Chapter Seven

Driving demand

Introduction

7.1   The previous chapter discussed the commercial viability of the NBN at length, and examined the interrelated issues of the drivers of demand and the possible economic, productivity and social benefits that will determine the level of commercial viability.

7.2   The committee was reminded by Professor Seneviratne, Director of National ICT Australia (NICTA) that 'the NBN is the enabler for the digital economy.'[1] The NBN is not in and of itself a useful technology. Rather, its usefulness, and commercial value depends entirely on the applications that it will support in the future. In this regard, Professor Joshua Gans submitted that:

> Broadband is much more than the wires and equipment. To use it you need internet services and applications. And it is here that the Government can fill market gaps and directly increase the value of broadband to consumers. By doing that, it can help make the case for public investment in the infrastructure and also reduce the level of investment required as consumers will be more willing to pay for their own service.[2]

7.3   This chapter focuses on the innovation and possibilities that will steer the NBN towards commercial viability and sets out some of the considerations that are relevant to the development of applications within the NBN policy arena.

7.4   It is not practical in this report to discuss all of the possible applications that may be enabled by the NBN, nor indeed is it even possible to contemplate all future innovative possibilities. Accordingly, the committee has restricted itself to a discussion of a select few applications to indicate the possibilities of the NBN in a range of areas, and illustrate the issues involved.

Applications determine demand

7.5   Mr Keller-Tuberg, Chair of the Regulation and Policy Committee of the Fibre to the Home Council Asia-Pacific, told the committee that:

> In order to understand and comprehend the value of an investment in advanced broadband infrastructure, regardless of whether it is fibre to the premise, wireless, DSL or fibre to the node, you really need to contemplate the applications that run over that infrastructure. Until applications are

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1   Professor Aruna Seneviratne, Director, ATP Laboratory, NICTA, *Committee Hansard*, Sydney, 5 August 2009, p. 18.

2   Professor Joshua Gans, *Submission 42*, p. 10.

implemented and delivered, there is no value in the investment. The value to society is entirely in the way the network is used.[3]

Chicken and egg scenario

7.6   As noted by Mr Keller-Tuberg, the commercial viability of the NBN will not be based on the physical fibre rolled out to people's homes, but on the value to consumers of the applications enabled by the fibre. Conversely, it will be the affordability of the network to a large percentage of Australian consumers that will in turn drive uptake and hence determine whether it is commercially viable for developers to create new applications.

7.7   There is a 'chicken and egg' scenario in this discussion: it can be argued that without the development of applications that will utilise high speed broadband, there is no need for high speed broadband infrastructure. On the other hand, it can be argued that unless consumers of those applications have affordable high speed broadband infrastructure available to them, they cannot use the applications. Consequently application developers have no market, so why spend resources to develop the applications?

7.8   On the affordability issue, Professor Gans agreed that Australia's existing broadband infrastructure – specifically its low speeds and high costs – 'ha[s] been responsible for a lack of broadband development and applications in Australia'.[4] In order to ensure that application development in Australia is not further hampered by the high costs and low speeds of broadband, which in turn have limited consumer uptake, both the affordability aspect for the consumer and the network capacity aspect will need to be addressed to encourage future application development.

7.9   As outlined in chapter five, Mr Henry Ergas and Mr Alex Robson undertook an assessment of the costs and benefits of the NBN. In terms of the development of applications, they too found that there is a relationship between the value the consumer will place on high speed broadband, based on the value of the services and applications they utilise, and their willingness to subscribe to those higher speeds:

> For any given set of applications, the valuation of speed will therefore be significantly concave, though the location of the valuation curve will shift over time, as 'bandwidth hungry' applications develop and as a greater number of consumers attain a utility level from access to broadband that induces them to obtain the service (i.e. that exceeds the service's start-up costs).[5]

7.10   The NBN proposal clearly addresses the speed issue (at least for 90 per cent of Australians); however, as discussed in the previous chapter, the committee remains

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3   Mr Stefan Keller-Tuberg, Chair, Regulation and Policy Committee, Fibre to the Home Council Asia Pacific, *Committee Hansard*, Canberra, 20 July 2009, p. 52.

4   Professor Joshua Gans, *Submission 42*, p. 1.

5   Henry Ergas and Alex Robson, *Submission 99*, p. 15.

concerned that the cost of retail services under the NBN may be prohibitive for many Australians. In developing its pricing model, including the regulation of prices by the ACCC, the government needs to ensure that the NBN is affordable to the majority of Australians so there is a potential market and supporting infrastructure that will encourage the development of applications.

