also public on the NOIE web site. As it turned out, it addressed a number of the same issues that seemed relevant to me in the context of this inquiry. So, rather than labouring through all of that, I will point out one mention that the Coorong project had in that report, which is on the second page of this written submission. It says:

As an example, Networking the Nation funding was a catalyst for the Coorong telecommunications Project in rural South Australia which aggregates voice and data demand from the local municipal council, small businesses and consumers for the purpose of achieving lower telecommunication charges and enhanced access to bandwidth compared to the usual commercial rates of Telstra.

It did that by building a new network. There are two ways that you lower prices in telecommunications: you buy services from another carrier and find a better way to plug them in to make the costs work or you build your own road. We have tended to take the 'build your own road' path, and the Coorong network is an example of that. Perhaps most importantly it is an example very much in a road building sense. That network was only possible to build because it was partly grant funded through federal grants from NTN and a state grant. Having found the money to build it, it is like a road in that it is able to sustain its lower costs for its users on the income that it gains from them. It is sustainable going forward, with only a single shot of assistance upfront. Again, it is much like building a new road into a rural community.

That exists, and it has been a source of some frustration to us that we have not been able to do more of it. There have been some other South Australian council areas that have been so interested in the success of the project that they have wished to do it themselves in other parts of South Australia. To date those areas have been unable to successfully access funding from the same funding sources to build more of that network in South Australia. Part of my written submission details the processes behind that and the reasons why that has been difficult. Certainly from our point of view it would be great to find some paths to solve that particular issue so that we could build more of that network. Essentially we have a sustainable model that works and a grant fund that, in theory, should provide funds to extend it. The communities concerned, who are the applicants, are, frankly, quite mystified as to why they cannot actually connect the two pieces together to extend that network. A working model is sometimes hard to find, but we have one. So there is that.

I have a few brief comments about other aspects that are relevant to the terms of reference of this inquiry. One may be contentious but it is a statement of fact from my point of view—that is, if Telstra wished to, it could actually remove long-distance call charges in Australia. It is one of the ways in which you could stimulate more use of telecommunications networks and rural equity. You could simply turn the entire country into a local calling zone. That will not be a new concept to you; it will have been suggested to you by others. I will give you a material example to explain why that is actually economically feasible at this time.

Senator MOORE—A phone is ringing; that is Telstra now.

Mr Hackett—Yes, it is Telstra on the line. They are already wishing to ask questions. A year or so ago Telstra did something very good for rural communities when they made it possible to access the Internet nationally for the cost of a local call. Another carrier or two have also managed to do the same thing, which is great. That means that somebody in the most remote rural community with a fixed line can sit on the Internet for 10 hours for 25c, but the thing to appreciate is that the amount of the Telstra network consumed in the placing of that telephone call with your computer modem is exactly the same amount of network that is consumed in talking to somebody on the telephone across Australia. If the economics work for that 25c, the economics work for 25c for you to speak to me. It actually is sustainable to do that. The reason it is sustainable is that the network it runs over is essentially a sunk cost, and the incremental cost of placing the call is really very low. It is really the cost of generating a bill.

So it is technically feasible to do it. The Telstra contention is that it would not make sense to do so, because of the obvious lost income. I would contend that the reverse, interestingly, is true if you were brave enough to do it. You would actually generate such an increased number of

telephone calls on the network after removing that economic constraint that you would in fact see the same income stream, but you would achieve four or five times the utility of the network for rural users. So there is a contentious suggestion. It is one that would help to make half of the Coorong project irrelevant, because we really had to build something to demonstrate that such a thing was possible.

On another topic, it is clear that the broadband service provision, using the same copper lines that Telstra uses for phone calls, is an important part of the broadband solution. It is an important part of getting broadband access to people nationally. But other solutions are obviously needed. They are needed because, in our experience, with almost 10,000 customers using that service today we have had a 23 per cent rejection rate from applicants who want to access that service, to give you a sense of scale. That is our achieved number. So we have almost 10,000 customers; we would have had 12,000 customers but the other 2,000 possible customers were unable to use that service because the copper lines were not able to deliver that service in their area.

So there are other answers. We are using the Coorong network and building on it to generate some of those answers. We have delivered wireless equivalent services. There is a township called Murray Bridge in the Coorong area; we are delivering broadband services to a school in that area today, on trial, that exceed the speed of an ADSL service, using wireless systems. It all works fine and we are going to build more of it. Similarly, we are about to become the first company to deploy the Telstra style of ADSL on copper lines in a rural community that has no Telstra ADSL today. The township of Meningie, another community in the Coorong area, will have that going by about the end of June. That means that Meningie will be the first place in Australia to have faster broadband than that which Telstra provides, on the same copper lines that Telstra uses. That, for us, is a very positive example that the Coorong network is working.

The reason we have been able to afford to broadband enable that town is that the Coorong network connects that town back to Adelaide. So, having built a backbone that is sustainable, we can use it to deliver broadband services at the edges of that network. This is rather like the notion that the way to keep a tree alive is to make sure that the trunk works—and then you can afford to connect leaves to it. If you only build leaves and you do not build that trunk, eventually the tree dies. That has fundamentally been the reason for so many grant funded rural communications projects eventually failing. If you only supply those leaves and do not have a strategy for affording the connection back to town, eventually the wheels fall off and the money runs out.

As a consequence, our suggestion for improving the penetration of broadband services into rural areas is to find some ways to unlock more deployment of projects like, but not limited to, that Coorong project, which means unlocking some of the grant funds that exist to deliver more of those networks in rural areas as a way to promote competition and deliver lower cost outcomes for consumers and simply to make the thing work better.

There is another way to do that, and it is the contentious way, which is to achieve either structural or accounting separation of Telstra. Again, that is not a new idea. It would achieve the same thing by allowing access for other carriers to the sunk cost infrastructure that is out there on the same, essentially free basis that Telstra gives it to itself. That is a very contentious thing to do for all sorts of obvious reasons. The more pragmatic thing is to just build some more networks. That is the area we think is more likely to achieve goals in a hurry.

