A Rural and Remote Telecommunications Policy
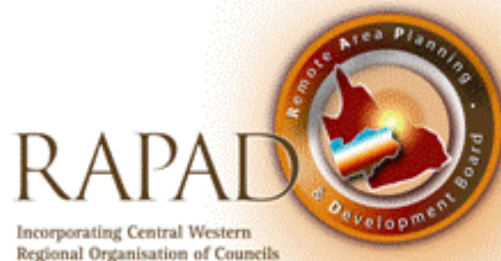
The end of third rate telecommunications in rural and remote Australia.

RAPAD

Incorporating Central Western
Regional Organisation of Councils

Developed by the Remote Area Planning and Development Board

(RAPAD)

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Executive Overview

Today rapid advances in telecommunications services are allowing Governments and businesses to be more productive, to interact with their customers in new and exciting ways and to introduce new products and services. Each of these elements means suppliers and consumers have opportunities to make timely decisions and be better informed. Social and private online activity is exploding the use of the internet due to the plethora of applications now available and being released daily.

Why then are rural and remote regions[1] denied the telecommunications' infrastructure necessary to give them equivalence of access to an ever increasing number of telecommunications services? Below par rate communications' infrastructure is killing rural and remote communities and leaving them competitively constrained in the global environment.

Successive telecommunication policies have placed rural and remote regions at a disadvantage to other Australians.

Rural and remote Australian communities need high capacity fast, reliable and affordable fixed and mobile telecommunication services for the same reasons; if not considerably more reasons, as their counterparts in higher population density areas.

In a modern privatised and corporatised telecommunications environment, Governments of all persuasion need to fully understand where there is market failure and where public sector investment is required to deliver parity for what was once considered essential community utility services. As a society, we have evolved past the fixed phone as the only telecommunications service that should be guaranteed by Government. The need for all Australians to have access, within reason, to all modern communications services has never been greater.

If Australians are to populate rural and remote locations, continue to produce our food, give tourists the outback experience and attract resource development the Governments of this country must invest in modern telecommunications services that keeps pace with those available to metropolitan and larger regional locations across Australia.

The national debate has been so focused on the NBN; and it has forgotten that the digital enabler for Australia is the national optic fibre telecommunications backbone

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[1] The term rural and remote is used in preference to the term regional as referenced in Government telecommunications reviews (Glasson and Sinclair Reviews). Other representative organisations refer to the region as 'the bush'. Regardless there needs to be a clear remoteness distinction as opposed to regional. The ABS in its paper ASGC Remoteness Classification: Purpose and Use, notes classification is designed for the collection and analyses of data about 'city' versus 'country' people. In itself it provides no information about the nature of 'city' or 'bush' populations. While this is the stated aim of the classification, it is well known that some policy makers use ABS definitions, both geographical and others, to directly target policy. In most cases a variety of data overlays will be required to target a particular population. See
https://outlook.cydn.com.au/owa/?ae=Item&t=IPM.Note&id=RgAAAAD979tTCFggQpixcF1JRUDoBwCVQmQ8sBTqSJ44VK%2fOSfbAAAAAF07NAACrZyzdZsMTT4hq9eL8GT%2fKAAs5n%2b%2fdAAAJ

or backhaul network. It is the very thing that links Australian communities, towns and cities together and to the world. And until we get that network right – the greater part of Australia will remain in communications' limbo.

The Remote Area Planning and Development Board seek:

1. **Future Proof Infrastructure**
That the Government commits to a policy that all rural and remote towns that have a Local Government administration office, or police station, or designated hospital or clinic or school or have a library will be connected via optic fibre cable to the national telecommunications network. RAPAD seeks a Government policy of an ongoing funding program that partners with telecommunications carriers or Local Government to fund the extension of optic fibre backhaul into locations that the commercial market fails and that the location meets a certain social and economic and public benefit criteria.

2. **Fixed line or wireless broadband access**
All rural and remote towns that have a Local Government administration office, or police station, or designated hospital or clinic or school should have access to the same broadband performance and delivery characteristics that are being experienced by metropolitan users. Therefore RAPAD seeks a Government policy that gives these rural and remote towns terrestrial high speed broadband services at equivalent speeds and service level to those available in metropolitan regions.

