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Standing Committee on Infrastructure and Communications
Parliament of Australia House of Representatives

Subject : New inquiry into the National Broadband Network

24 February 2011

To: Inquiry Secretary

Regional Development Australia (RDA) Hunter and Central Coast has collaborated to develop the attached submission to this inquiry.

RDA Hunter Central Coast has recently made a submission to NBN Co. for priority rollout of the NBN in the region.

We are working with our RDA colleagues from the Mid North Coast, and Northern Rivers, to explore the concept of a Eastern Regional Digital Corridor. This wider RDA partnership will make a submission to this inquiry.

If you require any clarification of the content of our submission, please contact us.

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Hunter and Central Coast National Broadband Network

Submission to the Standing Committee on Infrastructure and Communications



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1 Background

Regional Development Australia Hunter and Regional Development Australia Central Coast (referred to jointly as Regional Development Australia) are currently engaged in a project aimed at presenting the Hunter and Central Coast as priority regions for the rollout of the National Broadband Network.

The project partners include, The University of Newcastle, Hunter New England Area Health Services, The Hunter Medical Research Institute, Hunter Councils (representing the 11 Hunter LGA's) Wyong Shire Council, Gosford City Council and Industry and Investment NSW.

The project has focused primarily on areas that will present the Hunter and Central Coast as an attractive proposition from a network rollout perspective. Given the complexity and scale of the National Broadband Network the project has focused on areas that highlight the fact that the region is informed, co-operative and capable.

This preparedness has been assessed across the following areas:

1. Identification of Key Issues Impacting Local Government Areas (LGA's) in the participation in the NBN rollout.
2. Community Engagement in order to champion the benefits, highlight the opportunities and to discuss the challenges associated with the rollout.
3. Industry and Business engagement in order to provide up to date and relevant information with regards to the rollout.
4. Training Employment and Skills opportunities.

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2 Regional Overview

The Hunter Region and Central Coast region is the sixth largest regional centre in Australia with a combined population of 933,000. The region has a wealth of natural and man-made attributes and a diverse economy.

The regions location combined with advanced infrastructure, skilled workforce and attractive lifestyle make it a viable business alternative to Sydney for many major industries.

The region is a major contributor to the state and national economy. Over the next 25 years, the Hunter Region is seeking to build capacity to grow the population by an additional 160,000 people, create 66,000 new jobs, and construct 115,000 new dwellings. Over that same period it is proposed that the Central Coast population will grow by 80,000, 35,000 new jobs and construct 36,000 new dwellings.

