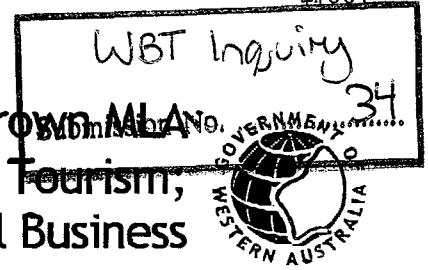




Hon Clive Brown ~~MLA~~  
Minister for State Development; Tourism,  
Small Business



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**TO:** Paul McMahon  
Secretary  
House of Representatives Communications  
Information Technology and the Arts Committee

**FAX No:** 02 6277 4827

**FROM:** Carol Skipworth  
Research/Liaison Officer

**DATE:** 6 June 2002

**PAGES (Including this):** 13

**SUBJECT: INQUIRY INTO WIRELESS BROADBAND SERVICES**

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**MESSAGE:**

Dear Mr McMahon

Please find to follow the Government of Western Australia's submission to the inquiry (hard copy to follow in the mail).

Your sincerely

Carol Skipworth



GOVERNMENT OF WESTERN AUSTRALIA

**MINISTER FOR STATE DEVELOPMENT,  
TOURISM; SMALL BUSINESS**

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Our ref: 10-11479/DoIT128307

Mr Paul McMahon  
Secretary  
House of Representatives Communications  
Information Technology and the Arts Committee  
Suite R1, 116  
Parliament House  
CANBERRA ACT 2600

Dear Mr McMahon

**INQUIRY INTO WIRELESS BROADBAND SERVICES**

The Government of Western Australia welcomes the opportunity to participate in the House of Representatives' inquiry into Wireless Broadband Services.

In responding to the inquiry, we are primarily concerned with the interests of consumers and, in particular, the social, cultural and economic dimensions of daily life. Western Australia's particular geography and demography make Government especially sensitive to the needs of citizens living in non-metropolitan areas. We are concerned with ensuring that constituents have access to new digital wireless technologies as one method of service delivery that would lead to enhanced productivity and well-being. We are keen to encourage and see local industries involved in emerging opportunities utilising these new technologies.

For this submission the Western Australian Government sought advice from stakeholders in industry, government and the community (see Appendix 1).

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**Key Recommendations are:**

1. Develop a national strategy for provision of broadband services, including a stocktake of assets, needs assessment and targets.
2. Accelerate the CDMA upgrade to extend its benefits to regional communities.
3. Develop policies that ensure that satellite broadband services are made affordable and accessible to remote and regional locations.
4. Stimulate the deployment of wireless broadband services. For rural Australians, the Commonwealth should re-examine policies for access to spectrum. Initiatives are necessary to encourage businesses and local communities to play larger roles in the expansion of wireless broadband services, as well as for research and development.
5. Regulate to ensure that the spectrum reserved for industrial, scientific and medical use is not used for high-power, spectrum-hogging applications.
6. Consider amending the Trade Practices Act to assure that wireless redistribution can occur.
7. Revisit relevant elements of the USO to consider broadband services and ensure that data is defined in a way that is both meaningful and current and that products and services offered under the USO are genuinely attractive and affordable to users.
8. Reinstate the Internet Access Fund (part of the Telstra Social Bonus but withdrawn by the Commonwealth in 2001) to support broadband Internet rollout.
9. Fund projects that showcase and demonstrate applications for wireless broadband use.

Attached is our detailed response addressing issues noted in the inquiry.

Should you seek further information, please contact Mr Dan Scherr, Department of Industry and Technology on (08) 9222 5675 or [dscherr@indtech.wa.gov.au](mailto:dscherr@indtech.wa.gov.au).

Yours sincerely



CLIVE BROWN MLA  
MINISTER FOR STATE DEVELOPMENT

- 6 JUN 2002

Att

# **Wireless Broadband Services**

*Response to  
The House of Representatives Inquiry*

June 2002

by  
The Government of Western Australia

## INTRODUCTION

Industry analysts agree that access to broadband services will be a pre-requisite to full participation in the Information Economy of the 21st century. As was underlined in the recent World Congress on Information Technology, Australia lags behind OECD countries in broadband take-up. Access to broadband outside the capital cities is currently patchy, and largely confined to major regional centres that are passed by the major fibre optic backbone links between capital cities. Two-way high-speed satellite Internet services are now being offered at a subsidised rate to extended zone customers, but remain largely unaffordable to individuals and small businesses in the standard zones.