3. **A Rural and Remote Mobile Programme**
Because of traditionally low population densities, people in much of rural and remote Australia are unable to attract mobile service providers and carriers to invest in mobile infrastructure throughout their localities. RAPAD seeks a Government policy that recognises the importance of mobile services as an enabler of a modern society. Furthermore that such a policy commits to a funding program for the extension of mobile infrastructure to rural and remote towns and highway Blackspots where:
   i. backhaul infrastructure is available; and
   ii. towns have a Local Government administration office, or a police station, or designated hospital or clinic or a school and
   iii. mobile service providers present business cases demonstrating significant negative return; or
   iv. a major road has a history of serious accidents and or emergency events.

4. **Guaranteed Price Parity**
The Government to commit to a policy of broadband price parity to those available in metropolitan areas so that rural and remote Australians are not disadvantaged by price and telecommunications service type.

5. Investment in ageing radio fixed line infrastructure

A clear commitment to investment in the current radio systems or alternate technology that underpins the USO services in rural and remote Australia, and if alternate technology is proposed; its performance is not of a lesser standard than the current service, so that quality of service and its reliability maintain a high standard.

6. Review of the USO monitoring

Government investment in the NBN and the newly formed Telecommunications Universal Service Management Authority (TUSMA) is creating uncertainty for remote telecommunications user. The outback seeks legislative commitments that monitoring and service levels will not be at risk because of the high priority being placed on the NBN.

7. A rural and remote telecommunications Ministerial Advocate

The uniqueness of rural and remote Australia impacts on the culture of remote communities and the intervention required by Local Government to ensure basic telecommunications services are maintained and maintain levels of parity with those experienced by metropolitan Australians over time.

RAPAD seeks that the Government commits to establish and fund a Remote Regions Ministerial Advisor office whose function is to advise Government on telecommunications policy to improve rural and remote telecommunications. The office will ensure greater Government consultation with remote communities on policy and funding formulation using Local Government as a conduit.

8. Skills and Research

RAPAD has not been eligible to participate in Government programs design to lift the digital capabilities of Government, business and society. These funds have been quarantined to metropolitan and regional regions. Rural and remote Australia face additional challenges to access training and to interface with experts in the online environment. Government should allocate funds, reserved for outback Australians, to upskill them on digital applications and to be competitive in global markets.

New satellite technology may introduce unknown issues and the Government should be prepared to invest in appropriate research to assist rural and remote Australia make maximum use of the services to be offered.

A Quality Rural and Remote Telecommunications Service

In today's modern world, Australians, like people in the rest of developed societies, take for granted the ability to use reliable mobile services and fast real-time broadband. In rural and remote Australia access to these services is as critical, if not more so, than it is in metropolitan regions. Those who live and work in rural and remote Australia are already isolated by distance, but in many cases this physical isolation is irrelevant if they are connected online, in real time.

For too long rural and remote Australia has been subjected to inadequate telecommunications infrastructure, watching in envy as corporations and Governments pour millions of dollars into the metropolitan and regional areas. Our towns deserve the best broadband services, mobile services and first class fixed voice services. Rural and remote Australia makes a significant contribution to Australia's wealth in the resources, tourism and agricultural industries.

If the nation wants vibrant rural and remote communities it needs to make the investment in telecommunications infrastructure that people want as part of their everyday lives. Third grade telecommunication services are just unacceptable to young people and to businesses that exist and compete in a real-time, right-now global environment.

The explosion of applications (be it real-time high bandwidth broadband or mobile apps) is bringing new ways to deliver basic services such as education and health. Already parents are incurring added costs for online education usage and broadband satellite speed issues as schools place their curriculum, learning materials and assignment work online. The opportunities for health services are immense if reliable and affordable real-time fixed and mobile, video and data broadband services are readily available. Work by IBES[2] and others (some via the Digital Regional Program) offer substantial service improvements.

Experts predict data downloads and uploads will expand exponentially over coming years. More video applications and online business will head this change.

Business and relationships to the market is changing. Business intelligence systems now use social media to better understand the market and consumer behaviours.

Rural and remote communities need investment by Government in infrastructure, assistance to understand the move to online environments and research specific to their situation. They also seek Government assurance that the universal service will remain a high quality, highly reliable and affordable service.

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[2] See - www.**broadband**.unimelb.edu.au/

To better understand the telecommunication needs rural and remote communities, Government needs to establish greater consultation directly targeting this cohort.

