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WHaMB ROC
a region of unsurpassed beauty and diversity
Whitsunday Hinterland and Mackay Bowen
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Standing Committee on Infrastructure & Communications
P O Box 6021
Parliament House
CANBERRA ACT 2600

Dear Mr McGowan,

Re: New Inquiry into the National Broadband Network.

Thank you for the invitation to express the views of Council on the capacity of the National Broadband Network to contribute to the range of issues listed in your letter.

The Mackay-Isaac-Whitsunday region is the economic powerhouse of Queensland, demonstrated by 23% growth in the Global Financial Crisis (GFC) year, and a rapidly expanding population. The region currently has $52 billion in projects across our region, the majority of which will come on over the next five to ten years. The NBN is critical to the ongoing growth and success in of our region, and the Councils are committed to pursuing an early rollout in our region.

The challenges that the NBN will overcome for our region include:

- Tyranny of distance;
- Limited services in rural communities;
- Social exclusion;
- Inequality in health and education systems;
- Higher costs;
- Skills shortages;

Please find following, the detailed response to the areas outlined in your letter. Should you have any queries, please contact Narelle Pearse on .

Yours sincerely

Col Meng
Mayor - Mackay Regional Council

Mike Bruner
Mayor Whitsunday Regional Council

1. THE DELIVERY OF GOVERNMENT SERVICES AND PROGRAMS

The high speed broadband to be delivered by the National Broadband Network (NBN) will provide the platform that will enable improved government services and program delivery, at all levels of government and in a number of areas. Some examples are:

- **Intra–departmental** Many departmental offices are spread over a wide geographic area; across states and often in regional and remote areas. High speed broadband telecommunications will enable very high quality collaboration such as video conferencing that will significantly reduce the time, costs and disruption associated with people attending meetings. Having high speed connectivity will allow departmental intranets to become more interactive, enabling procedures to be checked and approved 'on the fly', again saving time and optimising resources.
- **Inter-departmental** There is much value in different departments sharing computing, application and collaboration resources, but many of these initiatives are effectively stopped by the high cost of inter site bandwidth. The NBN will effectively remove the cost of interconnection of data repositories and facilitate the opportunity for data centre consolidation, enhanced resilience and improved purchasing power for departments when they cooperate in procurement activities.
- **Government to Business** High speed broadband will enable the development and utilisation of content rich web access to government facilities, where business can interface with government departments in a highly interactive way where, for example, queries could be dealt with in real time via a 'face-to-face' video conversation when online assistance is needed for example. Intelligent forms will guide people through various approval application processes where they can be assisted to produce and upload the necessary supporting information / documentation to facilitate the desired outcome in the most time and cost effective manner. This enhanced interactivity may be particularly important in areas where occasional users of government service need to complete complex applications at present there are many situations where forms are re-worked multiple times before being processed. Increased bandwidth will allow websites to be more interactive with rich media content including case studies, expert help and detailed background information.
- **Government to Individuals** Broadband will enable government, particularly local government, to make their websites and content delivery considerably more user friendly for the local community. Taking into account the wide range of services provided by local government, there are many opportunities for improved services, including enhanced property and building development applications with a common limitation in regional areas being the inability to transfer detailed plans and drawings due to the size of the files. Councils could provide pertinent information regarding people, places and activities of interest to visitors to a region through high capacity wireless networks (wifi) fed by NBN capacity, and as a support for tourism and local economic development, make public wireless access low or zero cost in many public areas.

2. ACHIEVING HEALTH OUTCOMES

The communities within the region vary in size and geographical proximity to the larger towns and cities. Rural industries include sugar, beef, horticulture, and mining and require increasingly large workforces to be located in these rural areas, to support the considerable economic growth the region is experiencing. Access to medical services is limited in many regional areas, and broadband services offer an opportunity to leverage some of the medical resources in the region's towns and cities. Rural areas also struggle to recruit health professionals due to the preference of people to live on the coast, and in larger centres.