There is a perception that Australia is a slow adopter of broadband services. My contention is that that statement is false. We are not a slow adopter at all; we are a late adopter. That is a subtle but different thing. The essential issue is that Telstra, for a combination of rational commercial reasons at the time, delayed the deployment of ADSL in this country by two to three years. Because the take-up of this sort of service is exponential—it starts slow then builds and builds—that has delayed the start of the classic economic ‘S-curve’ by two to three years. The take-up is happening in percentage terms at enormous rates; the percentage take-up of broadband in Australia is right up there with other modern countries. The absolute numbers are small. That is not fixable, because we started the race late. It will be fixable in three to five years, when the growth rate of other countries tops out and we simply catch up with them. Today, the largest challenge we have deploying customer connections is getting Telstra to keep up with our orders. It is quite a challenge to achieve even the growth rates that we have achieved.

The final thing I will note is that in my submission made last year to the Broadband Advisory Group I provided quite a number of suggestions for how to change the world—how to improve things in a manner that might make qualitative and qualitative differences to access to telecommunications in Australia. In this submission, I have provided merely the headlines of that, and I am not going to labour these points. I will instead just touch on four out of a very large list of suggestions that I made at the time, for the sake of explaining how some of these things can be quite simple to achieve and quite economical in practice.

The first one I will touch on out of this list is the first one in the list. Today we have all heard about broadband radio systems, about wireless hotspots and about sitting in a cafe and surfing the Internet with a little laptop computer. The underlying interesting point is that the radios used, the boxes used to do that, are about 100 times cheaper than the boxes used to connect long-distance microwave networks together, like the one we used in the Coorong. The radios we used in the Coorong cost \$35,000 each; the radio that achieves that cafe connection costs \$350. However, if the ACA permitted us to literally just turn up the power level on those radios, we could use the \$350 radios to replace what the \$35,000 ones do. A licence from the ACA to exceed the class licence limitations in that band would be an interesting way to allow people like us to build more networks cheaply.

The second of these four is with reference to a thing called the national reliability framework, which is the notion of setting reliability standards for voice telephony in Australia. It is my suggestion that such a framework also be applied to broadband systems in Australia and that a reliability framework be applied to Telstra ADSL, in particular, so that there are measurements and actions taken to ensure that the reliability of that infrastructure is maintained as it grows. The next one I will touch on is to retrieve the notion that successfully getting the moths out of the wallet of the BARN fund, which is the fund that could produce more Coorong projects, would be very valuable thing to do in allowing more of those communities to gain benefits from such networks.

The last of these items that I will touch on is the notion of Internet content peering. There is an interesting situation in Australia in which four national providers ‘peer’—in other words, exchange information with each other—at no cost, but require the rest of the industry to pay for access to that content on the broadband Internet. The ACCC is, in fact, pursuing an inquiry on that very point at the moment, so that is actually good—that one is happening. I just wanted to flag that the ACCC’s investigations there are important ones and I trust that the outcomes will be

useful for the industry. The point of those useful outcomes is that they will lower the cost of access to broadband content for all consumers.

CHAIR—Thank you, Mr Hackett—there was an extraordinary number of ideas in there. I look forward to reading that submission in full. The Broadband Advisory Group has received your submission. What has happened from there?

Mr Hackett—To my knowledge, what has happened is that I received a perfectly nice printed copy of the resulting final report. It had a nice reference to the Coorong network, which I have already cited, in the back of it. To me, it was very encouraging that it underscored that their network was in fact nationally important. To the best of my knowledge, that is it. To date, I have not seen anything on the obvious next step, which is to find a way to connect that report to recommendations and therefore to take action. It would be lovely to do that.

CHAIR—They have not picked up any of your recommendations to date?

Mr Hackett—Some of my recommendations have been implemented. I am not clear whether that was a case of having listened to my recommendations or whether they were simply made at the right place at the right time—in other words, they were not necessarily unique recommendations. As a particular example, one of my recommendations in that submission was to create a process called a DSL churn process, by which customers of a broadband ADSL company can change providers in an economic manner, much as you can with mobile telephony. That has in fact happened since. A lot of lobbying and a lot of work with the ACCC have helped Telstra to change their mind about that process and that is now available. On the other parts of that, it is not directly clear to me—I have not received direct feedback on each of those items. I am not sure whether they have been received well or badly. But certainly I can see some of those ideas reflected in the final report, which is encouraging.

CHAIR—So you are reasonably happy with the Broadband Advisory Group's work so far?

Mr Hackett—I am reasonably happy with its work so far. The obvious missing piece is action rather than just a description of the situation. It is a good report; what it needs is recommendations and time lines. That is what it seems to lack. It needs time lines for its recommendations.

CHAIR—The Mid Murray Council gave evidence this morning and they were telling us about the application of eight councils in the Murray-Mallee area, which failed to get the extension of the Coorong network into the area. Why isn't there a commercial case to do that expansion? Neighbourhood Cable in Mildura have managed to expand their network without any public money.

Mr Hackett—It is a critical question of population density in the areas involved in South Australia. Mid Murray Council is a great example. The population density is simply too low to make the economics work without a bootstrap. If we could do it, we would be doing it. We are very motivated to extend that network if we can.

CHAIR—Did you receive funding to extend it to Mt Gambier?

Mr Hackett—No, we did that of our own volition. The reason we did that was that Mt Gambier was a large enough market to make it work. That is exactly the point. We extended it of our own volition to Mt Gambier, up into the Barossa and down into the Fleurieu Peninsula to the south of Adelaide. We have put in nodes of that network simply by leasing capacity from other carriers in Sydney, Melbourne and Brisbane. In these places the business model is able to work. Ballarat and Bendigo are big enough to make a broadband model work, but Berri and Renmark are marginal. The townships in the Murray-Mallee area are so small that, really, they always get left out of this sort of situation. It is still the case that, once you manage to bootstrap them, you can keep them running.

CHAIR—How does your network differ from the Nortel network in northern New South Wales, around Lismore and the four cities there?

Mr Hackett—I am not familiar with that network, so I cannot answer that.

CHAIR—That is all right. It was just a fishing question—I like to get a technical explanation of these things sometimes. I like to think I understand the answers, as well, but I struggle with them! There are so many ideas in there that I think I will have to read your submission in detail and maybe ask you some questions on notice.

Mr Hackett—Feel free.

Senator TIERNEY—Towards the start you said that the only trouble is keeping up with demand. A lot of businesses would love to be in your position, I am sure. Where is this demand that is hard to keep up with coming from?