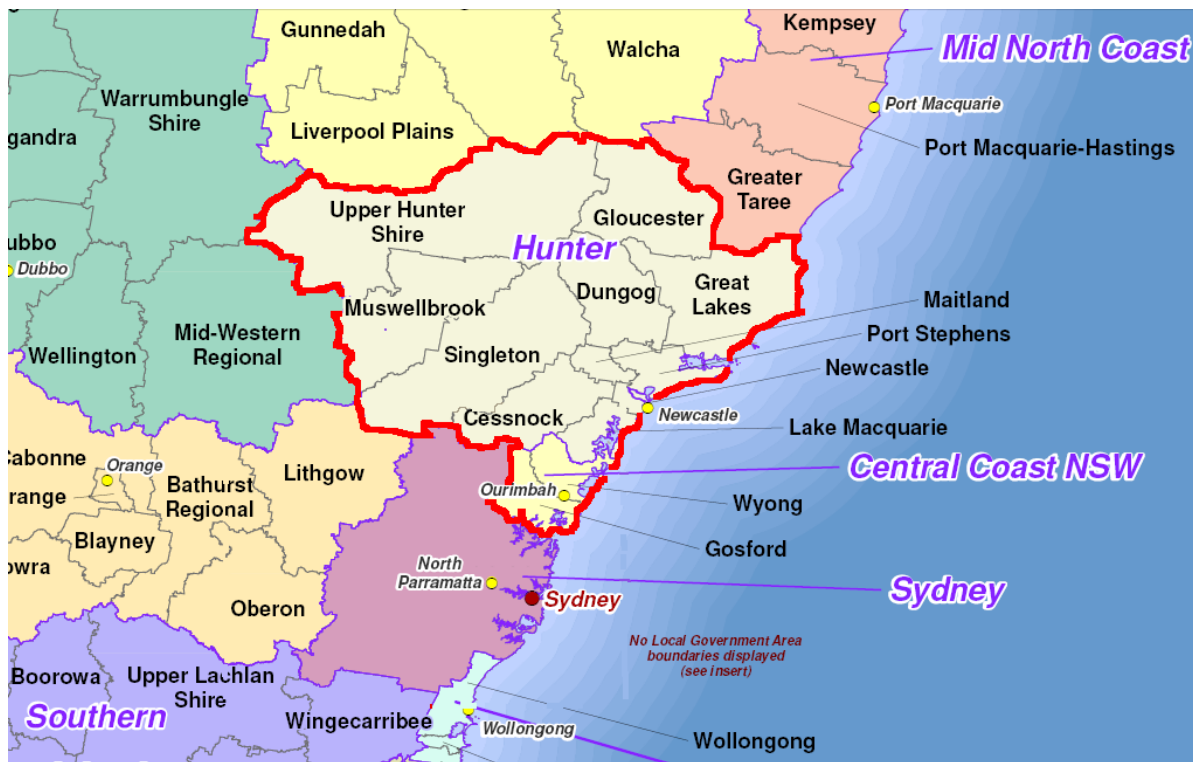


Figure 1 – The Hunter and Central Coast LGA regions

Key industry sectors in the Hunter and Central Coast include coal mining, viticulture, wine production, agribusiness, equine, knowledge intensive engineering, education, defence, power generation, warehousing, logistics, manufacturing and tourism. It has the largest coal exporting port in the world.

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The region generates \$10.3 billion worth of Coal trade annually. It provides 33% of Australia's aluminum production generates 65% of New South Wales electricity,

The region is rapidly gaining a reputation for innovation, not only for the major research establishments based locally but also for the ability of local industries to develop unique solutions for the international market.

Restructuring of the region's economy began in the 1990's. Although traditional industries continue to be major contributors, the local economy is now characterised by a far more diverse industry base. This diversity combined with high levels of investment, an embracement of innovation and a variety of significant competitive advantages provide the Hunter and Central Coast with a very strong economic outlook.

The availability of labour in the region is enhanced by excellent road, rail and public transport networks. The region also has a progressive and co-operative approach to industrial relations and as a result the number of industrial disputes remains low.

Data form the 2006 Census demonstrates an increasingly skilled workforce with an increase in the number of Hunter and Central Coast seeking higher qualifications. Additionally, the majority of employment growth in the region has been in the knowledge based industries, and these new jobs require employees with skills and higher qualification levels.

The University of Newcastle and TAFE NSW – Hunter Institute work closely with the business community to develop customised courses to satisfy specific workplace needs.

The education and training sector is a major employer in the region accounting for almost 8% of the workforce.

3 Current State of Communications

Telecommunications infrastructure is vital to securing continued industry sector growth and the well being of the community. It facilitates participation in the information economy at all levels.

Whilst the Hunter and Central Coast has benefited from improved communications infrastructure in the last few years through the introduction of ADSL by Telstra, Federal and State government projects and the establishment of local carrier services by other companies, access to broadband, mobile services and good quality fixed line infrastructure in rural areas of the Upper Hunter is still a major issue.

Telecommunications infrastructure in the Hunter and Central Coast has improved in the last two to three years with the introduction of ADSL and mobile Next G services by Telstra. The establishment of local carrier services by other telecommunications companies such as Ipera and SOUL (now TPG) has improved choice to consumers.

Issues still exist for people living on the land outside rural towns, and in the regions located along the Great Dividing Range as they suffer from poor infrastructure, low Internet connection speed on dial up modem and lack of mobile coverage etc. The Federal government through initiative such as the HiBiS, IAP and more recently the Australian Broadband Guarantee satellite subsidies has ameliorated the situation. Equity related to product offering still makes broadband unattractive to most farmers on the land.