Within the region, some health care professionals are required to travel up to 700km per round trip to deliver health services, or patients have to make very long trips to visit medical practitioners. This challenging situation may worsen as population growth continues, and the health care sector in the region recognises the pressing need for high speed broadband that can leverage centrally located medical skills into remote areas through reduced losses in travel time. There is always a need for face to face consultations, but the medical profession agrees that some interactions can be satisfactorily completed if very high quality interactions can be delivered electronically. This can raise the productivity of scarce medical expertise and so improve regional health outcomes.

High speed broadband would provide improved access to:

- Improved download speeds to provide timely information to patients during consultations;
- Video-conferencing with doctors in major hospitals in capital cities across Australia;
- Remote medical checks with specialists not available in the region;
- Remote patient post operative follow up;
- Efficient transfer of patient details to specialists;
- Transmitting and downloading medical records with large file attachments such as X-rays;
- Secure communications between health practitioners;
- Improved on-line medical education utilising detailed imagery;
- Mobile video-conferencing from patient bedside to doctors in other areas;
- Remote in-service training;
- Clinician to clinician interaction for joint consultations;

These initiatives will provide savings in time, cost, inconvenience, and in many cases physical and mental distress, particularly for people living in remote areas.

3. IMPROVING THE EDUCATIONAL RESOURCES AND TRAINING AVAILABLE FOR TEACHERS AND STUDENTS

The region's schools are continually deploying new technology computers and yet they are unable in many cases to access departmental information through low speed connections. With NBN access speeds, remote schools will have similar access to educational content that is provided in metro areas. Currently the majority of schools have only 512 kbps ADSL connections, with some high schools having BDSL connections, mostly providing 1.5 to 2 mbps. These speeds are insufficient to access rich educational content, including teaching collaboration, virtual classrooms and guest speakers. The introduction of broadband will decrease the inequality of educational services in these smaller communities. The same services will also allow for increased collaboration between teachers in remote areas, and teachers in larger centres, resulting in better mentoring and support.

4. THE MANAGEMENT OF AUSTRALIA'S BUILT AND NATURAL RESOURCES AND ENVIRONMENTAL SUSTAINABILITY

Built resources (ie. residential and commercial buildings), are responsible for 40% of global Green House Gas (GHG) emissions; use 12% of the world's water; consume one third of the world's resources; and produce 40% of the waste in landfills Control of the environmental impact of built resources lies design, construction materials and the management and the efficient ongoing utilisation of energy, primarily electricity.[1]

According to the 'World Energy Council', electricity generation is the single largest contributor to global CO^2 emissions, being roughly twice as much as the other major fossil fuel burner, transportation. However, it also offers the greatest potential for reducing such emissions in the short and medium term, by properly managing energy use.

New environmental policies, and escalating energy costs are driving the need to better manage demand. These drivers require utilities to adopt a new level of enterprise aggregation, integration and use of real and near real-time data from operational systems, as well as traditional sources of data from back office business processes.

According to Smart Grid Australia, "Major innovations and advanced technologies available today can radically transform the ability of consumers and enterprises to find, produce, deliver, and use energy in a more cost-effective, resource efficient and environmentally sustainable way."

The term 'Smart grid' refers to the integration of power infrastructure with an information network, to manage demand and load in real time thereby raising network utilization and reliability, and controlling demand and carbon outputs more effectively than can be achieved at present.

Alternative energy sources such as solar, wind, hydrogen fuel cells, clean batteries and so on will become the distributed sources of energy in the future and will introduce greater complexity to energy generation, distribution and consumption. This brings new opportunity to manage demand and generation to minimize carbon outputs, but requires this new and complex network of energy elements to be interconnects and controlled a very different situation from the largely passive energy networks today. The NBN will offer an opportunity to connect many thousands of points of demand and generation inexpensively, and bring control to the new form of energy network that will form in the coming decades.

