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Optus Submission

To House Standing Committee on Infrastructure and Communications

Inquiry into the role and potential of the National Broadband Network

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1. Introduction

1.1 Optus welcomes the opportunity to respond to the inquiry into the role and potential of the National Broadband Network ("NBN").

1.2 Optus supports a national broadband network which will deliver greater competition and choice for consumers. In particular, Optus continues to be a supporter of the Government's vision that the planned National Broadband Network ("NBN") has the potential to positively reshape the fixed line telecommunications sector in Australia and deliver significant benefits to Australian consumers and businesses.

1.3 Optus encourages a focus on the requirements of end customers and the benefits to our community through the competitive delivery of services over Australia's broadband infrastructure.

1.4 Competition drives meaningful innovation and improved customer service in technology and telecommunications. Innovation is accelerated and allowed to prosper through a truly competitive industry. It is this competition which drives a focus on the customer and society's wants and needs.

1.5 The real strength of the NBN will be the fact that we will see an explosion of applications delivered simultaneously to end-users, and not simply one or two in a specific sector. The sheer volume of data the NBN will carry will in turn, attract more usage which will see innovative new products and applications continue to develop and grow.

1.6 Speculation on the future can often be fraught with danger as by its very nature, predictions can limit possible opportunities. Historically, predicting the possibilities of the information, communication and technology sector has seen its fair share of mistakes and underestimations.

1.7 However, Optus believes if the right framework is built now, with a focus on creating competition and supporting research and development, the opportunity is here to create an environment where innovation will flourish. All Australians need to be proud to look back and see that we used this opportunity to create the infrastructure and the market settings that ensured we remained a world leader in productivity and innovation.

2. Executive Summary

2.1 Optus submits that the benefits and potential of the NBN can be realised if the policy framework is set out clearly from its inception. This will ensure that Australia takes this opportunity to create an environment;

a. that has the transparency and regulatory settings to ensure it is genuinely competitive;

b. that supports world leading innovation; and

c. that allows us to maintain and improve on our place in the world through the global digital economies of applications and content.

2.2 We have an extraordinary opportunity through these solid foundations, to increase the speed and competitiveness of our national communications network through the NBN. We are on the precipice of real change that will alter the way we operate and connect with one another on a day to day basis.

2.3 The NBN is a critical component in reforming the fixed line telecommunications sector. However, it must stay faithful to the principles of true competition, open access, and transparency with a robust reporting and oversight structure. Compromise on any of these principles risks the failure of the competition and innovation aims of the reform**.**

2.4 The full potential of the NBN can only be realised if creativity, innovation and competition is nurtured. Competition is an essential component for innovation to thrive. Competition is central to Optus' mission and for nearly 20 years, Optus has brought vibrant competition to the mobile market. It is this competition which has seen consumers derive real value from their mobile service providers.

2.5 Optus sees the role of the NBN to be one of pro-competition, aimed at levelling the playing field for fixed line services. Australia has been prevented from realising our full broadband potential that residents of Japan, Korea and Sweden[1] enjoy due to our vertically integrated incumbent providing little market incentives to accelerate innovation and consequentially see the adoption of leading applications.

2.6 Australia needs to look beyond just the network and ask how we can innovate to create further applications and content. With collaboration across all facets of industry, government, research and development, business and innovation sectors, Australia can utilise this opportunity to leap forward into a generational building phase.

2.7 There has been much commentary around the industries best serviced by the NBN. The opportunities of education and health have been well highlighted. Optus also believes other sectors including security, energy, resource management and entertainment as well as general business and general Government services will also realise great benefits from the NBN. This will be achieved from improvements in efficiency and productivity in the workplace through to assisting in safeguarding the environment.

2.8 Each of these will have direct benefits, but in combination with wider societal benefits will lead to an improved well being of our community where citizens will be better educated, healthier, wealthier and can in real terms lessen their impact on their environment.