To help raise the level of interest and uptake of broadband in communities outside larger rural towns, the region has on numerous occasions attempted to secure funding to address this equity in-balance through the Community Based Broadband Demand Aggregation Program under past federal government programs. Those attempts have not been successful.

4 Access to ADSL

All the major rural towns in the Hunter and Central Coast now have ADSL enabled exchanges which covers a radius of approximately 4km for these exchanges. Whilst access to ADSL in major centres has improved over recent years, smaller towns and rural areas are not being served due to the technical distance impediments of the technology.

This impediment is also affecting largely populated areas within more densely populated areas that are outside of the 4km radius from an ADSL enabled exchange and as a result there are numerous “black spots” throughout the region where ADSL is simply not available.

Under the USO the small regional towns with up to 500 telephone customers have their Exchanges enabled with ISDN but the up-take of this technology has been cost prohibitive for small business and the general community also ISDN speed is relatively slow (maximum 128Kbits) as compared to ADSL.

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There is also a critical shortage of capacity in many current ADSL enabled exchanges as a result of limited additional investment in DSLAM infrastructure in the recent past.

As a direct result of this critical infrastructure constraint many of the regions residents and businesses are denied the economic, business, educational, social, and cultural benefits that are considered the norm in major metropolitan areas.

5 Regional Benefits of Broadband

The region has enormous potential to benefit from improved communication infrastructure. Given its close proximity to Sydney, combined with excellent infrastructure, relatively low property prices and attractive lifestyle, access to super fast broadband would attract existing and emerging business.

6 Inquiry Specifics

Introduction

The National Broadband Network is not only about speed. It is just as important to take ubiquity into consideration. The NBN will provide high speed broadband to 100% of the population. This combination of ubiquitous coverage and high speed throughput will make it possible for individuals and organisations across households and all industry sectors to reach more customers, clients, collaborators, cohorts and confidants via online delivery mechanisms.

Because of the bandwidth that will be available, those services will be richer in functionality and capability. It will be possible to move very large data files throughout the network and to collaborate in real time via high definition video services. That collaboration will be immersive in nature could be on a one to one, one to many or many to many basis.

This enhanced level of online interaction will cut across all aspects of our daily lives and will have far reaching implications for the Economic and Social prosperity of the nation as a whole and regional Australia in particular.

6.1 Delivery of government services and programs;

The service delivery shift that will be enabled by the NBN will be of enormous benefit to Local Government in particular. As is the case with most organisations Local Governments across the country are being asked to do more with less. The NBN will enable Local Government to move more of their core services online including:

- Planning Approvals
- Billing and Payments
- Telemetry services
- Asset management
- Geospatial Services
- Customer Service
- Dispute Resolution
- Community Engagement
- Cross council collaboration including Shared Services

The NBN will bring efficiency gains in the provision of current services as well as leading to new and innovative services.

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6.2 Achieving health outcomes;

Health care in the region is covered by two state area Health Services. The Hunter region is part of Hunter New England Area Health Services (HNEAHS) and the Central Coast is part of Northern Sydney Central Coast Health (NSCCH)

Hunter New England Area Health Services is unique, in that it is the only Area Health Service with a major metropolitan centre (Newcastle/Lake Macquarie) as well as a mix of several large regional centres and many smaller rural centres and remote communities within its borders. HNEAHS provides care for approximately 840,000 people, covers a geographical area of over 130,000 square kilometers across 32 Local Government Areas, has 14,500 staff and provides health services to 12 per cent of the State's population and 20 per cent of the State's Aboriginal population.

Northern Sydney Central Coast Health Service extends from Sydney Harbour to the northern reaches of the Central Coast. The region includes the Central Coast, including much of the Hawkesbury River, Sydney's Northern Beaches, Hornsby & Ku-Ring-Gai, Ryde and Sydney's North Shore. The administrative hub of the NSCCH is located in Gosford.

