The Senate

Select Committee on the National Broadband Network

Fourth Interim Report

May 2010

ISBN: 978-1-74229-296-0

This document was prepared by the Senate Select Committee on the National Broadband Network and was printed by the Senate Printing Unit, Department of the Senate, Parliament House, Canberra.

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Abbreviations

ABG	Australian Broadband Guarantee
ACCC	Australian Competition and Consumer Commission
Access Bill	Telecommunications Legislation Amendment (National Broadband Network Measures—Access Arrangements) Bill 2010
ACMA	Australian Communications and Media Authority
ADSL	Asymmetrical Digital Subscriber Line
ADSL2	Asymmetrical Digital Subscriber Line version 2
ADSL2+	Extended Bandwidth ADSL2
AIB	Aussie Infrastructure Bonds
BAF	Building Australia Fund
BCA	Business Council of Australia
CAN	Customer Access Network
CEG	Communications Expert Group
COAG	Council of Australian Governments
CSG	Customer Service Guarantee
DBCDE / The Department	Department of Broadband, Communications and the Digital Economy
DoFD	Department of Finance and Deregulation
DSL	Digital Subscriber Line
DSLAM	Digital Subscriber Line Access Multiplexer
EOI	Expression of Interest
ESA	Exchange Serving Area

FAN	Fibre Access Node
FSA	Fibre Serving Area
FTTH	Fibre-to-the-Home
FTTN	Fibre-to-the-Node
FTTP	Fibre-to-the-Premise
GPON	Gigabit Passive Optical Networks
HFC	Hybrid Fibre Coaxial
HSPA	High Speed Packet Access
ICT	Information and Communications Technology
ISDN	Integrated Services Digital Network or Isolated Subscriber Digital Network
IP	Internet Protocol
IPTV	Internet Protocol Television
ISP	Internet Service Provider
LTE	Long Term Evolution
LTIE	Long-term interests of end-users
MB	Megabyte – a million bytes; one byte is a unit of binary information comprising 8 bits.
Mbps	Megabit per second – a million bits per second
MHz	Megahertz
NBN	National Broadband Network
NBN Co	NBN Co Ltd
NBN Co Bill	National Broadband Network Companies Bill 2010
NGN	Next Generation Network
OAN	Open Access Network

OECD	Organisation for Economic Co-operation and Development
OPEL	Optus and Elders Communication
POI	Point of Interconnect
POP	Point of Presence
POTS	Plain Old Telephone Service
P2P	Point to Point or Peer to Peer
PSTN	Public Switched Telephone Network
RFP	Request for Proposal
RIM	Remote Integrated Multiplexer
RSP	Retail Service Provider
RTIRC	Regional Telecommunications Independent Review Committee
SA	South Australia
SMEs	Small and medium sized enterprises
STS	Standard Telephone Service
TIO	Telecommunications Industry Ombudsman
TPA	*Trade Practices Act 1974*
ULLS	Unconditioned/Unbundled Local Loop Service
USO	Universal Service Obligation
VDSL	Very High Speed Digital Subscriber Line
VIC	Victoria
VoIP	Voice over Internet Protocol
WA	Western Australia
WA CCI	Western Australian Chamber of Commerce and Industry
WiMAX	Worldwide Interoperability for Microwave Access

Glossary

Access Network

That part of a communications network which connects subscribers to their immediate service provider. It is contrasted with the core network.

Active Optical Network

A network in which the passive splitting point is replaced with an Optical Line Distribution unit which is a powered unit making it possible to have a higher bit rate on individual routes over longer distances than on a passive optical network.