Mr Hackett—The demand for broadband services is generally coming from existing Internet users that have dial-up Internet access and want to move to something better. So the reason why the demand is so strong is that it is in fact a second wave, not a first wave, take-up.

Senator TIERNEY—So they are migrating to smarter technology?

Mr Hackett—Yes. They know what the Internet is and they know the way they want to have it. They know what they are missing out on. They have already educated themselves about what the Internet is. Now they just want it fast, and they want it to be reliable. It is a very simple situation. It is like adding a video cassette recorder to a household that already has a television; it is an add-on to the mental notion that you have already crossed that says, ‘You know what you want.’

Senator TIERNEY—In the link-up of the Coorong area, you said that it was like a road into the area and that the subsidy from Networking the Nation was a big help to get that on. I want to explore where the densities stop. This could be a viable option—the Chair did touch on the issue. Given Australia starts with huge cities and rapidly goes down to smaller places and then to incredibly small places, where is the limit of viability for doing it without some sort of subsidy? What sized centres are we talking about?

Mr Hackett—In our experience, for the sort of model we deploy, the limit of viability below which you cannot make it work without subsidy is around 25,000 to 30,000 people in a

township. In the South Australian context, that means Mount Gambier tends to work. It means that the Iron Triangle area is on the edge of working, although it is economically depressed enough these days so that the numbers do not necessarily work so well. The average income there is low enough that even that population does not necessarily fly by itself. In the Coorong area the largest township is Murray Bridge, which is really on the way into the Coorong area. It has about 12,000 people.

Senator TIERNEY—It is still under.

Mr Hackett—It is still under; it is marginal. The Murray Bridge area helps to bolster the economic case for running the rest of Coorong project. You are quite right about the density drop-off being rapid. In South Australia, especially, once you leave Adelaide, almost everything is rural. It is a harder nut to crack than New South Wales and Victorian rural areas where you can build stepping stones in townships which have populations of between 20,000 and 30,000.

Senator TIERNEY—I was about to mention that. The other thing that is remarkable about our urban geography is that in states like New South Wales and Victoria a huge number of centres have a population in the range of 30,000 to 60,000, and then presumably you can build out from those. So it is very useful to get that demarcation.

Mr Hackett—Yes. There are geographic and population reasons why South Australia and Western Australia, as examples, are much harder to generate an economic model from, from the population density that is there, without a bootstrap.

Senator TIERNEY—I want to explore further your concept of Australia as a local call zone. With postage stamps we actually do that—

Mr Hackett—Precisely.

Senator TIERNEY—and we have done that for 100 years: no matter where you go, they are the same price. That involves a fairly heavy cross-subsidy of postal services. This brings me to the issue of telecommunications. With optic fibre and other means, obviously the cross-subsidy is less, as you said, because there is a very small marginal cost on the distance. Does that apply across all technologies in telecommunications? Is the copper network a major barrier to that, as opposed to the newer technologies? In other words, because of maintenance and an older network, surely your costs do go up substantially with distance on the copper network.

Mr Hackett—My response to that is that they do, and in fact the maintenance load is probably the highest on the copper network on what is traditionally called the last mile of the network. The point is that it is just the last mile, and that overhead, in particular, is funded by the increasing line rentals that we all pay to access that copper network. In an equation where there is a local call fee for all calls nationally, the underlying cost of the copper network tails is covered by your line rental regardless. So there is a consistent bit of economics in that part of it: the line rental covers those tails; the long-haul connections are done on fibre which is in the ground and paid for and has so much excess capacity that it does not care whether it carries one or one million telephone calls. It, essentially, does not wear out.

CHAIR—Don't you need to amortise that capital cost over the lifetime of that cable in some form?

Mr Hackett—Yes, you do in some form. That cost is already amortised by the history of telephone calls that have been carried on it and on the data use of the same networks.

CHAIR—Sorry, Senator Tierney.

Senator TIERNEY—That is all right. That is an important point. On a similar point, with the copper network you say that the costs all varied because it was built a fair while ago and therefore did not cost anything much, but surely at some point the network has to be replaced in some form. Therefore, surely there is a depreciation cost that you should be allowing for because some day you are going to have to replace the copper network.

Mr Hackett—Again, interestingly, the distinction is worth drawing between the copper network and the long-haul fibre networks because their characteristics in respect of depreciation rate and degradation rate, more relevantly, are different. The copper networks absolutely degrade; they simply rust in the end. So there is a sensible rationale for the existing line rentals that are paid and, indeed, for the fact that the line rentals are tending to go up. The maintenance cost on the copper is not getting lower.

The long-haul fibre networks are interesting because, unlike the copper networks, they are simply pieces of glass inside plastic sheaths. It is not true to say that they never wear out, but estimations of their lifetime are measured in thousands of years in some cases. They are actually just pieces of glass, pieces of silica, that sit in tubes. The only thing that breaks them is—

Senator TIERNEY—Digging trenches.

Mr Hackett—Exactly. It is a form of fault that the industry describes as 'backhoe fading' where the signal is degraded by the plough!

Senator TIERNEY—I was in the United States at one point and something had been put through the main link between Boston and New York.

Mr Hackett—The point of break is very easy to determine and they are equally easy to fix.

Senator TIERNEY—I think they lost a few billion that time though.

Mr Hackett—It is important to appreciate, and I acknowledge, that it is an intentional oversimplification to say that all of the cost is sunk. All of the cost is not completely sunk but a lot of it is. It is more a matter of saying that the local call Internet access service provision establishes, in Telstra's mind at least, that it is feasible to provide an untimed long-distance local call. It is really that contention that I am using as the example, and you could do the same thing with voice. Interestingly, if you take that far enough, you get an argument that says the bush is actually cross-subsidising the city in this case because it is the bush that pays the higher call costs.

Senator TIERNEY—But often at some point the call is starting on a copper network and then jumps through optic fibre, gets back into the copper and then to the person.

Mr Hackett—Yes.

Senator TIERNEY—That network, which is part of the total link, incurs massive costs in the long run to replace. It will increasingly become out of date and increasingly it will wear out, so we will get to the point of replacement. Say you make a call from Sydney to Perth, you go through a copper network, very quickly across and back through a copper network. In terms of the total span, surely that militates against having a one-zone call zone. The fact that we are left with that technology for the next 20 to 30 or whatever years—

Mr Hackett—Yes. I suppose all I can do is rely on the fact that, in my opinion, the line rentals being charged are sufficient to cover that. In a given month, if you pay a \$25 line rental for your line and almost every month absolutely nothing happens, that money can literally be stored away against the replacement cost. The copper is not all that expensive; it is the labour that is expensive.