The Central Coast has two large public hospitals with Emergency departments. Gosford Hospital is the largest and has 460 beds, Wyong Hospital is located at Kanwal and has 274 beds. In addition to this there is a small public hospital in Woy Woy and Health Care Centre at Long Jetty.[10] The largest private hospital on the Central Coast is North Gosford Private. Brisbane Waters Private in Woy Woy and Berkeley Vale Private are also major healthcare providers. The region has 21 aged care facilities.

Whilst there has been a concerted effort to improve inter-site communications via a rolling upgrade the both HNEAHS and NSCCH wide area network (WAN), many of the localities serviced by both health services have relatively poor access to broadband. This places a constraint on the ability of the relative health services to provide next generation tele-health and e-health solutions to the entire community.

Given the vast geographical area and sheer volume of patients a fast broadband network that connected 100% of the population would greatly improve health outcomes in the Hunter and Central Coast.

6.3 Improving the educational resources and training available for teachers and students;

The University of Newcastle is a progressive, dynamic institution recognised for research achievement, teaching innovation, and access to higher education for disadvantaged groups. The University has major campuses located in Newcastle (Callaghan) and Ourimbah on the Central Coast.

Hunter TAFE is highly regarded for its quality training, strong links with industry, flexible learning modes and nationally accredited programs.

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Whilst the University and TAFE benefit from adequate communications infrastructure at their primary campuses, many of their respective satellite locations throughout the region only have access to relatively expensive fixed line services provided by the major telecommunications carriers. Student's access to broadband services at their place of residence is varied. The NBN will greatly enhance the ability to gain network efficiencies and to deliver consistent programs regardless of location.

A ubiquitous broadband network will also provide distance learning and e- learning opportunities that in are currently only available to student cohorts located in the major metropolitan institutions. Given the regions commitment to equity in education improved communications will go some way to improving education outcomes by providing new opportunities and closing the digital divide.

6.4 Management of Australia's built and natural resources and environmental sustainability;

In June of 2010 a consortium led by Energy Australia successfully bid to secure the federal government's \$100 million smart grid, smart city project.

The consortium includes IBM Australia, AGL, GE Energy, TransGrid, Newcastle City Council and the NSW government.

When the announcement was made, Federal Climate Change Minister Penny Wong stated that trial would help people save energy and connect renewable energy to the grid and that such technology has enormous potential to drive efficiency in the electricity sector.

The smart grid, smart city project is an example of how ubiquitous communications could be used to manage all manner of built and natural resources including Electricity, Water and Gas.

In this instance it is not the speed of the National Broadband Network that is important rather it's penetration in to the market place. Every device that is network enabled will be able to connect to the network.

Devices that connect to the network it will need to communicate via a common communications protocol. The NBN will be a key enabler of a concept known as device convergence. Because all devices will communicate via the IP protocol they will be able to communicate with one another as well.

This will lead to innovations in utility management and will improve fault rectification, increase efficiency, reduce costs and potentially forestall the requirement for additional Utility capacity.

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6.5 Impacting regional economic growth and employment opportunities;

Rollout Phase

It is envisioned that 25,000 jobs will be created over the 8 year life of this project, the majority of them focusing on the rollout and commissioning of the network.

Whilst it is understood that a percentage of the workforce required for the rollout of the network will need to be highly skilled and / or trade qualified, given what is currently understood about the design of the network, it is envisioned that a large number of this new workforce will require relatively easy attainable certifications in order to participate.

The skills training required for the rollout of the National Broadband Network has the potential to provide employment and skills pathways over the life of the project to tens of thousands of new and existing workforce participants.

Participation Phase

Access to ubiquitous high speed communications will be the key driver for economic diversification in regional Australia.

The National Broadband Network takes geography out of the equation. The promise of telecommuting, distance education, tele-health and access to the online services that have historically only been accessible to people living in major metropolitan areas means that populations will no longer need to live where they work, instead they will be able to choose where they live and use the network to participate in the digital economy.