Australian Broadband Guarantee

The Australian Broadband Guarantee is an initiative designed to help residential and small business premises access a metro-comparable broadband service regardless of where they are located. Under the Australian Broadband Guarantee, a metro-comparable broadband service is defined as any service that offers a minimum 512kbps download and 128kbps upload data speed, 3GB per month data usage at a total cost of $2500 GST inclusive over three years (including installation and connection fees). From 1 July 2010, these minimum standards are being increased to 1Mbps download, 256kbps upload and 6GB per month data usage. The program works by paying internet service providers that register with the program a subsidy to provide metro comparable broadband services to residential and small business premises where such services would not otherwise be available. The Government has allocated $250.8 million over four years to fund the Australian Broadband Guarantee.[1]

Backhaul

The backhaul portion of the network comprises the intermediate links between the core, or backbone, of the network and the small sub-networks at the 'edge' of the entire hierarchical network. In the context of the NBN, backhaul services are the data carriage services provided over high-speed, high-capacity fibre lines, which carry aggregated network traffic between a Point of Interconnect (PoI) and a centralised or 'core' part of the network, for example an Internet Service Provider's data centre

1 Department of Broadband, Communications and the Digital Economy, 'Australian Broadband Guarantee', www.dbcde.gov.au/broadband/australian_broadband_guarantee (accessed 11 May 2010); Senator the Hon. Stephen Conroy, 'Threshold service speeds to double under the Australian Broadband Guarantee', Media release, 10 May 2010, http://www.minister.dbcde.gov.au/media/media_releases/2010/043 (accessed 13 May 2010).

Bandwidth

The capacity for a given system to transfer data over a connection. It is measured as a bit rate expressed in bits/s or multiples of it (for example, kb/s Mb/s etc.).

Bit

In computing and telecommunications, a 'bit' is a basic unit of information storage and communication; it is derived from a contraction of the term '**b**inary dig**it**'.

BitTorrent

A peer-to-peer (P2P) file-sharing protocol designed to reduce the bandwidth required to transfer files. It does this by distributing file transfers across multiple systems, thereby lessening the average bandwidth used by each computer. For example, if a user begins downloading a movie file, the BitTorrent system will locate multiple computers with the same file and begin downloading the file from several computers at once. Since most ISPs offer much faster download speeds than upload speeds, downloading from multiple computers can significantly increase the file transfer rate.

Blackspot

An under-served premises, or area, which is unable to obtain a metro-comparable broadband service.

Byte

In computing and telecommunications, a byte is a unit of digital information; it is an ordered collection of bits, in which each bit denotes a binary value of 1 or 0. One byte is equal to 8 bits.

Coaxial Cable

An electrical cable consisting of an inner conductor surrounded by an insulating spacer, surrounded by an outer cylindrical conductor. It provides protection of signals from external electromagnetic interference and effectively guides signals from external electromagnetic interference and effectively guides signals.

Core Network

The central part of a telecommunications network that provides various services to customers who are connected by the access network.

Customer Service Guarantee (CSG)

A performance standard created by the Australian Communications and Media Authority (ACMA). This standard provides financial compensation, of a prescribed amount, to customers who are affected by delays in service connections and fault repairs. It also covers missed appointments. However, some exemptions apply.

Dark Fibre (also unlit fibre)

Unused fibres, available for use. The term was originally used when talking about the potential network capacity of telecommunication infrastructure, but now also refers to the increasingly common practice of leasing fibre optic cables from a network service provider.

Demarcation Point

The point at which the telephone company network ends and connects with the wiring at the customer premises. A demarcation point is also referred to as the demark, DMARC, MPOE, or minimum point of entry.

Digital Loop Carrier (Remote Integrated Multiplexer (RIM))

A system which uses digital transmission to extend the range of the local loop farther than would be possible using only twisted pair copper wires. A DLC digitizes and multiplexes the individual signals carried by the local loops onto a single data stream on the DLC segment.

Ethernet Aggregation

Refers to the aggregation of data traffic from a number of consumers for more efficient backhaul.

Firewall

A dedicated appliance or software running on another computer, which inspects network traffic passing through it, and denies or permits passage based on a set of rules.

Functional Separation

Imposing an obligation of “equivalence” on a vertically integrated network provider to ensure all retail service providers, including its own downstream business, are treated equally.

