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SENATE

ENVIRONMENT, COMMUNICATIONS, INFORMATION
TECHNOLOGY AND THE ARTS REFERENCES COMMITTEE

Reference: Australian telecommunications network

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

Tuesday, 26 November 2002

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

Participating members: Senators Abetz, 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 Greig for matters relating to the Information Technology portfolio

Senators in attendance: Senators Allison, Lundy, Mackay, Tchen and Wong

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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Committee met at 9.04 a.m.**BARKER, Mr Nigel, Executive Director, Council on the Ageing (WA)****SCOTT, Ms Helen, Information Manager, Council on the Ageing (Australia)**

CHAIR—I declare open this public hearing of the Senate Environment, Communications, Information Technology and the Arts References Committee and I welcome everybody here today. Today's hearing is the second of what is intended to be a comprehensive national program of hearings into two inquiries referred to the committee by the Senate on 25 June 2002. These are inquiries into the Australian telecommunications network and into the role of libraries in the online environment. The committee intends, as far as practicable, to conduct the two inquiries together, although it will of course present separate reports to the Senate in due course. Its reasons for doing so are basically twofold: firstly, while the terms of reference are relatively distinct, there is some element of overlap in terms of the need for the committee to examine the proper role of government in the delivery of online services; secondly, the terms of reference have particular resonance in regional and remote areas. For pragmatic reasons, the committee would wish to maximise the value of any hearings it undertakes in such areas by combining the evidence collection process. I now welcome our first witnesses. The committee has your submission before it, which we have already published. Are there any alterations or additions that you wish to make to that document at this stage?

Ms Scott—I have some further information which I have downloaded, including a really interesting report from America which I will show you if you like. It actually supports the submission.

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. Finally, and I will only say this once for the benefit of all witnesses, witnesses are reminded that the evidence given to the committee is protected by parliamentary privilege. I have also been asked by the Senate Committee of Privileges to remind you that the giving of false or misleading evidence to the committee may constitute a contempt of the Senate. I now invite you, Ms Scott, to make a brief opening statement, after which we will go to questions.

Ms Scott—In introducing COTA—which I do not think I will do in great detail because it is all in the submission—I will just say that for those who do not know us we are a non-profit independent organisation actually run by older Australians and recognised by the Commonwealth government as the peak consumer organisation dedicated to the mission of protecting and promoting the well-being of older people. Our membership is open to anyone over 50.

The Commonwealth Department of Health and Ageing provides financial support to assist COTA in our functions of policy, consultation, representation and information dissemination. These are actually based on research and consultation with older people. At the state and territory level, COTAs are involved in both service delivery and policy work to older people, with the primary focus on state issues, and individual members play an important role in the state based organisations. Through their consumer base, the state COTAs provide the management structure for COTA (Australia) and thereby inform policy and priorities.

Membership also includes key national organisations representing consumers and service providers including people like carers, superannuated Commonwealth officers and various others. They make a substantial contribution to our policy development.

One thing that was not in the submission which I should probably let you know is that we are in the process of forming a partnership with a view to a future merger with the National Seniors Association, which has a very large membership base. COTA (Australia) in fact will soon become the national policy secretariat, trading as COTA (Australia), of the COTA National Seniors Partnership. It will make us a very large membership based organisation.

Our policy work covers a wide range of issues of concern to older people, ranging from health services, employment, retirement and pre-retirement incomes, financial services, aged community care, housing and, more recently, information and communications technology. The important issues here, we think, have been equity and access, information literacy and use of the basic tools as a prerequisite for participation in Australia's information economy.

We asked the Senate committee to consider our submission—the points and recommendations—which was originally made in August as a submission to BAG, the Broadband Advisory Group. It was done from the perspective of both older Australians and community sector organisations—non-profit organisations in the community sector. The Senate accepted our submission. However, the submission does not address all the terms of reference of the Senate inquiry into telecommunications. I wish to make it clear that COTA does not actually have a position. We have such a broad range of membership that we have not developed a position on telecommunications network infrastructure, on competition and investment issues in relation to that, or on Telstra privatisation, although we do have an opportunity for input into these issues as a member of the Consumers Telecommunications Network—on which Nigel represents COTA—and through our links with the Australian Consumers Association and various consumer organisations, all of whom have made submissions to this inquiry.

Our work is concentrated on representing the position of older people on issues about access to ICT—the digital divide debate. We have strongly focused on electronic commerce via our representation on the Human Rights and Equal Opportunity Commission and Australian Bankers Association accessible e-commerce forum and we worked with them in developing electronic banking standards so that they were inclusive of older people and people with disabilities. COTA has been strongly involved in various familiarisation and education programs. One of the major ways to address the digital divide is by making people familiar with, and training them in, the use of the technologies. Nigel probably runs the most successful one, in WA, called 'Computing for the Mortally Terrified.'

Mr Barker—Yes, that is right.

Ms Scott—That has a different model. It is not one of the peer education models which are very popular in various other COTAs and through the Australian Seniors Computer Clubs Association, for example, but it has won awards. What was the award, Nigel?

Mr Barker—The latest one was the small businesses award for the non-profit sector. We won the Western Australian award.

Ms Scott—It is an accredited training organisation. The other thing that we do is provide information dissemination via our enormous networks. For example, we are a core member of the listserv on the Network for Education, Ageing and Technology, which represents a cross-section of interests across Australia. Everybody submits and shares information, from academic sectors, government sectors, community sectors and private individuals. That is based at the University of New England and it has been a really wonderful source of sharing. We are involved in government consultations and liaison—through things such as the NOIE roundtables—and conference presentations. We have publications such as *Australasian Journal on Ageing* and *ReportAge*. We get a lot of media coverage. We also have a web site. Most of the information that we have published or written, like conference papers and a major bibliography I put out recently on older people and ICT access, are on our web site. There is heading of ‘Banking; e-commerce and technology access’ on the ‘What’s new at COTA’ page. There is also a section on the links page specifically about older people on the net—about older people themselves going on the net rather than sites just for older people.

In our submission we argued that the priority in getting broadband access right should be to address the options for large sectors of the population still without any form of online access. We argue that older people are one group on the wrong side of the divide, despite all the stats that we see about people going online in droves. That is true, but they are still not highly represented. The NATSEM research, for example, talks a lot about that. We speculate that a new digital divide could be forming between the narrow standard dial-up services and broadband Internet access. Cost and affordability, including for dial-up, remain concerns for all users, but they are major barriers to broadband services for households and community organisations, particularly when you look at download caps and the security add-ons, which are rarely talked about. We provided a case study of a COTA member—an older woman. We talked about the dissatisfaction with the quality and reliability of DSL services and made recommendations for consumer and community sector participation on the Broadband Advisory Group. We also made recommendations for a communications strategy, which would also involve the Australian Communications Authority, and for universal service obligation requirements for digital data access to be progressively upgraded to include higher data rates and affordability criteria.

We are trying to say that we would like to move the broadband access issues into the digital divide policy debate, going beyond the access barriers and disadvantage issues which we all know about, have talked about and which have been widely discussed and highlighted by the human rights commission inquiry. We would like to start focusing on digital dividends. We recognise the importance of developing social capital through building online communities. I think broadband is one way that this could actually happen. By ensuring consumer access to greater bandwidth, we have to move beyond the dominant business-to-business models like ADSL. This will be essential to grow diversified markets and provide better opportunities for rich content and interactive service delivery.

The issue really for consumers and older people is not the technology; it is actually getting an online connection for the services that it can offer. Technology is just a tool, and I think we get very bogged down in being tech deterministic about things. It tends to be treated as the driver, when people let it, or when the corporations who sell it tell us what we should do with it. I would like to draw your attention to some relevant United States material which has been published since COTA’s submission. It talks about the two mega trends of our age, both of which are creating an unprecedented set of opportunities and challenges. *The age wave meets the technology wave*—meaning population ageing—is the title of the book. Richard Adler, who

has written a lot with SeniorNet in the United States, is the author. It is specifically about broadband and older people, and it is published online. I can certainly let you look at this copy. I am afraid it is a scribbled on copy. It is easy to download. It highlights the key benefits of broadband networks for seniors and has some really fascinating predictions. It goes beyond and away from the things that we normally say.

One of the main headings is 'Enhancing communication with family and friends'. This goes much further than saying, 'We're all using email,' and 'People are getting in touch with their grandchildren,' and it looks at how high-speed always-on networks will enhance the ways that communication will happen in future. People will have a much richer interaction and families and friends will stay closely connected even if they are geographically separated. These networks are not just for email; they are for things like videoconferencing and using visual material, and people will be able to do this from absolutely anywhere. Mr Adler talks about tele-immersion, which is an interesting concept.

Another heading is 'Expanding opportunities for lifelong learning,' and that section concerns online education, which we actually know is a key element in successful ageing. We have been pushing this as a policy initiative for some time—and we keep doing it. Current experiments with e-learning demonstrate its potential. One of these experiments concerned U3A Online in Australia. This program has been evaluated and there were some really interesting results about the benefits, particularly for isolated older women. I can let people have the references for that. This part of the report discussed 'classrooms without walls' and used those sorts of images.

The third heading is 'Improving the delivery of health care services' and that section talks about tele-medicine and tele-health. There are reports about this happening in Australia. The report has some really interesting pictures about where this technology might go, such as remote diagnosis and continuous health monitoring. It describes things like getting people to walk on smart floors with sensors to tell what might be happening to their mobility. The section entitled 'Supporting independent living' bravely makes some projections about the costs that will be saved by helping people live independently for longer rather than going into residential care and links this directly to the technology that can make this actually happen. So there is some interesting stuff there.

The report also includes a section entitled 'Creating new options for entertainment'. We all get a bit sceptical about online entertainment sometimes—that is, downloading \$85 worth of one video at current rates—but in fact the possibilities are much better than that. Using content design for a specific audience, you can customise the programming available. You can use lots of content quizzes and things like that for mental stimulation. Maybe you could effect a change in television habits—we know older people are big television watchers. There is a whole lot of interesting material there. I would like to draw your attention to that report as an extension of the sorts of arguments we are making about increasing consumer access to high-speed always-on broadband services.

CHAIR—Mr Barker, did you want to add anything?

Mr Barker—I would like to highlight three particular areas which strengthen the submission. In Western Australia, we have undertaken a longitudinal study of barriers to access for older people. That study began in 1997 and we have repeated it every two years up to 2001 and we will be repeating it again next year. This study initially showed that cost was not a factor in

terms of seniors accessing technology but that fear of technology was actually the major barrier. What has happened more recently is that, out of a list of nine barriers, fear has reduced from No. 1 to No. 3 and accessibility has increased and taken the No. 1 spot, whereas cost interestingly has gone from No. 9 up to No. 8.

Our interpretation of the data is that when we first began the study in 1997, the technology was new and price was not an issue for the people who were embracing that technology. Those people were the prime movers, they paid a premium for filling that market niche and they were used to doing that. However, since 1997 you hardly see an advert in a newspaper now which does not have a web site to go to. The appeal in the market has grown and it has now captured the lower socio-economic groups who are increasingly disadvantaged because the cost barrier is increasing. The sample size for the survey is quite small, so I would caution against reading too much into it. That is more a reflection of our available budget to undertake the research than of our interest in that particular area.

In the United Kingdom, I think that it has long been recognised that education has been a key to breaking the poverty cycle. Certainly, talking with Ian McCartney, the UK minister for pensions, at the IFA conference in Perth a few weeks ago, he explained to me that the government has spent a considerable amount of money—I am afraid that I do not have the figure to hand but it is in the order of millions of pounds—on giving people in low socio-economic groups free access to the Internet in the hope that that might help break the poverty cycle within which they are trapped.

Finally, my third point is that, in dealing with access and ICT issues, probably one of the biggest safeguards for the consumer is the Consumers Telecommunications Network, yet we have recently lost our executive director. In her letter of resignation, she cited the reduction in funding from the government as being one of the primary causes of her stepping down. At a time when we have been considering the privatisation of Telstra, there has never been a more urgent need to have effective consumer representation protecting the rights of the consumers into the future. It would be a shame if that particular organisation was defunded yet again—I think this is the fifth year in succession that the funding has been cut—effectively stifling the voice of the consumer in the debate.

CHAIR—You have partially answered the first question I was going to ask both of you, and that is: to what extent does the digital divide separate those with a good education from those who are not so well educated, in terms of taking up this technology? Are you convinced that cost is such a negative factor for people that this will continue to be a barrier for low-income groups?

Ms Scott—Research done and published through NATSEM has found that, despite the large amounts that have been spent on regional access through, for example, Networking the Nation, the key drivers of Internet take-up are education—that was the very first one; and that seems to have been borne out by other research as well—income, age, and number of children at home. That is logical when you think about it. I think that shocked a lot of people and there was quite a bit of angst from, for example, ISPs in regional areas. I went to press quoting some of that, and was rung up and harangued by a couple of ISPs and other people. I said, ‘Don’t shoot the messenger—I am actually quoting research.’ When it was explained how it had been done and what had happened, they said, ‘We see what it is getting at.’ But there has been this common perception that everything is based on city versus the regions, and there is a perception,

particularly at the government level, that it has been fixed at regional levels by massive infrastructure spending. You can argue about that forever—and I think the Estens inquiry has pulled out a lot of those issues—but in fact the drivers are education, income and age. And still the research keeps showing that cost is a major driver. In our submission, we point out that older people are a hugely diverse group and they hold a lot of the nation's wealth but, when you look at the statistics, 75 per cent are on pensions or part pensions, so there is not actually spare cash. It is a major barrier and there is always going to be a group who simply will not be interested in going online. I do not particularly want to be responsible for saying that they should be, or for forcing them online. That is one of the things we have to tread very carefully with. But again, there are an awful lot who tell us, through our information services, for example, that they simply cannot afford the costs, and there are also the ones who complain when rental charges go up, despite the pensioner packages.

CHAIR—Mr Barker, did you want to say something?

Mr Barker—I only want to differentiate between what we are talking about in terms of costs now. I believe that what Helen was referring to there was the cost of broadband.

Ms Scott—No, I was talking about the costs of just getting online access at all, and the cost of a computer. One day, hopefully, we will move away from having to have PCs to do this. I think we are in danger of being locked into seeing it as PCs—and they are Model T Fords really. There are going to be a lot more efficient things to use, which is why broadband is such a big issue. It will enable lots of other better technologies than computers.

Mr Barker—On our policy bulletin board, which is an open discussion forum for seniors, the indication is that the cost of broadband is prohibitive. In terms of accessing it outside the metropolitan area, it is very restrictive as well.

CHAIR—In your submission to the BAG you suggest that the USO—the universal service obligation—should be progressively extended to digital data access. Firstly, would you like to suggest to the committee a time frame? Secondly—we have had various estimates of what it might cost but \$5 billion seems to be agreed to by most people—how should it be paid? Where is the responsibility for that investment?

Ms Scott—As I have said, we carefully do not go into speculating that, mainly because we have representations through the Australian Consumers Association and the CTN. My understanding of the USO is that it is a process of eliminating barriers so that everybody has the opportunity to use telecommunications systems for effective participation in our society. It starts with a democratically established minimum level of guaranteed functionality, and we suggest that we up the level of functionality to broadband. We have not speculated on how much it will cost because we have no idea. We have no resources or the research to estimate that; we have to go on what other people are able to come up with who have better resources than we have. Again, COTA represents such a broad range of older people that it is not easy to come to one position. For example, many people with Telstra shares and others who rely on pensions may have different views about how things should be funded.

We would look at it being strengthened through the existing regulatory schemes—for example, the Australian Communications Authority. In fact, we would probably go so far as to argue that they should extend some of their regulatory powers, not so much to the USO but to

things like mobile telephony and broadband, and look at some of the really unfair selling practices and contracts that are happening in those areas. There is a demonstrable failure of self-regulation in those areas. We would probably argue for increased regulation to sort out some of those issues. What we would recommend for a USO is simply upgrading the level so that there is recognition that we have moved beyond a telephone service, which is still an issue in some areas—we know that. It is important for people to be able to be online, largely for Internet access and for what it can do. Also, there is what is going to happen in future. You are really disadvantaged now if you are unable to access electronic banking or information services. Relevant to the library inquiry, that might happen through community sector organisations like libraries rather than just in the home, to make sure that those levels are supported by regulation.

Senator TCHEN—On page 1 of your submission you argue that a major aim of widened broadband access should be an expanded option for the large segment of the population that presently are without a phone. I think this follows on from the chair's question. You suggest that one means of addressing the digital divide is by regulating to encourage access and increase service diversity. How do you regulate to encourage? Regulation usually discourages.

Ms Scott—The conventional wisdom, particularly from the commercial sector, is that regulation does discourage. I have seen just about every argument for that in the submissions. It seems that there has been a real market failure and that there is a monopoly happening at the moment. Competition has not succeeded where many hoped it would. The telco bubble has burst and the failure of a lot of telcos and dotcoms has put the lie to a lot of that. Who knows what will happen in future. I read that in Singapore—I do not know whether it is because of regulation—there has been a lot more government encouragement of access, particularly in broadband, for consumers.

I do not know how that has happened, but it does not seem to be happening by natural means at the moment. There has been a suggestion that Telstra could be divided into retail and infrastructure arms and retaining part of the infrastructure under government control would be one way of ensuring that services were available at a reasonable cost. The retail arm would be allowed to do the normal competition stuff in respect of the type and range of services. We do not have specific recommendations on how that should happen. It was put there as an option to state that it has not happened yet and to ask what we need to do to do things better.