2.9 Optus believes that, with proper guidelines and the underlying principle of true competition, vibrant industries can flourish around the development of applications and services using high speed broadband. With our ingenuity and creativity, and now a high-

[1] OECD Broadband Statistics June 2010
http://www.oecd.org/document/54/0,3746,en_2649_33703_38690102_1_1_1_1,00.html

speed broadband network there is no reason that Australia can't be at the forefront of this global digital economy.

3. The delivery of government services and programs

3.1 Optus notes a report by Allen and Overy & Venture Consulting titled "*The impact of the Australian National Broadband Network on the Communications Sector – a forensic view,"* which states that:

> "One of the objectives of the NBN is to facilitate consumer welfare across health, education and social services. Government at every level will increasingly see itself as a partner of NBN Co and a participant rather than a customer. Do not be surprised to see the other arms of government increasingly involved in the communications sector."[2]

3.2 Optus submits that the NBN will contribute significantly to the use of Government electronic services (eGovernment). This will gain greater impetus due to the planned higher level of capabilities available through the NBN framework. There is likely to be another extended wave of the eGovernment cycle that will develop with very much the same principles as the earlier stages inclusive of:

a. The emergence of Government 2.0 agenda which exploits new web technologies to provide communities with a greater say in government policy, democracy and services. The NBN will allow all Australians to participate in Government in a way not possible before.

b. A need for Governments to respond more quickly to citizens' requirements as they design relationship management frameworks for delivery of up to date Government information over an NBN infrastructure.

c. The ability for Government to deliver multi-channel, event-driven contact services, more personalised touch points, and potential fast, efficient one-stop online shops for information from all tiers of Government.

d. An expectation of Government agencies to be more agile in terms of responding to policy changes as the expectations of the community will pressure Governments to move because of the standard access environment.

e. Governments will be driven to more efficiency and greater accountability as the level of information available to individual households and business expands across both wireless and wireline networks.

3.3 Outside of this information dissemination and service delivery role for Governments, Optus believes that there will be a variety of direct Government and ancillary services that will become more prominent with the community. These could include;

a. Enhanced education and learning experiences across regional and remote Australia (in addition, refer to point 5.2);

[2] Michael Reede, , *The impact of the Australian National Broadband Network on the communications sector – a forensic view,* Allen & Overy, Venture Consulting, pg.37, 2011.

b. Improved health and telemedicine, especially for regional Australia;

c. Improvements for aged care supplied at home through a combination of telemedicine and effective remote monitoring and alarming;

d. Smart energy management via the NBN, particularly for Smart Grids, smart metering and smart household appliance management; and

e. Resource management and environmental monitoring.

3.4 Optus submits that the above items have been relatively accepted across all levels of Governments as the key advantages in transitioning to an NBN. This focus has been mostly confined to cost savings and equity of service provision from Government agencies. Optus submits that there are more immediate advantages to Government service delivery and some examples may include;

a. Co-operation between Government tiers resulting in increased competition in telecommunications procurement;

b. Common approaches across Government through the provision of high quality telecommunications networks to all Government sites;

c. Aggregation of Government demand, and potentially unifying Government action, hence potentially delivering telecommunications price equality between larger and smaller agencies and metropolitan and regional sites; and

d. Driving new technologies and services for Government, to see strong long term competition and innovation.

3.5 As an example, Optus notes that there are strong moves in the transport sector towards customer centricity for information sourcing, particularly in relation to assisting the "informed commuter." Information in relation to specific transport services via email, SMS and voice is increasingly being used to provide commuters with information on public transport estimated arrival times, transport solutions and traffic information.

3.6 Streamlining shared services is another focus for effective Government service delivery. Federal and State Government are working towards common metrics and standards for the establishment of shared services across common entities. These include back office streamlining for such services as common payroll systems and video conferencing.

3.7 Optus encourages the continued focus of government and its agencies on the delivery of fundamental Government services. In order to foster innovation and competition in the use of the NBN. Optus encourages all levels of Government to engage with the competitive non-government sector in the delivery of services leveraging the NBN.