Senator TIERNEY—So why doesn't Optus really clean-up on this, given that they have come in on a newer technology and they do not have the disadvantage of having to maintain a copper network? Why don't they drop their prices and get real market share from Telstra?

Mr Hackett—Interestingly, the real barrier to taking on Telstra absolutely all the way to a customer's house is that copper network. It is not the cost of the copper; it is the cost of the labour to duplicate the work that was done to dig up all streets—all of them, not just the high-income value ones—to lay something else to connect to those houses. The economic moat around the Telstra switching system is in fact the cost of—

Senator TIERNEY—That is very well put. I like that.

Mr Hackett—As a result, not surprisingly, all of the significant regulatory battles are about the cost of breaching the moat or the cost of sharing access to the line across it.

Senator TIERNEY—The interconnect rates.

Mr Hackett—Precisely. That is the control point. It is a control point because of the sunk cost of the labour in putting that network in. That is the barrier to duplicating it. That is why there is so much focus on wireless alternatives. But at the end of the day you cannot beat the bandwidth of a piece of wire or a piece of fibre laid straight into the house.

Senator TIERNEY—It is difficult to project what technology will look like in 20 years time. Satellite technology has a particular attraction for Australia, given Australia is so vast and difficult to connect up. In your view, are there absolute technological limits that mean that that will not be a viable alternative with developing technologies in the future?

Mr Hackett—It is always appealing to try to find another way out of duplicating that network. I do not believe that satellite in the end will work as that duplication in general. It is very good for very remote access. Satellite has two fundamental technology limitations that

really are the physics of the story. One is the round trip time, which means that it is very bad for voice services and interactive broadband. It takes about the same amount of time to get a satellite signal from Darwin to Adelaide as it does to get one from Adelaide to the United States—about 300 milliseconds—whereas high-performance broadband needs a round trip time of about 30 milliseconds. It is about 10 times too slow, and that is just because the signal has to travel halfway to the end of the world and back again—it has to travel an awfully long way. The other issue is that satellites only have a certain amount of bandwidth in them—you can only fit so many megahertz into these birds. It is like trying to elevate a single mobile phone tower above the entirety of Australia and expecting it to be good enough to take all of our phone calls. It just does not work; there is not enough capacity there to do it.

Senator TIERNEY—On that last point, the history of miniaturisation and compression is such that in this decade we can say, ‘This is the limit’ and then 10 years on it will be massively greater. You do not think that might to some extent overcome that last limit?

Mr Hackett—Yes. Improvements in technology and compression technology will undoubtedly improve the bandwidth available through satellite systems. It is still the case that today they are two or three orders of magnitude too small to be useful for the job. There is also that first issue of latency—the fact that the signals just take too long to travel, versus travelling terrestrially—that one you cannot beat: that is the speed of light.

Senator TIERNEY—I was about to say that you are trying to beat the speed of light.

Mr Hackett—Yes. It takes effort or creative accounting to do that. So it comes back to the copper network and you either have more equitable access to that copper network or you find radio technologies to go across that gap.

Senator TIERNEY—Thank you, that is very useful.

CHAIR—You talked about the difficulties of the funding guidelines of the BARN funding system—an incredibly bad name. We have had a bit of evidence from a few people, and you have suggested in your evidence, that some of the Networking the Nation and BARN projects ended up not achieving very much and being a very small bandaid in a small area rather than a long-term demonstration project. How would you change the BARN funding formula so that it was more sustainable, if at all? What should it be aiming to do?

Mr Hackett—The first thing is that it should be aiming to promote more projects that have a clear sustainability model to work on and that actually have a clear answer rather than just hopefulness about what happens when the money runs out. Ideally, the second thing is something as pragmatic as changing the focus of the folk in charge of it from hanging on to the money to letting go of it. In the end, what you actually do is disseminate the money to people with ideas—you do it rapidly and you should expect that not all of that money will be usefully used. But the tragedy is the notion of not using it and not giving as many projects the best possible shot. The disturbing thing for me was reading media reports from the BARN folk a few months ago which were saying that essentially they did not have enough applicants and they were looking at redeploying the money on something else. This, as you might imagine, drove us and the South Australian applicants you have heard from already somewhat around the twist in the sense that we spent years applying and being rejected for sustainable projects.

From the point of view of the applicants concerned, the main problem we have had with that process has been a lack of transparency in precisely what the criteria are and apparent changes in those criteria over time. In other words, we have not ever been able to elucidate a very clear checklist that says, 'If you do precisely these things you will receive the funding.' In our opinion, we did in fact supply all the information required in every one of the multiple rounds of inquiry. We filled telephone books with information but, for some reason, it was never good enough. It is simply frustrating.

CHAIR—You also commented earlier on your determination to put up a demonstration project about being able to run a viable broadband service without upload and download caps. We have received a bit of evidence on the download caps on ADSL that Telstra has imposed, and I know there has been a bit of criticism from the ACCC on that. Do you think the caps which have been imposed are economically justified? Is that holding back commercial operations?

Mr Hackett—It is a good question and it has interesting answers. The download cap model is a model which is financially sustainable for the provider offering it. It is a model in which you can actuarially prove that the provider makes money in all cases. It is a sustainable model. It is also in one sense a very fair model because it is a user pays model. It is exactly like water rates: you pay a fixed amount for a certain amount of water in the garden and after that you pay an excess water fee. The problem is the excess water fees tend to be quite punitive.

CHAIR—Five times the cost.

Mr Hackett—Yes. They are really a blunt sociological instrument to ask you to stay within your allocation. The reason why Telstra chose to do that, in my opinion, is that the Australian market is so new in broadband. There is a long story here and I will not tell it all, but you have some economic effects that take place as the broadband market is new and the one that is applicable here is called 'adverse selection'—that is, if you do not discourage heavy users, you will in fact wind up being a provider that collects all of them. If you do that, it will become economically impossible to sustain a business model without a cap. You have to do something to make the economics stack up and caps are one way to make the economics stack up. We think we have another system that works that makes them work as well, that actually applies priority of access to people based on how much they have downloaded. So the more you download, the further towards the back of the bus you go in a gradual manner and in the end everyone gets to the same destination about the same time. It is another way to do it.