Customer expectations across the country have been raised. There is a requirement for more than just dial-up narrowband Internet services. More and more Australians are seeking a high-speed always-on service. Such a service would allow students outside the metropolitan area to participate in courses offered only in the city. Health professionals would have access to more sophisticated diagnostic services. There are numerous social and economic dividends for individuals who are able to go beyond the narrow bands of the Internet. Funding is required to support innovative applications for broadband services. Grant programs such as Networking the Nation (NTN) and Building Additional Rural Networks (BARN) are virtually exhausted and have very limited capacity to support remaining new projects. They have not proved as equitable across the States as initially envisaged. Even with \$50 million, the National Communications Fund (NCF) will be well short of meeting expectations and will not have the ability to support future wireless growth. Specific targeted funding is required to stimulate innovative new approaches for the delivery of broadband services.

Reinstatement of the Internet Access Fund (part of the Telstra Social Bonus but withdrawn by the Commonwealth in 2001) to support broadband Internet rollout would accomplish this.

This submission does not attempt to address the detailed technical issues. Rather, it focuses on the concerns of users and how better harnessing of these technologies can lead to improvements in access to broadband by all Australians.

A national strategy for provision of broadband services is now overdue. It would have to include a stocktake of assets, a needs assessment, proposals for service level targets, implementation options and timelines for service delivery. Wireless cannot be looked upon in isolation. We look forward to the results of the Broadband Advisory Group's work in this realm.

## ADDRESSING THE INQUIRY'S TERMS OF REFERENCE

The current and potential use of **wireless technologies to provide broadband communication services** in Australia, including regional Australia, having particular regard to the following:

- A. The current rollout of wireless broadband technologies in Australia and overseas including wireless LAN (using the 802.11 standard), 3G (eg UMTS, W-CDMA), bluetooth, LMDS, MMDS, wireless local loop (WLL) and satellite;

*Bluetooth and IEEE 802.11 Technologies* have yet to be introduced widely in Australia. They would be most useful for local data-access applications, especially for in-building, personal and community use. In the short to medium term they offer solutions for metropolitan Australia, not regional areas.

Deployment in regional areas would be expensive because economies of scale are not in place. Stimulation of deployment can be either by tax incentives or by directly funding applications for their use by local communities.

*WLL, LMDS and MMDS technologies* do not appear to have lived up to their expected benefits, especially in rural settings. Use has been limited to the metropolitan area or areas of high population density, such as major regional towns. The city of Mandurah is quite pleased with its use of WLL for communications and data transfer between offices. Bunbury is using such technologies to integrate with other cable and wire modes for similar applications. Geraldton is considering such a project. The Wheat Belt shire of Bruce Rock attempted adaptation of these technologies, but found it unfeasible. The physical ranges of these technologies are usually too small to reach the "last mile" of users in rural and remote settings.

ntl, the owner of a large portion of the national broadcasting transmission network, seeks to experiment transmitting Internet and broadband services via the broadcast spectrum from existing towers in regional centres. Initial proposals for trials in Western Australia, Queensland and Victoria have been made. The question has been raised about the long-term viability of using such valuable spectrum and the costs related to other spectrum designed for broadband. An ntl trial in the shire of Coolgardie would complement a plan by the local shire to use microwave for communication among the shire offices.

Apart from satellite, the current array of wireless broadband technologies provide answers to telecommunications problems in densely populated areas and where business and government users are within a range of less than 40 kilometres. However, problems of cost, interference and spectrum availability hamper their take-up. Much of Western Australia has a population density of .25 persons to a square kilometre. In regional and remote WA satellite appears to be the most enduring solution.

To encourage broadband use for the benefit of rural Australians, the Commonwealth should re-examine policies for access to spectrum.

The Commonwealth should also consider initiatives to provide incentives to local businesses to play larger roles in the expansion of wireless broadband services.

*Satellite* broadband is the most viable technology for the majority of very remote constituents. The first generation of satellite Internet services only offered a high downlink speed, and was hampered by uplink limitations, requiring either a phone link or other return path. The next generation of two-way satellite Internet services, currently being deployed by Telstra and Optus, provide improved performance particularly on the return path. However the establishment costs for users are considerably greater. As this is the most prevalent and widest-reaching of the technologies, strategies need to be considered that ensure that this is affordable and accessible.

Telstra is currently offering residents of the Extended Zones a subsidised two-way satellite Internet package, as part of their current contract to upgrade services and deliver untimed local calls in the Extended Zones. Equipment supply and installation costs are being subsidised by Telstra and usage costs are being kept deliberately low so that they are in line with broadband services available in the cities. These concessions are presumably the result of the competitive tendering process for the Extended Zones upgrade. However this offer does not extend to people in the Standard Zones who must pay considerably higher equipment and usage costs.