3.8 Optus submits this approach will;

- Enable Government to focus on its core objectives;
- Reduce commercial and operational risks to Government; and
- Provide a framework for the non-government sector to both leverage existing assets and build new capability in the delivery of Government services.

4. Achieving health outcomes

4.1 Optus sees potential for the NBN to change the way health care is delivered. This will provide the greatest benefits for both regional communities and citizens who have limited mobility. Optus maintains that the two most prominent social aspects to benefit from the NBN in the health sector are;

a. Aged care; and

b. E-health.

4.2 Australia's population is rising dramatically and as a result so are the numbers of people over the age of 85. Optus sees a role for the NBN to assist in the capability to deliver remote health solutions to an ageing population which in turn sees a reduction in the associated costs.

4.3 The health sector will benefit from the ability to deliver health care services nation-wide. High-speed broadband has the ability to change the way health care is delivered to Australians by improving existing services like tele-radiology, tele-psychiatry and remote patient monitoring. These improvements will enable remote consultations via videoconference, remote and/or real time of diagnosis of tests and scans and the high-speed secure transfer of medical imaging and patient records.

4.4 The NBN will assist to enhance the ability of information for health practitioners to be transferred quickly and accurately across jurisdictions, health networks or even within one hospital. This will also increase efficiency and productivity rates across the sector more broadly.

5. Improving the education resources and training for students and teachers

5.1 Optus submits that affordable, high speed broadband connections are the building blocks for a new world of teaching and learning. High speed broadband connections will deliver unprecedented gains in the ability of our schools to access information, collaborate and communicate with each other and to work together in developing or accessing services.

5.2 Broadband connections have the potential to support new learning and teaching practices which may include;

a. virtual classrooms;

b. video and audio streaming;

c. high definition video conferencing and

d. remote collaboration between students and educators.

5.3 Time pressures within our environment often results in necessary innovation to enable previously unavailable services to become possible. Broadband Internet has assisted those who wish to pursue distance education or employee training programs. Employees can learn online at their own pace and those living in remote areas, and through video conferencing can seek further education and tuition online.

5.4 Widespread broadband adoption represents a significant opportunity for education, training and distance learning as it brings remote teachers and students closer together and provides educational institutions with an opportunity to simulate an actual class room environment with a fully interactive multimedia experience.

5.5 We can look to the potential of broadband in this sector overseas, with predications that 80-90% of higher education and corporate training courses will be blended by 2020.[3]

5.6 The focus on accomplishment for the disadvantaged and disengaged segments of the community provides a natural platform for online learning. This group, many of whom are working full time or geographically isolated, will benefit from the flexibility of online learning.

5.7 Australia has benefited for over 60 years from innovative education solutions that have overcome the tyranny of distance. They started in the 1940s with the iconic pedal based radio delivering 'the school over the air'. Optus is proud to be a contributor to remote education across Australia starting with the fledgling satellite services to remote communities during the 1980s through to our current sophisticated integrated satellite distance learning services. The NBN will enable Australia to continue this proud tradition of innovation in remote education services.

6. The management of Australia's built and natural environment sustainability

6.1 Optus recognises the potential physical impacts of the NBN which depending on how the network is deployed, includes issues around aerial cabling and ground disturbance as to where the cable is buried. At this stage, it is estimated that less than 30% will be of the network will be deployed in existing ducts.

6.2 It is highly likely that the new delivery systems will require new hardware to be provided for each connection, and existing connection hardware to be disposed of. If the proposed Federal Government Product Stewardship legislation takes more form, the broad based e-waste disposal initiatives should result in significant resource recovery.

6.3 Optus observes that key environmental benefits are likely from the contribution of the NBN. This is particularly likely in a range of significant energy efficiency and resource management opportunities.