Gigabit per second (Gbps)

Equal to 1,000,000,000 bits

Gigabyte

A unit of information or computer storage meaning either exactly one billion bytes or approximately 1.07 billion bytes. The usage of the word 'gigabyte' is ambiguous: the value depends on the context. When referring to RAM sizes and file sizes, it traditionally has a binary definition of 10243 bytes. For other uses, it means exactly 10003 bytes. In order to address this confusion, currently the International Electro-technical Commission (IEC) promotes the use of the term "gibibyte" for the binary definition. It is commonly abbreviated GB or Gbyte (not to be confused with Gb, which is used for a gigabit).

GPON

An abbreviation of Gigabit Passive Optical Networks. GPON is where a single optical fibre is used to provide services to a group of premises, with its single fibre providing services for premises up to 30 km from its source. A passive splitter is situated close to the homes and 'splits' the fibre to service up to 64 premises. GPON is therefore a shared network, resulting in large cost reductions due to the decrease in splicing and jointing costs; it also produces a much lower carbon footprint compared to non-shared FTTP networks, and traditional FTTN and ADSL broadband networks.

Greenfield

A term used to describe a piece of undeveloped land, either currently used for agriculture or just left to nature.

Hybrid Fibre Coaxial

A telecommunications industry term for a broadband network which combines optical fibre and coaxial cable.

IPTV

A system where a digital television service is delivered using Internet Protocol over a network infrastructure, which may include delivery by a broadband connection. A general definition of IPTV is television content that, instead of being delivered through traditional broadcast and cable formats, is received by the viewer through the technologies used for computer networks.

Kilobyte

A unit of information or computer storage equal to either 1,024 bytes (210) or 1,000 bytes (103), depending on context. It is abbreviated in a number of ways: kB, KB, K and Kbyte.

Last-mile Infrastructure

The infrastructure used to provide the link from a customer's premises to the provider's nearest point of aggregation. For example, a provider offering a wireless broadband service to the customer would be providing Last-mile Infrastructure using wireless broadband technology.

Local Loop (also referred to as a subscriber line)

The physical link or circuit, that connects from the demarcation point of the customer premises to the edge of the carrier, or telecommunications service provider, network.

Megabit

A unit of information or computer storage abbreviated Mbit (or Mb). 1 megabit = 1,000,000 bits, which is equal to 125,000 bytes. In kilobytes this is either 125 kB (decimal meaning) or about 122 kB (122 KiB) (binary meaning). The megabit is most commonly used when referring to data transfer rates in network speeds, e.g. a 100 Mbps (megabit per second).

Megabyte

Is a unit of information or computer storage equal to either 106 (1,000,000) bytes or 220 (1,048,576) bytes, depending on context. In rare cases, it is used to mean 1000×1024 (1,024,000) bytes. It is commonly abbreviated as Mbyte or MB (compare Mb, for the megabit). The term megabyte was coined in 1970.

MiMo

In radio, it is the use of multiple antennas at both the transmitter and receiver to improve communication performance. It has attracted attention in wireless communications, since it offers significant increases in data throughput and link range without additional bandwidth or transmit power. It achieves this by higher spectral efficiency (more bits per second per hertz of bandwidth) and link reliability or diversity (resulting in reduced fading).

Multi-layered broadband infrastructure

A network comprising of wireless, optic-fibre, xDSL, and high-speed satellite service.

Next Generation Networking

A broad term to describe some key architectural evolutions in telecommunication core and access networks that will be deployed over the next 5-10 years. The general idea behind NGN is that one network transports all information and services (voice, data, and all sorts of media such as video) by encapsulating these into packets, like it is on the Internet. NGNs are commonly built around the Internet Protocol, and therefore the term "all-IP" is also sometimes used to describe the transformation towards NGN.

Open Access Network

A horizontally layered network architecture and business model that separates physical access to the network from service provisioning. The same OAN will be used by a number of different providers that share the investments and maintenance cost.