When referring to Australia's natural resources, the Mackay, Isaac and Whitsunday Regions are well represented with:

- The coal, natural gas and mineral deposits throughout the Bowen Basin, a large percentage of which lies in the Isaac and Whitsunday Regions;
- The rich agricultural land that supports fruit and vegetables, as well as sugar cane and pastoral land supporting the beef cattle industry; and
- The coastline, islands and the Great Barrier Reef.

[1] EnergySmart Buildings: Green Building Council Australia, April 2010.

These natural resources have two areas of activity:

- Commercial operations - All of which would benefit from high speed broadband resulting in improved productivity, improved timing and accuracy of performance monitoring and resultant decision making. Given the significance of these commercial resource operations, these improvements would have a direct benefit on the national GDP; and
- Environmental management many government and environmental organisations are engaged in monitoring current capacity, use and utilisation of these resources. High speed broadband would provide the speed and bandwidth necessary to enable more accurate modelling, utilising latest digital technologies, all of which require ubiquitous connectivity.

5. IMPACTING REGIONAL ECONOMIC GROWTH AND EMPLOYMENT OPPORTUNITIES

The region is and will be a significant contributor to the national economy due primarily to the immense coal, gas and mineral reserves throughout the region. This contribution will be enhanced with the improved telecommunications that will result from the NBN initiative.

Despite its economic strength and opportunity, the region is forced to deal with the impact of poor communications infrastructure which detracts from:

- Industry productivity
- Community cohesion
- Quality of life

These impacts are due largely to the tyrannies of distance between the various communities throughout the region, which are dispersed over 92,000 km2 with many hundreds of km between some communities. The distance from the region to the Brisbane is approximately 1,000 km, and creates a sense of isolation from decision making in the region and ultimately with state government and commercial head offices in Brisbane.

Current telecommunications infrastructure in the region limits on the ability to manage the resource exports from the region, which in turn affects productivity and waiting times at the ports. Dalrymple Bay Coal Terminal (DBCT) is located 40km south of Mackay, and is part of the world's largest coal export port. DBCT currently has a 10 Mbps internet connection. DBCT's data communication to the mines are currently adequate as the volume of data is fairly low. With $23 billion in mining related projects and expansions proposed to come on in the next 5 to 10 years, the volume of data between mine sites and Ports will rapidly increase. DBCT is currently implementing an advanced production scheduling system on site and this will be accessed by the mines to improve waiting times at the Port.

DBCT has an office in Mackay's industrial area of Paget, with communications back to the Port, and at present they are equipped with a home grade ADSL connection. Any expansion to this site will require a fibre connection in order to effectively grow and manage their operations. We have already seen a move by larger companies such as BMA to close regional operations and centralise in the capital cities. This in turn has decreased job opportunities in the region. High speed telecommunications is essential in regional areas to offset distance based communications costs in terms of both job creation and job retention.

The majority of employment opportunities within the region are driven by the growth in the mining sector and mining communities are generally more remote, and have difficulty in attracting skilled workers to these communities. The result is that the reliance on mining for these communities is significant, and the need to diversify is critical for long term sustainability of these communities and economic growth. The introduction of high speed broadband will open up new opportunities for residents in these communities, particularly through initiatives that allow people to work remotely through the availability of high speed broadband.

6. IMPACTING BUSINESS EFFICIENCIES AND REVENUES, PARTICULARLY FOR SMALL AND MEDIUM BUSINESS, AND AUSTRALIA'S EXPORT MARKET

Small to medium businesses, generally referred to as SMEs are the lifeblood of the Mackay, Whitsunday and Isaac Regional economy. SMEs in regional areas face all the issues of their metropolitan counterparts, with the added challenges of distance. Specifically:

- They are remote from potential markets.
- They have difficulty attracting and retaining skilled staff.
- They face high travel costs for business and staff development and access to services and expertise.
- They have limited exposure and access to technology solutions to enable them to reduce costs and increase efficiency.