For these users, (ie Standard Zones residents who live more than 4 km from a Telstra exchange or in small communities with no prospect of getting ADSL) satellite remains the only option for getting broadband services. Cost, however, remains a major barrier.

*The Code Division Multiple Access (CDMA) mobile network* has extensive geographical coverage throughout Western Australia. The current coverage exceeds 200,000 sq km and will grow even further with the completion of the WirelessWest project. This infrastructure has been built up with substantial financial contributions from the Federal Government, State Government and many local government authorities.

The CDMA network already has a superior data capability of 14.4kbps compared to the 9.6kbps available from GSM. It is also understood that CDMA can easily be upgraded to supply a data capability of 144kbps and that trials are currently being carried out to validate performance. It is thus possible to use the CDMA network not only to provide narrowband mobile voice services but also fixed broadband data services to residential users in those locations, which would otherwise not have access to DSL services. With the large investment in established CDMA infrastructure in Regional Australia in general and Western Australia in particular it makes economic sense to accelerate this upgrade and extend the benefits to regional communities. This appears to be a ready and relatively inexpensive means of providing broadband access to large parts of the country.

However the CDMA network is solely owned by Telstra. It is unlikely that Telstra will identify a business case for upgrading the network for this purpose in the immediate future because there is insufficient demand for a broadband service of this kind. Some form of market intervention may therefore be needed to enable this network to deliver broadband data to rural consumers. Further work is needed to identify a business case for such an upgrade and how it could be funded. The affordability of wholesale access to this network by other providers also needs further investigation.

B. The inter-relationship between the various types of wireless broadband technologies;

One solution discussed for the State's Network WA proposal made to the National Communications Fund involves the use of satellite and wireless local loops for delivery of health and education services in 19 communities outside the metropolitan area. 10mb of bandwidth would be reticulated from a central point to schools, hospitals, colleges and eventually businesses and residences. If this proposal were accepted it would go a long way to proving the viability of wireless services in a large part of non-metropolitan Western Australia.

Western Australian companies such as Coretel are seeking to roll out broadband via microwave and fibre-optic links. Their first targets are areas of high population density. Coretel seeks to use unlicensed spread-system technologies along with microwave and fibre optics. Microwave requires licensing and is line-of-sight, which becomes difficult in hilly and built-up areas. Microwave's capacity is not as great as fibre optic, but can provide solutions in some areas, especially where interference and licensing do not pose problems. Still, in the Coretel scheme, fibre is the ultimate medium for their roll-out as demand grows.

These examples demonstrate how wireless broadband technologies can be used together to bring services to regional Australians

C. The benefits and limitations on the use of wireless broadband technologies compared with cable and copper based broadband delivery platforms;

Wireless broadband technologies are often more easily deployed, but are subject to spectrum availability. They are also limited in range, which is unsuitable for long distances in remote areas, except in the case of satellite, which has its own limitations, such as uplink, installation cost and orbit availability.

Cable and copper based broadband are more ubiquitous and are frequently being extended or updated. Neither mode provides a single answer for the needs of the State's most remote regional communities. Bunbury, the State's second largest city, however, is using wireless technologies to integrate with other cable and wire modes.

One impediment to the use of new wireless technologies is regulatory. For example, use of 802.11 technology to transmit Internet on the largely unregulated 2.4 GHz band is currently illegal, as it is reserved for not-for-profit use. Spectrum for these uses has to be found; often it has been sold at high prices and then warehoused by the buyer seeking a profitable application, while potential trials lack platforms.



- D. The potential for wireless broadband technologies to provide a 'last mile' broadband solution, particularly in rural and regional areas, and to encourage the development and use of broadband content applications;

The provision of affordable broadband into Western Australia's regional and rural areas is critical to the future economic and social development of the State. Regional Western Australia has been called "the powerhouse of the Australian economy." The State has only 10% of the country's population, but contributes 26% of the total value of Australian exports – most of this originating from farms and mines.

The State has made a combined interdepartmental submission to the Commonwealth's National Communications Fund, which has been short-listed for consideration. The submission points out that Wireless Local Loop technology is being considered to reticulate 10MB broadband services sought in 19 communities to 58 educational, training and health service institutions. The 19 communities chosen for the project, "Network WA", can cover 80-90% of the State's non-metropolitan population. The flow-on from this project is expected to go beyond health and educational institutions to homes, offices and businesses that will take advantage of the greater broadband capacity that will be made available. However, a large capital contribution is necessary before this can happen.

Wireless broadband can offer a unique solution for delivering high speed voice and Internet to regional areas, possibly through the development of community owned and managed "baby Bells" or community telephone companies.