7.11   Dr Rowan Gilmore, the CEO of the Australian Institute for Commercialisation (AIC), provided the committee with an example of a technology that failed to succeed because of a lack of applications:

> …ISDN is a good example of a technology that was grossly underutilised, and its take-up was substantially limited because there were no applications for it.[6]

7.12   Dr Gilmore cautioned against expending significant resources on infrastructure in order to support applications that do not yet exist:

> To have a legacy investment and then retrofit a legacy investment to an application that does not yet exist and spend billions of dollars to do that is, in my opinion, a risky investment.[7]

7.13   However, Dr Gilmore highlighted that the main purpose of their submission was not to question the overall NBN investment, but rather:

> Our submission was principally to point out the opportunity that the national broadband network presented for Australian [Research and Development] and for numerous small Australian suppliers to the telecommunications market and to express the concern that the opportunity not be squandered.[8]

7.14   Dr Gilmore later expressed concern that many of the applications touted by proponents of the NBN are already accessible using existing technology, yet have failed to drive demand for high-speed broadband.[9] He suggested that the main use of increased bandwidth was likely to be in entertainment, casting doubt on whether the government should invest such a significant amount of money into supporting high definition TV, video downloads and gaming.

7.15   The committee considers that, if well managed and appropriately regulated, a FTTP network may bring benefits to Australia. Discussion follows highlighting some key examples of applications already under development, including e-health, e-education, business applications, online government, and smart grids.

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6   Dr Rowan Gilmore, CEO, Australian Institute for Commercialisation, *Committee Hansard,* Canberra, 20 July 2009, p. 30.

7   Dr Gilmore, *Committee Hansard,* Canberra, 20 July 2009, p. 30.

8   Dr Gilmore, *Committee Hansard,* Canberra, 20 July 2009, p. 29.

9   Dr Gilmore, *Committee Hansard,* Canberra, 20 July 2009, p. 32.

e-Health

7.16   One of the key arguments cited in favour of FTTP is its necessity for the further development of e-health applications. The image of a doctor performing surgery remotely on a person in rural Australia is certainly a powerful argument in favour of the possibilities offered by high-speed broadband. However, as Professor Gans has argued, this is unlikely to be where the greatest benefits of high-speed broadband lie:

> Instead, it is the day-to-day medical needs of people that represent the greatest opportunity for improvement.[10]

7.17   To illustrate the potential benefits of e-health, Professor Gans walked through the scenario of a child with an earache:

> This requires bundling up your child, usually in the evening, and then a wait, perhaps up to an hour, for an unscheduled appointment. The GP will then examine your child's ear, proclaim an infection or not and prescribe pain killers or antibiotics…

> Suppose instead that you took a simple, already available $15 device that connected via USB to your computer and allowed you to take a high-resolution picture of your child's ear. You then emailed it to the GP, who would provide the diagnosis or, if there was an issue, call you in to the surgery…The savings in terms of time would be considerable for many households.[11]

7.18   At the Sydney pubic hearing, the National e-Health Transition Authority (NEHTA) spoke at length about the possible benefits that applications in e-health could provide, stating that:

> …the entire e-health agenda is underpinned by high quality, high-speed broadband networks.[12]

7.19   NEHTA also provided a submission noting that e-health applications will be used to: make patient health information easily accessible, allowing health professionals to make informed treatment decisions; enable patients to better manage their own health through access to information; and allow the Australian health care sector to function more effectively as an interconnected system, reducing duplication.[13] This would in turn provide potential savings in the health dollar.

7.20   The CSIRO also mentioned the use of high-speed broadband in improving health service delivery, citing applications is telemedicine, diagnostic services and health data management. The submission notes that;

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10   Professor Gans, *Submission 42*, p. 10.

11   Professor Gans, *Submission 42*, p. 10.

12   Dr Mukesh Haikerwal, NEHTA, *Committee Hansard* , Sydney, 5 August 2009, p. 28.

13   National e-Health Transition Authority, *Submission 54*.

> …the health sector represents almost 10% of the national economy, and eHealth activities have long held the promise of enhancing productivity in healthcare delivery. [14]

7.21   An example of e-health applications already in place was provided to the committee by witnesses from the Grampians Rural Health Alliance. As mentioned in chapter five, the Alliance was established to build a broadband network across the Grampians region. The network supports Voice over IP (VOIP) telephony and video conferencing applications to allow high quality clinical conferencing between medical professionals in the Grampians with those based in Ballarat and Melbourne hospitals and specialist centres.