By providing ubiquitous, high speed and affordable broadband to regions and cities alike, the NBN will address these challenges in a number of ways:

Increased **Broadband Capacity** for businesses and customers alike will increase the scope and quality of digital services that can be provided by regional businesses and enjoyed by regional customers. Data-intensive activities such as remote monitoring and operations, web and cloud services and multimedia, to name a few that already exist, will be able to better service their regional customers as well as extending their potential market nationally and internationally. This will also facilitate collaboration between smaller regional businesses to create "virtual clusters" that collectively can compete with larger firms, as well as developing sufficient critical mass, producing cost-efficiencies that will enable them to establish export markets for their products and services, and better defend their local markets from imports.

Telecommuting and Videoconferencing will reduce travel costs for regional businesses and increase their capacity to interact with clients and colleagues wherever they are located. They can participate in interactive training and seminars and consult with specialist service providers without incurring travel and accommodation costs. High speed broadband will help businesses to address the regional skills shortage by enabling remote workers less travel makes jobs more attractive. Many firms in the region already have employees based in Brisbane, but the current telecommuting experience is generally poor due to limited bandwidth. The same broadband services will also help make living in the regions more attractive to skilled workers if they can extend their careers by telecommuting to major centres while enjoying regional lifestyle advantages.

Cloud Computing is increasingly becoming a commercial reality, and offers particular benefits for regional businesses with the promise of ICT applications and infrastructure equivalent to that enjoyed by larger metropolitan firms, at affordable prices. The NBN will provide the capacity for cloud computing for all businesses, and reduce the cost of use of advanced applications. Regional data centres may mitigate some of the perceived risks associated with committing corporate data to the "cloud", and the NBN will facilitate their establishment through low cost connectivity and backhaul. In short, the NBN will help level the playing field for regional areas, making businesses more competitive, and providing a wider and more affordable range of services to customers.

NBN and Industry Innovation

The following are three examples of how high speed broadband can assist regional businesses:

1. Mining Industry Automation: With the aid of new technologies, many mining activities can be automated, to increase productivity and reduce costs. The availability of high speed broadband services will provide the platform for this type of innovation.
2. Mining Support: In some part of the mining industry, local SME's find it difficult to integrate their management systems with those of the larger mining companies, and one option is to extend a partitioned form of the larger mining company's applications to the SME premises if sufficient bandwidth is available.

3. Tourism. The region is home to the Great Barrier Reef and 74 islands of the Whitsundays, which provide an iconic tourism experience to both domestic and overseas travellers. The majority of businesses within this industry are small with limited resources to market to national and international travellers. The introduction of high speed broadband would permit SME's to promote local tourism in content rich and innovative ways.

7. INTERACTION WITH RESEARCH AND DEVELOPMENT AND RELATED INNOVATION INVESTMENTS

The ability to access distant resources and expertise is particularly important in regional and remote communities. In research and development, expertise tends to cluster in large metro/urban areas, however the generation of new ideas, products and innovations are not limited by geography.

The emergence of the "creative class" has seen a new focus on business development and direction emerge. In a region that is highly reliant on commodities, it is important that targeted diversification occurs. The ability of local businesses to develop and commercialise the intellectual property that they create is essential, and access to expertise which will allow them to do this is also essential. The mining support industry is underpinned by significant innovation, which has the potential to be exported globally. A number of solutions developing in the region are unique, but require high speed telecommunications to bring them to market in a more timely and cost efficient manner.

An example of this is a Mackay based company, Mining Logic Solutions (MLS). Formed in 2007, Mining Logic Solutions is an ITC supplier of choice in the Mining and Primary Industry sectors. In a few short years MLS has gone a long way towards breaking down the barriers and stereo types in relation to the level of quality and technology that can be developed away from the major Queensland centres.

MLS delivers on a wide range of Information and communications technology. From business analysis to complex communication installations, MLS has turned into one of the major turnkey technology providers for region.