Senator TCHEN—This committee is conducting a concurrent inquiry into the role of public libraries in the online environment. You referred to that inquiry but I do not think you made a submission to it.

Ms Scott—No, I have not made a submission to that inquiry.

Senator TCHEN—One of the reasons we are holding concurrent inquiries is that one way to provide public access to high-level Internet services is through public libraries. Could you comment on that?

Ms Scott—Yes. It is a really interesting debate. I have some material with me which I can leave with you which covers in more depth some of the things we have written. *Seniors in Cyberspace* was a major literature review in 1999 of all aspects to do with information provision and Internet access for older people. Things have moved on since then and it is interesting to see in what ways they have moved on. However, a lot of the issues are the same.

Public libraries are one way of providing training for, and access to, such services for large sectors of the population which do not use them. However, those sectors are not necessarily going to be using public libraries. Research from Queensland by Steinberg and Walley shows that older people are not going to want to do their Internet transactions in a public library for reasons of security and lack of privacy. For example, no-one is going to want to do their online banking in a public library. In fact, many public libraries have firewalls and other things that prevent people from doing that.

I do not think that public libraries are the answer for online transactions. They are fine for information searching, particularly if you have sympathetic librarians who will provide training or support in that regard. I remember asking my local library whether they were going to have Internet access and the answer was, 'Certainly not.' Of course, six months later they had to have access as everybody else had access. Particularly in Victoria, where we have a real commitment through Multimedia Victoria to have all Victorian libraries online, that perception has changed dramatically. However, it is still not the answer for providing access for people who cannot afford access at home. It is one of the answers. Other answers include telecentres, Internet cafes, Post Office kiosks and heaps of other suggestions. They all go some way towards achieving the objective. We also suggested recycling. We have been pushing strongly for that and NOIE now has a database of recycling initiatives. There are lots of things you can do and public libraries are one suggestion. I would argue that other types of libraries may be quite significant in this regard and these include community libraries and smaller special libraries. COTA have very small libraries which do not have open access to the public, but we provide familiarisation training which also happens in public libraries. There is a lot of scope for community organisations to be providing such assistance.

Senator TCHEN—Ms Scott, we may have a difference of definition here. When I talk about public libraries, I mean public access or publicly funded libraries. These could be very small libraries. A community library certainly would be a public library.

Ms Scott—Carers associations are publicly funded and they are accessible. They provide an enormous amount of information and they are increasingly online. The Alzheimer's Association's library is an example of a small special library that is publicly funded which provides access.

Senator TCHEN—I am not trying to revisit my question, but it seems that when you talk about a public library you have an image of a library as it is operated today. However, our inquiry wants to consider how libraries could function in an online environment. In that regard, quite a few of the issues you raise in terms of access could be addressed with appropriate evolution of the library service.

Ms Scott—That is quite so, and that is happening, particularly with academic libraries. You can argue whether academic libraries are public, but their resources are all online. Indeed, the National Library of Australia's resources are now online. We used to have to pay a fortune to get onto their catalogue and it is now available online. The online environment has changed those things dramatically. There will still be the issue of how people are going to access the computers to get online. Older people still tend to want to do that from home or from their trusted community centre's computer club. An issue we have not talked about is the rapid growth of seniors computer clubs, which is another model for providing education and access.

Mr Barker—At a recent meeting of LISWA—the Library and Information Service of Western Australia—which librarians throughout the state attended, the online environment was discussed. The major issue to emerge from that was the lack of suitable training and, in some cases, aptitude of librarians to actually provide realistic levels of assistance to people unfamiliar with computing in their own libraries. At that point in time there was no indication that additional training would become available for librarians. Some of the librarians saw this as a major threat to their traditional roles; others saw it as an opportunity. But there was no funding being made available for the training of them.

Ms Scott—I think it is fascinating. I am a librarian myself—or I was once. Once you are one, you never stop, I suspect. The Australian Library and Information Association does a lot of work on this and makes a lot of submissions on this. It has said similar things to information inquiries for the last 20 years, to my knowledge. One of the things that I think librarians are looking at increasingly—and it is an issue increasingly—is information literacy. One of the really important factors that often gets overlooked is teaching people to use in a sensible way the glut of information that we have. Things like HealthInsite, the government's health web site, is addressing that in saying, 'This is how you can evaluate whether health information, particularly, is valid and useful.' They have gone a long way in making that a lot more accessible for consumers.

In terms of the online thing, librarians really need to take on board that whole business about information and the things that they are teaching and making available, rather than just making anything available online. It is fine for library catalogues, because you know that they have probably been evaluated. But the enormous amount of web sites which people use, particularly in the health area, for example, are woeful. We need some sort of guidance about how people evaluate the news and whether the information is credible. We do quite a lot of day-to-day work on best practice information provision. One of the things we constantly highlight is the need for information literacy as well as information provision.

Senator TCHEN—I am sorry to be harping on this inquiry, to which you are not making a submission. It seems to me that the role of libraries has always been a balance between preservation of knowledge—that is, a storehouse of knowledge—and dissemination of that knowledge, or making it accessible for the larger community. The major role of what I would call public libraries, or community libraries, over the ages has been to provide that scarce and expensive information to a large segment of the population who cannot afford it. They have served that purpose very well. Perhaps they need to take up that element again, or aspects of the service again, to give emphasis to that. Perhaps we can ask the librarians in the library services when they come to give evidence to the next inquiry.

Ms Scott—I think you will find that there is an enormous amount of endeavour and initiative—and some are very creative—in what is happening. Part of it boils down to the levels of funding that they have available and, as Nigel pointed out, the training. For example, in relation to disability services in Victoria, I know the difficulty that a lot of librarians have with not having universally designed technology is the add-on technology to enable people with disabilities to use libraries. There has been an enormous amount of work done through Vision Australia, Blind Citizens and so forth about disability access. One of the problems is the expense of the adaptive technology. There is a lot of work going on, and it is terrific work, but it does not happen across the board yet.

Senator TCHEN—Again, this does not directly relate to your submission but to some of the comments you make about consumer protection. What is your definition of that? When you talk about consumer protection, it seems to me that you are talking about two aspects: one is protecting the consumer from predatory behaviour by the provider and the other is protecting consumers against denial of access. It seems to me that the second issue quite often should not be mixed with the first issue. In the course of time, in a market environment, the second issue of denial of access should actually work against the provider rather than against the consumer, because if a provider came in and said, ‘I am going to deny access to a certain segment of the market,’ they would be cutting their own throat.

Ms Scott—That is a lovely idea. It is the ‘shoulds’ that I think are arguable. This is exactly what we have been arguing in the human rights/ABA forum: if banks do not get their electronic banking standards right, they will lose a huge proportion of a market. People with disabilities, for example, have enormous opportunities with online technology that they have never had before, but a lot of the very technology that should be creating the opportunities is denying them service through such things as inaccessible design. We have done a lot of work on EFTPOS, ATMs, phone banking and Internet banking, looking at ways in which they can be made much more accessible. Denial of service does not often happen deliberately; it happens for reasons of poor design, cost, physical access—all of those sorts of things.

I think the standards way is one way to go. The banks standards are voluntary. Many consumer organisations have argued that that is not quite good enough and asked how we are going to monitor whether they are taken up, whether complaints are redressed and so forth, but at least it is a fair start to a process of recognition that there is a huge market out there that is ridiculous to ignore. Older people in particular are part of that very large market. Older people are very tech savvy when something suits them. They are also market savvy—very good at selecting products and things that will be of use to them. Unlike some of the early take-ups, who will have them at any cost, they are not going to buy products they do not find useful that are just fun. So firms and organisations should offer services that are going to be seriously useful, affordable, sensible and not pitched as disability services—old people do not consider themselves disabled; they consider their disabilities to be age related—or called ‘for the elderly’, because calling a product ‘for the elderly’ is the kiss of death.

Senator TCHEN—Thank you, Ms Scott and Mr Barker. I will pass that on to my colleagues.

Senator LUNDY—You refer to problems with the actual network. I fully understand that the emphasis of your submission to the Broadband Advisory Group has been about not the technology but what it enables. However, given that this inquiry is about the state of the network, I would like you to focus for a short while on the technology itself. On page 7 of your submission, immediately following the case study about the lack of broadband access, you reflect on what you say are ‘high levels of dissatisfaction with the quality and reliability of DSL services’. Could you provide the committee with an insight as to how big a problem that is for your members? You make some pretty sharp observations about some well-known problems with ADSL, and I would like you to reflect a little more on the sorts of problems you are experiencing and what those problems mean to your members. How frustrating is it?

Ms Scott—A lot of that is gleaned from wide reading of media reports—things like the class action that was being considered against Telstra for failure of ADSL and the debate about whether service level agreements should be based on 90, 98 or 99 per cent. In a way, I am

addressing those more general arguments as part of the whole consumer community sector. We do not have a lot of direct evidence from older people. We have it fed through our statewide information services, several of which are state funded. I have to say that there is not a rush of complaints about that. Serious representations have been made through bodies like the Communications Law Centre and the Consumer Law Centre, but they tend to be very much more on the contracts side. Again, there are probably few older people using broadband. The quote from one of our members is a good illustration of why she is not using it. She tries to teach computer skills to older people, and it would be very useful, but she is on a limited income and, as she points out, the delivery service is so patchy. We all know about the last mile of copper—a lot of services not being enabled to provide it. In fact, ADSL is not the best way to address the digital divide in terms of all of that rich content I talk about, and that seems to be the dominant model being sold.

ADSL is fine for downloads, but perhaps not if you are trying to send good content out. As a community organisation, you are definitely going to be dealing in fairly rich content, especially if you are doing visual materials. Some really interesting material has been coming out of some local conferences. Monash University did a search conference in Melbourne recently with a lot of community sector organisations and some people from the US and the UK—particularly from Teesside—with experience in fairly devastated areas. They have had wonderful things happening in pubs, but they are using fairly rich content. People from very poor areas are using a lot of rich visuals, a lot of material—doing online publishing, for example. I think, if you are looking at an asymmetric service, that is not the best way of going.

Senator LUNDY—Further to that point, you are obviously aware of the limitations of ADSL—the radius beyond the exchange—but there are other limitations: Telstra's strategy is to only provision a 25 per cent capability for their customers in any given exchange. You say that you do not see ADSL as being the solution. Do you have any thoughts about the sort of solution that would be a possibility? I would just like to sort of float things out. Telstra argue vehemently for ISDN. They see ISDN as some sort of broadband service, albeit not as fast as other types of broadband service. Do you see ISDN as fulfilling the needs that you have just described? If not, what do you see as real broadband for the purposes of the rich content in the scenarios you are describing?

Ms Scott—ISDN would be fantastic if we had access to it. As a community sector organisation, we have often looked at ISDN and found it prohibitively expensive. Sixty-four is fine at the moment. For the sorts of things I am describing for the future—which is what we need to be thinking about—we can be looking at wireless, mobile, all sorts of things, including the whole new 3G business. As the senator here said, I do not think we can regulate for that sort of thing. We need to be aware that those are the sorts of areas we need to be considering. It is pretty confusing talking about the huge range of DSL services; we have Vs, Hs, and everything else—as I pointed out—and I would hate to make a prediction about how we should be regulating for that. I am making the point that I do not think ADSL is the model that we should be going for. I am not even sure that the copper wire is the model that we should be aiming for necessarily. So far, wireless does not seem to have fulfilled the promise that everybody thought it had. I suspect it probably will in the future.

Our concerns are really with the reliability of the service. When a service is offered, consumers do not feel that they are necessarily getting the reliability that they are paying for. It is not acceptable to have 14 hours down out of a month's supply, especially if you are relying on

it. I can speak from experience of running the technology for a community organisation. We went broadband because the online service we had just fell over and could not be revived, and we had to do it. We are paying a premium for that. In fact, for our organisation, that has been wonderful, but it is an ethernet connection and it is done through NTT in Sydney, which is a huge overseas company. Telstra just could not do what we needed. One of the things that really trapped us—and, again, that we were unaware of—was that, because we have a fixed IP address, our bandwidth was raided and we wore huge costs for lack of security. We then had to buy a firewall—an extra cost. Frankly, any consumer who thinks they are going to have this always on service, without thinking about a firewall, had better think again. That is a cost that is very rarely talked about. Sure, if you are very tech savvy you can download free firewalls, but can you make them work? How many people know what the ISP will actually provide? If you are on cable, it is a cable modem. There are all those sorts of hidden things, which for the average consumer are really difficult to find out. There is very little information. The ACA has made a sterling effort with its information on mobile phones and on ISPs, but there is very little about broadband in the ISP information that is available to consumers.

Senator LUNDY—Mr Barker, can I put the same question to you and ask you to reflect on the suitability of ADSL as potentially Australia's most ubiquitous broadband offering.

Mr Barker—Thanks for the opportunity, but I really do not have an awful lot more to add to what Helen has already said, other than that there is a tendency for people to get trapped by the additional volume that can be downloaded quickly through ADSL. By that, I mean that someone that is coming off a dial-up connection may have a download limit of 300 megabytes per month and, by the time they are getting to the end of that month, they might find that they are getting pretty close to that. But, with the faster download speeds from ADSL, they will find that they breach that 300 megabytes after 10 days rather than 30 days. Then they are facing huge additional costs which perhaps they cannot—

Senator LUNDY—I was going to ask you next what the experience of your members getting caught out by that is, because, Ms Scott, you did mention download limits as being an issue. Have either of you anything more to add to that?

Ms Scott—Our experience is really more from the community organisation perspective. We got caught out badly, partly, as I said, because of the security breach and other people using it. I think what a lot of people also do not realise is that, if you use shared files, you are also liable for people accessing that bandwidth, not only your stuff. I am an older person with a son at home doing a multimedia course. I am not going onto broadband, thank you, till he has left, because my download caps would go through the roof. He sucks his MP3 files through a straw.

Senator LUNDY—So to speak.

Ms Scott—He can get his own broadband connection when he moves out, and I will have mine when he is gone and I know that I am going to be controlling it.

Senator LUNDY—He is going to be able to read all this, you know! Thank you. I think it is quite a critical point in this broader transition phase from narrowband to broadband and the changing conditions of the products in the market. I think the issue of download caps certainly has raised the ire of those who are into peer-to-peer computing, file sharing, et cetera—

Ms Scott—VPNs.

Senator LUNDY—but it is also catching out, as you say, community organisations and people who are inexperienced in using broadband. A lot of the emphasis in your submission has been on the need to educate users. I want to revisit the point Mr Barker made about the defunding of the CTN. Would you reflect further on what it does to the efforts to try and educate the community to have one of a whole landscape of consumer advocates effectively disempowered by lack of funding?

Mr Barker—It is not actually a defunding, it is a reduction in the level of funding. I understand that it is the fifth year in a row that that reduction has taken place.

Senator LUNDY—But it has led to the resignation of their full-time person.

Mr Barker—Their executive director, that is correct. It is significant. The technology is new, it is emerging and, obviously, the controls that we have are going to be inadequate until it settles down a little bit. It is starting to shake down now, but we hear horrendous stories about people actually losing their houses because they have been accessing sites which act as Trojans. They come in, they change the ISP dial-up and they reconnect you to their ISP at a premium rate. There are horrific stories about people owing thousands and thousands of dollars on their telephone bills. I think that the Internet service providers have a responsibility for offering the consumer various levels of security. I believe that they are starting to wake up to that, although somewhat slowly.

Ms Scott—On that note, there is a comment I would really like to make. As the representatives of a very large stakeholder body, if you like, we find that we are asked to submit a huge range of things—older people are becoming quite popular—and that we have to be fairly selective. The ICT area is something that, personally, I have picked up and run with, and we probably have leadership in the sector and through the services that places like Nigel's offer.

It is increasing difficult to keep doing that, because our funding does not change. Part of the reason that we are merging with a large membership organisation is to become slightly more independent of that. We are often asked to sit on all sorts of bodies. For example, I sit on the Australian Communications Authority and on the Australian Bankers Association as a consumer rep. Some of them will fund your airfares, some of them you have to have an unholy war to get through there, and then you are expected to use your networks and your constituents to provide information.

The community sector is actually beginning to jack up. I very strongly make the point that if the government or the private sector wish to use consumer networks as they do, they have a responsibility to sponsor, support and put in for the sorts of services they are expecting back. A really good example has been the Commonwealth Bank, who did provide direct peer support to access our network of clubs to teach older people—using their older retired bank managers, actually—about ATMs and EFTPOS. That is a really good example of where they did put their money where their mouth is. They are also supporting New South Wales COTA's online learning centre. There has been nothing happening with any of the other banks, and we actually work very closely with banks through the authority. It is really difficult as an organisation to keep those resources going to enable you to do that successfully.

Senator LUNDY—You have provided some insight into the organisation's view of the USO and its relevancy. Do you have any comments in relation to the operation of the consumer service guarantee and its effectiveness in trying ostensibly to improve responses to service difficulties and faults?

Ms Scott—Again, for the reasons I have already mentioned, we do not have the resources to do that and we tend to rely on and have feedback and input to the Australian Consumers Association particularly, because Charles Britton has been doing it for so long and has well-developed views.