Optical Fibre

A glass or plastic fibre that carries light along its length. Widely used in communication because it transmits over longer distances and at higher data rates than other forms of communication.

Packet

A packet is a formatted block of data carried by a packet mode computer network. Computer communications links that do not support packets, such as traditional point-to-point telecommunications links, simply transmit data as a series of bytes, characters, or bits alone. When data is formatted into packets, the bit-rate of the communication medium can be shared better among users than if the network is circuit switched.

Pair Gain

A method of transmitting multiple POTS (Plain Old Telephone Service) signals over the twisted pairs traditionally used for a single traditional subscriber line in telephone systems. Pair gain has the effect of creating additional subscriber lines. This is typically used as an expedient way to solve subscriber line shortage problems by using existing wiring, instead of installing new wires from the central office to the customer premises. Pair gain has come into disfavour in recent years, as it is detrimental to high speed dial-up modem connections, does not support 56k and is incompatible with Digital Subscriber Line (DSL) systems.

Point of Presence

An Internet point of presence is an access point to the Internet. It is a physical location that houses servers, routers, ATM switches and digital/analogue call aggregators. It may be either part of the facilities of a telecommunications provider that the Internet service provider (ISP) rents or a location separate from the telecommunications provider.

Point to Point

Generally refers to a connection restricted to two endpoints, usually host computers. Point-to-point is sometimes referred to as P2P, or Pt2Pt, or variations of this. Among other things, P2P also refers to peer-to-peer file sharing networks. A traditional point-to-point data link is a communications medium with exactly two endpoints and no

data or packet formatting. The host computers at either end have to take full responsibility for formatting the data transmitted between them.

Remote Integrated Multiplexer (RIM)

Also known as a Digital Loop Carrier (DLC). A system which uses digital transmission to extend the range of the local loop farther than would be possible using only twisted pair copper wires. A DLC digitizes and multiplexes the individual signals carried by the local loops onto a single data stream on the DLC segment.

Satellite Broadband Service

A service solution delivered by a two-way satellite service, or other service determined by the Department to be satellite based.

Shaping

The practice of slowing data speed once the monthly data usage limit, as specified in a Service Plan, is reached.

Structural Separation

The creation of separate companies with ownership controls, which prevent retail service providers, including the incumbent's downstream businesses, from having effective control in the NBN infrastructure.

Terabyte

Commonly abbreviated TB is a measurement term for data storage capacity. The value of a terabyte based upon a decimal radix (base 10) is defined as one trillion (short scale) bytes, or 1000 gigabytes.

Terrestrial Broadband Service

A service solution delivered by ground-based networks, including ADSL, cable type services, wireless services, or any other service determined by the Department to be terrestrially based.

Twisted Pair

A form of wiring in which two conductors (two halves of a single circuit) are wound together for the purposes of cancelling out electromagnetic interference (EMI) from external sources; for instance, electromagnetic radiation from unshielded twisted pair (UTP) cables, and crosstalk between neighbouring pairs.

Unbundled Local Loop

The regulatory process of allowing multiple telecommunications operators use of connections from the telephone exchange's central office to customer premises.

Universal Service Obligation

The obligation placed on universal service providers to ensure that standard telephone services, payphones and prescribed carriage services are reasonably accessible to all people in Australia on an equitable basis, wherever they reside or carry on business. No carriage services have been prescribed to date. Telstra is currently the sole universal service provider, but additional universal service providers may be declared in the future. As the universal service provider, Telstra is obliged to have a policy statement and marketing plan approved by ACMA. The policy statement and marketing plan outline how Telstra intends to fulfil its obligations as universal service provider, including fulfilling its obligations to people with a disability, people with special needs and eligible priority customers.

Video on Demand

A system that allows users to select and watch/listen to video or audio content on demand.

Voice over Internet Protocol

A protocol optimized for the transmission of voice through the Internet or other packet-switched networks.