The old adage that the internet is of little value except for certain group is a myth. Of the 2.3 million children who accessed the internet at home, 90% (2 million children) used the internet for educational activities, which was the most popular purpose.[3] The time is now to give rural and remote Australians a pathway to 'future proof' telecommunications infrastructure.

Future Proof Infrastructure

The benefits of current and emerging high speed broadband applications[4] and the penetration of smart mobile handsets in Australia are irrefutable. However penetration of terrestrial broadband services and LTE (and 3G) mobile services is conditional on high capacity links within the national telecommunications networks. The underlining infrastructure to expand and deliver these services is the optic fibre backbone network.

Without the capacity and technical characteristics of optic fibre telecommunications service providers are severely constrained in expanding their services. The national broadband network is primarily building optic fibre networks as consumer access infrastructure not building new long distance (trunk) capacity in Australia. Some exceptions may occur where competitive backbone does not exist.[5]

Our rural and remote regions will not receive new optic fibre cable to link into the national telecommunications networks.

For those who struggle to visualise new and futuristic tech-based claims and the importance of 'future proof' optic fibre links:

> Picture a rural farmhouse where the dad is playing online poker with his mates hundreds of kilometres away on the big screen and talking to them like they were in the same room, while the mother has a full high definition video call with a child travelling in Europe (for free). At the same time another child is interacting with her professor at an American university, while her younger brother watches movies on demand and plays games with his online mates in the other room. An, er, visiting cousin goes through the accounts of a client in Perth live onscreen as part of his accountancy business. Meanwhile, granny is asleep in her bed after recovering from a fall which sees her vital signs being monitored,

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[3] http://www.abs.gov.au/ausstats/abs@.nsf/Products/4901.0~Apr+2012~Main+Features~Internet+and+mobile+phones?OpenDocument

[4] A Faster Future, The Future of Broadband: What it means for Business, Society and You, Brad Howarth and Janelle Ledwidge, 2011.

[5] Note: The Regional Backbone Blackspots Program invested $250M building backbone infrastructure.

hundreds of kilometres away, for any significant changes. In that one scenario the great Australian tyranny of distance is decimated, standard life is transformed across the board and the traditional costs of doing everything are slashed.[6]

A third rate telecommunications service means rural and remote communities:

- face business and service disadvantages because of poor or no service availability;
- struggle to attract young professionals and administrative staff and their families to locations of Government and socially important jobs;
- have restricted access emerging education and health applications;
- can't attract investment by mobile carriers to provide mobile services;
- don't enjoy bundled package and the price advantages; and
- have limited competition and service options.

The priority our region places on fast, reliable and low latency telecommunications is demonstrated by Diamantina and Barcoo Shires being prepared to invest millions of their own dollars to partly fund optic fibre to their communities. Both regions are connected to the national grid via ageing low capacity radio systems and have experienced catastrophic failure in recent years.

In the RAPAD region the absurdity of Government policy is no more evident than in communities that currently have optic fibre backbone (Telstra trunk network) being nominated as satellite NBN communities. The probability of Telstra's long term retention of the current ADSL broadband services is questionable. When speeds increase (as predicted to well beyond 100Mbps) what will Telstra offer the communities or will ADSL1 services continue to be on offer?

The failure of Government to invest in remote and rural mobile infrastructure is discussed below. Without the capability to link their towers into their city networks, carriers will not consider investing in many rural and remote regions.

RAPAD seeks a Government commitment to invest in remote region blackspot programs to address the provision of telecommunication infrastructure where commercial telecommunication companies require incentives to invest in new infrastructure. This could take the form of assistance funding to Local Governments to connect remote towns to the national network where Local Government makes a 20% contribution to the connection costs.

RAPAD is not suggesting all rural and remote premises be connected to optic fibre backbone infrastructure. Rather that all rural and remote towns that have a Local Government administration office, or police station, or designated hospital or clinic or school or have a library should have connection to the national telecommunications network via optic fibre backbone. High speed digital radio

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[6] http://www.abc.net.au/technology/articles/2012/09/18/3592785.htm

solutions might be considered where a commitment to significant bandwidth is given and minimal radio repeater hops are required to connect a location.

Fixed line or wireless broadband access

RAPAD suggests that insufficient research into appropriate technologies suitable to rural and remote communities has been undertaken by Government. If Government truly understood the relationships and stakeholder engagement in these communities appropriate consultation would have been undertaken.