7.22   The technology also includes a dialysis unit that can be monitored remotely, so that dialysis patients in rural Victoria do not have to travel three hours each way to have simple problems diagnosed. Other health services provided by over the fibre link include palliative care and speech pathology. [15]

7.23   The committee was also told about the potential benefits of applications for Australia's Deaf community. The Australian Federation of Deaf Societies (AFDS) submitted that the development of next generation Video Relay Services (VRS) 'would significantly support the *Social Inclusion* policy of the current government'.[16]

7.24   However, the committee cautions that the social benefits of applications such as VRS will not be available without appropriate government support. AFDS submitted that, currently, VRS is only available to 'the highest paying users of broadband internet', leaving 'much of the Deaf community without needed services'. [17] In the committee's view, the government needs to take positive action to ensure that necessary services such as VRS are accessible to all who need them, and that ongoing development of related applications is facilitated in Australia.

7.25   Professor Gans warned that high-speed broadband alone would not enable the development of e-health applications. He argued that the government will need to ensure that regulations enable the use of these applications, for example, by extending Medicare benefits to cover remote consultations and procedures, and ensuring medical liability insurance covered medical practitioners undertaking these procedures.[18]

7.26   Healthcare software developer iSoft also cautioned that the development and viability of e-health applications will depend on appropriate government regulation.

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14   CSIRO, *Submission 80,* p. 7.

15   Ms Sharon Tonkin, Employee, East Wimmera Health Service and Member, Grampians Rural Health Alliance, *Committee Hansard*, 7 October 2009, pp. 78-79

16   Australian Federation of Deaf Societies, *Submission 65,* p. [2].

17   Australian Federation of Deaf Societies, *Submission 65,* p. [2].

18   Professor Gans, *Submission 42*, p. 10.

For example, they noted that the benefits of an electronic health records management application cannot be realised without appropriate privacy regulations.[19]

7.27   The committee therefore urges the government to be cognisant of the fact that regulatory reform of other sectors, including the health sector, is necessary in order to ensure successful uptake of applications that the NBN will enable. Without these associated reforms, the development of applications such as e-health will be stifled.

> Broadband networks are of dubious value on their own. But the Government has a real opportunity to reform things under its control and to allow services to develop as complements to its proposed infrastructure investment.[20]

e-Education

7.28   One of the key potential benefits of a FTTH network is its potential to deliver high-quality and equitable education programs across Australia. The committee heard evidence that the rollout of high-speed broadband is critical to ensuring the quality and international competitiveness of Australia's education system.

7.29   The submission provided by Optus stated that:

> Australia has over 10,000 schools, but in 2008 less than half had direct optical fibre connection – limiting the speeds at which they could access the internet and particularly rich content.[21]

7.30   A government initiative has been announced to address this very issue: the Digital Education Revolution (DER), under which the government has allocated $100 million to facilitate the further development of affordable, fast broadband for school education. The DER is highly dependent on the deployment of the NBN, and in fact its progress has been delayed, as noted on the government website:

> Rollout of high speed broadband to schools under the DER has been delayed pending the outcome of the review of regulatory arrangements and the NBN implementation study (expected February 2010).[22]

7.31   This delay is of great concern to the committee, serving to further underscore the necessity for the government to expedite the Implementation Study to ensure that Australia's school students are not disadvantaged. The committee is also concerned that the 90/10 footprint of FTTP versus wireless and satellite services will result in

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19   iSoft Group Ltd, *Submission 91,* p. 8.

20   Professor Gans, *Submission 42*, p. 11.

21   Optus, *Submission 53*, p. 8.

22   Department of Education, Employment and Workplace Relations, 'High Speed Broadband to Schools Overview', at http://www.deewr.gov.au/Schooling/DigitalEducationRevolution/HighSpeedBroadband/Pages/HighSpeedBroadbandToSchoolsOverview.aspx (accessed 9 November 2009).

maintaining the disparity in the level of broadband accessibility between rural and urban school students.

7.32   Similar problems exist in accessing information and online learning in the tertiary education sector, particularly outside of metropolitan areas.[23] Compared to leading international universities, the committee heard that Australian students have access to far slower and more expensive broadband, with the consequence that the development of educational applications has been hindered in Australia.