The issue here is interesting. We are not the only provider that has already offered the option of removing caps from services. The main issue is in fact public perception that the only path by which you gain access to ADSL is Telstra because it is Telstra copper over which the service is provided. It is largely an educative issue. My opinion is that you fix the cap issue not by demanding that Telstra change their caps but by helping the marketplace appreciate that they have other choices. If those other choices become successful, in time Telstra would also remove their own caps for rational economic reasons because they are losing market share. You do not actually have to demand that Telstra change the situation; you simply have to demonstrate that there are other ways that work. As I said earlier, we really have trouble keeping up with demand. In fact, we are not advertising our services widely because we are making sure that we can keep up with them before we do. It is amazing; we are running a 10 per cent compound monthly growth rate on our customer base—that is astonishing.

CHAIR—You say you have had a 23 per cent rejection rate. Could you go through the technical reasons for that again—in very small words for me, please.

Mr Hackett—Absolutely. There are multiple classes of reasons why an applicant may be rejected for ADSL service over Telstra copper. Firstly, there could be some other conflicting service on the line. That is something that can be solved; it is really an administrative issue. Secondly, the line may be too long. Interestingly, the ADSL signal can travel to the end of any copper line in Australia but there are in fact limitations on the allowable reduction in voice volume that cause a limitation in how far ADSL is allowed to go today. It is my opinion that that could be solved with an administrative change and that could actually increase the range. It would allow people who are currently too far from their exchange to get access. It would add about five or 10 per cent to the number of people that could get access. The third class of problem, and perhaps the most significant one, you will have heard described in the words like ‘RIM’ and ‘pair gain’. These are situations where the copper line in your house does not in fact go all the way to the Telstra exchange where the other box is. It goes half way and is converted into fibre by another device that is not compatible with ADSL. The solution there is to put the ADSL devices in that intermediate box. Telstra have been trialling approaches for doing that literally for some years. At the end of the day, they seem to be very slow at doing anything about that, and it is not necessarily the wrong economic decision to do so. In fact, the issue is in miniature the same one that stops the Coorong network being duplicated in very small towns without a grant. In a population of 300 to 500 households connected to a RIM system, the economics are not necessarily there to put the boxes in to deliver the service when you are so busy with the low-hanging fruit. Hence, one suggestion in my submission is that if you are ever going to give money to Telstra for anything in that realm, it would be to fund the deployment of more those boxes to get the penetration out more deeply.

CHAIR—They were talking about smaller boxes when we were at their CAN research centre in Brisbane.

Mr Hackett—Correct. The problem is they have been talking about those for years. It is not a feasibility problem. They have problems with fitting it in the box that they use.

CHAIR—I think they were calling it a pizza box.

Mr Hackett—That is right. It turns out that the answer to that is easy because you stick another box on the street beside the current one. It is more about the economics of making the decision that in a world where you are so busy keeping up with the 80 per cent of the low-hanging fruit that the 20 per cent can be too hard to bother with right now when their economic case does not work except by cross-subsidy. It is an interesting case.

That last one is the significant one. It is significant almost politically as well, because there are two places in which RIM devices get deployed. One is obvious and the other is not. The obvious one is long-distance scenarios where there is a very long distance to get to the customer, so you use fibre to connect it. That is often in older developments. The ironic one concerns the newest of developments. If you have a situation where there is urban infill and you have gone from a place with two factories to a place with 800 home units, it is the cheapest thing for Telstra to do for voice to place a RIM on the edge of that new suburb. But ADSL does not work, so you have to change the decision-making process when you develop those new areas to change that.

Senator MOORE—I have a couple of questions and I am happy to put some of these on notice. I know Senator Lundy will have some questions as well, so you will probably get some more questions that way. The media release that you put out when it kicked off in the Coorong area talked about the fact that it was funded—it did not say by how much—by Networking the Nation and the state government. What was the kind of differential there? What was the involvement of the state government in telecommunications funding? I am unaware of other models where state governments fund these kinds of things.

Mr Hackett—The total cost in hardware costs and development costs for that network was approximately \$2 million. Of that \$2 million, the Networking the Nation grant contributed \$900,000, the state government contributed \$400,000 and Agile contributed the other \$700,000 in both time and materials.

Senator MOORE—What was the role of the local area in getting you to do it? In the same media release local government gets a good pat on the back. The media release said:

Local Government Association IT&T Program Manager ... said the project showed how Local Government could build 'high tech highways' for regional communities.

Mr Hackett—Local government involvement in this project was absolutely crucial to it working—there are no two ways about that. This project began when Coorong District Council, which had three offices distributed over 50 kilometres apart from each other in a triangle, were facing telecommunications costs from Telstra that were untenable for their voice and data needs and for expanding their data network to a rational size. They in fact sought NTN funding to solve their own internal problem to connect a network between their three council offices. At the end of the day, NTN very wisely encouraged them to think about the benefits for their community as well, and they placed a tender to see if they could benefit their community by whatever they built. Agile tendered and won the tender for providing a solution that benefited the community as well as the council with the same spending of money, so we built this network as a result. They were the catalyst as the anchor tenant on the network that made it make sense to build it. They were the first and direct beneficiary of it but they were a beneficiary knowing that they had also designed a situation with us whereby the rest of the community were beneficiaries as well. They were critical to it. Exactly the same thing is happening with the other projects in South Australia that are seeking BARN funding. The applicants have been local councils and/or local development associations on behalf of their communities. They know what they are missing out on. Their advocacy and their interest and their promotion of it within the community helps the take-up to work and helps it to run. That is absolutely critical.

Senator MOORE—So in the Coorong area you are directly competing with Telstra?

Mr Hackett—Yes.

Senator MOORE—Do you know what percentage of the market you have?

Mr Hackett—It is hard to be sure because we do not have direct access to their breakdowns. We are estimating at the moment that 10 to 15 per cent of the voice telephony in the area goes through us and that it is rising steadily.

Senator MOORE—Are you advertising?

Mr Hackett—Yes, we are in that area. In fact we are about to start another round of advertising in that area.

Senator MOORE—What of the claims that are made about the savings that are available?