The Hunter and Central Coast will be a very attractive location for such a population. This has the additional benefit of taking pressure off the metropolitan area by attracting people to regional Australia rather than to the seemingly endless urban sprawl of Sydney. As a direct result of this population migration to the, region the breadth and depth of the existing skill base will be dramatically improved.

This will be the key enabler for innovation and further economic diversification that will allow the region to move more seamlessly to an economy that is less reliant on natural resources to ensure its prosperity.

6.6 Impacting business efficiencies and revenues, particularly for small and medium business, and Australia's export market;

The National Broadband Network's (NBN) success will be measured by how it enhances the lives and prosperity of all Australians no matter where they live.

The NBN will be a key enabler for the Australian Economy. Access to ubiquitous high speed communications will transform service delivery, lead to innovation and open up new markets.

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However, much of the current debate has focused on the transformational impact the NBN will have on the Health, Education and Government including tele-health, distance education and e – Government interaction. Whilst these sectors will receive significant benefits from the NBN, the impacts of the NBN on Small to Medium Enterprises (SME's) has not been clearly stated and as a result the majority of SME's do not understand the many benefits associated with lower cost, ubiquitous super fast broadband.

These benefits include:

- Increased ability to focus on core business
- Decreased Costs
- Increased efficiency
- Broader market reach
- Collaboration
- Innovation
- Tele – Communication
- Utility Computing also known as cloud computing
- Device Convergence leading to greater integration between devices and appliances

It is also important to note that ubiquitous high speed communications also comes with a number of challenges and risks including:

- Other markets having a greater reach into the local economy
- Competitors expanding market share because of early take-up
- Compliance
- Security

Regional Development Australia - Hunter can play a pivotal role in communicating these benefits and challenges to the SME communities across the region. There is a pressing need to demystify the NBN and break it down in to tangible day to day benefits. In doing so, the prosperity promised by the NBN will become a reality.

6.7 Interaction with research and development and related innovation investments;

The University of Newcastle is ranked in Australia's top 10 universities for research. Research endeavors are concentrated in the areas of health, energy and the environment and science and engineering via 12 priority research centres.

The University hosts extensive partnerships locally and overseas matching intellectual property with commercial needs. The University's business arm – Newcastle Innovation – produces \$12 million annually in intellectual property consulting and research income.

The growing use of communications technology is fundamentally changing the way research is conducted in the higher education sector. Researchers rely heavily on the internet to access

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research information and online journals and to communicate and collaborate with colleagues in Australia and overseas.

Access to super fast broadband, both in the home and at the University, will provide the University of Newcastle with a level playing field when it comes to attracting high quality researchers and research funding.

Hunter Medical Research Institute

Established in 1998, the Hunter Medical Research Institute (HMRI) is a unique partnership between Hunter New England Health, the University of Newcastle and the community. It provides a strong voice for health and medical research in our region.

The Hunter Region has had a strong export tradition in industrial products and agriculture. However it is increasingly recognised internationally for its strength in health and medical research, education and training.

Scientists, researchers, clinicians, policy makers, civic and business communities are working together to enhance the regions research capacity, bringing health outcomes to the community faster.

Improved communications via the National Broadband Network can only enhance the collaborative aspects of the work undertaken by HMRI both regionally and internationally.

6.8 Facilitating community and social benefits; and

Health Care

The digital revolution, of which the NBN is a cornerstone piece, will transform healthcare by linking previously disconnected parts of the system. These networked operations enable information flows and it is access to information and better information exchanges that can facilitate better health outcomes.

Seamless access to a variety of health related information will make the whole system more intelligent. Access to online health information, triage services, and medical peer to peer consultations will create a more connected and collaborative framework for service delivery.

Online consultation and triage has the potential to treat people outside our costly acute-care facilities. Importantly for areas like the more remote areas of the Hunter and Central Coast it will also provide better service access for patients.