The implementation of the digital television service in many rural and remote locations is a clear indication of Government's failure to consult. Local Government was frustrated by the digital television transition process. It was very disappointed in Government's unwillingness to listen to their argument of the social importance for them to maintain their self-help television service; rather than what was imposed under the Government's framework to switch to a national digital television service.

To avoid a similar situation on broadband connectivity RAPAD encourages Government to consult with rural and remote Local Governments to gain the best broadband connection platforms.

If access to optic fibre backbone is available lower cost technologies such as WiFi and copper should be considered for premises access in rural and remote towns. WiFi and copper may offer a viable option where the number of premises is low, topography is flat, the town is contained in a small area and Local Government places high priority on broadband services. Government should commit to the use of locally negotiated solutions rather than one size fits all as a national broadband access policy.

RAPAD recommends that the Government commits to a policy that all rural and remote towns that have a Local Government administration office, or police station, or designated hospital or clinic or school or have a library should have access to broadband speeds and real-time performance that are being experienced by metropolitan users. Furthermore that the Government research technical customer access network options without prejudice, consult with rural and remote stakeholders and publish the report on their findings.

A Quality Universal Service

The terrestrial network infrastructure in many parts of rural and remote Australia must be sustained to give Governments, businesses and residents a quality universal telecommunication service. Government investment in the NBN and the newly formed Telecommunications Universal Service Management Authority (TUSMA) is creating uncertainty for remote telecommunications user.

TUSMA is responsible for entering into, and managing contracts or grants, to ensure:

- all Australians have reasonable access to a standard telephone service (the USO for voice telephony services)
- payphones are reasonably accessible to all Australians (the USO for payphones)
- the ongoing delivery of the Emergency Call Service by Telstra (calls to Triple Zero '000' and '112')
- the ongoing delivery of the National Relay Service
- continued availability of untimed local calls for customers outside standard zones, and
- that appropriate safety net arrangements are in place to support the continuity of supply of carriage services during the transition to the NBN.[7]

Will the Government allocate sufficient to guarantee the quality of remote universal telecommunications services (price policy and service standards) to be comparable to metropolitan users connected by optic fibre as a consequence of the national broadband network?

The risk is that without a Government policy and effective funds, rural and remote users will see service quality and service restoration times explode as the Government focuses on the national broadband network as the primary delivery platform for the universal service.

One option could be that the Government amends Telstra's telecommunications carrier licence to require it to invest in remote region terrestrial USO infrastructure. The objective would be that infrastructure upgrades and a commitment to world's best practice with respect to equipment maintenance programs in remote regions is financed and appropriately actioned.

RAPAD notes that the Telecommunications Universal Service Management Authority (TUSMA) will monitor ongoing delivery of the standard telephone service by Telstra as part of its overall management of the TUSMA agreement.

Investment in ageing radio fixed line infrastructure

RAPAD and many rural and remote communities that rely on Telstra's non-copper services (wireless) are already experiencing (Bedoirie, 2011 and Jundah 2012) extended outages as a result of the ageing Telstra radio infrastructure.

Recommendation 2.4 of the 2011-2012 Regional Telecommunications Review states '*That the Government and Telstra, as the current USO provider, commit to maintaining at a minimum the current quality of service for non-copper USO standard telephone services in NBN Co non-fibre served areas*'. Furthermore it is noted that in its response to the review the Government noted that the Telecommunications Universal Service Management Agency (TUSMA) will monitor ongoing delivery of the

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[7] http://www.dbcde.gov.au/broadband/national_broadband_network/universal_service_policy

standard telephone service by Telstra as part of its overall management of the TUSMA agreement.

This gives rural and remote communities no confidence that TUSMA has the legal backing and access to direct funds to direct Telstra to upgrade a radio system or to perform the necessary work to make troublesome system operational.

Although not specific to Telstra non-copper networks Recommendation 2.2 of the 2011-2012 Regional Telecommunications Review recommends that carriers commit to improving permanent repair time frames through an industry code of practice. RAPAD is of the view that it is unlikely stakeholders (Telstra and TUSMA) will make rural and remote radio systems a priority for permanent repairs and that regulation is the only option to ensure compliance.

RAPAD seeks that Government introduces the legislative and regulatory provisions that will provide greater levels of certainty on the quality and availability of rural and remote universal services.

Guaranteed Price Parity

At present Australian telecommunications users enjoy universal prices for the Universal service and the national broadband network has a wholesale price policy that gives retail service providers a universal price structure.