7.33   The committee heard evidence of this from VERNet, a private, not-for-profit company operated by the nine Victorian universities and the CSIRO. VERNet explained that 'research and education has extremely high bandwidth requirements'.[24] This is because of factors such as these facilities requiring concurrent access to large datasets, real-time international collaboration and reaching remote instrumentation. The problem is particularly pronounced in rural campuses, which do not have access to backhaul.[25]

7.34   The committee secretariat saw first-hand evidence of a research facility that was hampered by a lack of broadband availability. Located within 45 km of Canberra, the Molonglo Observatory Synthesis Telescope (MOST) is operated by the School of Physics of the University of Sydney. Until recently, the lack of basic backhaul infrastructure severely limited the efficiency with which the staff could download, cleanse and process the massive amounts of data produced each night.

7.35   The provision of wireless broadband services by the small entrepreneurial company, YLess4U, has transformed the way in which the staff can now process data and share it internationally. The MOST telescope was recently awarded government funding to prototype technologies relevant to the next generation radio telescope, the Square Kilometre Array (SKA)[26]. The development of these prototype technologies will be more efficient and effective through the availability of wireless broadband. In addition, an upgrade in early 2010 'will enable the direct control of the MOST facility by international researchers.'[27] This is an example of the 'enabling' factor of high speed broadband.

7.36   VERNet contends that the provision of high speed broadband is essential for research and development institutions, noting that the government only mentions that

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23   Optus, *Submission 53*, pp. 8-9.

24   Ms Elizabeth Barnett, General Counsel, VERNet Pty Ltd, *Committee Hansard*, Melbourne, 7 October 2009, p. 11.

25   Ms Barnett, VERNet Pty Ltd, *Committee Hansard*, Melbourne, 7 October 2009, p. 12.

26   The SKA program is a collaboration between institutions in 19 countries that will see the completion by 2020 of the world's premier imaging and surveying telescope, which will be 50 times more sensitive and able to survey the sky 10,000 times faster than any imaging radio telescope. It will have an output data rate of 1TByte per minute. Information accessed 15 November 2009 at: http://www.skatelescope.org/PDF/brochure/SKABrochure_2008.pdf

27   Mr Anthony Goonan, YLess4U, *Committee Hansard*, Canberra, 1 October 2009, p. 49.

the network will connect 'schools'. VERNet believes that this needs to be extended to ensure research and tertiary institutions are included in the rollout due to their unique capacity requirements. Ms Barnett, from VERNet, told the committee that their network required 'scalable capacity' and that :

> …that is why we used dark fibre rather than managed services … [which] could not meet capacity and demand increases in a cost-effective way.[28]

7.37   Ms Barnett continued that VERNet because they had access to dark fibre that their networks were scalable and could be upgraded as required:

> …we have upgraded to 10 [Gbps] and … the technology we have chosen currently has product at the 10 [Gbps] and 40 [Gbps].[29]

7.38   In particular, deployment of the NBN fibre in more remote, less commercially viable regions will assist organisations like VERNet to connect education and research institutions in those more remote areas to their research network.

7.39   These issues serve to accentuate that, unless carefully implemented, the NBN proposal has the potential to worsen existing gaps in the resources available to metropolitan versus rural educational institutions. The committee cautions the government to ensure it does not inadvertently widen the 'digital divide' as the NBN is deployed.

7.40   Commenting on an issue closely related to the educational digital divide, the Fibre to the Home Council Asia Pacific submitted:

> There is a tangible threat that 'applications divides' (innovative applications being available to some communities but not others) might emerge if application providers cannot easily 'go national' with their innovative services. Applications divides could similarly emerge if innovative services are not nationally embraced by government and national applications providers, to assure critical mass.[30]

e-Business

7.41   The NBN has the potential to provide applications that lower the costs and improve the productivity of Australian businesses. As Optus submitted:

> The ability to access and share complex applications and databases and to work remotely will allow much lower costs and greater innovation for business.[31]

7.42   Many such applications are currently available, but may become more widely adopted in a faster speed broadband environment. A simple example is the

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28   Ms Barnett, VERNet Pty Ltd, *Committee Hansard*, Melbourne, 7 October 2009, p. 12.

29   Ms Barnett, VERNet Pty Ltd, *Committee Hansard*, Melbourne, 7 October 2009, p. 17.

30   Fibre to the Home Council Asia Pacific, *Submission 67*, p. 15.

31   Optus, *Submission 53*, p. 10

videoconferencing application. High-quality video-conferencing has the potential reduce travel and transport costs of businesses, as well as associated environmental impacts. The benefits of video-presence in the health services arena have already been discussed above and in chapter six.

7.43 Additionally, if the broadband prices and the regulatory environment are both favourable, the NBN has the potential to make Australian ICT businesses innovators in applications development and stimulate entrepreneurial activity. This potential has already been realised in the Ballarat region, as detailed in chapter six and also later in this section.