Senator LUNDY—That is fine. Again, I am trying to take you in a slightly different direction from your submission as presented. Thank you very much.

Ms Scott—I might have a view, and I have done a lot of reading on the issue, but until it has gone through our members and the whole policy process from the bottom up, we cannot say that we have a view on that. I am sorry but that is the way that it is.

Senator LUNDY—That is fine. You made that very clear at the beginning of your presentation. Thank you.

Senator MACKAY—You mentioned increased line rental charges. You would be aware that there is a new price regimen that is due to come in, which has resulted in increased line rental charges, and there is the potential for more under this new regimen. What impact is that having on your members? Do you have a view about this increased line rental charge issue?

Ms Scott—Older people have huge views, particularly about the telephone service, which is such a basic lifeline, and that is expressed very clearly and loudly. It is something about which we do not have any hesitation in speaking on behalf of older people, because they are pretty vocal about their use of the telephone and how important it is to them. There is a pensioners guarantee that line rental charges will not go up but for some there will be increased call charges. They have been pretty vocal about not liking that, and other pensioners associations like CPSA have been very vocal about that as well. Also, because COTA tends to represent low-income older people—that is where we feel our major mission lies, rather than with self-funded retirees; we do not even use that term—we say that our mission is to protect the interests of our lower-income members. Those things have an enormous impact.

We have often gone publicly to the media, written to the minister and so on about increased telecommunications charges, provided guarantees are put in place. Again, it is happening with market forces. For example—it is a good parallel—the banks are putting in fee-free accounts, although again they have set caps. We fought long and hard but finally succeeded because market forces are there and because there are so many people who want these things from a basic banking account. The perfect one still has not happened, but each individual bank is offering them.

Similarly with telecommunications, ACOSS was fairly happy with the new package that came out in May or July. I am afraid I am not totally across all the issues, but we get calls through our information services complaining about either charges or increased charges. One of the areas of complaint was that you get a discount if you pay online. For many older people that was not an option and they were very cross about the fact that you got a discount if you could

pay online. The other thing that comes across as not being particularly popular are bundled services where it is very hard—

Senator MACKAY—Yes, it is very complicated.

Ms Scott—The whole issue of bundling services is a huge one, particularly for low-income consumers. There are a lot of services that you do not actually want and that you do not necessarily want to have to pay for. It is confusing. In a way, this refers to my earlier allusion about aggressive selling and marketing practices. I can give you some dreadful stories from older people's experiences of some of those selling practices.

CHAIR—Feel free.

Ms Scott—One example is being signed up. My father, for example, is 85 years old and slightly confused. He was signed up by some man on the phone before he even knew what he had agreed to. It happens in car selling as well. I had a son who needed a job. He was taken along for a day's training with a door-to-door salesman. He came back and said, 'I could not do it. He was knocking on the doors of all these old ladies and trying to bully them into signing up for these things.' My son said, 'They did not know what they were signing for; I would not do it.' Those are my first-hand experiences.

Mr Barker—One of the issues regarding bundling of services is what happens if you have a disputed ISP bill appearing on your phone bill and you say, 'I am not paying this; that was not me' or 'I have incurred this as a result of fraud.' If you do not pay that bill, your telephone service gets cut off because it is bundled in with it.

Ms Scott—Yes, that is a good point, actually.

Senator MACKAY—Yes, that is a good point.

Mr Barker—There have to be some safeguards built into bundled billing which safeguard the provision of the telephone. This is particularly relevant for older people who are living in their homes and for people with a disability, who may have health issues and need access to an emergency telephone service. Some safeguards should be built in.

Ms Scott—The other issue is that the disability equipment is technically available under the community service guarantee or the universal service—I forget which—but it is, in fact, only available to Telstra customers. That is another fairly important issue. A lot of people simply are not aware of that. We promote it because I have worked with Telstra on some of those issues, but it probably is not as widely known as it could be. The fact that it is actually only available to Telstra customers is ridiculous.

CHAIR—Thank you very much, Ms Scott and Mr Barker, for appearing before us and for your submission. It has been very interesting and helpful to us.

Ms Scott—Thank you for the opportunity.

Proceedings suspended from 10.02 a.m. to 10.14 a.m.

COOPER, Mr Colin Phillip, National Vice-President, Communications, Electrical and Plumbing Union

EASON, Ms Rosalind, Senior National Industrial Research Officer, Communications, Electrical and Plumbing Union

KANDELAARS, Mr Gerry Anthony, Branch Secretary, Telecommunications and Services Branch (South Australia/Northern Territory), Communications, Electrical and Plumbing Union

CHAIR—Welcome. The committee has your submission before it. Are there any alterations or additions that you wish to make at this stage?

Mr Cooper—Not at this stage.

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 the committee will consider your request. I now invite Mr Cooper to make an opening statement, after which we will go to questions.

Mr Cooper—We welcome the opportunity to address the inquiry. Gerry Kandelaars is our technical expert on some of these matters. He now works full time for the union but has an extensive history as a tech specialist in Telstra, with at least seven years experience in the planning area and 20 years total experience in telecommunications. More importantly, he is in day-to-day contact with our technical staff at Telstra in his current role as a full-time official, as the secretary of the South Australian branch of our union. We hope Gerry will be able to assist with any inquiries about the state of the network and what we believe is happening. We welcome your inquiry because it gives the industry and the community a look at a very important national infrastructure—the telecommunications network in this country.

Members of our union are very proud of their association with building, maintaining and operating this network. It is an infrastructure that is probably not seen a lot by the ordinary community; there are cables in the ground and there is equipment in buildings that are not of great architectural merit in some cases. Unlike railway and road infrastructure, it is not very visible to the public, but it is a very important infrastructure for this country and is very vital in today's age. Our union and membership are committed to ensuring that infrastructure is able to handle future needs, does operate efficiently and, more importantly in this day and age, has a capital investment to ensure that it does provide what is required for the country. The reality is that Telstra is the main source of the national infrastructure of national telecommunications, and I think it will be for some time. It is important that that network operates efficiently for all community interests, including Telstra's competitors. This is one of the first opportunities the community has had to have a look at this network—at what it is about and at what needs to be done—because it is vital that it does not fail. We are concerned that some of the measures that are currently used, like the CSG, do not give an accurate picture. The CSG provides statistics, and there are examples where the CSG statistics look all right, but there are problems within the network itself.

I want to make it clear that we do not want to see this inquiry degenerate into an attack on Telstra. Our members are there, they work hard and they have a long commitment to it. We think this inquiry should look at the real issue of what is the national need. In saying that, we are critical that there has been a lack of investment in key areas of the network. We are concerned that a lot of expertise, particularly in the form of the intellectual property held by our members, has been taken out of the company by the dramatic staff reductions that have occurred over the last period. We think the network has suffered, particularly because of the drive within the company to deliver profits. There has been a lot of short-term activity, which has largely been driven by a political agenda for the sale et cetera of Telstra. There is some damage that does need to be repaired, particularly in relation to the impact of the reductions in high quality, very well trained and experienced staff—who have virtually been forced out of the company over the last period. Those issues, besides the lack of investment and the problems that is creating, are having an effect on the network. I do not want to go into all the details of the individual difficulties in the network that should be addressed, as this is just an opening. I think we have covered most of that in our report. We are open to questions on aspects of our report or on anything I have said in the opening address.

CHAIR—Mr Cooper, would you like to leave it at that for the whole group and move on to questions now?

Mr Cooper—It is probably well known to anyone working in the industry that Ros virtually authored the report. We consider Ros to be one of the experts in the industry, having been involved in it for a long time. Ros might want to expand on or emphasise some of the issues in the report.

Ms Eason—Very briefly, I think Col raised the point that we wanted to make in our submission, and that is that a lot of the indicators that are currently used in the industry to measure performance are very welcome, particularly the customer service guarantees. As we have looked at what is going on in the network, we have come to feel that those measures do not reflect fully the actual problems that are occurring in the network. You only have to look at the ACA report on the Boulding incident to see that in that case Telstra did not actually breach any of its customer service guarantee obligations for one reason or another, and yet clearly there was a persistent and, in the end, tragic failure of service. That starts to raise the questions about what else needs to be looked at when you are looking at a satisfactory level of performance in the network. Those questions are becoming all the more acute because people want more out of the network now than they did in the past. So we are not only looking at the question of whether the current infrastructure is performing adequately to deliver the standard service but also at what might be necessary to deliver more modern services.

Our fundamental argument, I suppose, in this submission is that the same measures which would give a more reliable standard service would also go a long way to providing high-level data services—that is, an extension of more fibre into the network and more copper into the distribution network. That is a lot of money. We realise that in a sense we are implicitly suggesting that we think a fixed network will provide the continuing core of service delivery in this industry, with wireless as a supplement, and we know that is a belief that has to be tested. In our submission to the Estens inquiry, we proposed ways in which that proposition could be tested. Nevertheless, there is a question of investment. We believe it is approaching a crisis point in relation to some sections of the network. A lot of money has to be spent. As people in the public policy area, we have to think about where the incentives, as well as the regulatory

stick, if you like, will come from to ensure that that investment occurs. That is the sort of area of our concern.

Senator MACKAY—I want to go straight to the issue of the state of the network because that is one of the primary considerations of this Senate inquiry. I want to start with some discussion about ‘seal the CAN’, which has had some publicity recently and was raised in estimates hearings. You refer to it, commencing on page 19, in what I think is a pretty comprehensive submission. Telstra indicated to us in estimates hearings last week—and I have the *Hansard* of the estimates hearings here—that it is generally what they regard as a reasonable success story, in that it did not impact on 97 per cent of the network; it impacted on only three per cent of the network. I think they correlated that to 100,000 joints. They certainly have led us to believe that it impacts primarily on joints. I notice in your submission that you say it is not really about joints; it is actually about the impact of moisture on cables. It is now pouring with rain outside. When the drought does break, I think it is the union’s view that it is a disaster waiting to happen. I wonder if you could expand on the whole ‘seal the CAN’ fiasco. The other thing I indicate to you is that Telstra are not of the view that the sealant has reached the end of its life. I find that quite extraordinary, given the difficulties they have had. My final point on this issue is that they also indicate that it would cost around \$110 million to fix. I want your comments in relation to that from an on-the-ground perspective. Maybe Mr Kandelaars could comment on that.

Mr Kandelaars—Thank you for the question. Whilst the primary concern is joints in relation to sealing the CAN, you should also recognise that because of the capillary action in sealing the joints the gel actually seeps into the cable. That is one of the problems that has occurred. Noting that plastic cables are not a perfect barrier to moisture, you can have moisture rising up on the other side and, where the two join, you can have a corrosive effect. Anecdotally, based on evidence given to me by members, I know that one way of testing whether that has occurred is to pull on the joint and see whether the cable pairs actually come out in your hand.

Senator MACKAY—It would take you a long time to do 100,000, if that figure is correct.

Mr Kandelaars—It is very hard to estimate. It has happened that way, I can assure you; I have had various members tell me. One was at Murray Bridge, where they were having problems finding this fault because the fault was not at the joint. Every time they lifted the cable out of the pit, the fault would disappear as the water flowed back down the cable away from the gel.

Senator MACKAY—I see.

Mr Kandelaars—It is not always easy to find the fault in these circumstances. In fact, it is quite a worry in Northern Australia where you have, obviously, wet and dry seasons. The fear is that in the wet the potential for a large number of faults to occur is extremely high. We are particularly lucky, in my view, that we are currently undergoing a drought. It is hard to estimate what the long-term effect of the gel might be. I think that is a ‘suck it and see’, to be quite frank. I know Telstra has put a bright light on it and suggested that all is well, but our members have a great deal of fear about the long-term impacts of seal the CAN. Certainly, it is unfortunate that the whole process was not further researched before it was rolled out and people were forced to seal every joint they opened. There are even suggestions from some circles that some of the contractors that sealed the CAN actually watered down the gel.

Senator MACKAY—It was probably the best thing, in retrospect.

Mr Kandelaars—Well, you do not know what impact that had on the process.

Senator MACKAY—That is right.

Mr Kandelaars—It is a most unfortunate incident. In fact, we have had members disciplined over the fact that they failed to seal joints at times, because it was really enforced very strongly by the management that when they open every joint they must seal it with the gel.

Senator MACKAY—What do you think about Telstra's ballpark—and I will say they are ballpark—figures? They have taken them on notice, which means we will wait for four months before we get an answer. We do have Telstra before us on Friday the 6th, so we might put this to them. They are saying that it will cost around \$110 million to fix. I am not quite sure how they arrived at that figure; we have asked them that on notice. They are also saying that it is confined to only three per cent of the network. Do you have any idea of where they got these figures from?

Mr Kandelaars—I would have no idea. Being a former planner, I would suggest they have done a macro assessment of what they think the impact is. Certainly, it would not affect all cable joints. If you have a cable that is already sealed that is not a problem because, having gel in it, the cable inherently prevents the water seepage. But where the cable is not sealed, where it is plastic and air, that is where you get into significant problems.

Senator MACKAY—What are your members telling you in terms of how serious this problem is? I know it is difficult to get information.

Mr Kandelaars—They significantly fear the break of the drought and, in places like Darwin, they expect the fault rates to substantially increase in the wet season.

Ms Eason—I would like to make one comment. Again, it is very hard for us to quantify the percentage of joints that might be affected. Looking at it rationally, the joints that were particularly targeted were, as I understand it, in rural and regional areas. I know it was used extensively. Members certainly told me during the preparation of this submission that it was widely used, particularly in rural and regional areas. Those areas also have a larger number of joints because you have longer cable lengths so, intuitively, a figure of three per cent seems a bit low.

Senator LUNDY—Before you move on, could I just get my head around this? When the drought breaks and there is a lot of rain, my understanding is that the CSG—that is, some sort of compensation to people who lose their services—will not apply because Telstra will be able to demonstrate that there was a weather pattern that was not the average.

Senator MACKAY—Mass service disruption.

Senator LUNDY—In any mass service disruption, all they have to do is claim that there was unusual rainfall and that they were not average weather conditions, and then they will be

excused from their obligations under the CSG. If you do not know, say. That is my understanding, and I am looking for confirmation.

Ms Eason—That is the case. As the Senate would probably be aware, one of the faults in the Boulding case did not turn up as noncompliance in terms of the CSG because it was covered by a mass service disruption notice by Telstra. Since that incident, I believe the ACA is moving to tighten up somewhat the way the mass service disruption notice operates, trying to make it more specific, so that Telstra may not simply be able to say, ‘All of New South Wales is now covered by a mass service disruption notice.’ So there may be a tighter discipline. Nevertheless, there are still these provisions in the current regulation, and obviously that is a concern. On the one hand, you do have to make allowance for extraordinary events; I think that is not unreasonable. But on the other hand, the mass service disruption mechanism can mask, as we believe it does, a more fundamental problem with the infrastructure. It should not be the case ideally that when it rains you get a whole lot of faults because your cables are in a state of disrepair.

Mr Kandelaars—I would have to say the nature of this particular fault is that it will not necessarily occur instantly.

Senator MACKAY—It is a slow drip.

Mr Kandelaars—Yes, exactly. We are talking about permeation of water into the cable which leads the gel, through capillary action, to seep down the cable. When the two meet, it is not instant. You are talking about a period of time where that corrosive effect takes place and then you get faults.

Senator MACKAY—I want to move on to the issue of air pressure. This also goes directly to the state of the network. We have had evidence given to us in Wollongong in relation to concerns about air pressure in cables, particularly in New South Wales. I think Jim Metcher will be appearing before the committee in Sydney, where we will talk a bit more about that. Again, this is quite a serious issue.

The committee was advised by the union in Wollongong that they dropped the air pressure through the cables from what they regard as optimum kPa—I think that is the term—from 70 kPa to 40 kPa. Our understanding is that the reason this has happened is that the network is not sustainable in terms of the full air pressure, if it were to be put through at 70 kPa, and that the air pressure standard has been dropped by Telstra. They are also saying that it is a remedial action, but we are not sure how remedial it is. They are using gas bottles quite prolifically now to prop up the air pressure, so I was interested in your reference to it on pages 20 and 21. I am interested in more information that you may have.

I am also interested that you say that the section responsible for responding to air pressure alarms was disbanded in 2001 and that the function was contracted to NDC, and you go on to talk about downsizing in that area. The other information that we got in Wollongong was that many of the alarms are not working when air pressure falls substantially. I think the alarms are supposed to kick in at 20 kPa or 15 kPa and, in many cases, they are not working. The union there had a concern. They said that one in five main cables in Sydney are without proper air pressure and that they are doing a patch job similar to seal the CAN on the network in relation to air pressure through gas bottles. I am interested in your comments in relation to that.

Mr Kandelaars—Firstly, I am not aware of Telstra changing its standards, but it may well have done because of higher pressures—certainly with tests at the sealing of the cable.

Senator MACKAY—Is it connected with the seal of a CAN? I suppose that the state of the network is the connector.