The Glasson report recommended that, '*The Australian Government develop a new framework to provide an assurance of ongoing access to voice, mobile, broadband and payphone services to replace the existing USO legislation*'.[8] The Sinclair review recommended, '*The principle of a uniform national wholesale price for like services across technology platforms is essential on an equity basis and should be a fundamental tenet of future policy in this area*'.[9]

In its response the Government stated that uniform national wholesale pricing provides equitable pricing outcomes for regional, rural and remote Australians. However the universal uniform national wholesale pricing (is made) through the agreement it (the Government) made with Independent Members of Parliament, supported by amendments made to the Competition and Consumer Act 2010. Uniform national wholesale pricing is also reflected in the Statement of Expectations issued to NBN Co by the Government, and NBN Co's Wholesale Broadband Agreement and Special Access Undertaking.

RAPAD seeks a Government commitment to a policy of broadband price parity to those available in metropolitan areas so that rural and remote Australians are not disadvantaged by price and telecommunications service type. This commitment goes beyond the wholesale commits current in place.

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[8] http://www.dbcde.gov.au/__data/assets/pdf_file/0004/137803/2008_Glasson_Report_RTIRC.pdf , page 293.
[9] http://www.rtirc.gov.au/2011-12_report/

A Rural and Remote Mobile Programme

Many rural and remote communities have no or limited mobile service, and sparse or no coverage on major road corridors. The lack of population density and restricted backbone capacity is an impediment to mobile tower deployment. When communities seek mobile coverage carriers consistently request significant ($700,000 plus) contributions towards a new tower.

According to the 2012 ABS Mobile Handset Subscribers report the number of mobile handsets in Australia has increased from 13.3million in 2011 to 16.2million in 2012. Of particular note is the exploding use of mobile data. ABS statistic show that data downloads increased from 3.7TB[10] to 6.6TB during the three month period prior to between June 2011 and June 2012 respectively. Data reported by ISPs for the volume of data downloaded via mobile handsets may only include revenue generating downloads, and not monthly data allowances, or downloads that don't contribute to data download allowances.[11] Therefore actual Australian mobile data download is potentially much higher than 6.6TB.

Apps are changing the mobile internet market. Rather than using traditional web search, users are spending more time going directly to an app that gives them the information they want. For example, mobile device users are spending 94 minutes per day using apps compared to 72 minutes on the web.[12]

An OECD report shows that in 2012, Australia was in third place for mobile broadband services[13] and is on brink of more mobile broadband connections than people.

Mobile communications is has become an essential business tool; opening opportunities for improved efficiency for pastoral and agricultural business pathways and facilitates social communication. Unfortunately for many remote and rural communities mobile service is but a dream.

RAPAD notes that the 2011-2012 Regional Telecommunications Review recommended '*a co-investment program, jointly funded by the Commonwealth and interested states or territory Governments, to expand the mobile coverage footprint in regional Australia, focusing on priority regions selected with community input.*[14]

In its response the Government acknowledged the importance of mobile phone coverage in regional Australia. However the comment that construction of the NBN fixed wireless tower network provides mobile carriers with an opportunity to

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[10] The unit symbol for the terabyte is **TB** and is 1000000000000 bytes, or 1 trillion (short scale) bytes of digital information (see - http://en.wikipedia.org/wiki/Terabyte)
[11] http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/8153.0Chapter9Jun%202012
[12] http://ccaac.gov.au/files/2013/02/CentreforInternetSafety.pdf
[13] http://www.itnews.com.au/News/331682,australia-on-brink-of-more-mobile-broadband-connections-than-people.aspx
[14] Regional Telecommunications Review, Recommendation 3.2

negotiate access to these towers and improve their mobile phone coverage in certain locations across regional areas will not improve rural and remote mobile coverage as current NBN Co published data reveals very few wireless towers in rural and remote Australia.

RAPAD seeks that the Government commits to invest in a new remote region black spot programs to address the provision of mobile infrastructure where commercial companies require incentives to invest in priority new infrastructure. (cf restoration/continuation of previous black spot programs). RAPAD also supports the Sinclair Report that, '*Open-access arrangements for other carriers to tower infrastructure and/or domestic roaming arrangements should be a feature of the program*'.[15]

RAPAD seeks a Government policy that recognises the importance of mobile services as an enabler for modern communications. A 3 year $100M policy program to extend mobile infrastructure to rural and remote towns and highway blackspots should be implemented. The program should assist carrier deploy new mobile tower with priority areas being:

   i. where backhaul infrastructure is available; and
   ii. the town has a Local Government administration office, or a police station, or designated hospital or clinic or a schools; and
   iii. mobile service providers present business cases demonstrating significant negative return; or
   iv. where a major road has a history of emergency events (4 or more) over a 2 year period.