7.44 Again, the committee secretariat was able to see first hand several examples of businesses that have benefited from the provision of high speed broadband that have enabled the uptake of services and applications. One example was a teaching medical practice situated in Bungendore, about 45 km from Canberra, which has been provided with broadband by YLess4U. The company's Chief Executive Officer explained the setup to the committee at a subsequent Canberra hearing:

> We also equip the local medical teaching practice at Bungendore with two distinct high speed services – the first for the [benefit of the] medical practice and the second for the [benefit of the] out-posted medical undergraduates from the Australian National University who are undergoing rural field work as part of their undergraduate studies.[32]

7.45 The provision of wireless broadband to this medical practice has enabled the practitioner there to participate in peer-specialist group consultations via videoconferencing, saving valuable clinical time and reducing the travel the doctor would otherwise have to undertake. The medical students are able to access the university network and also participate in weekly meetings with peers and supervisors still in Canberra.

7.46 Another example was that of an organic farmer in the vicinity of Canberra. Organic farming is very labour-intensive and consequently requires a higher proportion of workers for each organic crop or herd raised. This gives rise to potential safety issues due to having a large number of staff dispersed across the property and no means of contact with them.

7.47 Once broadband was provided to the business property, each staff member was provided with a hand-held device. Constant contact can now be maintained with the farm base, while staff can also download detailed crop information from the mainframe and/or record changes to conditions in the field, all in situ.. This subsequently allows full compliance with the very strict standards regulating the organic farming industry. The farmer is also contemplating the development of labour-saving applications, such as automated gates for animal yarding. The provision

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32   Mr Anthony Goonan, YLess4U, *Committee Hansard*, Canberra, 1 October 2009, p. 49.

of broadband has enabled the development of applications that have resulted in greater diversification for the business owner than would otherwise have been possible.

e-Government

7.48   There are numerous benefits to making government services and information available electronically. The *Government Online* initiative commenced around 1999, with the Australian Government encouraging all government agencies to ensure as much of their information, and later their service delivery, was available online. Online government service delivery in an area such as social security can significantly improve the effectiveness and efficiency of service delivery and save time and travel for users of the service. Development of online services has gradually increased across all agencies and across the three levels of government over the past decade.

7.49   However, there are key issues that need to be addressed before government would be able to roll-out significant e-government applications. For example, the Australian Library and Information Association (ALIA) submitted that, anecdotally, a large portion of those accessing broadband services in libraries use those services to access and download government information and services, stating that:

> In some rural and regional communities the public library is the sole resource for access to government services and publications – e.g. the Centrelink fax machine is housed in the library at Hillston NSW. Government agencies are sending people to the local public library for government information …[33]

7.50   ALIA noted that many of those using free broadband in community libraries are economically disadvantaged, and likely cannot afford broadband. Furthermore, those people are also likely to have difficulty using computers and internet services because of their lack of access. Accordingly, librarians are frequently asked to assist people in using the internet to access government information and services.

7.51   If a greater portion of government services and information were only available online, then the resulting impact on local libraries would need to be considered, as would the capacity of disadvantaged groups to access the internet. ALIA suggests that training and support of the library customers is also necessary if e-government applications are to succeed. They recommended that:

> For sustainability, such training should be conducted by organisations such as libraries which are part of the long term community infrastructure rather than a short term project. [34]

7.52   The dependence on public libraries for basic government online services resurrects the previous suggestion by Professor Gans, detailed in chapter six, that the

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33   Australian Library and Information Association, *Submission 71,* p. 5.

34   Australian Library and Information Association, *Submission 71,* p. 7.

government should include in its proposal the free provision of basic internet connectivity for socially and other disadvantaged sectors of the community.[35]

7.53   Evidence taken form representatives of the City of Whittlesea also highlighted that the uptake of smart forms was not possible until high speed broadband was provided throughout the council. However once that occurred additional smart forms were developed, producing increases efficiencies and productivity for the council. The initiative is now being applied more broadly across all 80 council in Victoria.[36]

Smart grids

7.54   Smart grid applications have the potential to significantly improve the efficiency of the energy sector by enabling better monitoring and control of energy networks. The committee heard evidence from a strong proponent and advocate of smart grid technology, Mr Robin Eckermann:

> The introduction of smart grid technology holds the key to modernising the electricity industry and providing a framework for next-generation energy management. The benefits are economical as well as environmental.[37]

7.55   Smart grids involve the installation of 'a small module of technology at every distribution transformer…to monitor voltages, current flows and various other environmental parameters'.[38] This allows rapid, remote fault recognition and rectification by energy suppliers and also the ability of suppliers and users to monitor the flow and use of energy at any point in time. As explained in Mr Eckermann's submission:

> An in-home display that shows current usage, costs etc, can also be provided to give consumers information about the energy they are using, its costs and its carbon impact.[39]

7.56   Accordingly, consumers can adapt their energy usage to make use of non-peak times, and proactively minimise the use of high-energy intensity appliances. The management system also allows electricity suppliers and distributors to optimise the effectiveness of the energy grid. For example they can detect 'inefficiencies resulting from the way the network was constructed'.[40]

7.57   Mr Eckermann outlined for the committee why the NBN is critical to ensure the benefits of smart grid technology can be optimised:

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35   Professor Gans, *Committee Hansard*, Melbourne, 7 October 2009. pp 66-69.

36   See discussion Mr Wynter, City of Whittlesea, *Committee Hansard*, Melbourne, 7 October 2009, pp 92-93.

37   Mr Robin Eckermann, *Committee Hansard*, Canberra, 1 October 2009, p. 80.

38   Eckermann & Associates, *Submission 100*, p. 3.

39   Eckermann & Associates, *Submission 100*, p. 4.

40   Eckermann & Associates, *Submission 100*, p. 2.

> So right now the electricity industry sits on the threshold of a radical transformation … The enabler for this transformation is the infusion of information and communications technology throughout the grid, from generation right through to consumption; and it is the pervasive real-time, grid-wide communications that underpins the possibility of synergies between smart grids and the National Broadband Network.[41]

7.58   In addition, smart grid technology can improve the reliability of energy supply by accurately identifying any problem, pin-pointing the location of the fault, and identifying whether or not it has been corrected; this cannot be performed by existing technology.[42]

7.59   The Australian Information Industry Association submitted to the committee that an investment of $3.2 billion into smart grid technology over five years will:

- lower electricity use by 4%

- increase the NPV [net present value] of GDP by $7-16 billion over 10 years, and

- create 17,600 jobs.[43]

7.60   However, as with other applications, smart grid technology will only be capable of achieving these benefits if the government provides the right regulatory and pricing environment. For example, by requiring greenfields developments to implement smart grid technology, the government could promote the development of this application.

7.61   The committee acknowledges that there are complex issues involved in gaining productive collaboration between the telecommunications and the energy utilities sectors. There is consequently a need to ensure there is adequate consultation within each of the sectors involved, and that this consultation commences as early as possible to ensure optimal outcomes for government and consumers. This was emphasised by Mr Eckermann when he stated that;

> I think at the earliest opportunity that [the NBN Co] has the resources to do so, it should engage the utilities collectively and/or individually… There are a lot of complex issues …that really need a solid engagement at an engineering level.[44]

7.62   The committee also notes that the utilisation of smart grid technology is likely to establish costs to consumers in relation to the installation of in-home equipment, necessitating broad community consultation and awareness campaigns.

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41   Mr Eckermann, *Committee Hansard*, Canberra, 1 October 2009, p. 81.

42   Eckermann & Associates, *Submission 100*, p. 2.

43   Australian Information Industry Association, *Submission 57*, p. 6.

44   Mr Eckermann, *Committee Hansard*, Canberra, 1 October 2009, p. 93.

How government can support the development of applications

7.63   The committee heard a range of suggestions from people inside the telecommunications and applications development industries about the measures government can employ to ensure the development of appropriate and beneficial applications in Australia. Many of these are noted in the discussion above, such as the importance of appropriate regulation for e-health, and the funding of training programs for online government applications. This section expands on a number of associated key issues that will facilitate the effective development of broadband applications; these include leadership and collaboration, regulation, flexibility and consultation.

Leadership and collaboration: Ballarat ICT case study

7.64   The committee heard from members of the Board of Ballarat ICT Ltd about the state and local government initiatives in Ballarat to develop the Ballarat ICT Cluster. The development was assisted through a range of initiatives including networking opportunities, business opportunities, the fostering of research and development partnerships, and stakeholder negotiation. As a consequence, Ballarat has become a hub for the ICT sector.[45]

7.65   Ms Helen Thompson, a Board Member of Ballarat ICT Limited, explained that the role their organisation had played was a multi-faceted one, but a major function had been in facilitating the networking and collaboration to optimise opportunities:

> Ballarat ICT Ltd has an active role in facilitating everything from networking events to breakfasts on a regular basis every month…We have forums and roundtables but we also identify project areas each year. Last year we had two examples. One was the e-health capability study…[46]

7.66   There are a range of businesses involved in the Ballarat ICT Cluster:

> At one end of the scale, we have a very large multinational corporation and at the other end of the scale is the 100-plus SMEs [Small and Medium Enterprises] that work in the ICT sector. That is where the Ballarat ICT Cluster comes in, recognising the role of those groups of small firms, understanding where they are at and what might add value to them.[47]

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45   Ballarat ICT Cluster, 'Frequently Asked Questions', at http://www.ballaratict.com.au/bict_cluster/faqs.php, (accessed 6 November 2009).