Mr Kandelaars—Yes. Obviously, by lowering the standard there are potential dangers in the long term, particularly over long lengths of cable. It is hard to maintain pressure to the end of the cable and, if you do not maintain the pressure all the way to the end, there is a potential for moisture seepage. That is the whole purpose of gas pressure. Gas pressure is used in main cables, where you pump dry air in to exclude moisture. I am aware that there is quite a lot of usage of dry air bottles along cables to try and maintain the pressure along the cable lengths. That is an indication that not enough has been spent to make sure that the main cables are adequately sealed. It is a short-term measure to overcome the sealing of the main cables. By the way, the main cables generally are not sealed with gel. They are just plastic with, essentially, an air core. It is the pressurisation of air that prevents the moisture from entering, so it does become critical if the air is not maintained in the cable.

As you mentioned, NDC has taken over that role. NDC is a wholly owned subsidiary of Telstra. In October of this year there was going to be a substantial downsizing of that group in NDC. That has been halted at this point in time. Colin may have more information on that. Certainly it was of great concern. It is easy in these areas to assume that you can make a quick saving by minimising your effort, but the long-term costs can be quite horrific because the impact is not instant. The impact takes time to become known, as cables gradually deteriorate and as you get moisture seepage. The problem is that it is a short-term economic fix in terms of costs but can be a long-term problem in your network.

Mr Cooper—I will expand on that, although maybe we cannot give you some of the detail that you have had from our state branches, which can probably give you the name of the cable and all—they are all named and numbered. As an adjunct since this report, we have had an issue in NDC where they tried to get rid of that section and outsource it. Because of what had been raised here, direct representations were made by the union to the people in Telstra who were responsible for all of this. They said, ‘Do you know what NDC are doing here? You have given them the role and they are now passing it off to someone else. The standards are going to drop even lower.’ So that was addressed. I suppose part of the problem is that, in my belief, what we had happening in NDC was a cost-cutting exercise run by people who did not understand the technical importance of some of this work. That is a bit of a problem that we have in Telstra in general: people see that there is a way of cutting costs but have no real appreciation of the technical role the function that they are about to undermine has within the system. These main cables are very important. A lot of them use fairly old technology; my understanding is that some of them are still based on paper insulation.

Mr Kandelaars—And lead sheaths.

Mr Cooper—Yes, lead sheaths and paper. They have been operational because of this air pressure in them to keep the moisture out. Moisture cannot get in if the air pressure is in there. Anecdotally, I know that one of these main cables went out—near where I live in an inner suburb of Sydney—because it got water in it. I was off the air for a couple of weeks because replacing one of these main cables is a very big job. They had people working round-the-clock,

with their little tents and lights, to put in a new main cable. It is a major issue if one of these goes out; it is not just a cable up somebody's street. Of course, a lot of little businesses around where I live were very upset; there were a lot of people operating from home offices and they were out of work because this main cable went out. It was due to a number of factors, not just lack of air pressure, including the way that the network had been treated there, with contractors et cetera.

This air pressure is important and I think the need for it is not understood because you are maintaining some infrastructure that is fairly old. This is how it has been kept going. Probably if they were aeroplanes, they would have been grounded long ago; but you can keep this system going if you maintain it and put in the necessary requirements. The air is generally produced by fairly extensive compressors in the exchanges and I hear stories of people saying that these things are just not working. Nobody cares any more because they have outsourced the compressor maintenance and the company does not get enough for it. Some of the old technicians are just horrified when they see what happens now and find that the compressors are run down. That was a major issue years ago; it was an absolutely major problem if this equipment was not working. There is a lack of responsibility for ensuring that this equipment operates. Some people just see it as a cost that can be cut. All of that is going to come home to roost, eventually.

CHAIR—It sounds like very old technology. Does every country around the world rely on pumping air or gas into pipes to keep the water out? We send cables thousands of miles under the sea to all over the world. This is a key issue for our infrastructure. Is there no other system where it does not matter if the water gets into it?

Mr Cooper —I suppose there is fibre optics and that sort of cable. There are other technologies; Gerry would probably give you a better answer on that than I could.

Mr Kandelaars—There are different techniques used to ensure that the integrity of the insulation is maintained. One of those techniques is to have cables which are gel filled; that is, you actually fill the cable with a jelly like wax. By its nature, it excludes water because water cannot seep into it. There are other mechanisms. Really old cables tend to be lead sheathed with paper insulation. Obviously, water and paper do not go well together; so if water gets into that type of cable, you instantly have serious problems. Then you have other cables which are essentially plastic or polyethylene sheathed with plastic installation. Again, they are not gel filled. Even in those cases, you have to recognise that, over time, you have an osmotic effect where moisture seeps into the cable. The air is used, essentially, to push out the moisture and keep it out. Unless you maintain that well and ensure that you have air pressure in the cable, essentially you end up with seepage.

CHAIR—So this is not an unusual system?

Mr Kandelaars—No.

CHAIR—You find it in the UK or America?

Mr Kandelaars—I cannot talk for the international scene, but I would imagine that it is quite common. In terms of other cables, they would generally use gel fill of some sort to prevent moisture ingress into the cable. With optical fibre, it is less critical, although, even in optical

fibre, in time moisture has an effect. What people have to understand is that all this infrastructure has a limited life, and its life is diminished by poor maintenance. Unless you have a proper maintenance schedule, you limit the life of any of this infrastructure substantially.

Senator MACKAY—One of the things, for example, that the minister says is: how come all these problems are emerging now? Why is Seal the CAN all of a sudden an issue? Why is air pressure all of a sudden an issue? For example, the minister would say, ‘This is a beat-up. Why is it emerging now?’ We are talking about a fairly lengthy osmotic type of process. How long has this been going on? Why haven’t the public been made aware of this?

Mr Kandelaars—In a lot of cases, these things take time. As I said, poor maintenance practices take a while to start having an impact.

Senator MACKAY—Over the last six or seven years?

Mr Kandelaars—You can save money in the short term. As we all know, it is like a motor vehicle. You can go on driving it and it will cause you no problem, but finally lack of maintenance will catch up with it. Unfortunately, over the last few years, maintaining returns to shareholders, et cetera, has been at the cost of the maintenance and infrastructure bill. Ros can give you the details of how much decline there has been in network investment over the last five years. It has been substantial.

Senator MACKAY—What I am attempting to do is draw out evidence from people who are on the ground, or who represent people who are on the ground, about how the start of the network is going to impact on the average person. Figures are chucked around about capital expenditure budgets et cetera. I do not think people quite understand what is happening. Mr Cooper made the point of how serious it is and what is going to happen if this sort of trend continues.

Mr Cooper—There are a number of things. Firstly, the network was at a very high standard some years ago before privatisation. There is an ability to live off that situation for a while. Some of the predictions our people have given me have not quite come about in regard to how bad things would get. It is a process of deterioration in the exchanges and places that eventually, in our view, is now having an impact.

We hear stories, and the trouble is that we cannot drill down and find out. We get it anecdotally. For example, in network faults, there is a huge backlog in the GOC, the Global Operations Centre. They centralised all the maintenance to one area in a great engineering achievement, in some ways. It took out a lot of expertise from the capital cities—Sydney and Adelaide. All the capitals, except Hobart, had their own technical experts available. They were all centralised to Victoria. I do not think that has worked very well. I will be accused of having a prejudice against it—I do. I reckon it was a very bad thing to do. They made a lot of savings allegedly. A lot of good people, who had all the expertise, did not want to go to Melbourne so they left the company. It did provide a great source of highly qualified technical staff for Vodafone and other companies. Allegedly, there were huge backlogs of faults that had not been cleared, and then they just cleared the database.

Senator MACKAY—We got that information out of Telstra eventually in relation to the E71 database.

Mr Cooper—This was just not E71s. These were big network faults. Our ability to find that out and prove it is limited. People take great risk if they are going to download information and provide it to us, as you are aware. They go after the people who do it. I am concerned, for example, that there are big backlogs of faults, particularly transmission faults. I hear, in the GOC that they are never going to be cleared. It might only be a little place with a few customers affected, or whatever, but that used to be a major crisis. If services or trunk routes were down, it was a major issue. Now it just seems to go on and somehow it is not exposed.

Senator WONG—Is the Kyneton example in your submission a particularly bad example? Is it indicative of the issues associated with the operation of the GOC that Mr Cooper alluded to? Would you have such a demonstration of diagnostic difficulty at the GOC?

Mr Cooper—I believe it would not be uncommon. Again, I am not sure how you would find that out. We cannot do it without getting people into some problems. Also, some people see it as an attack on their technical abilities if we go in too hard criticising what has happened. Although work was taken to the GOC there were still a lot of technicians out there on the ground working on other jobs. That expertise was still available, but those people have virtually disappeared now. A lot of them were retrained into other work, but a lot have gone. They were there as backups to go in and help if there was a major problem, but their numbers are diminishing very rapidly. That was one of the residual resources Telstra was able to rely on, particularly in the country areas: technicians who were very highly trained on the network and able to go in and do things. But as I say, those people are probably the first to be made redundant, because they are the highest paid. That is one of the problems: high pay is usually associated with skill, but they look down the list and say, ‘These guys get big money; we will get rid of them.’ They do not realise the skill level they are taking out of the system. That is why I think a lot of network problems are going to emerge—more now than in the past. I do not know whether Gerry knows these guys personally as well.

Mr Kandelaars—Yes, very strange things have happened. One of the big problems with the GOC is that, for instance, when you get a fault you potentially get what is called an ‘alarm storm’. You have to try to separate out what is important and what is caused by something else. Quite often you can overlook a simple thing. I will give you an example. You can get an indication at a site that your fuel is low. Admittedly, you can ignore that for a period of time and assume that the local power will come back on, your generator will turn off and you will be okay. But if you ignore that fault and assume a few things, it can become catastrophic because the diesel potentially runs out of fuel and your exchange is then reliant on batteries. Unless they are in good condition the batteries run down, and if the exchange—generally telecommunications equipment runs off 48 volts—drops below 46 volts you have serious problems because then the whole thing comes crashing down. These things have actually happened. The real problem you have technically with all your alarms concentrated in one point is making sure you are able to keep on top of it, identify what needs to be identified quickly and get somebody out there.

There is another thing about expertise: quite frankly, I am frightened about what is happening in Telstra. If we look at the age profile of our members, and even those who have been retained outside of the areas of the GOC, it is well into the mid-40s. That expertise will invariably leave the company over the next five to 10 years and there is nothing that has been done to address that loss of skill, which is bound to occur, in my view. I think the GOC actually does depend on those experts out in the field. I will give you an example of what used to occur in the old days.

We used to have a place on top of Mount Bonython—if you could call it a mountain; a big hill—

Senator WONG—A bump.

Mr Kandelaars—which is next to Mount Lofty in Adelaide.

Senator WONG—It is a hill; a mountain by South Australian standards.

Mr Kandelaars—It was a major radio to them. It used to be the maintenance centre for radio systems in our state. To allow the shift workers there to cope with giving advice to field staff, they used to have every rack type set up in the back room so that, when a fault came in, the shift technician would go out to the back room and would be able to direct the field staff by looking at the line system. They would be able to look at the rack and say, ‘Go over here and do this,’ and they would be able to see what they were doing. That is not a possibility in the GOC because that local knowledge is not there and it is not capable of being there. That can seriously compromise how quickly somebody can address an issue, particularly as you lose the expertise at the field end of the operation. That is my great concern about the operation of the current GOC.

I have examples of problems. For instance, at Lonsdale in Adelaide they have a major node, an AXE switching node. They have had a fault there, I understand—and I am not sure if it is still there; it probably has been fixed by now—and for over six months they were running the processors single sided. In AXE, they have two processors. They run in a duplex mode. If you run the thing single moded, it means invariably you get a fault and the whole thing comes crashing down. That, apparently, was due to what was called a regional processor bus fault. There was not the expertise nor the time for people in Adelaide to sit down and concentrate and work out what was wrong. That fault was left there in the network, potentially a time bomb to go off at any stage.

I am sure those things are going on all over the place but whether they happen today or tomorrow, who knows? That is the worry that I have about the way people are maintaining the network. I would have to say that five years ago we had a switching network that was second to none in the world. Its switching performance was outstanding. I am not sure that that is the case today.

CHAIR—Does anyone have any questions to that point?

Senator WONG—No, not on this issue. It was a separate issue. So if there is—

Senator TCHEN—I am happy for Senator Wong to finish her question. I think we have plenty of time today, actually.

CHAIR—Yes, we do.

Senator WONG—I just wanted to ask you to expand a bit on some of your comments regarding the customer service guarantee. You made the point quite well in your submission that there is a paradox between the fact that CSG compliance figures might be improving but fault

rates and customer complaints are rising. I think also today, Ms Eason, you made the comment about the Boulding case: that in fact there was no breach of the CSG in relation to that case. What that says to me is that if the CSG is one mechanism by which the public can be ensured of reasonable public policy outcomes, which would include reasonable service and reasonable maintenance of the network, it is not achieving it. I wonder if you could expand on that and whether you have any ideas of how one could better regulate.

Ms Eason—Yes, we drew attention to that paradox because it takes you to the heart, in a way, of the concerns that we have. Because Telstra has become focused, for political reasons, on getting the CSG figures up to a certain level—because we know that they are supposed to be a trigger for further privatisation—it has led to a rather one-sided focus on a certain form of performance, which can have an adverse effect on actual maintenance. Employees are encouraged to get the quick fix at the maintenance level in order to get those time frames right for the CSG, and that means that everything is fine with the employees' productivity and performance and the local manager's performance. But that quick fix often is not addressing the basic maintenance problem, and that is what we saw in the Boulding incident. You can have an underlying problem with your infrastructure, with the cabling, which shows up perhaps as a repeat fault, but every time it comes up as a fault and you go out and fix it within a certain amount of time you have this CSG statistic. That is a kind of perverse outcome but one that is very typical, in our view, of the way maintenance is now occurring within Telstra. It is statistically driven at present, rather than long-term performance driven.

The telecommunications service inquiry, you may be aware, recommended that there be a regulatory framework developed to address the question of reliability, which is not captured by the customer service guarantee statistics. We now have from the ACA a network reliability framework, which the union regards as a positive initiative as a regulatory mechanism. We have seen also from the Estens inquiry recommendations for that framework to be tightened. The original framework focuses mostly on repeat faults, and obviously if you are a customer and you have repeat faults you want a framework which addresses that. Again, that focus does not necessarily tell you everything about what is happening in the infrastructure either. There are some broad proposals coming out of the Estens inquiry for the network reliability framework indicators to be expanded, for instance, to look at the number of faults per hundred services in operation. That would be a good idea as well, but, again, it is early days. That framework is not in operation yet, and it will take a while to see what it reveals and how it might have its own kind of perverse effects, possibly.

Again, it is a reactive mechanism. What we think we should be getting from Telstra is a proactive maintenance regime—that is, not waiting until your regulator discovers that there is X number of faults in a certain exchange service area and that it breaches a certain threshold, but a proactive regime which is designed, as Gerry has been saying, to maintain the network in good order for everybody without having to be hit over the head by the regulator, and to pave the way for it to offer more sophisticated services as it is capable of doing if properly maintained and there is a proper level of investment.

Senator WONG—Would including some sort of reliability objective address some of the issues which you have given a fair bit of evidence about, such as the potential and existing skill shortage that Telstra faces and the consequent implications of that?

Ms Eason—I am not sure how much it would capture that. Again, I would have to look more carefully at the framework. What it is capturing, essentially, are customer service guarantee type faults—ones where, for instance, a customer cannot get a dial tone. It is not capturing the kind of network faults that Colin and Gerry have been talking about, which go to the GOC. They can be related, obviously, but they are not necessarily so. It is still a partial indicator of network performance and would not necessarily address those questions that have been raised now about localised diagnostic skills and how they relate to the capacity to maintain the entire functioning of the network at the switching and transmission level.

Senator TCHEN—First, I would like to thank you all for coming to give evidence to us. I was particularly impressed with Mr Cooper's comments at the beginning when he said that this is not about witch-hunting or conflicts; it is an issue we need to work together on. I hope that the same spirit prevails through the whole industry. My question relates to one that the chair asked earlier about the seal the CAN program. Mr Kandelaars, you did not quite answer the chair's question. She asked about alternatives to using an air pressure system to seal the cable. You talked about other possibilities and problems in other systems, but you did not talk about what alternative means could be applied. I wonder whether you could go back to that. Like the chair, I appreciate that a dynamic system is harder to maintain than a static system. If you depend on air pressure, you have to maintain air pressure. After all these years, has technology taken us to a stage where we can replace the air pressure system?

Mr Kandelaars—Certainly. I understand that there is quite a discussion going on at the moment within the ACA about regulations to enforce putting gel into cables that are used in the customer access network. I understand that some of the cable manufacturers are fighting tooth and nail to prevent that because not all of them are capable of doing it—not all of them have the expertise to provide gel-filled cable. I understand that there is a bit of a war going on in that neck of the woods at this very moment, because there is an argument that all cables in the CAN should have that mechanism to protect them from water ingress. Trying to set that technical standard is something that the industry has to settle one way or the other, and there is quite a bit of resistance to it.

Essentially, replacing the cables with some form of cabling that excludes moisture is the biggest way of trying to negate the need for air pressure. As I said before, even with polyethylene sheath cable you are going to get, over a long length of time, a capillary action and the water will enter the cable. The way to prevent that happening is to use gel that excludes the water. I am not sure if that answers your question.

Senator TCHEN—Mostly. I suppose the long-term answer is that Telstra or whoever—the network owner—needs to replace all the cable with gel-filled cable.