WiMax (Worldwide Interoperability for Microwave Access)

A wireless technology that provides high-speed broadband connections over long distances. It is not a mobile platform; it is specifically designed for optimum broadband performance. It is internationally recognised as a technology that delivers the highest quality wireless broadband.

Recommendations

Recommendation 1

2.14 That the Government abandon the National Broadband Network project.

2.15 That if, in the alternative, the Government insists on progressing the NBN, it be progressed in accordance with the recommendations contained in the remainder of this report.

Recommendation 2

2.75 That the Government require the Department of Finance and Deregulation (the DoFD) to calculate the net present value of the NBN, using the data and assumptions contained in the Implementation Study, and based on a calculation of the weighted average cost of capital in accordance with the usual principles applied by the DoFD in relation to public capital expenditure.

Recommendation 3

2.80 That the Government provide a comprehensive response to the Implementation Study as soon as possible.

2.81 That the response clearly articulate in detail:

- **a mandate for NBN Co and when, how and where that mandate will be formally recorded;**
- **the proposed funding arrangements for NBN Co, including a statement of all intended future equity contributions to NBN Co or NBN Co subsidiaries, the quantum and timing of each, and the arrangements the Government will make to formalise its funding agreement with NBN Co;**
- **a business plan for the NBN, where necessary developed in consultation with NBN Co, and including a cost-benefit analysis;**
- **the proposed timetable for the roll-out of the NBN to all Australian premises, including the type of services that will be available in particular, identified locations;**
- **the future of the Universal Service Obligation and how services will be guaranteed and funded for regional and remote Australian premises.**

Recommendation 4

3.33 That NBN Co consult with local councils at the earliest possible stage as to the most appropriate local roll-out plan and local planning requirements.

3.34 That each local roll-out plan seek to coordinate the roll-out of the NBN with other activities occurring in the local government area so as to best realise potential synergies, cost savings, and benefits to local residents and businesses.

3.35 That the Government favour underground cabling in the remainder of the 90 per cent Fibre to the Premises footprint, ensuring long-term, future proof benefits for the network, its investors and its consumers.

Recommendation 5

3.47 That the Government clarify whether NBN Co (and its subcontractors) will be exempt from development consent and landowner consent requirements in all States and Territories.

Recommendation 6

3.48 That Commonwealth, State and Territory environmental and planning legislation, and State and local government planning policies concerning development and landowner consent requirements, be reviewed to ensure that fibre and related infrastructure can be effectively and efficiently deployed both to the premises and within premises.

Recommendation 7

4.56 That the Government detail its understanding of the likelihood that there might be failure in the Layer 3 wholesale market, and what it understands would be the consequences of any such failure for service delivery and innovation potential.

Recommendation 8

4.75 That NBN Co formally engage consumer groups in its industry consultation processes. That such consultation be in addition to the involvement of consumer groups in NBN Co's information sessions.

Recommendation 9

4.98 That the Department immediately consider whether potential decisions on network architecture will create a risk that NBN Co and/or the Government will be liable to pay compensation to third parties, and the likely quantum of any compensation.

Recommendation 10

4.103 That NBN Co release a detailed implementation plan describing how and when services will be provided to specified regional and remote locations, and what the cost of connection will be for regional householders.

4.104 That the implementation plan prioritise the servicing of regional and remote locations so that the network is 'rolled-into' urban areas from regional and rural areas.

Recommendation 11

4.113 That priority assistance customers, like the elderly, hospitals, and emergency services, have access to a working landline telephone service in the event of a mains power failure to the premises.

4.114 That there be a mass-education campaign to alert end-users to the consequences of a non-copper telephony service in the event of a mains failure to their premises.

Recommendation 12

5.26 That the NBN Co Bill be amended so that NBN Co can only provide services at Layer 2 and below.

5.27 That, in the event that a competitive market for the supply of unbundled Layer 3 services does not develop, the Government consider arrangements for a Universal Service Obligation to address this failure, particularly in regional and remote areas.