This is particularly true in relation to the use of wireless by local government. One suggestion is that a local government authority – or a number of local government authorities working together - can offer affordable broadband to residents of a town or shire. The local government could consider building and operating, or building and leasing community telcos. However, experience in other parts of the country (such as Victoria) makes some analysts wary of the tendency of Telstra to provide unassailable competition to the community telephone companies.

Local Governments in Western Australia, including those in non-metropolitan areas, are experimenting with wireless broadband to connect disparate operations. They also seek to use successful services to broaden the context of community involvement in government, making the services available to individual business and residences as well. Local governments feel that they are taking the lead in this case.

Wireless broadband can be a solution in these relatively densely-populated communities. However, there are over 100 local governments in non-metropolitan areas, a majority of them have populations under 1000. They cannot be easily or economically served with terrestrial wireless broadband solutions, given the limited distance of the signal transmission.

Stimulation of deployment in regional Australia will assist in supporting the eventual business case for deployment by the carriers of 3G and other wireless broadband networks to regional areas.

A key issue is mobilising demand for broadband services in regional (and metropolitan) areas. There is as yet little widespread recognition or understanding of the impact on economic and social development brought about by access to always on broadband. Projects that showcase and demonstrate this are critical to increasing demand and adoption. Commonwealth funding should be made available for such projects.

- E. The effect of the telecommunications regulatory regime, including spectrum regulation, on the development and use of wireless broadband technologies, in particular the *Radiocommunications Act (1992)* the *Telecommunications Act (1997)*, and Parts XIB and XIC of the *Trade Practices Act*

Regulatory control is required to ensure that the Industrial Scientific Medical (ISM) spectrum "real estate" is not used for high-power, spectrum-hogging applications. But there must be scope to relax this in sparsely populated areas, where frequencies are less scarce. As access to these technologies involves data redistribution from a single wired or wireless broadband point controlled by the incumbents, regulation may be needed under the Trade Practices Act to make sure that wireless data redistribution can occur.

- F. Whether Government should make any changes to the telecommunications regulatory regime to ensure that Australia extracts the maximum economic and social benefits from the use of wireless broadband technologies.

The concept of a Universal Service Obligation is a key to providing maximum economic and social benefits to those who are unable to gain easy access to broadband services. Currently Telstra has obligations as the sole USO carrier throughout Australia to provide services under the USO. Other carriers contribute in proportion to their share of timed traffic.

In 1999 the Commonwealth introduced a Digital Data Service Obligation (DDSO) under the USO provisions of the Telecommunications Act. It used 64k/sec ISDN as the benchmark for defining universal access to data, and introduced a Special Digital Data Service Obligation (SDDSO) for the benefit of that 4% of the population without access to ISDN. An equipment subsidy of up to \$765 was provided to those who took up the Telstra Bigpond by Satellite product, a one-way satellite Internet service provided by Telstra as the sole SDDSO provider.

Neither of these initiatives appears to have achieved significant success. ISDN is a relatively expensive business data product, the cost of which is both time and distance dependent. Its guaranteed availability under the DDSO has made virtually no impression on the residential data market. In addition, the Bigpond one-way Satellite product has had little take-up, because of usage costs and its reliance on a narrowband terrestrial return path. Telstra has not added its new 2-way satellite product to the SDDSO, probably because by doing so it would expose itself to increased contributions to the Universal Service Fund.

Nevertheless the concept of a DDSO and SDDSO is sound, as there is clearly a need for some form of intervention to make data services affordable to consumers in those areas which are commercially unprofitable to service. It is therefore important for the Commonwealth to revisit these elements of the USO and ensure that:

- "data" is defined in a way that is both meaningful and current (ie, broadband, always-on service), and
- products and services are offered under the USO which are genuinely attractive and affordable to users.

If a more appropriate USO for broadband is instituted, accompanied by other incentives for more carriers to join, this may very well encourage alternative suppliers of broadband access using any wireless technology to provide services in regional areas where a full business case may not be sustainable.

- G. Likely future national and international trends in the development and use of wireless broadband technologies.

We believe there will be a national and international trend towards the use of broadband to deliver 24 x 7 Government services, using advanced push technologies which are particularly suited to wireless applications.

This government is keen to bring greater equity to those living in rural and regional areas by using broadband to deliver improved educational and health outcomes in particular.

**APPENDIX 1**

**ORGANISATIONS CONSULTED IN PREPARING THIS SUBMISSION**

Department of Industry and Technology

- Policy and Planning Division
- Infrastructure Coordination Division
- Emerging Technologies Division
- Industry and Trade Division

Australian Telecommunications Cooperative Research Centre

Western Australian Local Government Association

Coretel

City of Mandurah

Shire of Bruce Rock

Department of Justice

Beale Telecommunications

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