6.4 Without predicting the future, Optus sees some future scenarios which highlight the sustainability benefits the NBN will contribute to:

- High resolution video conferencing that will assist in reducing the need to travel significantly reducing the carbon footprint.
- Increased opportunity for further advances in tele-working and access to services online will reduce travel energy consumption.

[3] Kyong-Jee K., Curtis J.B and Ya-ting T., 'The present state and future trends of blended learning in workplace learning settings across five countries'. *Asia* Pacific Education Review, vol.10, no.3, pp299-308, 2009.

- Reduction of the pressure on urban infrastructure with the movement towards greater infrastructure in rural and regional Australia.

- Creative innovation which can lead to increased ease and access for remotely managing resources for example: lighting or heating and cooling to avoid unnecessary energy consumption through widespread deployment of smart metering.

6.5 Optus recognises that the more a community uses the ability to remotely access information the less there is a need for raw materials. Hence, the NBN will facilitate a significant reduction in energy that would otherwise be used in transportation of raw materials, manufacturing processes, waste disposal and product transport and handling.

7. Impacting regional economic growth and employment opportunities

7.1 Optus has undertaken a significant amount of investment in regional Australia through the roll out of our mobile network. We currently provide 3G mobile services to 97% of the Australian population. This includes investment of over $2 Billion over the past five years in our mobile network and the addition of over 600 new mobile sites across Australia in 2010.

7.2 Some areas of Optus' significant expansion include central and Far North Queensland, Northern Tasmania, Western New South Wales and Central and Western Victoria. Optus will continue its expansion to ensure it meets the aim of providing 3G services to 98% of the Australian population.

7.3 This network expansion combined with a growing distribution network is bringing choice and competition for mobile and wireless broadband services to more regional Australians than ever before. A significant part of Regional Australia will now have the opportunity to access the benefits of competition for telecommunication services enjoyed by city residents for many years.

7.4 Unfortunately, choice and competition for fixed voice and broadband services in regional Australia still remains restricted. Optus believes that the NBN provides the opportunity to remove the barriers of competition for fixed services across Australia. The 2008 Regional Telecommunications Review by Dr Bill Glasson made it clear that competition in regional areas is significantly less robust than in urban areas[4].

7.5 Optus has observed this first hand with many regional customers unable to access our fixed plans and services in part due to the regulatory framework that enables the incumbent to charge exorbitant wholesale access prices in regional areas.

7.6 For instance, when Optus introduced a fixed voice and broadband bundle product called *Optus Fusion* in 2007 it became one of the most popular offers Optus had ever developed. Unfortunately whilst we received strong interest for the service we were unable to provide it because of the incumbent's access terms.

[4] Regional Telecommunications Independent Review Committee Report 2008 Framework for the Future p231

7.7 We believe an NBN can change this experience for regional Australia. Optus will be able to offer more competition and choice to regional Australia then ever before through the open access and pro-competition benefits provided by the NBN.

7.8 The benefits of this national infrastructure project will assist Australians' to invest in business and communities outside the traditional populated centres. It will provide, "tree-changers" and "sea-changers" with the possibility to move their businesses to rural and regional areas. This could see a real demographic shift and the flow on effects and benefits that such a shift would provide.

7.9 This support in investment in regional towns will allow Government to re-visit decentralisation planning. The chance of attracting professionals to regional areas also greatly improves with appropriate ICT infrastructure at the regional level.

8. Impacting business efficiencies and revenue, particularly for small and medium business (SMB), and Australia's export market

8.1 Optus submits the biggest impact and potential for the NBN for small and medium business is that it will enable competitive fixed broadband services to be delivered ubiquitously. This will facilitate novel tailored solutions for SMB's enabling productivity and export benefits throughout Australia particularly to regional and remote Australia. The parity pricing principals of the NBN should remove the economic deterrents to SMB broadband adoption in regional Australia.