Mr Kandelaars—Yes. Obviously, that is not an instant fix. You are talking about massive infrastructure costs in doing that, and Telstra have been reluctant to spend money on the CAN, particularly since Optus has come on the scene. I know at one stage in Sydney Telstra virtually stopped any network infrastructure build in the CAN network, because they made the assumption that Optus was going to free up their cables of cable pairs. If Optus had done that, they would not need to invest in extra infrastructure. Mind you, that failed, because the leakage of customers over to the Optus network was not as great as they thought it would be, and they did get caught short.

Senator TCHEN—That is good news for Telstra, isn't it?

Mr Kandelaars—It is a balance thing: you have the issue of augmentation and then you have the issue of maintenance. As Ros was saying earlier, I think they have lost the focus on proactive maintenance because they are dealing with reactive maintenance. These things ebb and flow. I have seen the ebb and flow during my career in telecommunications. Five years ago the switching network was all on proactive maintenance. That gradually changed. Whether people think it is viable to be proactive or reactive depends on what cost pressures are being applied at a point in time. That is always a consideration every business has, I suppose.

Senator TCHEN—I was very impressed with your submission—in particular, that many of the issues you raised in your paper are similar to the issues raised in Telstra's technical paper. It seems to me that it is a case of different viewpoints: you are looking at what is on the plate and Telstra might be looking at what is in the pot. We seem to have problems only when the decision is made that whatever is in the pot must be maintained at a very high level.

With regard to the 'seal the CAN' issue, Senator Mackay has told you that at last week's estimates hearing Telstra told us that they believed their program was successful in 97 per cent of their network and that there were problems in only three per cent, with an investment of \$110 million needed to fix that. You said that you were not able to confirm that, but are you able to give us an alternative assessment? How big do you think the problems are—three per cent or six per cent?

Mr Kandelaars—I am sure that Telstra are being optimistic. One would expect them to apply a bit of optimism to the problem. The problem is that this is not a short-term thing. This will go on in their network, potentially, while any of those gel-filled joints exist. It is not a simple case of identifying these joints to repair and fix; they essentially tried to seal 100 per cent of their CAN. It is almost impossible to quantify. It will take time to get a better assessment of what the long-term impacts are likely to be, in my view. In fact, they are lucky at this point in time that it has been a very dry season. It is hard to base your assessment on this year, to be quite frank. The real worry is that the fault in these types of joints is not obvious. You can go to a joint and not see a problem, because you do not actually see the physical corrosion straightaway. You will find the problems more through customer reports than through any other mechanism. It is very hard to quantify what the long-term impacts might be, as I said.

Senator TCHEN—I do not remember Telstra telling us how much of their network the program has actually gone through. I do not think it was 100 per cent.

Mr Kandelaars—The objective was 100 per cent.

Senator TCHEN—Do you know how much they have achieved?

Mr Kandelaars—No.

Senator MACKAY—It is a good question.

Senator TCHEN—Depending on how much of the network they have covered, it seems to me that Telstra might well take the approach of saying, 'If only three per cent is faulty, we will wait until the three per cent turns up and replace the gel.'

Mr Kandelaars—The problem with the fault is that it is not an easy one to fix at times. As I said, if you get that capillary action you can chop out part of the joint, but you cannot always chop out the joint conveniently, because you have to have enough spare cable to actually remake the joint. It could get very tedious, because you may have to put in a second joint within a joint to get enough length, as it were.

Senator TCHEN—You are starting to lose me, Mr Kandelaars.

Mr Kandelaars—When you come into a cable pit, you have spare cable. Whether you are able to remake the joint in that pit depends on how much of that capillary action has drifted down the cable and how far it has drifted. You may have to go to the next pit down the road and pull out a length of cable and rejoin it. But that means two joints. So it is not necessarily easy to fix this problem.

CHAIR—Gerry did want to use the whiteboard!

Senator TCHEN—On page 3 of your submission you refer to three issues of importance to the present ATN debate which you say require examination as part of this inquiry—ageing plant, inadequate systems and under-resourcing of functions. You touched on those issues, but can you expand on those concerns, keeping in mind that Qantas faced these sorts of issues—under-resourcing, ageing planes and inadequate systems—about 10 years ago, before it was privatised? Qantas seems to have overcome these issues since then—but, again, it is a world leader in international aviation.

Mr Cooper—I will ask Ros to give go into a bit more detail, but analogies with other industries are sometimes not good.

Senator TCHEN—I know; it was always risky.

Mr Cooper—I have problems with other people who consider they are experts on the aviation industry and who try to import it into telecommunications. This is a national infrastructure. It is not like an alternative airline. It is easier to replace an aircraft than it is to replace a network. I do not really want to go that far, but it is like trying to replace the road system or something like that. If you were talking about capital investment, and the inference was that it would be solved with some further privatisation, I would reject that, if that was where we were heading.

There is no easy answer, but this is a national responsibility and, frankly, the more it has been privatised the less we have seen capital investment in the company. I think the message is that this has to be addressed as a national issue, not by privatising the company. We have to make sure that investment in this very vital infrastructure for the future of the country is addressed by people in responsible positions, particularly government. Frankly, it will not, in my view, be done by a privatised company. Again, private capital has always been used as a source of income for investment in the company, one way or another. I was probably guessing where you were going with that argument, but—

Senator TCHEN—No, it was not my argument. I just thought it would give some context.

Mr Cooper—It is there. Lots of people want to exploit the telecommunications network. A lot of people who want to exploit it to make a lot of money do not, in my view, want to make a commitment to it or to put back what they are able to take out of it. We are having those debates in the regulatory areas and, again, we do not want to expand on that here. I will ask Ros to expand on the issues you mentioned.

Ms Eason—Senator, I am having difficulty finding the reference.

Senator TCHEN—It was in the summary of the first part of your submission.

Ms Eason—The issues were ageing plant, the systems and the maintenance regime?

Senator TCHEN—Yes. The reference is in the second paragraph under the heading ‘3.5 Summary’.

Ms Eason—We addressed the issue of ageing plant in 1.1 and, basically, we just used statistics that are in the public domain. In fact, the telecommunications service inquiry found, on the basis of Telstra’s evidence, that half of the network was older than 20 years, which was its originally projected lifetime—I am talking about the CAN, the customer access network—that 30 per cent had been in operation for more than 30 years and that some five per cent of it predated 1950. So we are talking about ageing copper.

Why is the money not going into it? As Gerry has indicated and as has been implicit in some of our discussion here today, telecommunications networks are built up over a long period of time and they are never recreated overnight. There are many generations of technology and plant from different periods of time. The question is whether that replacement and regeneration process is taking place in a timely fashion. We are arguing here that no, it is not. The rising fault rate that we have pointed to in other areas—a fault rate which even in the recent Estens report is shown as being over about 50 per cent of the network fault rate, which is above world’s best practice—is a sign that that plant is not being replaced in a timely fashion.

Why not? I think that takes us to the question of the pressures that are operating on Telstra in its commercial environment as a result of both privatisation and competition policy. There are problems there that would take us into an examination of the regulatory regime, which we did not address in this submission but would be happy to talk to. In terms of demonstrating the problem, I think it is there in the public domain as empirical data about the age of some of the plant.

We have discussed the question of systems in this submission. It is really rather a broad term. It includes the alarm systems, for instance—systems in that sense. How adequate is the alarm system, how adequate is the monitoring, are the alarms physically working and, physically, are the alarms even there? Our members tell us that in some cases pair gain systems in small rural exchanges are not alarmed at all. If they are alarmed where does that information go? Is the diagnostic function at the other end adequately resourced? We believe not.

When those faults are eventually identified and they go into another system, such as Director, to create work orders, does that system work effectively and efficiently? We have described, both in this submission and in earlier submissions to the Senate, the problems we see in those systems. If you look at the ACA inquiry into the Boulding incident, you will see a criticism

there of the way that Telstra's internal systems operate in terms of the flow of information—the capacity of technicians or linespeople in the field to get adequate information about the kind of cable they are repairing, for instance, or the capacity that we talk about in this submission for them to find out whether there are spare pairs that they can use to restore service, or to fix a problem in the cable records area. There is a whole range of areas where overreliance on automation and centralisation as a way of reducing staff numbers is, in our view, compromising the operations of the network.

We were talking about underresourcing of functions. That is what I have covered, except it also goes to the hands and feet question of whether there are enough people in the field to do the job properly. It goes to the questions of the use of contractors rather than full-time staff and the skill levels of the people being used to perform functions. We summarised it as Telstra being required to do more with less in the current environment in which it is being obliged to operate, particularly with the pressures of the financial markets upon it. One could see the implication of your question as being that privatisation may lead Telstra to be more efficient or to have greater—

Senator TCHEN—No, that was not the implication.

Ms Eason—We do not see it, and I think the question of—

Senator TCHEN—I am glad you answered it.

Ms Eason—They are under pressure. There is more capital rationing happening at a time when more capital investment is required. That is the broad difficulty.

Senator TCHEN—I am speculating a little, as I am no expert in this area, but I put it to you that, in summary, the problem that Telstra—and, ultimately, all of us—faces is that it has a system infrastructure which has been built over time. It is a mixed technology and a mixed system. Part of it is very old and functioning well but requires high maintenance, and some parts are not functioning as well and require quick replacement.

If we look at Telstra as an ongoing business and at the costs of maintaining it, there may be a rationale to say, 'Part of this system is functioning well but only because we spend a lot of money and effort maintaining it. There are new technologies and new materials that we can now use as replacements, but as long as the system is functioning it is not worth replacing it, so let's run it down and when it no longer functions we'll replace it.' If that is the model that is approaching, do you see a problem in that? If it is a problem that Telstra faces, eventually it is a problem that the whole nation will have to face. As Mr Cooper said, it is the national carrier, the national infrastructure provider. So for the nation as a whole, is it possibly one way to go? Instead of continuing to try to maintain the system, part of which is out of date, you would no longer maintain it with the view that, as soon as it collapses, you would replace it with some new—

Mr Cooper—I think, again, in your mind it is probably Gerry's analogy of replacing a vehicle. It is not just a simple replacement of one bit of capital expenditure for something you can wear out and change. In fact, what you see are interim other measures used to try to increase the capacity to meet today's needs. We have touched on it here. Again, it is a discussion you have to have properly and I do not want to limit it here—the introduction of certain

technologies of pair gain systems and things like that. That term has some big meanings. But, in the current situation, you are not going to hear someone say, 'Suddenly this has worn out; we'll replace it with something brand new that will last the next 50 years.' It is not going to happen that way. What is happening is that interim short-term measures are being introduced to keep it going.

It is not like replacing your PC or something like that; it is a whole network. People in rural and country areas are the ones who are suffering. No-one wants to invest, no-one wants to buy a new car and no-one wants to buy a new PC—they are going to keep patching it up and doing things to try to keep it going. It is too important for that, because you have no option. No-one is going to put the capital investment in there to give them the network they need for the 64 kilobit access and all that.

It has to be looked at, and that is why I am hoping this inquiry opens those issues up. You just have this constant patching up, trying to make what you have do something it was never designed to do. A lot of intuition and expertise helps us but, frankly, in the end we need investment and we need to find the way to get it, and Telstra is the vehicle. We can look at this in a million different ways and we can hear all the competitive jargon and rhetoric, but in the end it is going to be Telstra that will provide it. That commitment to Telstra, I think, is a national responsibility and we have to find a way around it. Hopefully, your committee, by exposing some of these issues and some of the problems that I think have been under the carpet, will help people look at the problem and find some answers. I suppose we are going through a stage of problem identification. We do not have all the solutions here but we cannot find the solutions until we recognise that we have a problem in the first place.

Senator TCHEN—Thank you, Mr Cooper. I think you have opened it up now. Let us see whether we can get someone else to take it up.

Mr Kandelaars—I will add something about the use of electronics and the CAN, which can be misunderstood. The electronics in the CAN can be a good thing and a bad thing. One of the problems is that, in some cases, the electronics are being used purely to augment the network, and that has serious deleterious effects on customer expectations about the performance they can get from the network. In particular, I point to the small pair gain systems. You might have to pick me up on technobabble here, but we still have small capacity pair gain systems which are referred to as 1+1 systems. These are analogue pair gain systems. We also have 2DPGS and 4DPGS which substantially limit a customer's ability to gain bandwidth out of their customer access network. Then we have the line concentrated systems like the 5/16s. They have another problem in that they limit a customer's availability. By that, I mean that you only have five main pairs that allow access to 16 customers. If your network increases in terms of customer hold times, obviously when you only have five main lines and 16 customers connected, if they connect to the phone for too long you get congestion.

Senator LUNDY—What happens then?

Mr Kandelaars—Then you get no call.

Senator MACKAY—So they get no dial tone?

Mr Kandelaars—At best, you probably end up with a congestion tone.

Senator MACKAY—But they cannot get access?

Mr Kandelaars—No, they cannot get access.

Senator MACKAY—So they cannot make a phone call?

Mr Kandelaars—Exactly. If too many people connect to the Internet all at once—if all five of the 16 connect at once—nobody else is going to make a call.

Senator MACKAY—So the sixth person cannot get out?

Mr Kandelaars—No.

Senator LUNDY—So they cannot even make a phone call?

Mr Kandelaars—No. In that case, it is availability limiting. In other cases, it can be bandwidth limiting. For example, 1+1 limits the amount of bandwidth. I do not know whether the technical standard has changed, but I understand that the maximum technical standard at the moment is 2,400 bits per second. That is an appallingly low bit rate. Some customers in rural environments have to suffer that. It is absolutely frustrating for our technicians who have to go out there to help them, because they have to explain to the customer that that is the service standard we are obligated to provide: ‘Sorry; we don’t have to provide anything better.’

The use of CAN in certain ways can be quite negative in terms of customer outcomes while it can be quite positive in other cases. For example, it can be positive where you extend fibre close to the home by using large pair gain systems. You get a positive outcome in many of those cases. Again, people have to realise that there is a lifetime to these things because obsolescence inherently comes with age with all these things and that is overlooked. In many ways, the reason we do not have the problem in the switching network is that people forget that Telstra invested in what was called FMO. With the switching network, over a five-year period we have replaced all the obsolescence, some of which related to equipment from the 1940s or even before that. We replaced that in a five-year time span. That was a massive investment in the network that gave good outcomes to customers. It also led to reduced maintenance costs et cetera. It was a determined stance by Telstra to update its network.

Unfortunately, that has not happened with CAN. Quite frankly, some of the current CAN electronics should have been replaced years ago because they are obsolete. It has only been there to negate investment in new copper or better line systems et cetera. It is bizarre how some of these things can impact on the network. At the moment, investment is going on to augment the CAN with things called RAM 8. RAM 8 certainly improves the bandwidth available to customers, but the problem is that if you do not have a good cable network to put it on, it may cause more faults than it actually solves. Because of the nature of the thing, it requires a high-power power feed. In other words, you are required to pump 300 volts down the cable.

The problem with that level of voltage in the cable is that if there is any leakage due to moisture the cable breaks down and you get more faults. There could be an avalanche. Using something that is supposed to solve the problem could actually create the problem and that has happened in certain locations. One of the biggest complaints our techs have in the south-east of

South Australia where they have put in a lot of RAM 8s is that they do not know that it has been put in but they are getting all these faults because the power feed is breaking down the cable.

It is a matter of looking at those things and establishing a program that deals with obsolescence, because—and it is something I learnt in my planning days years ago—there is nothing surer than the fact that you have to plan for obsolescence. Quite frankly, I do not think it is being done very well at the moment in some areas. I know the reason: there is a lot of pressure. One of the main pressures is that Telstra gets a limited amount paid back from other carriers for the use of that CAN, so Telstra's attitude is, 'Why should we spend money if we are not going to make money from it?' I would think it is quite an understandable economic decision. It is particularly true of the customer access network in the bush, because that is where you pay big dollars. This is just anecdotal, but back in the 1980s one customer service to Carpenter Rocks, which is a small community by the coast about 30 kilometres from Mount Gambier, cost them over \$1 million. With that type of expenditure on some of the customer access network, there is a high reluctance to spend money.

Senator MACKAY—That would be unusual, though?

Mr Kandelaars—Yes, that was an extreme situation, but there was also a payphone that was put in years ago at William Creek which, I think, cost half a million dollars.

Senator MACKAY—Hopefully, that would also be unusual.

Mr Kandelaars—Yes, but it is easy to spend dollars very quickly on a customer access network.

Senator LUNDY—They have chosen not to invest in satellite technology early enough, perhaps.

Senator TCHEN—Perhaps we should make a massive investment and replace the whole infrastructure. Then we can sell the whole thing off!

Mr Cooper—The FMO was done before the sale.

Ms Eason—That is right. You would have to do that before partial privatisation.

Mr Cooper—The upgrading of the switches was all done early in the piece, before the sale and everything. That is an investment that has been of benefit.

Ms Eason—As in New Zealand.

Senator LUNDY—I would like to follow up on some of those issues but particularly go back to the 6/16 pair gains and some of the limiting features of that style of pair gain. I think we have some statistics or numbers from Telstra as to how many of those are in operation.

Senator MACKAY—There are 54,000, all regional and rural.

Senator LUNDY—I think 54,000 is an incredible number. Can you give an insight from those customers? Are people shocked when they find out they have a system that only works on some notional statistical average of call length that Telstra put in place 30 or 40 years ago? Do people understand their systems or do they just get angry?