Recommendation 13

5.37 That provisions of the NBN Co Bill relating to the future privatisation of NBN Co be amended to clarify what is meant by 'built and fully operational'.

Recommendation 14

5.38 That the NBN Co Bill be amended so that a declaration by the Communications Minister that the NBN should be treated as built and fully operational is a disallowable instrument. That is, that clause 22(8) of the NBN Co Bill stating that such a declaration is 'not a legislative instrument' be deleted.

Recommendation 15

5.39 That the NBN Co Bill be amended so as to expressly require NBN Co to meet minimum service obligations after the cessation of Commonwealth majority ownership. Those obligations must include that:

- **NBN Co retain its capacity to provide broadband services to 100 per cent of Australian premises;**
- **NBN Co retain its capacity to service 90 per cent of Australian premises with Fibre to the Home services with speeds of up to 100 Mbps;**
- **NBN Co retain its capacity to service the remaining 10 per cent of Australian premises with broadband connections of speeds of at least 12 Mbps;**
- **NBN Co develop and maintain its capacity to supply Layer 2 services to 100 per cent of Australian premises; and**
- **NBN Co maintain its open-access network, providing wholesale services on an equitable basis.**

Recommendation 16

5.40 That the Government consider ways to 'future-proof' NBN Co's services. This must include a specific requirement that NBN Co report to the ACCC every five years on developments in broadband services in other comparable advanced economies, and that if the report demonstrates that NBN Co's services are falling behind those available to a majority of end users in other comparable advanced economies, lay out a plan to close the gap.

Recommendation 17

5.41 That the NBN Co Bill be amended so as to explicitly require NBN Co to publicly disclose its service performance even after the cessation of majority Commonwealth ownership.

Recommendation 18

5.49 That the NBN Co Bill be amended to explicitly set out the basis on which minority equity owners can request access to any information provided by NBN Co to the Government.

Recommendation 19

5.55 That the Government establish a consumer advisory group dedicated to the NBN. That the NBN Co Bill be amended to require NBN Co to have regard to the advice of that consumer advisory group when performing its functions.

Recommendation 20

5.56 That the Government and NBN Co prepare a strategy to address how end-user complaints are to be handled, and review the sufficiency of current resourcing and processes of the Telecommunications Industry Ombudsman to handle the expected future workload.

Recommendation 21

6.20 That the Access Bill be amended so as to provide guidance on what is meant by 'efficiency' for the purpose of the equivalence provisions. The amendments should also ensure that volume considerations cannot be counted as matters which 'aid efficiency' for the purpose of obtaining an exemption to the non-discrimination obligations on NBN Co.

Recommendation 22

6.21 That the Access Bill be amended so that ACCC pre-approval is required of any agreement to which NBN Co is a party and under which an access seeker is granted access on discriminatory terms on the basis of the 'efficiency' exception.

Recommendation 23

6.30 That the Government make public its intentions as to the future of Telstra's USO in relation to telephony services.

Recommendation 24

6.31 That the Government make public its intentions as to whether and how there will be a future universal service obligation to provide broadband services, and the associated cost implications for the Australian people.

Recommendation 25

7.45 That the Government, in consultation with NBN Co, immediately undertake a skills audit for the NBN to ensure there is a fully skilled workforce ready to deploy the NBN in each region. The audit should detail:

(a) the training courses required;

(b) the training timeframes involved; and

(c) the training institutions available.

Recommendation 26

7.46 That the Government, in consultation with industry groups and NBN Co, develop national standards and national training modules and accreditation processes to ensure the NBN workforce is appropriately skilled.

7.47 That such modules and accreditation processes be tailored to suit the differing needs of workforce participants who will come to the NBN with varied levels of prior relevant experience.

Recommendation 27

8.26 That the Government and NBN Tasmania create a single public document, to be released as soon as possible, which sets out all remaining stages in the planned roll-out of the NBN in Tasmania, including the expected timetable for the roll-out, and the expected timing and quantum of any future Government-funded equity injections.