Mr Hackett—Let me explain why the take-up is not suddenly 80 per cent rather than 15 per cent. It actually comes back to the economic mode. The way that residential customers in the Coorong area access this network is by hopping across the Telstra network to reach our equivalent in each of their towns. That hop across—because we are a relatively small company—is achieved by incurring a local call fee with Telstra to jump from their network to ours. That is a real barrier.

Senator MOORE—Would you run that by me one more time?

Mr Hackett—It costs a user of this network a local call with Telstra for every call that we deliver to a longer distance away. You place the little box that we supply to you behind your telephone and you just pick up the phone and dial, but to get the job done it is actually like the voice equivalent of an Internet service. You place a local call to Agile and Agile then carries your voice the rest of the way. But that is an impediment to people because it means they get two bills and they have to decide that the total cost of the local call from Telstra and the fee from us is still worth while. It is actually worth while but those complexities are a discouragement.

To solve that, we need to do something called telecommunications interconnection. We need to do a local call interconnection with Telstra. The reason we have not is that that process, to cut a long story short, takes about three years of begging and costs \$2 million or \$3 million to achieve. So in other words we would have to—

Senator MOORE—Have you started begging yet?

Mr Hackett—We have, but we have been begging on a budget to date because the issue with the size of that network is that, if we double the expenditure on the network, we may never be able to amortise that additional expense. If the network expands to other areas, we can justify spending the \$2 million or \$3 million to interconnect the whole thing. Until the Coorong network becomes bigger than the Coorong, we cannot get over the hump to solve that piece. Does that make sense?

Senator MOORE—Yes, it does make sense.

Mr Hackett—It is the moat again.

Senator MOORE—It focuses on why you do not have it.

Mr Hackett—Right—and it is the moat and the fact that we have to force our customers through a little bit of inconvenience to jump the moat that is actually the problem. So business users in that area are loving it. We directly connect to their network—to their phone system—and that is fine. Cracking residential users requires more expansion and interconnect.

Senator MOORE—There is another statement in your submission about how you have gone into partnership with Telstra. So you are competing with Telstra on one level but you have gone into partnership with Telstra on another level. How would you describe your relationship with Telstra generally?

Mr Hackett—Actually, our relationship with Telstra generally is really very good.

Senator MOORE—Good.

Mr Hackett—Our relationship with Telstra's wholesale division, through whom we currently buy—

Senator MOORE—The spectrum stuff.

Mr Hackett—the nearly 10,000 existing accesses for ADSL and through whom we are doing the spectrum sharing that you are referring to—which is how we are building our own ADSL services in Meningie at the moment—is working really well. That really is quite effective. They are the same people, broadly, that we deal with at Telstra to try to achieve telecommunications interconnect. In that realm, however, while the relationship is perfectly fine, it is also not going anywhere. In the interconnect realm, Telstra rely on the existing declarations that force them to open access to their network, but they do not innovate past those declarations. The technology that was current when they were brought in is no longer the best technology to do that, but Telstra have no incentive to shift. There are not enough applicants trying to connect to the network to make it a consumer advocacy issue—to make it obvious that there is a problem to solve.

One of my submissions to the Broadband Advisory Group covered this—that you could use modern technology to connect us with Telstra, spend \$300,000 instead of \$3 million and do it in three months instead of three years. Attempts to have that conversation with Telstra have not gone anywhere because we have no economic leverage with which to drive that outcome. So there is a deliberate economic barrier that exists in the telecommunications interconnect regime, which is that you have to be able to afford to drop \$3 million and wait two or three years—or, rather, beg for two or three years—to get through the gate. It is a barrier to smaller telcos like us to find that money and justify jumping that hurdle. We will ultimately do it, especially if we can expand the Coorong network to other places. We will get enough voice minutes to justify it. But it is a bootstrap issue; it is getting over the fence.

Senator MOORE—Does your system break down?

Mr Hackett—Yes, it does break down very occasionally, like all networks break down.

Senator MOORE—What happens if I am one of your customers and we have a breakdown?

Mr Hackett—That is a very easy question to answer. There are some advantages to being the second network in an area. We are heavily connected into the Telstra network in every township in which we also bypass the network with our microwave systems. If one of those microwave links fails, all the telephone calls are switched back through the Telstra network at our expense.

So we use the Telstra network as a backup for our own network. It is a very straightforward process, so customers never notice if the network happens to be down for a little while.

Senator MOORE—They do not actually lose service?

Mr Hackett—Correct.

Senator MOORE—Their fall back is Telstra?

Mr Hackett—Yes, but at our expense. We simply switch the call back into Telstra if our own network is not available. The network has achieved just a touch over 99.9 per cent reliability; it is working perfectly well. But in the rare cases where it does not, we use the Telstra network, at our expense, as a backup path to carry our customers' information.

Senator MOORE—So you then become a customer of Telstra?

Mr Hackett—Yes.

Senator MOORE—Has there ever been a time in the years you have been going that the whole network has fallen over, both you and Telstra, in the Coorong area?

Mr Hackett—No, there has not been.

Senator MOORE—I am just interested—

Senator TIERNEY—We are in big trouble now!

Mr Hackett—Yes, exactly.

Senator MOORE—I have never known of a telephone system that has never dropped out. So if I were a Coorong person, in the last three years I should not have lost my phone service?

Mr Hackett—That is actually a different question. There are three elements concerned in that situation: our long-distance network from the Coorong to Adelaide, Telstra's long-haul network from the Coorong to Adelaide and the Telstra customer access network—the copper network—we talked about before. If the copper network fails, the customer loses service.

Senator MOORE—It does not matter who they are connected with?

Mr Hackett—Right—because they are having to hop through that to get to us.

Senator MOORE—That is what I thought.

Mr Hackett—So there is no magic bullet there. We are using wireless systems for business connections, but they are more expensive today to deploy than the copper is. We are hoping to get that as a way to get voice services in. But if the customer access network fails, then you are off the air. The whole community is not, though; it is more likely that it was just your line that

failed. Statistically, it is very unlikely—and it has not happened in practice—that both long-haul networks would be down at once.

Senator MOORE—That is good. I will put my other questions on notice.

CHAIR—I have a lot of questions, but I will put them on notice as well because we are out of time.