Mr Kandelaars—Generally the customer has no idea what connects them to an exchange. They have absolutely no idea unless the technician, of course, tells them, ‘Your problem is because of this,’ and that is the limiting factor. But generally a customer has absolutely no idea. By the way, on the issue of availability, one should remember that before the network was upgraded with FMO, the entire network was based on that statistical average. Switching systems in those days were reliant on that because you could not afford the cost of the infrastructure to provide what was called full availability—that is, everybody being able to phone up at the same time. To do that, the infrastructure costs would have been enormous.

Senator LUNDY—But FMO allows that now between exchanges. Because FMO did not go between the exchanges in the home, you still have a number of systems which rely on statistical availability.

Mr Kandelaars—The nature of the network has substantially changed. What has changed it is that we do have access to things like the Internet. The Internet has substantially changed the call holding patterns and it is not uncommon now for call holding patterns to be 20 minutes or more. When you have something with limited availability, obviously the objective of call holding time crunches. You could solve that problem, and I suppose you could say DRCS has solved that problem by having timed calls, because that is the economic disincentive to stay on the line. You ration people’s usage by charging them.

Senator LUNDY—Is the DCRS the radio?

Mr Kandelaars—DRCS stands for digital radio concentrator system. That is a system produced by NEC in the early 1980s. It has now been replaced.

Senator LUNDY—And that has been Telstra’s solution to rationing bandwidth—just charging more for it?

Mr Kandelaars—It was the solution for rural and remotes 20 years ago. That has now been replaced by a high-capacity digital radio system, which is done under the untimed local calls program.

Ms Eason—Basically, any radio technology in terms of pricing usually relies on rationing. Because spectrum is a limited resource, you have pricing strategies to deal with those limits which are different from the ones you might have if you were using optical fibre or copper.

Senator LUNDY—I think it illustrates the point that Telstra, as far as I understand it, has not done anything about changing the pair gain systems, and the statistical averages still apply because the pair gain systems are still there and those customers do not know—

Mr Kandelaars—And given the nature of the network, as I said, the call pattern has substantially changed in the last five years, tremendously. In an earlier life in the 1980s, I was a traffic engineering person. I used to be involved in the dimensioning of the network, and the

network was dimensioned on that statistical basis. That was the only economical way to do it at that time. Unfortunately, with the changing nature of the network with Internet access et cetera, the Internet has created an enormous problem, with an enormous demand on the network. There are potentially technical solutions to that long term, but they are not there quite yet. Certainly, there is no technical solution to a 6/16 system, and that is always going to have an availability problem.

Senator MACKAY—It has to be replaced—that is what you are saying.

Senator LUNDY—That is the issue, isn't it? Surely those pair gain systems would be the first call or one of the first calls if Telstra were to be serious about upgrading the network to make it at least reasonable for Internet connectivity—not to mention a simple phone call.

Mr Kandelaars—Not only those, but I also mentioned the 1+1s, which are small capacity systems—the 4DPGSs and the 2DPGSs. They limit the network in different ways—

Senator LUNDY—I wanted to come to that and get a clearer picture on how they limit it. You mentioned before that they restrict the bandwidth as opposed to restricting the number of people who can actually make a call at one time. Can you describe how each of the system's limit bandwidth? In particular, I am interested in Internet users who are dialling up and using the Internet.

Mr Kandelaars—I cannot be exactly precise on the limitation of the bandwidth on each system. A 1+1 system, for instance, is the old analog. It uses what is called, I think, frequency domain modulation, but do not quote me. Either way, effectively, for one line to operate it translates the frequency to another layer. That inherent translation limits the bandwidth on the primary line as well as on the secondary line, because you essentially have filters on the line that limit how much VF response you can get out of it. VF response is something different from equating things as bit per second. That inherently limits the bandwidth available digitally to each of those customers. Generally, I think that limits it to about 9,600 kilobits per second—it is quite low.

Then you have got 4DPGSs and 2DPGSs. They use a digital time division multiplexing arrangement which slices—I could get a whiteboard and explain it—up your voice. It slices your voice—and most of the transmission in the network is done through digital transmission—8,000 times per second and then it is able to put a number of different customers sliced together and then it pulls them apart at one end and slices them into a digital stream—

Senator LUNDY—Just like ATN—

Mr Kandelaars—It slices them into a digital stream and then pulls it back and separates that out at the other end. Again, that is bandwidth limiting. In my view, those small capacity systems should have been used only for short periods of time. Unfortunately, they tend to be there for years. They were only a short-term fix and they have been used as long-term fixes—that is my honest view about how they have been used. That is the real problem with those. Even the larger pair gain systems have a limit on bandwidth availability. One has to recognise that, even if people were to put in what are now called RCMs, if you want something like that—

Senator LUNDY—What is an RCM?

Mr Kandelaars—It is a remote customer multiplexer—sorry.

Senator LUNDY—I will just ask if I do not know.

Mr Kandelaars—An remote customer multiplexer allows 30 customers on a two megabits per second stream. Each customer on an RCM can access about 28.8 to 33.3 kilobits per second but, again, that is the limit.

Senator LUNDY—Where are they used?

Mr Kandelaars—They are used extensively in both the metropolitan network and the rural network. They are used very extensively in new subdivisions.

Senator LUNDY—Are they the same as RIMs?

Mr Kandelaars—RCMs and RIMs are very similar in terms of what they do. But they again have a limiting factor, because more and more customers want capacities that are achievable under ADSL. They would like download speeds of 640 kilobits per second—you cannot achieve that out of an RCM. But I understand that Telstra are looking to augment their RIMs and RCMs with what is called a CMUX, which will allow for DSL technology.

Senator LUNDY—Are you able to tell me how many of those CMUX units or MiniMux units could fit into a RIM box?

Mr Kandelaars—Unfortunately, no.

Senator LUNDY—Telstra could not either. I just thought I would ask.

Mr Kandelaars—If you give me some time I will get you an answer.

Senator LUNDY—That would be terrific; you would solve a mystery. I also want to go back to the RAM-8s that you mentioned and the use of power in the line to somehow boost the signal. Are they currently being installed? Is that one of the technologies that Telstra is installing to try and enhance their rural and regional services?

Mr Kandelaars—Yes, that is one of the more recent CAN electronics being used to augment the network.

Senator LUNDY—You mentioned that the downside of that is that the use of power can contribute to the degradation of the cable.

Mr Kandelaars—If the cable is already degraded then the power feed, because you are putting down—

Senator LUNDY—So if there is a weak spot it will find it.

Mr Kandelaars—Yes, absolutely—it breaks down. The insulation in the cable breaks down and the RAM-8 goes off the air because it is reliant on that power feed to supply the remote electronics.

Senator LUNDY—We have seen the statistics in Estens and other reports—the ACA reports—that faults have gone up in rural and regional areas, despite Telstra’s insistence that they are trying to do something. Are you able to comment on whether or not the use of RAM-8s has contributed in a statistically significant way to the increase in faults, particularly in rural areas?

Mr Kandelaars—I would not be able to give you that detail. The feedback I got was anecdotal. Those people who know the south-east of South Australia will know that it tends to be fairly wet, so cables are subject to moisture all the time and we have had a fair few problems there.

Senator LUNDY—Can you tell me what DCS-20s in rural exchanges are?

Mr Kandelaars—Yes. I will have to look up on my cheat sheet precisely what they do.

Senator LUNDY—We really like your table in your submission. It is very helpful.

Mr Kandelaars—I am just trying to find the DCS-20.

Senator MACKAY—I will ask a question of Mr Cooper while Mr Kandelaars is looking through his documentation. I want to go straight to the issue of faults. I notice that page 37 and 38 of your submission discuss Telstra’s old E71 database, which measures the numbers of faults in the network as reported by techies rather than customers being aware of them themselves. You have indicated that they have changed the name to ‘customer network improvements’—this is a bit Orwellian, to say the least. Beyond that, it looks like the union is alleging that the number of faults has increased since we got the information from Telstra. Also, on page 38 I notice that you have said:

The Union understands that Telstra has recently instructed staff to regard all CNIs—

which, as a shorthand, I call ‘faults’—

other than those posing “life and limb” threats and occupational health and safety hazards as non-urgent.

This is a fairly recent innovation. We found out there were about 100,000. Ros, there might have been 20,000 that fell into the ‘urgent-ish’ category. Is the union alleging that Telstra have instructed staff to ignore most of the faults?

Ms Eason—Not to ignore them but to put them in the non-urgent category. Again, this might be something that Gerry wants to comment on. It is an issue that we have raised throughout the submission about what constitutes an urgent alarm or an urgent fault in different parts of the Telstra maintenance system. Our understanding, which comes from information from the field, is that if it is not a health and safety issue or a life and limb issue it is to be regarded as non-urgent. But a non-urgent fault today might be an urgent fault tomorrow. There is a problem with

this form of categorisation, and it is also a way of minimising for public consumption the seriousness of the backlog.

Senator MACKAY—To clarify: is it correct that people are not aware that these faults exist—until there is a breakdown, and then they ring up and complain?

Ms Eason—That is the case with quite a lot of different faults in the network. My understanding is that the E71 database, which is now the CNI database, is basically a database of external plant type faults.

Senator MACKAY—It is where the techies themselves report faults.

Ms Eason—It could come from a customer, but they are external plant maintenance orders. They could be, as Telstra itself has said, anything from a broken pit lid through to work on a major cable. So it is that whole range of external plant maintenance orders. It is distinct from the kinds of faults that go to the GOC, although they could overlap and be interrelated, obviously. The CNI database is not a database of switching and transmission faults, and it is not necessarily a database of customer service guarantee type faults either. The broken pit lid is not that, and even the cable problem may not have got to the point where it has triggered a customer service guarantee type fault, although increasingly it will have done because of the reactive maintenance regime that we have been describing. My understanding is that it is a specific group of faults. Gerry may want to talk more about that. Our understanding is that that backlog is growing. It is just a matter of resourcing; it is fairly simple.

Mr Kandelaars—As Ros said, they categorise faults differently. It could be a broken pit leak, but even a broken pit leak can lead to problems later on if it is ignored long enough. You have to understand that most of the field work force is in what is called ‘fit and fix’. Their objective is to get the customer on air as quickly as possible. If they come across a situation where they can get the customer back on air but to fix up the problem absolutely would take an inordinate amount of time, they pass it off to an E71—or whatever you call it nowadays.

Senator MACKAY—Customer network improvement.

Mr Kandelaars—It is still known by the field work force as an E71. Supposedly, they should come back to it later on. Again, the problem is it may not be customer affecting today but a shower of rain might make it customer affecting tomorrow—it is all a bit of luck. If you do not have some regimentation to go through it which makes sure you address it, then you end up with longer term problems that may actually cause longer outages because you have not addressed it.

Senator LUNDY—Back to my question about DCS-20.

Mr Kandelaars—My data indicates that DCS-20 has the same problem as the other line concentrators, the 6/16s et cetera; that is, it is availability limiting. I understand it shares 120 derived circuits with 480 customers potentially. To put it into techno jargon, that means the maximum call handling time you could have would be 250 milli-erlangs per customer—one customer talking for one hour is an erlang hour. That would have a limit of 250 milli-erlangs per hour for each customer.

Senator LUNDY—So 250 of the 480 could potentially be on the line at any one time?

Mr Kandelaars—One hundred and twenty of the 480.

Senator LUNDY—Only 120?

Mr Kandelaars—Yes, a quarter of them.

Senator LUNDY—Telstra told us at estimates that they were still installing DCS-20s. Do you know if that is true?

Mr Kandelaars—I have no idea to be honest. I would be surprised; I would have thought they would limit the use of that technology today.

Senator LUNDY—I would have thought they would have been replacing it if they were, as you say, focused on upgrading the network. The submission asserts that Telstra's network could be the network that will really carry the transition for Australia from narrowband to broadband with the appropriate level of investment in the consumer access network and the PSDN. Is that your view? Could it be the network that carries all Australians as universally as possible to a broadband environment, if Telstra chose to make the appropriate level of investment?

Ms Eason—Yes. I suppose you could put the opposite question: if it is not the Telstra network, what else is it going to be?

Senator WONG—What else is there?

Ms Eason—There is a difficulty in the whole discussion we have been having, and I noticed it when reading the Telstra submission too. There is a bit of a question about what we mean by the national network, whether we are talking about the physical bearers or whether we are talking about the systems that run over it. Quite clearly, already we are talking about a network of networks when we are talking about the Australian telecommunications network. In the submission, I suppose we have argued that copper still has a role in providing high bandwidth, and copper fibre is scarce, potentially, in communications technology. How those bearers will be supplemented by wireless in various places remains to be seen. But we think that the current infrastructure, properly maintained and extended, does provide the basis for a transition to more widely available broadband. So why wouldn't you be using that as a transitional infrastructure? Perhaps one day we will all have fibre to the home, but that is a long way away. What is the national transitional strategy going to be? Our view is that there is certainly a role, and a very central one, for the current fixed network in that transition, but that is to be tested.

Senator MACKAY—My office—and I am sure other senators have had the same experience—has had calls from members of the CEPU who would have liked to come along and give evidence at this inquiry. I am hoping they were members of the CEPU, but anyway they were people who work on the network who indicated that they were a bit fearful of coming along and giving evidence. The committee discussed various options—in camera evidence et cetera. We put that back to those people and they still expressed concern in relation to their jobs. What we need is on-the-ground information about what is happening in the network. Could the union think of a way, or assist the committee in some way, to get this information without anybody being sacked in the process?

Mr Kandelaars—It would be very hard.

Mr Cooper—When there are staff cuts going on and redundancies, despite having in place agreements and processes that protect people, we find they can be manipulated. We would be concerned at exposing anyone to that. If you could get fair comment from, for example, people who work in the GOC and in other places, you would probably find a great deal of good information, but how could you protect them? Once their name is on a list, we have found that eventually people can be rolled out. In saying that, I have detected in Telstra an improved attitude towards their staff of late. They realise they have to get them onside. We are trying to detect a change in some of the more aggressive and bullying attitudes of the past, and we think it is there. If you were able to talk directly to people in the GOC, say, it might be an interesting experience if they were able to tell you exactly what is in the fault queues, what happens, how they process stuff. Again, you would get people obviously put in by management to tell you the opposite. I cannot really give you a ready-made formula to do it and make sure people are protected. I cannot exactly say what people would tell you, but we would be interested for this committee to find out about a lot of the anecdotal stuff we get out of places like the GOC.

Senator MACKAY—Maybe we should ask Telstra.

Mr Cooper—Maybe they would let you go and talk to people there. For example, a lot of the mobiles guys are really concerned at the moment. They were maintained separately and they are now being rolled into the GOC. What has protected them is that mobiles make a lot of money, so Telstra did not really want to put that network at risk like it did some of the others. This is my view. Now they are rolling them in and a lot of our mobile technicians are very concerned about just what is happening there. It would be good to be able to talk to some of those people freely and for them to be able to support what they say with documents. That may be difficult.

Senator LUNDY—I want to come back to the document that Mr Kandelaars was referring to.

Mr Kandelaars—It is a Telstra document.

Senator LUNDY—I am not going to insist, but I am interested in getting more detail about the status of the DCS-20 systems.

Senator WONG—Through the chair, why don't we get the name of it and request it from Telstra?

CHAIR—A shorter process might be for you to ask if it is possible to give it to us. If not, then we will do something.

Senator LUNDY—Can you tell me whether the DCS-20 system carries ISDN services?

Mr Kandelaars—I suspect not. Not that this shows, anyway.

Senator LUNDY—Can you do dial-up Internet over those systems and is there any bandwidth restriction?

Mr Kandelaars—DCS-20 certainly has some limit on bandwidth: it is 26 kilobits per second. It is a maximum for fax of 14.4.

Senator LUNDY—It says the maximum is 14.4?

Mr Kandelaars—Yes. It says here that the replacement option is the CMUX. It may be better if you actually source it from Telstra. It is called the 'Rural and Remote Access Technologies and Features Summary'.

CHAIR—Can I come back to this question of the most logical platform for broadband being the existing narrowband structure. Does anybody disagree with that approach? That seems self-evident to me. What are the other options being canvassed? You have suggested that fibre optics might be one. Why wouldn't fibre optics become part of the mix of technologies that are currently in the ground and up on poles?

Ms Eason—They already are, of course. There is already fibre in the backbone network, as it is described, and in the interexchange network—and quite a bit of unlit fibre, even out into sections, probably, of the CAN. Fibre is not expensive, but the electronics that hang off it to get you over the last mile are expensive. So it is not at this time economic to take fibre all the way to the home. I doubt whether anybody would dispute that fibre in those sections of network will still be the technology or the platform of choice. The debate seems to be over the role that wireless is going to play in the last mile, but also in broadband delivery more generally, depending on how highly you think people will value mobility when they are seeking broadband access, what kind of price they are going to have to pay for mobile broadband, what kind of quality of service they will get, what size handset they will have to carry around and how it will be powered. There is a range when we get into 3G. We have a debate then about how we want our broadband services delivered to us.

CHAIR—We also have, it seems to me, a somewhat ad hoc system of broadband delivery, particularly in regional areas. Some services have been set up from scratch on the basis that Telstra is uninterested in delivering services to those areas funded by government to do that. What is your view of the long-term viability of those kinds of services? Will they continue to need propping up? Why did Telstra not pick up on those services? Can you comment on that adhocery and on how in your mind it fits with a national approach to delivering broadband?