8.2 Ovum have predicted that a "pervasive web will drive innovation in the cloud[5]." Optus submits that the above mentioned ubiquitous coverage of the NBN combined with its higher upstream capability will enhance the performance, availability and capability of cloud based applications and will provide SMB's with new opportunities to improve productivity, and competitiveness as well as providing new business opportunities across the whole county. IDC have also predicted that the cloud market within Australia will grow by around 15% pa to 928million (in US dollars) by 2014.[6]"

8.3 The NBN will provide a platform that enables an explosion in cloud applications. These applications will provide to SMB's the following benefits:

- Enhanced functionality
- Total cost of ownership savings
- Improved productivity and collaboration
- Access to data from home, work and while mobile
- More robust, secure hardware and data back up and redundancy in the event of a disaster

[5] Ovum: Telecoms in 2020: Devices and Platform, December 2009, p.5.

[6] IDC: Australia Cloud Services 2010 – 2014 Forecast and Analysis, July 2010, p.34

9. Interaction with research and development (R&D) and related innovation investments

9.1 Optus notes real potential of the NBN to enable Australian Information and Communications Technology (ICT) innovation. Australia has the capability to lead innovation in the fields of telecommunications, high technology and adjacent industries for use not only in Australia, but on a global scale.

9.2 The current lack of private ICT investment in R&D has been well documented. Many large global ICT multinational corporations have closed down or moved their R&D operations outside Australia. Investment in public sector R&D has been similarly difficult to secure.

9.3 Optus believes with the right incentives Australia has the potential to attract back many of the large multinational ICT innovation centres. Important incentives such as the NBN and attractive tax structures would encourage larger and small businesses to invest in innovation.

9.4 The NBN is a pro-competition policy which levels the playing field for fixed line services. Australia has been prevented from the many truly innovative broadband applications that Korea, Japan and Sweden enjoy as the incumbent provided no market incentives to accelerate innovation and the adoption of leading applications.

9.5 Australia's current R&D priority areas are understood to include ICT, biotechnology, manufacturing, mining and the food industry. In 2005-06, a total of $10.1 billion was spent on R&D in Australia according to the Australian Bureau of Statistics (ABS). The major contributors to R&D expenditure were the manufacturing ($3.9 billion or 38.6%), property and business services ($1.7 billion or 17.0%), and mining industries ($1.7 billion or 16.7%).

9.6 A competitive R&D sector will see accelerated innovation. However, for R&D to be relevant it needs to develop innovations that drive wealth and productivity for Australia.

9.7 Substantial funding for ICT fundamental research in Australia comes from the Government through Universities, Cooperative Research Centres (CRC's), ARC, CSIRO and NICTA.

9.8 R&D will require assistance from Government and the private sector to focus on innovation in the area of applications and services for the NBN. This may have the potential to include a competitive funding pool for R&D progress.

9.9 Further increasing assistance for commercialisation of the NBN services and applications will help see these ideas through to market.

9.10 Access to early stage funding has always been a challenge for ICT companies particularly in Australia. ICT innovation is a high risk venture which requires a risk profile not often seen in the Australian capital market. The Australian early investment community has historically been risk adverse in the ICT sector.

9.11 Optus is assisting and encouraging Australian companies to access funding via the SingTel Group's new corporate venture capital fund Innov8.

9.12 Optus recognises that many of the winning applications of broadband are seen in the fledgling stages and as such the SingTel Group has created a 200M (SD) fund. The goal is to invest in early growth stage companies that can generate promising financial returns and provide strategic benefits to the SingTel Group.

9.13 Innov8 works closely with the ecosystem of leading innovators, developers, government agencies, R&D and capital providers to bring cutting-edge technologies and solutions to the various markets the SingTel Group operates in, which includes Australia.

9.14 Innov8 has its own set of decision making, approval and funding processes. Innov8 focuses its investments on technologies and solutions that lead to quantum changes in network capabilities, next generation devices, digital content services and enablers to enhance customer experience. These can be at any stage of development. As a Singtel Group Initiative, it brings the scale and demographics of the SingTel Group's 383 million mobile customers.