The ubiquitous nature of the NBN will mean that everyone will have access to the benefits of this Healthcare transformation. The more people that are connected to the network the greater the benefits will be. Market failures have meant a large section of the population in regional Australia simply do not access to the types of network speeds that would enable them to participate in this new system.

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The National Broadband Network will go a long way to rectifying that problem.

Aged Care

The 2010 Intergenerational Report estimated that the percentage of Australian aged over 65 will grow from 13.5 percent today to 19.3 percent by 2030. Australians are also living longer.

This will present a significant problem over the coming decades in terms of aged healthcare.

The NBN, whilst not a panacea for aged health care will create an environment that will allow for certain aspects of health and well being monitoring and first line consultation services to occur.

This will allow individuals to remain in their homes for longer. This in turn will increase their quality of life and take some pressure off limited healthcare resources.

In 2006 it was estimated 21.4 per cent of the Hunter population was aged over 60. The Australian Bureau of Statistics estimate the figure will grow to 27.9 per cent in 2026. The proportion of residents of the Central Coast aged 55+ is expected to grow from 27% in 2006 to 37% in 2031.

In order to be prepared for the ageing population Hunter New England and the Central Coast Local Health Networks as well as private providers in the region have been planning how they will respond to the increasing service demand from older people needing more care over the next 15 years.

The National Broadband Network will be a critical consideration in this response.

Tele Commuting

One in four of the workers on the Central Coast travel to Sydney every day using the F3 or the train, both of which are overcrowded, and struggling to cope with a growing population.

Overcrowding is a big problem, and can make the journey uncomfortable. The Newcastle/ Central Coast line is facing the highest growth in demand on the network. The feeder roads to the F3, the freeway itself as well as the Pacific Highway into Sydney are also congested at peak times.

As stated before the NBN is not a silver bullet to this problem. The NBN will be critical to solving this problem via the ability for many of these workers to tele commute.

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6.9 Optimal capacity and technological requirements of a network to deliver these outcomes.'

Four equally important factors need to be taken into account when considering the capacity and technological requirement of the National Broadband Network.

1. Speed
2. Ubiquity
3. Future Requirements

Speed

Speed relates to the data throughput on the network. Consideration needs to be given to downstream speed (to the end user e.g. downloading a file) and upstream speed (from the end user e.g. uploading a video).

Too much focus has been given to download speeds. It is true that ADSL networks are becoming far more efficient at providing super fast download speeds however ADSL does not provide the sort of upload speeds that will be required for the Digital Economy.

Without fast upload speeds, real-time collaboration using high definition video is simply not possible. The end user will be able to receive high definition signals but they will not be able to send them.

Any high speed communications network needs to provide sufficient upload speeds.

The home and office network also needs to support multiple users and multiple concurrent services over one connection. End users will expect to be able to simultaneously surf the web, engage in a video conference, upload large files to the cloud, conduct a voice call and perform an array of other tasks.

The Network needs to be built with multitasking as one of its core requirements.

Ubiquity

The Digital Divide is more a function of access than it is of speed.

The network needs to be built so that all Australians regardless of where they live have access to high speed broadband. Whilst it is not economically feasible to provide all Australians with a Fibre to the Home (FttH) solution, it is critically important that FttH reach the maximum amount of people within the financial constraints of the project.

It is vitally important that all users that will not be provided with an FttH solution be provided with the fastest possible speeds via other delivery mechanisms such as Wireless and Satellite services.

If the Alternative solutions do not allow for a true broadband experience then speed will be the rather than ubiquity will be the issue that creates a new Digital Divide.

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Future Requirements

The data throughput requirements of the home and business user are increasing at an increasing rate. It is critical to ensure that the technology used in the National Broadband Network is able to keep up with this growth.

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7 References

Hunter Investment Prospectus 2010

Central Coast Investment Prospectus 2009 - 2010

Hunter TAFE National Broadband Prospectus

Submission to Regional Telecommunications Review Hunter Region 2007

Hunter Medical Research Institute Website

University of Newcastle 2009 Profile

Broadband use in the higher education sector



An Australian Government Initiative



A NSW Government Initiative