A Rural and Remote Telecommunications Ministerial Advocate

The population density rural and remote Australia is low and the area is immense but it provides substantial wealth to the country in terms of GPD and export revenues. Establishing and maintaining telecommunications infrastructure in rural and remote regions has challenged successive Governments. Typically rural and remote communities become the poor cousins to their metropolitan counterparts in terms of infrastructure, the variety of services available and price packaging.

The Glasson and Sinclair reviews into regional telecommunications have made significant recommendations to improve regional telecommunications.

The Labor Government national broadband network is the most significant investment in telecommunications for generations.

However remote Australians are left straddled with satellite delivery and most of rural Australia will possibly receive, at best wireless broadband (NBN Co is yet to release a full list of wireless broadband regions).

The Government's Regional Backbone Blackspots Program (RBBP) provided $250M to construct competitive fibre backbone cable infrastructure.

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[15] Regional Telecommunications Review, Recommendation 3.2

Rural communities with either RBBP or Telstra optic fibre trunk infrastructure running through or near their communities will gain broadband via satellite despite the immediate presence of 'future proof' infrastructure. Why? Government policy has set an arbitrary value on the number of residents in a community to access optic fibre. The NBN Co network extension policy asks remote and rural communities to pay for optic fibre access. Quoted cost to connect is millions of dollars with no Government assistance.

As discussed above rural and remote communities have concerns over the continuation of reliable and sustainable USO services.

Government agencies and groups are being funded to develop and trial emerging applications that make use of high speed broadband but Government policy has denied much of rural and remote Australian to those programs. They have been limited to regions in the early stages of deployment – sadly no RAPAD community is included in the first 3 years of the NBN deployment.

Is it little wonder that rural and remote Australian feel their telecommunications needs are an afterthought, part of the 'too hard basket' and developed on a least cost basis when the rest of Australia gets a future proof and world class desirable telecommunications services.

RAPAD seeks a Government commitment to create a Remote Regions Ministerial Advocate office. The Advocate and his staff will ensure greater Government consultation with remote communities on policy and funding formulation using Local Government as a facilitator. The position will advise Government on telecommunications policy to improve rural and remote telecommunications.

The creation of a Rural and Remote Advocate is consistent with the 2008 Regional Telecommunications review Recommendation 1.6.1 '*The Australian Government facilitate greater involvement of Local Governments in the design and delivery of initiatives to promote greater access to telecommunications infrastructure in their area*'.

Skills and Research

Government has failed to assist most of rural and remote Australian businesses and residents develop digital literacy (capacity and capability); whereas metropolitan and larger regional communities have been able to improve their skills and gain assistance in online activities through Government programs. Remote Australians must have the skills to participate in the digital economy to improve their economic and social advancement. Government should recognise the challenges and costs to rural and remote Australians to access online training, to engage with experts and to gain the required knowledge.

If rural and remote Australian businesses and residents are to improve their online marketing, sales, customer service and other innovative online/social media

techniques skills to gain a greater competitive advantage, then Government must develop intervention strategies.

Two new ka band digital satellites will be the nominated broadband delivery platform for much of rural and remote Australians under the NBN program. Little is known about its performance and the user experience with new and emerging broadband applications. Government should invest in a greater understanding of these issues, assist user acceptance and work with industry on satellite applications development. The potential for better health and education services is expected with the NBN satellite but practitioners need to recognise limitations, idiosyncrasies to assist widespread acceptance of satellite delivered services.