46   Ms Helen Thompson, Board Member, Ballarat ICT Ltd, *Committee Hansard*, Melbourne, 7 October 2009, pp. 25-6.

47   Ms Thompson, Board Member, Ballarat ICT Ltd, *Committee Hansard*, Melbourne, 7 October 2009, p. 25.

7.67   Ballarat ICT Ltd told the committee that the keys to its success have been 'the collaboration between the City of Ballarat and state, local and federal government' and 'leadership, doing it ahead of everybody else'.[48]

7.68   In addition, the building of a high speed fibre link has been critical to the ongoing success and continued growth of Ballarat ICT Ltd. Mr Mal Vallance, Chairman of Ballarat ICT Ltd, said:

> If you look at the development of technology, there is a strong correlation between the infrastructure in place, including really good optical fibre into the park, and the developments that occurred. The reality is that to attract investment out of capital cities you have to provide the appropriate infrastructure.[49]

7.69   The committee urges the government to take heed of the Ballarat ICT Cluster case study, and ensure that not only the appropriate technology, but also strong leadership and close collaboration between the business sector and all three tiers of government, are all utilised to encourage innovation in the Australian ICT sector.

A supportive regulatory environment for applications

7.70   Throughout its inquiry, the committee heard much evidence about the exciting possibilities that the NBN will create in terms of applications. Conversely, the committee also heard evidence of ways in which the NBN might fail to achieve its optimal potential if not properly regulated, particularly in relation to maintaining a competitive environment.

7.71   For example, the Fibre to the Home Council Asia Pacific warned:

> If the NBN and its [regulatory] competition framework is optimised to propagate today's kind of Internet access services, it will surely underachieve its transformative potential. New applications may not emerge on an inappropriately conceived NBN either.[50]

7.72   The Productivity Commission submitted that it supports the government's proposal of building a FTTP network on the basis of the Commission's previous work, which demonstrated a strong link between productivity and investment in ICT (see discussion in chapter six).

7.73   However, the Commission cautioned that:

> An equally important message emerging from a variety of Commission work is that the scope for Australia to reap the benefits potentially on offer from the NBN and other ICT innovations…will depend critically on strong

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48   Ms Thompson, Board Member, Ballarat ICT Ltd, *Committee Hansard*, Melbourne, 7 October 2009, p. 28.

49   Mr Mal Vallance, Board Member, Ballarat ICT Ltd, *Committee Hansard*, Melbourne, 7 October 2009, p. 32

50   Fibre to the Home Council Asia Pacific, *Submission 67*, p. 14.

competition among users to drive the search for profitable applications, and on a supportive, flexible and responsive policy and regulatory environment.[51]

7.74   The Productivity Commission's submission also pointed out the importance of ensuring that the telecommunications industry is open and competitive for fostering innovation. The Commission highlighted:

[T]he Commission's Telecommunications Competition Regulation report found that open access networks, by encouraging downstream competition and innovation, have major advantages over those that restrict entry.[52]

7.75   Importantly, the Commission highlighted that the same is true of competition between network technologies:

…exclusive arrangements for providing content to particular network technologies (satellite, cable, mobile or copper based) were unlikely to deliver the most efficient outcomes.[53]

7.76   This point emphasises the committee's concerns with the government's Telecommunications Legislation Amendment (Competition and Consumer Safeguards) Bill 2009, which is discussed in chapter seven.

7.77   The Productivity Commission's submission also noted:

[P]olicies or regulations that unnecessarily inflate the costs of using new ICTs, or that limit competition among potential users, will reduce or at least delay uptake and the associated benefits.[54]

7.78   As discussed in chapter six, the committee stresses the importance of undertaking a cost-benefit analysis, noting that without it the government cannot formulate policy to assist in maximising the benefits of the network and minimising its costs. The importance of this was echoed by the Productivity Commission, which submitted that certain applications, although not commercially viable, should be supported by government to ensure that the social benefits of the applications are realised. An example of this, as noted above, is the technology and applications which assist Australia's Deaf community.