Ms Eason—We feel that the jury is out on some of the regional experiments. When we talk about broadband in regional areas, when we are talking about perhaps some of the neighbourhood cable roll-outs and so on, that is a particular platform which is really configured more for pay TV than for two-way high-speed broadband access. So what role those networks will play in the future for broadband delivery I think is questionable. How sustainable those operations will be in the long term—as competing broadband technologies perhaps become available in some of those areas for data as opposed to pay TV—is also questionable.

In a way, the union is agnostic on some of those commercial enterprises but our view is that, if we are talking about national availability, we need to have a national program, or a policy framework at least, designed to do more than just encourage regional experiments—some of which may be successful for a time, some of which already have failed and some of which will probably be casualties of this current downturn. The problem with a lot of the funding so far, in our view, from Networking the Nation and such programs is that it has not been very well

coordinated. It has not been part of a larger strategy. What we argue for is a more coordinated vision of how broadband is going to be made accessible.

CHAIR—Our next witness will argue, to some extent—I hope I am paraphrasing him correctly—that we should forget the central objective of competition, that the free market and competition will not deliver what we expect of a national telecommunications network well into the future and that we need to accept some element of a natural monopoly. Do you agree with that assessment? This committee has not taken much evidence in respect of the possible restructuring of Telstra or about it becoming a monopoly, but I invite you to make some comments about that.

Mr Cooper—A lot of our comments are on record and go back to the eighties. I think very much that what was our view then probably is our view today, but we were obviously dealing with the reality that there was going to be competition introduced. Unions had very strong positions on those attitudes in respect of the natural monopoly of telecommunications. When the Labor government was in, we put forward very strong views on what it was doing. We have been consistent, but we have to deal with today's situation. Paramount in that is that telecommunications are an important infrastructure and that Telstra is going to be the body that supplies that infrastructure.

Simply put, I do not think Telstra should be given too many limitations on its ability to generate revenues and to generate the income and investment that is going to be necessary to build a national infrastructure. I know we are drifting into other areas, but I would hate people to draw the conclusion that, yes, Telstra is a natural monopoly. Really, when you boil it down with all the experiments and all the things we have looked at, it is going to be the body that should provide the new infrastructures and the current infrastructures at a high standard—and, therefore, we have to put some limit on it. I find that difficult.

To me, you have to give them the income and the revenues, so you do not put any limits on them—and you have to realise that it should stay in government hands. That is a very simple position of the union. You have to generate the money somewhere. The USO contributions only work to a limited degree. The worst thing you could do is bust Telstra up and limit it when you know it has to have this wide responsibility for the nation. I do not know if that answers your question, but we have some very strong views on this that we have expressed over the years. Frankly, I might have some blinkers on but sometimes I am not sure we have been proved wrong too much in what we have seen happen. But we have to deal with today and deal with the situation as best we can.

CHAIR—I think it is a relevant question, Mr Cooper, because this committee is looking at the investment environment in which Telstra is operating and in which we now have to realise some of our expectations.

Mr Cooper—Obviously there have to be some limitations, but I have not supported a view that Telstra should be shackled too much on generating revenues in the new technologies and the new ways. Again, I do not support adventures and wasteful, flavour of the month things. What has been proved is that Telstra is a very strong company. I think that is because it has been able to work fairly freely, but it has also been limited from going the way of some of the other companies because it is majority-owned by the government and because of the influence the

Senate. As you know, the Senate has influenced a lot of directions of telecommunications in this country. You can do that because Telstra is still majority-owned by government.

CHAIR—Some of the members of this committee have been surprised in the past at estimates and other hearings and sessions to find that Telstra in fact has a very poor performance record for both its network and its infrastructure—where lines are run across haystacks and over fence posts and the like. Can you comment on that? How easy is it for us to know? Is this a sign of an organisation which does not pay careful enough attention to this? Is world's best practice to not know these things? Do you see any changes in Telstra's attitude to its network and what is there, what is working and what is not working?

Mr Cooper—There are practices that Gerry and I as ex-techs are both a bit horrified at seeing today, particularly when we compare them to how we were trained. We are quite concerned about Telstra's lack of attention to training and all sorts of things. So, in one way, we are quite critical of some of the practices; but they are brought about by the pressures of privatisation and things like that. The big down on Telstra's ability to provide the network services very much coincides with 1996. I do not want to get too much into this area because we are trying to find solutions. We have been critical, for example, of their industrial relations practices. We do not think they have helped to motivate the staff and we are trying to turn that around.

We think there have been some lessons learned and that you have got to get the staff on side. We have just negotiated a new enterprise agreement—I have got to say that I have been involved in them all—and there seemed to be quite a different attitude. I suppose the proof has got to be in the pudding, but their attitude was a bit like what I spoke of here today: 'Let's find the problems so that we can find the solutions.' I have not had that approach from them for a while. I think there is a change, but the fundamental problem is: where do you get the money and how do you address the commercial pressures of delivering shareholder value? We were critical of the high dividend Telstra paid out last time. It might not be a popular political thing to say but that money, in our view, should have been put into their network. I think we were probably the only people who came out and said, 'You paid the shareholders too much return.' Frankly, to be consistent, we have to say that. We think it was wrong because that money should have been put back into the network.

CHAIR—The voters out there are shareholders now.

Mr Cooper—Yes, I know. But a lot of them burnt themselves too.

CHAIR—Indeed.

Mr Kandelaars—As an official I feel quite frustrated at times because in one sense you want to defend Telstra and in another sense you find some of their practices appalling—particularly their customer relations practices. They could do with a lot of picking up in my view. It puts our members in a catch-22 situation, particularly with some of the things that have gone on with contracting out, where the poor defenceless tech that comes to the door has to suffer abuse from the customer not because of what they do but because of policies that the company initiate. That is quite a problem for us at times. We have got an interest in ensuring that Telstra do well in the marketplace of course but it is difficult when their public image could be improved substantially.

Senator TCHEN—I think that customer service has improved a great deal. Twenty-five years ago I waited 20 days for my phone to be connected and I live in Elwood.

Mr Kandelaars—In the mid-1990s, just prior to privatisation, there was a big push by Telstra to provide excellent service—for example, in the directory assistance area where they probably gold plated the service. Try ringing up directory assistance today and see if you find the number—it is a good challenge.

CHAIR—We might leave this otherwise we will be here all day.

Senator TCHEN—I need to tell you the ending to my story. When the technician did come, he put in an extra connection for me for free!

Mr Kandelaars—You got excellent service!

Mr Cooper—He would probably get sacked today!

CHAIR—Thank you for coming today and for your submission, which is very helpful.

Proceedings suspended from 12.21 p.m. to 12.33 p.m.

MURPHY, Mr John, RMIT University

CHAIR—I call the committee to order and welcome Mr John Murphy. The committee thanks you for making yourself available at short notice. 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 the committee will consider your request. I now invite you to make an opening statement, after which we will go to questions.

Mr Murphy—I am a former research associate of CIRCIT, which has now closed. At the moment I am a completely independent consultant in the telecommunications industry. The reason for my submission today is that I am generally appalled by the lack of real policy examination in the telecommunications industry over recent years. I believe that there needs to be much more fundamental thinking about the directions in which we want this most important of all industries to head in the coming decades. The previous witnesses touched on some of the regulatory regime aspects, and our submission in its earlier parts looks at some of the inherent tensions and contradictions in the existing regulatory structure and the consequences that flow from that in terms of the very large resources required to regulate the telecommunications industry and the overlapping responsibilities that occur.

As you touched on at the end of the last session, we believe that competition policy applied wholesale to the telecommunications industry can be ineffective and perhaps naive because certain parts of the telecommunications network, particularly the customer access network in regional and rural areas, are almost certainly a natural monopoly, and therefore the normal rules of competition do not work. I refer you to the bottom of page five of our submission where we talk about the consequences of this situation in terms of the natural monopoly of the customer access network. We have listed there and at the top of page six some of the key dot points. Other carriers are unlikely to compete in rural areas because if it is uneconomic for one network to operate then it is doubly uneconomic for two or more networks to operate. The second dot point suggests that if carriers were to compete in rural areas then wasteful duplication of infrastructure results, which drives up overall industry costs. Therefore, if competition is to be sustained, it will drive up overall industry prices.

The fourth dot point suggests that Telstra has an incentive to put a high price on access to its network because of the vertically integrated structure of Telstra. If it allows competitors to access its network then it threatens the high-level services that it provides. So it is in the interests of its private shareholders for it to make competition based on its own network as difficult as possible for competitors. In a sense that is the crux of the problem. The instability in the market arises because if Telstra does continue to participate in a competitive market, where the weaker competitors have to be propped up by some form of subsidy, then Telstra in turn earns super profits, and that further strengthens its monopolistic position. Conversely, if Telstra suffers real market erosion in some areas then, in deference to its obligations to its private shareholders, it should exit those markets or reduce service levels.

This is a sort of helicopter view snapshot of some of the broad brush issues and, in my view, some of the really fundamental problems with the industry structure at the moment. On page seven of our submission we have tried to draw this together and say what would be a more

stable, appropriate industry structure. We suggest that the vertical separation of Telstra is an option that needs to be looked at. In this option the actual cables, let us say, together perhaps with some of the transmission equipment that you talked about in the last session, would remain in public hands and, we believe, might advantageously be devolved to local government. The rest of Telstra—the mobile networks, the retail services, BigPond et cetera—should be fully privatised. In our view that makes a clear distinction, where the actual telecommunications cables—whether they are copper or, more importantly, optical fibre in the future—are seen as just base infrastructure, such as roads, water pipes or gas pipes, which are open to access by any service providers who want to compete using that underlying public infrastructure.

To conclude, we are, in a sense, at a real transition in the telecommunications industry. Twenty years ago, when I was in Telstra and doing some of the stuff on pair gain systems and things, telecommunications carriers were complex companies that required licences and had very complex plant and equipment infrastructure underneath them. But now we are seeing a real change to basically what you might say is a dumb copper network or a dumb optical fibre network, where individual service providers are adding intelligence and technology to that network to do what they want to do. We are evolving to a model very much like the roads network where on our roads we have all sorts of taxi companies, courier companies and transport companies competing and using whatever technology they want in order to compete. The only thing that makes it essential for them to compete is that they get free and fair access to the roads. That is the sort of model we believe perhaps needs examination in the context of telecommunications.

CHAIR—Thank you.

Senator TCHEN—Do you mean horizontal separation rather than vertical separation?

Mr Murphy—I mean vertical separation. The fundamental issue is one of vertical separation—that is, to separate between the actual cables and ducts which constitute the natural monopoly—

Senator TCHEN—That is horizontal, isn't it?

Mr Murphy—No—this is going to get more complicated in a minute. The actual separation is traditionally talked about as vertical separation. You have the underlying infrastructure horizontally—

Senator TCHEN—I understand what you are talking about; I am just worried about the terminology.

Mr Murphy—I will go a step further. Once you have done that, you could actually separate the infrastructure horizontally. In other words, there is no particular reason why you have to have one monolithic network provider. You could have different network providers in different regions, perhaps owned by local councils, who would interconnect quite happily, because the interconnection arrangements are quite straightforward. So you could have both horizontal and vertical separation.

CHAIR—This is a very interesting model and, of course, has been canvassed before. In the work you have done on this option, have you looked at the relative value of infrastructure

compared with the business of Telstra? It seems to me to be a very revolutionary and dramatic approach to take but the argument often put for not doing it is that you would not necessarily get exactly half the total value of Telstra in the cables, pipes, ducts and other transmission equipment. We do not actually know what that is valued at, for one thing, but it may represent either a bad deal for shareholders or a bad deal for government.

Mr Murphy—We have not done a lot of work on this option in the last few months, so my information is perhaps a little dated. We did some very rough calculations a while back. Let us say we took Telstra and valued it at \$100 billion. It is probably valued at a lot less than that on the current share price but we will use that figure for the sake of argument. The government's stake in that is \$50 billion. If we went through this scenario, the proceeds that the government would get from the sale would be \$50 billion, minus the cost of buying back the network, which we estimate at about \$20 million. So the government, on that simple calculation, would get \$30 billion. The point is that this is a calculation that could be worked out and the necessary financial adjustments can be made. Mergers and acquisitions occur every day between companies where shareholders are given three-for-two shares in a particular company or a combination of cash plus shares. I do not think that it is beyond the abilities of an accounting firm to work out what the actual transaction should be.

CHAIR—You do not say in your submission but do we gather from this proposal that there would be some money for local government or federal government to then put back into the system so that we would get universal broadband access.

Mr Murphy—That calculation we did shows, in fact, a surplus to the government; that is, the proceeds of half the sale minus the network. That could be directed back into the network to improve services. Whether it would be sufficient to provide a universal broadband service is, I think, doubtful. Some years ago, the Bureau of Transport and Communication Economics made an estimate of the cost of providing broadband to the whole country and I think their figure was \$60 billion. So there would be additional investment required to provide universal broadband.

CHAIR—How long ago was that estimate made?

Mr Murphy—I think it was done in about 1996. Chris Chea, who is now in the department, would be able to trace that figure. The report was entitled *Communications futures* and was produced by the BTCE. Clearly, it is a very large figure to provide broadband universally. That estimate was based on reticulation of optic fibre. There may be combinations of some of the other technologies that you have discussed—ADSL in some areas; optic fibre in others—which could reduce that figure.

The other point to make is that I always get a little bit suspicious of universal broadband access, because you may be making very large investments towards customer sectors who would not use it. It can be an unfocused type of investment. You might provide people with broadband, at huge cost, who may never actually use it. Nonetheless, the figure for providing near universal broadband access is very large; that much we know.

CHAIR—I think you have commented that there is not a strategy, as such, to determine either the degree to which we provide broadband services to more people or the means by which we achieve that—and, by implication, you are suggesting that there should be; is that fair?

Mr Murphy—I think so. This is a very important question for Australia in the future. We do not really have any telecommunications strategy to do this in Australia at the present time. There are initiatives like the broadband inquiry, the National Communications Fund and so on, but the National Communications Fund is really insignificant in terms of the scale of investment we have just been talking about. It is just a drop in the bucket. There is really no overall national policy to say where we are going, what our national objectives are and what we are aiming to do by when.

In contrast, in other countries it is done differently—and I am not an expert on this. In Canada there are some very interesting broadband initiatives to connect universities, schools and hospitals with optic fibre, based on consortiums which actually own the fibre themselves. I think Singapore is also taking a very productive view on broadband reticulation. But here, we really do not have any policy. That is possibly for the reasons mentioned in the first part of our paper: I really do not think the free market will ever provide that sort of broadband coverage.

Senator LUNDY—I would like to go to your qualification of the vision for universal broadband. I want to challenge you on your view. Even though it might not be within the current generation—that is, in the next 20 years—that universal broadband would be used by everyone or demanded by everyone, do you agree that it is foreseeable that, at some point in the future, universal broadband will be the appropriate vision and will, hopefully, be achieved?

Mr Murphy—Yes, I certainly do. With all investments, the secret is in the timing, in a sense. I think my reservations would be about saying, ‘Let’s provide universal broadband now,’ as distinct from saying, ‘Let’s provide broadband to those who most need it and can use it,’ and then growing from there. Ultimately, probably everyone will need it.

Senator LUNDY—It has certainly been put in some submissions to this inquiry that broadband is more necessary for rural and regional Australians by virtue of their isolation from government services, public services, private commerce et cetera. What is your view on that? Can you comment on the almost inverse relationship with market competitiveness and the nascent and growing demand for broadband in rural and regional areas?

Mr Murphy—Yes, I would agree with that. Clearly, distance learning is not going to be economical here in St Kilda, because one can walk down the street to the local school. The potential demand for broadband is highest in those areas where unfortunately the cost of providing it is higher. That is the cruel part of the equation. If that were not the case then we would not have a problem. If the cost were lower where the demand is highest, it would happen via normal free market forces, because people could provide it at a profit. It is the fact that the costs are so high where the demand is most pressing that causes the whole problem.

Senator LUNDY—You suggest that vertical separation would involve a subsequent modification of ownership for the privatisation of the retail services but the core infrastructure would be fully publicly owned. As part of that suggestion, you mentioned that it would be ideal if local governments had a role to play in the ownership and running of those networks. Can you comment on how that model would fit with the quite extraordinary financial constraints and resource constraints on the vast majority of local councils? How do you see the underlying economics of those councils being able to cope with the prospect of running and maintaining the most expensive part of the network? In particular, again, it will be not the newer developing localities or regions that have old networks but the less economically dynamic rural areas that

are going to be the most expensive to upkeep. What are your thoughts about the economics of that and any possible subsidisation under that scenario?

Mr Murphy—Clearly, the economics need to be rethought. For better or worse, the system works to some extent at the moment, but that subsidisation occurs within Telstra and is not visible. That would have to be replaced by a transparent or rather open subsidy from government to councils, or whatever, to provide the level of network service required. It is not that more money is required but that the levers have to be pulled differently so that the subsidy—this is a good thing, in my view—would be clear and politically visible. That would be a great advantage.