Skills Development

The Government should invest in a **Remote Digital program** through a policy that targets select remote peak business bodies and remote peak community organisations to assist them effectively participate in the digital economy. The policy objectives maximise the effective use of the national broadband satellite network and leverage learnings from other programs designed and being implemented for metropolitan/regional areas*.*

Other areas where the **Remote Digital program** should invest are:

   i.   Targeted Government policies for remote Australian Local Governments to develop digital literacy (capacity and capability) resources. It recognises the challenges and costs to remote Local Governments to access training, to engage with experts and to gain the required knowledge. Areas of importance are:

      a) programs to assist remote Local Governments to develop online strategies and to improve their online presence and service to ratepayers.[16]

      b) programs to assist remote Local Governments effectively participate in the digital economy by maximising the effective use of the national broadband satellite network and leverage learnings from other programs designed for metropolitan/regional areas.

      c) programs for Local Government or economic development organisation to access experts with online experiences and create a local remote mentor programs.[17]

   ii.   for micro and small businesses rural and remote communities

      a) fund programs that aim to improve their knowledge on new and emerging online business engagement techniques and develop competitive online strategies[18];

      b) fund a facilitation program to enhanced business networking opportunities to enable them to seize the benefits of enhanced online presence.

   iii.   for residents and community groups in rural and remote communities

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[16] The 2011–12 Regional Telecommunications Review (the 'Sinclair Review'), Recommendations 5.2, 5.4 and 5.7

[17] The 2011–12 Regional Telecommunications Review (the 'Sinclair Review'), Recommendation 5.6

[18] Abid, Recommendations 5.2, 5.4, 5.7

d) fund programs to deliver awareness and training for residents on online/social media techniques to improve their knowledge and recognition of the social and community benefits of online presence.[19]

Research

Limited research has been conducted into the new NBN satellite technology that the Government will introduce in 2015 to service rural and remote locations. Research is required to contribute to the knowledge and understanding of remote area telecommunications matters.

The Government should sponsor increased research funding for research into broadband consumption and use, as well as applications (at the household and business level). This should include sufficient research funding for studies that look specifically at remote and regional Australia. Research focused on Australia's digital future should be included in Australia's research funding priority areas as this is a significant issue for Australia both economically and socially. Such a program would develop relevant information bases to support remote ICT policy.

To give confidence to Government agencies and small business on high demand online applications the Government should fund testing those applications on NBN satellite infrastructure to identify performance and end user acceptance of the application for use by Australia's remote residents.

Government should provide funding to facilitate and assist in cataloguing the performance of desirable applications as identified by remote Local Government, remote economic development organisations, remote small business representative organisations, remote public and private service provider organisations, and users[20].

Relevant Government and industry datasets should be made openly available and accessible for this research.

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[19] Abid, Recommendations 5.2, 5.3, 5.4 and 5.6

[20] The 2011–12 Regional Telecommunications Review (the 'Sinclair Review'), Recommendations 5.7, 5.8, 5.9, 5.10 and 5.11.
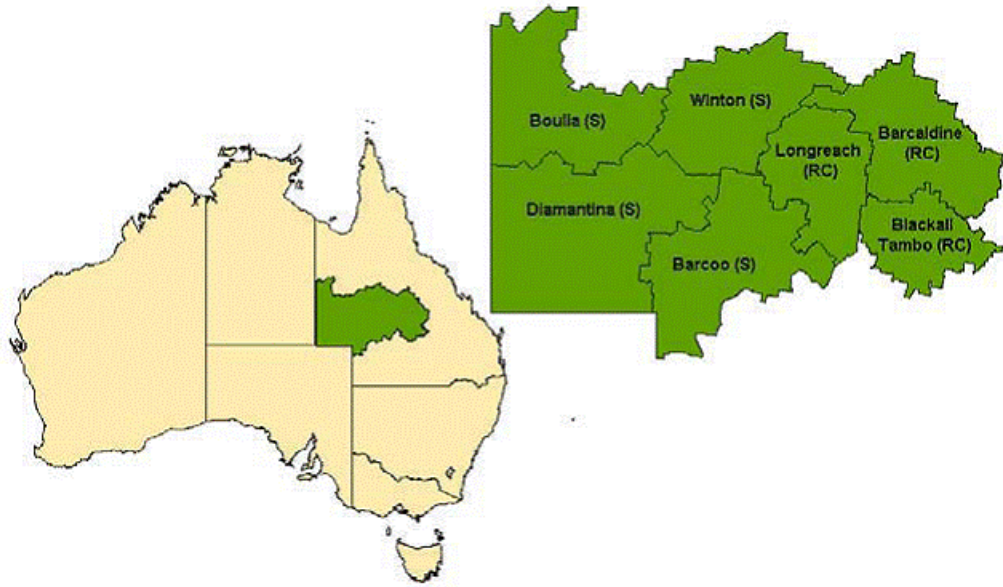
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