Senator TIERNEY—I have one very quick question. You mentioned linking up the bigger towns. I do not know how familiar you are with the geography of New South Wales, but the distances compared to South Australia are often not that great. So is wireless technology the best solution to get beyond those points to the smaller centres with populations of 10,000 and below?

Mr Hackett—Whether wireless technology is the best solution is a very geographically dependent question because most wireless technology operates in a line of sight mode.

Senator TIERNEY—These are usually flat areas.

Mr Hackett—Ironically that is the worst situation.

Senator TIERNEY—Is it really?

Mr Hackett—They are not flat—the curvature of the earth is actually such that the ground is convex.

Senator TIERNEY—So you need the Warrumbungle mountains.

Mr Hackett—The most economic wireless links hop from hilltop to hilltop. In South Australia, the potential is to hop them from wheat silo to wheat silo, and that may will be applicable in New South Wales and Victoria as well.

Senator TIERNEY—There are a fair few of those out there.

Mr Hackett—I often drive down the road looking at wheat silos thinking one could create a string of pearls along them and that is, I think, a viable approach. The thing to understand is that, broadly, there are two ways to cover a long distance in telecommunications: you use microwave systems and microwave towers to connect them that way or you lay optic fibre in the ground. The optic fibre is faster but costs much more to lay. Once you have laid it, however, you own the road. The microwave systems carry much less information but they are much cheaper to put up and, although that is a diminished amount of information, it is still 10 to 20 times more broadband than most communities are going to need for decades. That is why we have deployed that in the Coorong project—it is the most cost-effective way to solve the problem.

CHAIR—I have a technical question following on from that—and I know we are incredibly over time now. The Mid Murray Council has put its microwave links across four towers; could that be converted to something with broader community access, do you think?

Mr Hackett—We hope so. We are in conversation with them about that at this time. We are hoping to see whether we can leverage what they have built by working with them to deliver services. They have already approached us about connecting their network into the side of ours so they can receive voice services from us, which is fine with us. We hope so, but the problem is that it is very easy to underdesign those systems if you are only trying to solve your own problem. So it is not guaranteed that they built it big enough.

Senator MOORE—And ‘underdesign’ means cheaper?

Mr Hackett—Underdesign means not so much cheap as just big enough for your own purposes. If you cannot find a grant source then you build it just big enough to solve your problem. To solve these community problems, you actually have to overbuild it. We overbuilt the Coorong network by a factor of 10 of what we thought demand was so we would never have to upgrade it again.

Senator MOORE—And that was enough?

Mr Hackett—Yes. It is easily enough; it is working fine.

CHAIR—Thank you very much, Mr Hackett. Your evidence has been absolutely fascinating and we look forward to reading your submission on broadband access on the Internet. Thank you for your time.

Mr Hackett—My pleasure.

[2.29 p.m.]

ARDILL, Mr Robert Gunson (Private capacity)

CHAIR—Welcome, Mr Ardill. Thank you for giving us your time today and for putting in a submission. The committee has before it the submission you provided in conjunction with Mr Grant Roper, which we have already published. Would you like to make any alterations or corrections to that written submission at this stage?

Mr Ardill—I have a couple of extra points I would like to add.

CHAIR—Will you make them in your opening statement?

Mr Ardill—Yes.

CHAIR—Would you like to make any corrections?

Mr Ardill—No.

CHAIR—The committee prefers all evidence to be given in public but should you at any stage wish to give your evidence, part of your evidence or answers to specific questions in private you may ask to do so, and we will consider your request. You are reminded that evidence given to the committee is protected by parliamentary privilege. I also inform you that the giving of false or misleading evidence to the committee may constitute a contempt of the Senate. I now invite you to make an opening statement before we move to questions.

Mr Ardill—Thank you. My initial submission concentrated on the state of broadband offerings in Australia. Since my submission, the DSL marketplace has changed significantly, especially in the retail areas. A positive aspect of the market is that there is far more competition at the retail level. There are about 100 resellers of DSL. You can get products from as low as \$42.95. You can get this type of information from www.broadbandchoice.com.au. The other positive thing is that there are a lot less faults now as the technology has become a bit more mature. A negative aspect is the churn process—changing from one DSL provider to another. I know that Telstra has recently made some ground on changing that process so that it is a bit more cost-effective. In other countries, such as the US and Canada, those costs are non-existent. There is no cost incurred when you change from one provider to another.

As far as the wholesale market goes, there is no competition outside the CBD. I am only aware of Optus offering DSL services in the CBD. Until there is more wholesale competition, I do not think we are going to see further reductions in ADSL costs. Another issue is that of the alternatives to DSL technology, which I touched on in my submission. There has been a lot of interest in wireless technologies in the last 12 to 18 months and there have been a lot of small private community projects. A lot of these suffer from funding problems and it would be nice to see some government funding directed towards those projects.

CHAIR—Could you give me a bit of your background as to your involvement with the telecommunications industry?

Mr Ardill—Basically I have been a system administrator dealing predominantly in setting up WAN networks. My first job was working at the education department of South Australia. I then moved to a private firm that had dealings with various GSM carriers, where predominantly I worked in mobile commerce applications for GSM handsets. I am now working in the state government, at Transport SA, in their area that is responsible for setting up WAN communications.

CHAIR—There are some very good things in this submission, which I found very interesting. On page 7 of your submission you talk about the disappearance of ISPs in rural communities. That is something that one of the submissions—we will hear from them tomorrow in Bunbury—also talks about. Do you want to expand on that? Is that still happening out there? You talk about there now being more competition in the reselling of ADSL. Have those rural ISPs disappeared forever or is there still competition out there?

Mr Ardill—I have not lived in a rural community for some years, but back in about 1998 or 1999, when I was living with some relatives in outback Victoria, there were a few local ISPs which I might have had dealings with. I think the problem is the Telstra subsidised local calls, where basically you can make an Internet call back to a major CBD for the cost of a local call. A lot of ISPs had their business models revolving around that. So they actually could compete. But since that was introduced, it made it difficult. I cannot really comment on the last couple of years in that area.

CHAIR—We were talking with the previous witness about the issue of the upload and download caps on Telstra. You have some comment on that in your submission indicating that the cost of the download is approximately five times—

Mr Ardill—Yes, the excess data.

CHAIR—Yes. Do you think that is justified?