On a slightly related point, local governments are possible owners of the network for two reasons. Firstly, they are in a political context with their constituents, so in a sense the customers of the network are the owners. If the network is not performing, Councillor X may say, ‘I’ve got no chance of getting re-elected, so I’d better get something done about it.’ The problem is right on the doorstep. Secondly, there is a lot of synergy between the installation of communication networks and road making. Whenever a road goes in, a council should put in optic fibre at the same time. The cost is trivial. The cost of putting in new network infrastructure later, when you have to dig up the roads, is considerable. There are some real synergies on the supply side and useful accountabilities on the demand side that could be exploited. Yes, someone has to pay for the network in rural areas, and this option would mean that payment is visible.

Senator LUNDY—You acknowledged that there would have to be some form of upgrading of the copper network. We heard from the previous witness, and it is very clear in every inquiry that has ever been done, that there are some very serious problems with lack of investment and actual degradation of the network. Under your model of a publicly owned infrastructure, can you comment on whether it should be taxpayers that pay for that upgrade again?

Mr Murphy—The existing model has resulted in underinvestment in the access network for some years—I think that is probably generally accepted. But when you think about it, that is quite logical from Telstra’s point of view, because Telstra’s management would be derelict in their duty to their private shareholders if they wasted money in areas which did not produce economic returns. If I were a Telstra shareholder, I would be asking, ‘Why are you spending money on upgrading the network in rural areas, because it is making a loss?’ That is one of the inherent tensions involved in partly private and, indeed, fully private ownership of Telstra.

The money that needs to be invested to bring the network up to scratch has to come really, in the final analysis, from shareholders, government or customers. Presumably, it would be some mixture of customers—and when I say ‘customers’ I mean the people in a particular region who need to have their network upgraded—and the federal government. That is a political issue that needs to be worked out. There is a role for the federal government to contribute, because of the connectivity of the network. For example, if you upgrade the network by putting in broadband at Skenes Creek, a little town 50 miles or so down the coast, you benefit not only the residents of Skenes Creek but also the business of a service provider in Melbourne, Canberra or Darwin who is communicating with those customers. Because of network is connected, I think the federal government will always have a role.

Senator LUNDY—In the current scenario, where we have had the extended zones contract in place for some time, could you give your views—notwithstanding your model—on the possible extension of contestability in defined geographic areas, like the extended zones contract, as a way of providing the sort of subsidisation necessary to not only improve telecommunications services but also bring about the introduction of real broadband in some of those areas?

Mr Murphy—I have not followed the extended local zones debate very closely; I have just noticed it in passing. I could comment on contestability in regional areas. This is an area where I have real problems with competition theory. As I mentioned briefly, if the network is uneconomic in these areas for one operator then no other operator is going to want to contest that market unless they receive some sort of subsidy. If it is uneconomic for a monopolist to provide the service or provide the network facilities then it is doubly uneconomic for two. But if you do have a competitor who enters then I think that, perversely, the situation is worse. I have a diagram to show the committee. It is not in the paper.

A diagram was then shown—

Mr Murphy—Let us assume that this, on the left, is the cost structure of an inefficient monopoly and that this is world's best practice. And that is the cost that is underlying the prices in a particular rural area. If you bring in a competitor and the competition really works and it makes this monopolist efficient, he then has world's best practice. But the competitor is also in there at world's best practice. The total infrastructure cost can be greater than the original monopolist costs. Now the industry has that total cost rather than that one. In this case, the introduction of competition has actually made things worse.

Senator LUNDY—In that model, are you assuming that there is dual infrastructure provided?

Mr Murphy—Yes.

Senator LUNDY—So it is not based on an access regime model?

Mr Murphy—No, although the access regime model does not really do much about that. The key to efficient provision in rural areas is to have an efficient monopoly. I know that sounds very unfashionable, and you may be shocked, but in rural areas that is the best solution. In the value chain, once you have an inefficient monopoly, a bottleneck, it does not matter really what competition you have downstream, because these prices are transferred all the way down through the value stream. The essence of the problem is to get the existing network, or the single network, efficient.

CHAIR—Before we go on, could you table your diagram so we know what you were referring to when you spoke a moment ago.

Senator TCHEN—I am still having difficulty coming to grips with your description of this being vertical separation. I suppose it is because I am still thinking of a corporation being horizontally diverse, which means it goes out; it tries to maximise coverage of the market. If it is vertically diverse, it is trying to rationalise the production process. I understand that what you are getting at is taking the current access regime to the logical conclusion and separating the infrastructure management ownership and the service providers on the retail side. From my understanding, one of the sticking points, or difficulties, is the question of how you deal with

the tension at the interface between the retail service provider and the infrastructure owner, particularly in terms of changing technology, changing service level, satisfactory service level and these kinds of issues. How do you deal with that?

Mr Murphy—On the vertical separation issue—

Senator TCHEN—That is only terminology; I understand what you mean.

Mr Murphy—It goes back to the original Michael Porter thing. It is probably not a very good terminology, but I should just say that it is very useful, we find, in analysis of the telecommunications industry to think of layers—the infrastructure, the service providers and then content such as films and so on at the top. With regard to the interface issues, one model could be that the public infrastructure just consists of the copper or optical fibre coming out of the ground, so a service provider who wants access to that piece of copper puts his box of equipment here and connects to it. Then the public infrastructure owner has to keep that bit of copper fault free to the customer's premises. That is fairly straightforward.

If you were connected at a higher level—for example, if the public infrastructure consisted of transmission equipment like the RIMs and other devices as well—then there would be questions of what reliability you get and perhaps more complex issues. But they are all really solvable. It is not rocket science, because, when you think about it, networks connect all the time. Internationally, networks from different countries interconnect. They have their agreed standards of interface as to how they will connect, how many errors will occur in a certain part of the network and so on. These are technical questions that the technologists can certainly solve.

Senator TCHEN—I am sure technology can solve it, but what about the commercial and sometimes the bureaucratic considerations? I understand a similar situation was that of the British Rail privatisation process, where they separated the rails from the service provider. I understand there were great difficulties in terms of who was responsible for maintenance and that sort of thing. Here we are talking about something which is changing much more quickly.

Mr Murphy—Yes, I think that is a good point to raise. The British Rail privatisation has not been particularly successful. Those responsibilities were very badly and perhaps naively defined at the time of separation. I think British Rail infrastructure has been grossly underfunded in recent years, as the network has been here. The publicly owned infrastructure has to perform, just like roads have to perform. You cannot have potholes in freeways, otherwise people start complaining. Similarly, the public network certainly has to perform. I do not for a moment see the public network as being an archaic sort of boring, low-performance type of entity. It should be a very high-performance entity. If broadband is ever going to be delivered, then it has to have high-performance infrastructure.

I could just remark in parentheses that there is some evidence that optic fibre may in fact be a more economical solution than copper in rural areas. I think this evidence comes from California. I did not bring the reference with me, although I could provide it to the committee if you are interested. One of the earlier witnesses today, Ros Eason, spoke correctly of the cost of the terminal equipment of the optic fibre, which for some reason has not reduced as rapidly as we all thought it would—I do not know why. Nonetheless, if you have a network where the actual carrier, the cable, is a large proportion and the terminal bits are negligible—say, 20

kilometres of optic fibre—then the fact that the fibre is unaffected by water means that its maintenance costs could be a lot lower. Of course, the transmission performance is far better, so you would not need intermediate equipment. Thirdly, the actual capital cost of the fibre is about the same as copper. So it is a very interesting paradigm where, in the future, it might be more economical to provide optical fibre in regional and rural areas than it is to provide copper. There you would have the extraordinary result that rural areas might get optic fibre and broadband before some urban areas. It is an interesting possibility.

Senator WONG—Regarding the model you propose, what do you say to the criticism that it effectively retains the non-economic aspects of Telstra's business, which is the natural monopoly of the network, in public hands but puts the profit-making aspects of Telstra's business into private hands, thereby limiting the ability of government to effectively cross-subsidise one with the other?

Mr Murphy—I have never quite understood this distinction.

Senator WONG—Perhaps a different way of asking the question is: could you envisage government obtaining revenue from the users of the network, which would include the privatised aspect of Telstra, for use of the network in a way that actually satisfied the capital needs of the network?

Mr Murphy—Yes, definitely so. Presumably there would be some model worked out where service providers would pay for access to that network. In fact, in some areas where it is a natural monopoly it would be economic because service providers—a service provider could be a telephone company; someone who provides telephone calls—would have an incentive to gain access to that infrastructure. In rural areas, it probably would not be economic in extreme cases. Then governments—say, a federal government—would have to contribute to the maintenance of that network. But that is fine by me because that is really saying we have a national policy that people should have access to the telephone, the Internet or whatever it is in future years. We have that national policy; clearly, governments have to expend money to achieve that policy objective.

Senator WONG—I understand that. I have not seen any detailed modelling of this and I just wonder whether or not you would gain sufficient capital through the costs that you would charge the network users, to develop the network to the extent that a lot of people say we need to.

Mr Murphy—Yes. I think that probably that detail needs to be really studied. You probably need to work through the business model, don't you, to find that out?

Senator WONG—Under that model, what incentive would there be for the privatised aspect of Telstra and its competitors to actually provide services to remote and rural Australia?

Mr Murphy—They would have possibly more incentive to do that there than in urban areas because of the sorts of issues that Senator Lundy raised. The need for those services could be greater in regional and rural areas than in urban areas. I am thinking of, for example, distance education, some health services and access to news and financial information. So there is potentially greater customer demand and therefore it is an attractive market for service providers.

Senator WONG—Doesn't that depend on the population, though? Is it an attractive market if it is a very small number of users in a remote area?

Mr Murphy—If you are on the network, the geographical thing does not matter.

Senator WONG—That is true.

Mr Murphy—If I have a news service that deals with wool prices and I am operating out of Adelaide, I do not care where my customers are. They are just a name who pays a subscription. That demand would mean that the market would be attractive to service providers. But, as you have pointed out, the cost of providing it, the cost the service provider has to pay to get access to the network, would be higher in rural areas.

Senator WONG—And may be prohibitive in terms of the actual profit, that is right.

Mr Murphy—Yes, the service provider would have to make that calculation.

Senator WONG—Your assumption in your paper was that, if you had that structurally separated model, the profitable parts would necessarily be privatised. Is that a philosophical issue, because government should not be in the business of running those sorts of businesses, or is it an issue associated with the fact that you probably have to look at how much share capital has already been issued for Telstra and then look at what you are hiving off in terms of the network? I am interested as to why there is that assumption in the paper.

Mr Murphy—Firstly, could I go back to this question of profitability. If you have a natural monopoly, it could be quite profitable. This is rather complex.

Senator WONG—I do understand.

Mr Murphy—On the boundary where it is a natural monopoly, the network could be quite profitable because you have the only game in town and if people want access to it you can charge them heaps. So the network is not necessarily uneconomic in many areas. Conversely, the retail services could be profitable; sometimes they may not be. Not all of Telstra's retail operations are profitable. Why is that point of demarcation there? Our view is not really concerned with profitability versus nonprofitability. It is simply concerned with asking whether a government should really be offering Big Pond, pay TV content or mobile redirection services. I do not particularly think so.

Senator WONG—So the view in your paper that the retail arm should be fully privatised is a philosophical view about whether government should be involved in the service delivery issue?

Mr Murphy—Yes, I think that is true. It is something of a concession to the privateers.

Senator TCHEN—It is a practical argument, too, isn't it? It is not just a philosophical argument.

Mr Murphy—I do not have a big problem with the government being involved in something if they can do it very well; why not?

Senator WONG—I was not trying to set you up; I was just trying to clarify whether there was some other policy reason for it.

Mr Murphy—No. I think that is probably overstating the depth of our thought about that particular issue.

Senator MACKAY—I must admit that I am grappling to understand why this is even necessary. As the chair said, this is not the first time that this has been raised. As I understand it, the argument essentially goes: currently the network is not working; therefore, we have to do something to improve it. This is where this type of model emerges. That is not what you are saying, but that is the background to a number of the options being considered. I think Senator Wong and Senator Lundy have made very good points. Why should government not be involved in making money in terms of the retail sector? Secondly, why should money made in the retail sector not assist with cross-subsidies in the network?

Mr Murphy—The background for our paper is not the performance of the network; it is the reasons given in the first part of the presentation. The essential contradiction is the fact that the network is a monopoly in some areas; therefore, Telstra is motivated to prevent access to it because people who gain access can then compete against its retail services. In our view that is the fundamental problem, and that is unsolvable within the present structure. The question of access by service providers using ADSL is a perfect example of that. If a service provider like Request DSL gets access to the Telstra network, they can compete with Telstra Big Pond. From that narrow point of view, because Telstra has private shareholders it is duty-bound to stop other service providers gaining access by any means it can. That is the fundamental problem and that is why we have looked at the vertical separation option.

Senator MACKAY—I understand that, but I want to come back to the point Senator Lundy was getting at, which was: who is going to pay for the maintenance of the network? I do not think it is feasible to say that local government will. I think you indicated that maybe the federal government or regional Australians themselves might. This is a critical point. Yes, Telstra has a duty to its shareholders, but the majority of its shareholders are Australian taxpayers, who have already paid for this infrastructure. So, to come back to the question again: who would pay for the maintenance? We have heard about the state of the network; under your model who would pay for the maintenance and upgrading of the network?

Mr Murphy—I think the federal government would have to pick up a large portion.

Senator MACKAY—Where would they get that money from? Under your model they would have flogged off the profitable parts of Telstra.

Mr Murphy—No. The calculation we mentioned means that they would probably have some surplus from the sale of their 50 per cent of the existing structure.

Senator MACKAY—Yes, as a one-off; not recurrently.

Mr Murphy—You can amortise that one-off to get a recurrent revenue stream. But the point is that the situation at the moment is worse. Apart from the NCF and things like that, the people who are paying for the maintenance of the network now are Telstra customers rather than taxpayers generally. That has a deleterious effect: the most efficient participants in the

industry—that is, the people who use communications the most—are paying the most in terms of the cross-subsidy. That is a disincentive for people to use efficient technologies, and I think it degrades national competitiveness.

Senator MACKAY—There may be a fundamental difference here. I think the nature of a country like Australia is such that you do not have the critical mass in terms of population—I agree with you in terms of natural monopolies—but there is a national duty of care, if you like, in terms of providing telecommunications. Everybody has to have a phone; that is sort of axiomatic. Really, what I am saying is that yes, you can amortise—I do not know how far you could amortise—but at the moment there is a ready-made revenue stream from the most profitable company in Australia. The difficulty is that they are not reinvesting sufficient profits into, say, the network. At the same time they are paying a very good dividend, thank you very much, to the federal government, which the government then puts into consolidated revenue and, in theory, spends on schools, hospitals and what have you. I think the issue of ‘who pays?’ is the one that Senator Lundy was getting at, and that has still not been satisfactorily answered. I do not understand it, if it has been.

Mr Murphy—I am not sure whether it is an issue or not, in a way. I know that is a strange thing to say. Essentially the government is paying that subsidy now, by virtue of its ownership of Telstra, to the extent that its dividend is reduced by investment in the network. The federal government is paying to maintain the network. In fact, the federal government is paying exactly half of the network maintenance costs. So it is already doing that.

Senator MACKAY—How is that?

Mr Murphy—Because Telstra management invests in capital to maintain and develop the network and to pay operating expenses. Those expenses come out of the dividends that are paid to the government and private shareholders.

Senator MACKAY—No, the dividend that goes to the government just goes straight to consolidated revenue.

Mr Murphy—Yes, but prior to it getting into government hands some of it has been spent on keeping the network running.

Senator MACKAY—This is a very interesting discussion. I think that where the argument lies is in the quantum. The witnesses before have indicated, and we know, that there has been a substantial reduction of the capital expenditure budget over the last half-a-dozen years or so. I just do not understand why, as an alternative model, you could not simply say to Telstra, ‘Invest more in the network.’ You could say, ‘You are the most profitable company. You make \$4.1 billion a year’—or whatever it is—‘so put money into the network.’ I do not see why local councils should have to pay for it or why regional Australians should have to pay for it.

Mr Murphy—Where does Telstra get the money from to invest in the network?

Senator MACKAY—They get it now from the bits that you want to flog off. Not entirely, but yes, they do get money from the retail arm.

Mr Murphy—This is a discussion, really, about how the money goes round in circles.

Senator MACKAY—It is a critical one.

Mr Murphy—Essentially, the network is currently underperforming. Someone is going to have to pay to fix it up. The choices, I think, are: private shareholders, the customers or taxpayers. I think private shareholders are unlikely because there are good economic, business reasons for them as to why they would not want to do that. If I were a private shareholder, I would not want to do that. Of the other two, make your choice between federal government—that is, taxpayers—or customers. It is a much better solution for the federal government to pay, for taxpayers to pay, because otherwise, as I mentioned, you penalise the most efficient sector of industry in the country. You penalise people for using telecommunications. Other countries are moving in exactly the opposite direction to encourage people to use telecommunications. Our model will not solve the question of how you fix the network; it will not, because it cannot create money. We are talking about a closed system. How we structurally rearrange the players in that industry will not create money—immediately, at least. So it does not solve the network improvement question.

Senator MACKAY—It is an interesting discussion. Thank you.

CHAIR—Thank you very much, Mr Murphy, for appearing before us and, again, for being flexible in your arrangements.

Committee adjourned at 1.24 p.m.