Three of MLS projects that will benefit from high speed synchronous broadband as proposed by the NBN are:

1. NEXSYS Real Time Risk Management System for underground coal (NEXSYS),
2. Mine Emergency Management System Software (MEMS2)
3. The Mackay Data Centre

MLS' vision is to develop into a company that can support its products and services throughout Australia and around the world, while maintaining its base of operations in Mackay. The key to achieving this will be a cost effective high speed synchronies broadband network with the capabilities of delivering:

- Reliability;
- Multiply redundant paths;
- Carrier neutrality; and
- Expandability.

According to MLS, the lack of communications and broadband competition in this region is slowing the adoption of new technology that can benefit the local and national economies. MLS technologies such as the NEXSYS and MEMS2 products deliver real time risk and safety critical data sets to help inform decisions that increase mine production safely. The NBN's high speed connectivity will boost MLS's ability to deliver multiple mine site monitoring.

8. FACILITATING COMMUNITY AND SOCIAL BENEFITS

The benefits to be delivered by the NBN's High Speed Broadband initiative strongly support the Australian Government statement:[2].

"Maximum participation in economic, social and community life is a defining characteristic of an inclusive society.

Over time people's opportunities and capabilities are formed through their experience of family life and their participation in the communities, economies and institutions around them. People with well-established social networks and institutional connections are more likely to deal successfully with personal crisis and economic adversity.
Different service providers may need to link together to do this.

The multifaceted nature of social exclusion means that the services offered by any one agency can only go so far in meeting the complex needs of a person or groups of people. Separate silos of funding, policy-making and service delivery can be systemic barriers to providing effective support.

Flexibility and cooperation across agencies, both between Commonwealth agencies and across levels of government, is one key to comprehensively address social exclusion.
Progress towards social inclusion must be accompanied by better information, faster learning and better use of knowledge to improve outcomes."

The majority of community and social issues confronting the region revolve around social inclusion, which is difficult to achieve when communities are isolated by distance. The key issues in this context include:

- Employment;
- Health;
- Education;
- Social / Family Services; and
- Drug and alcohol abuse.

The areas most affected are:

- Indigenous culture and society;
- Mining communities;
- Mining camps;

High speed broadband can benefit these areas by:

- Improving the economic drivers throughout the regions (as previously discussed), resulting in more jobs and more job diversity.
- Improving connectivity between communities through high speed telecommunications, particularly benefitting health and education services to rural and remote areas.
- Enabling Fly-In-Fly-Out (FIFO) miners to maintain video contact with family and friends, which would likely have the effect of reducing the incidents of drug and alcohol abuse in the communities and camps.
- Improved connectivity from the regions and their communities with organisations and Government Department located in Brisbane, Townsville or Canberra.
- Providing a platform for accessing internet based social networks, negating the tyrannies of distance and improving social inclusion.

[2] Social Inclusion Principles for Australia

9. THE OPTIMAL CAPACITY AND TECHNOLOGICAL REQUIREMENTS OF A NETWORK TO DELIVER THESE OUTCOMES

To achieve the outcomes as described in this document, the desired network needs to deliver fast (100Mbps), synchronous, ubiquitous and robust broadband telecommunications.

There needs to be competitive, cost-effective backhaul to Brisbane and beyond. This can best be achieved through shared access to existing fibre infrastructure currently owned by various organisations, such as:

- Telstra
- Optus
- PowerLink
- Ergon Energy
- Nextgen
- QR National

It requires NBN to deploy optical fibre infrastructure to the widest possible footprint throughout the three regions, understanding that there will be some remote areas outside that footprint will be connected via the latest wireless technology (LTE), or satellite.

There is a proposal by a private company to establish a data centre in Mackay. As well as being beneficial to users in the regions wishing to have their servers located off site, this would benefit the entire NBN network as a potential platform for cloud service providers.