7.79   Similarly, the Fibre to the Home Council Asia Pacific submitted that:

We anticipate that Australia's applications marketplace will be vibrant and competitive. Indeed, achieving these characteristics will be sure signs of the success of its FTTP deployment. In order to ensure this outcome, it might be necessary that some initial price controls be imposed for basic services. It might also be necessary that government departments and enterprises

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51   Productivity Commission, *Submission 87*, p. 2.

52   Productivity Commission, *Submission 87*, p. 10.

53   Productivity Commission, *Submission 87*, pp 10-11.

54   Productivity Commission, *Submission 87*, p. 2.

(including but not limited to the public health and education systems) actively move to establish service delivery via the applications marketplace.[55]

7.80   The committee acknowledges that achieving the right regulatory balance will be challenging. It will be required to underpin competition, facilitate applications development that will drive uptake, create affordable access to high-speed broadband for all Australians, all within a commercially viable NBN Co.

7.81   That said, ongoing, meaningful and productive consultation with the appropriate mix of key stakeholder organisations will be required in order to ensure that the regulatory environment supports the development of applications.

7.82   The committee is concerned, however, that the government is not cognisant of the appropriate mix of key stakeholders for consultation purposes, having heard that a number of key stakeholders, including the Productivity Commission and the CSIRO, have not been directly consulted in the NBN process.[56]

Flexibility

7.83   Another key theme raised during the committee's examination of applications is the need for flexibility in a number of associated areas. For example, as outlined above, a flexible and dynamic approach to regulation will be required, particularly as new applications create new and unanticipated regulatory issues.

7.84   Southern Cross Equities Ltd raised some concerns about the inflexibility of the government's current NBN policy. Southern Cross Equities Ltd Inc submitted that:

> We believe the NBN is focused on a technology solution when it should be focused on outcomes (i.e. what services and applications will be demanded with higher speed broadband access).[57]

7.85   This raises the question of whether part of the government's $43 billion investment in the NBN should be focussed on encouraging the development of appropriate and socially beneficial applications. For example, the government could support further development of online initiatives, including smart forms, that facilitate online completion and submission, as described to the committee by the City of Whittlesea.[58]

7.86   There is also the argument that investment is needed in more that just the infrastructure and the applications, and that investment funding for human resources is

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55   Fibre to the Home Council Asia Pacific, *Submission 67*, p. 16.

56   Mr Bernard Wonder, Head of Office, Productivity Commission, *Committee Hansard*, Canberra, 1 October 2009, pp. 27-28.

57   Southern Cross Equities, *Submission 50*, p. 4.

58   Mr Wynter, City of Whittlesea, *Committee Hansard*, Melbourne, 7 October 2009, pp. 92-93.

essential to support uptake by the consumers. As described by representatives from the Grampians Rural Health Alliance:

> We invest in technology but we do not invest in the people. … without that ongoing investment in the people and working with the people to demonstrate the value of broadband and videoconferencing in fact it would not be anywhere near where we are at. … It is all very well to have a technology infrastructure rollout, but unless the people use it and have a reason to use it and value it, it sits unused.[59]

Conclusion

7.87   The benefits of the NBN will not derive from the optical fibre itself, but the uses to which it is put through applications and services. There are many varied and exciting possibilities in the applications that may be developed through, and enabled by, the NBN.

7.88   However, the committee concludes that these will only come to fruition and provide optimal benefits to all Australians if the right policies and consultation processes are in place. These policies will include: the parallel regulation of the ICT and other industry sectors to which individual applications relate; pricing to ensure the NBN remains affordable and hence accessible across all demographics; government investment in building the right collaborative and consultative environment in which ICT applications development can flourish; appropriate resources made available to illustrate the value of broadband applications to all Australians; as well as a flexible approach to both funding and regulation of the NBN to ensure that the best applications are developed using the most appropriate technology.

7.89   The committee strongly advocates that a greater focus be placed on fostering the development of applications that will drive demand and uptake of NBN services and consequently underpin the commercial viability of the network. The development of applications must occur in parallel with the development of the technology architecture.

7.90   More specifically, emphasis for development support must be placed on those applications that will facilitate economic development and/or productivity improvements, such as those detailed that can improve health, education and energy efficiency outcomes across Australia.

Recommendation 10

7.91   That the government provide greater opportunities for commercial viability of broadband networks by advocating the development of new applications that will facilitate economic development and improvements in health,   education   and   energy   efficiency   outcomes.

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59   Ms Gayle Boschert, Grampians Rural Health Alliance, *Committee Hansard*, Melbourne, 7 October 2009, p. 84.