Mr Ardill—Absolutely not. In any other economic set-up, the more you use, the cheaper that gets. Telstra seems to think it is fit to charge users five times the rate. That is a big point with a lot of broadband users in Australia.

CHAIR—Mr Hackett, whom we just had before us, said that it makes sense in a business model to try to discourage heavy users from lumbering you.

Mr Ardill—Absolutely, yes, so they do not have to worry about upgrading the network to feed the habits of these few minor users.

CHAIR—Is three gigabytes heavy use, do you think?

Mr Ardill—According to certain ISPs, three gigabytes would be, but in my experience you are probably looking at about three times that amount for a heavy user. It very much depends on

the applications that a user uses. Generally the more interactive applications—video streaming, playing online games et cetera—tend to be heavier on data usage.

CHAIR—Has the usage meter improved since you wrote this submission a year ago?

Mr Ardill—I have actually left Telstra; I am an ex-customer. I have moved on to Simon's company, Internode.

Senator MOORE—Does that mean you 'churned'? I love that term.

Mr Ardill—Yes, I did. The churn process was not too bad in my experience, but I have heard of a few nightmare experiences, with people waiting several weeks.

CHAIR—At page 11 of your submission to talk about the need for investment, particularly into broadband structure. Do you think those sorts of things you are talking about are big dollar items? Are we talking about billions or could it be done with small buckets of money, or with modest sized buckets of money?

Mr Ardill—I think you are talking about millions. Obviously, it depends on what companies you are dealing with. If you are dealing with companies the size of Agile and Internode, you are probably going to be saving a lot of dollars.

Senator MOORE—At page 12 of your submission you talk about insufficient competition. You say:

Telstra's practice of forcing enterprises of all sizes to sign NDA's, before they can be quoted on services is corrupt.

Would you just run through what an NDA is, and how it works.

Mr Ardill—Non-disclosure agreements basically prevent parties who sign that contract from discussing facts and figures related to their business. In my course, working at Newcom Technologies—the one I mentioned, GSM—I often engaged in non-disclosure agreements. When Telstra first started offering wholesale ADSL, I made a number of inquiries, trying to find out the costs involved in that. Basically, every time I did I was met with, 'You've got to sign an NDA before we can discuss price.' It is my understanding that a few of the earlier competitors were probably getting much better deals than some of the smaller companies were.

Senator MOORE—Is that system still in place?

Mr Ardill—I believe so, yes.

Senator MOORE—It was one I had not heard of before, so I thought I would follow up on it. It seems that you have done quite a bit of international comparison, in terms of the graphs you have given us. It is clear that your premise is that it is significantly more expensive in Australia. As a user and someone who works in the field, in general what do you find would be the kinds of differences for someone doing it here, as opposed to someone in the United States?

Mr Ardill—One is the initial costs of setting up. Generally in the US there is no initial set-up cost; you just sign a contract saying that you are going to use the service for a certain period of time, and you get billed per month. The actual monthly costs are often quite a bit lower, and obviously there is no minimum time.

Senator MOORE—So it is the time limit, too?

Mr Ardill—Yes. Often you find in Australia that the DSL providers will sign you up for up to 18 months, so that you are locked in to that contract.

Senator MOORE—I know that in your submission you mentioned the effect when the Australian dollar goes up, but even with my limited knowledge it seems that it is about double—that generally it is about twice as expensive here. And we have limitations on how long you can use it. Is that so?

CHAIR—The dollar was at its highest point in three years yesterday.

Senator MOORE—We also have limitations on on-cost.

Mr Ardill—There are caps on how much you can download, but since I sent the submission, there have been a lot of providers who do not have caps, such as Internode et cetera, so people have more options now.

Senator MOORE—What stimulated you as a user to put in a submission? I am interested because it is great.

CHAIR—It is a great submission.

Mr Ardill—Predominantly, I am involved with a web site called Whirlpool, which a lot of broadband users in Australia frequent. I do not know if you have ever visited that web site.

CHAIR—I have heard of it.

Mr Ardill—There are always people on it voicing their opinions about things. Simon has visited the web site, and has his comment as well. It frustrates me that a lot of people get on there and voice their opinions but they never do anything. I saw this opportunity published on the web site. There was an article saying, ‘This opportunity is coming up. If you feel that you want to put in some input, then write something.’

Senator MOORE—It is really important for the committee to know that that form of publication did stimulate some response. So it was through that web site that the committee was publicised?

Mr Ardill—Yes.

Senator MOORE—In terms of the general process, have you given submissions to earlier committees or is this the first one?

Mr Ardill—This is the first one. I later gave one to the BAG as well, which is very similar to this one I have submitted to you.

CHAIR—What did you think of the Broadband Advisory Group's report and its process? Do you think it covered the key issues?

Mr Ardill—Yes, I think so. I read a lot of the other submissions that people put in and I feel that they had their own private interests in there—obviously. I think the report got a little bit distracted with some of the issues. I think one of the key issues was the pricing, which they did mention, but it was not a huge part of the report.

Senator MOORE—Senator Kate Lundy is another member of this committee and she has great background in it. One of her concerns has always been to get people who use the system to tell us what the strengths of the system are and what the weaknesses are; we get a lot of providers and those kinds of people. But you are obviously an active user of the system as well as wearing your other hats. What are the strengths of our current broadband in Australia? What can you use it for and where do you think we fall down?

Mr Ardill—I will start off with where it falls down. The majority of providers definitely put limits on how far you can use the system, so that cuts out a lot of the—

Senator MOORE—The capping and the downloading.

Mr Ardill—Yes, it limits the applications you can use and the time you can use them for. You have to be actively monitoring that and, if you do not, you can find that you get charged a few hundred dollars—

Senator MOORE—Huge bills.

Mr Ardill—Yes, absolutely. I think the positive point is that the broadband ADSL is available to the majority of the population. Obviously, there are people out in remote areas who cannot get it, but if people really want to get access to broadband, they can. There are so many different technologies out there: there is satellite and there is ISDN as well. So that is a good point.

Senator MOORE—There is a degree of universality, which is the agreed return.

Mr Ardill—Yes.

Senator MOORE—Thank you for that and thank you for taking the opportunity to put in a submission. I think it is great.

Mr Ardill—Thank you for the hearing.

CHAIR—Not at all. It was an excellent submission. Thank you for putting in the time and thank you for your evidence today.

Committee adjourned at 2.44 p.m.