Recommendation 28

8.27 That NBN Co make widely available, for all prospective end-users across Australia, information on:

- **when NBN services will be offered in their region;**
- **how the NBN-based products will differ from their current services;**

- **what preparation of their premises they need to, or should do, prior to installation;**
- **what potential property disruption could be caused to their premises or surrounding areas during the deployment of the NBN or the internal installation of equipment within their premises; and**
- **how much the services will cost them to purchase from a retailer.**

Chapter One

Context of the inquiry

1.1 The Select Committee on the National Broadband Network (the committee) was established by the Senate on 25 June 2008.

1.2 The committee has published three interim reports. The third report was tabled on 26 November 2009. Recommendation 12 of that report recommended that the Senate agree to amend the committee's terms of reference, extending the committee's reporting date to 30 April 2010, and adding the following paragraph to its terms of reference:

> (2A) The Committee is to examine the findings of the National Broadband Network Implementation Study, the Government's response to the Implementation Study and any subsequent implications of that report for the National Broadband Network policy.[1]

1.3 On 26 November 2009, the Senate revised the committee's terms of reference as recommended.

1.4 On 17 March 2010, the Senate again revised the committee's terms of reference, extending the reporting date to 12 May 2010.

1.5 The Government publicly released the Implementation Study on 6 May 2010, less than one week before the committee was due to make its final report. In light of that timing, on 12 May 2010, the Senate agreed to extend the reporting date to 17 June 2010.

1.6 This report is the committee's Fourth Interim Report. It addresses progress on the NBN on the mainland and in Tasmania to date, including consideration of the exposure drafts of legislation establishing arrangements for the ownership, operations, access obligations and services of the NBN Co.

1.7 The committee will conduct further hearings on the Implementation Study in the coming weeks and will table its final report on 17 June 2010. Further details are provided at the end of chapter 2.

1.8 The full terms of reference, as amended, can be found at appendix 1.[2]

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1 Senate Select Committee on the National Broadband Network, *Third Report*, 26 November 2009 ('Third Report'), Recommendation 12, www.aph.gov.au/senate/committee/broadband_ctte/third_report/report.pdf.

2 A fuller overview of the historical context of the inquiry is contained in the *Third Report*, pp 1–4.

Conduct of the inquiry

1.9 On 9 March 2010 the committee decided to conduct further hearings into progress on the National Broadband Network, including consideration of exposure drafts of legislation establishing arrangements for the ownership, operations, access obligations and services of the NBN Co.

1.10 The exposure draft legislation and documentation was released by the Government on 24 February 2010.[3] It consisted of exposure drafts of a National Broadband Network Companies Bill 2010, a Telecommunications Legislation Amendment (National Broadband Network Measures—Access Arrangements) Bill 2010, and accompanying explanatory notes.

Conduct of further hearings

1.11 The committee advertised its decision to conduct further hearings, calling for submissions by 30 March 2010. The details of the committee's decision were placed on the committee's website and advertised in *The Australian*. The committee agreed to receive, process and publish as appropriate a number of late submissions.

1.12 The committee held two further public hearings in Melbourne and Canberra, and received an additional 24 written submissions. When added to the numbers of previous hearings conducted by the committee and written submissions, the committee has held a total of 17 public hearings and received a total of 127 written submissions. Details of all the hearings, including a list of witnesses who gave evidence, can be found at appendix 2. A list of the 127 submissions can be found at appendix 3. Appendix 4 contains additional material received by the committee during its further hearings, including details of answers received to questions taken on notice.

Hearings conducted in absence of Implementation Study

1.13 As noted above, the committee's terms of reference were explicitly revised so that the committee would examine the findings of the National Broadband Network Implementation Study, the Government's response to it, and any implications of that report for the National Broadband Network.