10. Facilitating community and social benefits

10.1 Optus has already outlined a number of community and social benefits in regards to the role and potential of the NBN in other terms of reference in this submission.

10.2 Around the world nations are looking to develop smarter, digitally connected communities through initiatives designed to promote the roll-out and adoption of high-speed broadband technology.

10.3 The social inclusion agenda recognises that there are significant dividends, both social and economic from engaging the community more fully. Social inclusion improves our capacity to learn, work and engage. Social inclusion increases the number of skilled and able workers and can assist to reduce the number of disadvantaged communities.[7] The availability of technology is a major contributor to social inclusion and the NBN's potential to re-engage and reinvigorate communities is significant.

10.4 Behind these initiatives is a clear recognition that access to and the use of broadband can lead to;

- A better connected and engaged society;
- A society who's citizens feel more empowered and more in control because they have the means to make their opinions known and count; and
- A society that is more inclusive breaking-down barriers to social isolation and by reducing the tyranny of distance.

10.5 Today broadband is increasingly used as an essential tool for the delivery of services by business and government, from information dissemination to providing access to important services through online tools for example: banking, retail, entertainment and communications.

[7] The Australian Government, Australian Public Service Social Inclusion Policy Design and Delivery Toolkit, 2009, p.5.

10.6 Optus notes that the opportunities for Government to interact with its citizens will be enhanced once high-speed broadband is available nationally. The opportunities for Governments around Australia to drive higher efficiencies and cost savings by increasing their use of online and digital capability are anecdotally well known.

10.7 However, delivering high speed broadband access is only one part of the equation. The other challenge is to build a digitally active society by getting people online and ensuring high speed broadband is used to its maximum capability.

11. The optimal capacity and technological requirements of a network to deliver these outcomes

11.1 Optus submits that the NBN should be designed to facilitate the provision of new and innovative broadband based services for Australia. It should not act as a bottleneck to either consumers or service providers.

11.2 The NBN needs to continue to be designed and built as an open wholesale layer 2 access network and to open standards in consultation with industry bodies and service providers. In particular the relevant standards of international bodies such as the ITU, IEEE and 3GPP need to be adopted. Technology choices involving proprietary or vendor specific solutions need to be avoided.

11.3 Optus submits that this simple wholesale only network based on open standards will provide the framework for the competitive introduction of new and innovative services. This framework will enable competitive supply across all areas of the NBN from construction through to end user devices and content and services.

11.4 The NBN needs to scale to meet the changing and growing requirements of the end users. Optus has seen fixed data per user usage double over the last two years (driven mainly by services such as YouTube and social media applications).

11.5 Hence, the NBN needs to be designed to accommodate for this current rapid growth in broadband data usage and to cater for potentially highly variable usage projections which will be driven by as yet defined products and services. In particular the NBN should be designed with an architecture that minimises the sensitivity (both from a delivery and cost perspective) to large and rapid growth in the traffic across the NBN.

11.6 Optus submits that to deliver these outcomes, NBN must adhere to its assigned task and objectives. Optus believes that competition and transparency will be the key to ensuring the benefits of the NBN are realised.

11.7 NBN Co will need to be a nimble, dynamic and consumer focussed entity operating to a transparent governance framework. A strong incentive to excel needs to be maintained for all aspects of the NBN.

11.8 Optus submits that to achieve this the operation and management of the NBN network should be subjected to an ongoing competitive framework and open to renewal from a competitive selection regime similar to the market forces that the commercial sectors face everyday. For example the management may be tendered out at a national, state or geographical basis with a review period on the quality of service and efficiency of operations.

11.9 Optus advocates, in addition to this competitive tender, for the establishment of an independent oversight body for NBN Co. This should not be another political layer but an independent body tasked with ensuring that the NBN Co is run with a well defined set of criteria with a charter aimed at managing the NBN with the best interests for its customers and Australians.

11.10 These alternative models will enable the NBN to operate optimally and be commercially aligned with the principles of competition, innovation and customer service.