1.14 The Implementation Study is a critical document prepared for the Government by its Lead Advisor for the National Broadband Network. The Lead Advisor is a consortium of the management consultancy firm McKinsey & Company and the professional services firm KPMG 'McKinsey-KPMG'. The Lead Advisor was appointed following a Request for Expression of Interest process in which interested

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3 The Hon. Lindsay Tanner MP, Minister for Finance and Deregulation, Senator the Hon. Stephen Conroy, Minister for Broadband, Communications and the Senate, 'Draft Legislation Released for NBN Co Operations', Joint media release, 24 February 2010, www.minister.dbcde.gov.au/media/media_releases/2010/011, accessed 17 April 2010.

parties were invited to submit a tender to conduct a comprehensive and multi-disciplinary study ('the Implementation Study') which would:

> ...determine the operating arrangements, detailed network design, and ways to attract private sector investment and ways to provide procurement opportunities for local businesses.[4]

1.15 At the time of writing of the *Third Report*, the Implementation Study was expected to be completed by February 2010. The Government in fact received it on 5 March 2010.[5] Despite calls for the immediate release of the document, the Government refused to make it publicly available. It was not until 24 March 2010 that the Minister for Broadband, Communications and the Digital Economy (the minister) told journalists that the Government would make the Study public 'before the federal budget in May'.[6] It was not until 6 May 2010 that the Government finally released the Study to the public.[7]

1.16 One of the consequences of that release date was that, at the time of the committee's hearings on 14 and 15 April 2010, the Implementation Study had not been released by the Government. Unfortunately, this resulted in the committee not having the ability to consult widely as to the findings of the Implementation Study, the Government's response, or the implications of it. The committee deplores the wasted opportunity that has resulted from the Government's posturing and inexcusable delaying tactics. Chapter 2 of this report provides further analysis of the relevant matters.

Structure of this report

1.17 Chapter 2 of this report discusses the Implementation Study. It also describes how the Government's failure to publicly release the Implementation Study earlier – or even an interim report from the Lead Advisor – significantly compromised the transparency and accountability of government processes, the legitimacy of the NBN

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4 *Request for Expression of Interest for Provision of Lead Advisory Services relating to the Implementation Study for the National Broadband Network* (REOI), 24 April 2009, p. 7. See *Third Report*, pp 32–33, [3.15]–[3.18].

5 Mr Daryl Quinlivan, Deputy Secretary, Infrastructure, Department of Broadband, Communications and the Digital Economy, *Committee Hansard*, Canberra, 15 April 2010, p. 63.

6 James Chessell, 'Conroy to show his hand on national broadband network', *The Australian*, 25 March 2010, www.theaustralian.com.au/business/conroy-to-show-his-hand-on-national-broadband-network/story-e6frg8zx-1225844965288, accessed 28 April 2010. See also the Hon Stephen Conroy MP, Minister for Broadband, Communications and the Digital Economy, 'Address to CommsDay Summit 2010', Sydney, 20 April 2010, www.minister.dbcde.gov.au/media/speeches/2010/006, accessed 28 April 2010.

7 The Hon. Lindsay Tanner, Minister for Finance and Deregulation and Senator the Hon Stephen Conroy, Minister for Broadband, Communications and the Digital Economy, 'Landmark study confirms NBN vision is achievable and affordable', Joint media release, 6 May 2010, www.minister.dbcde.gov.au/media/media_releases/2010/040 (accessed 6 May 2010).

project, and caused significant costs to stakeholders as a result of the ensuing uncertainty and information vacuum.

1.18 Chapter 3 examines the progress of the NBN on the mainland, specifically the selection of five 'pilot' first release sites and the announcement of the Government's $250 million NBN Regional Backbone Blackspots program.

1.19 Chapter 4 examines NBN Co's decisions on product offering and network architecture.

1.20 Chapter 5 analyses the exposure draft of the National Broadband Network Companies Bill 2010, circulated by the Government on 24 February 2010.

1.21 Chapter 6 analyses the exposure draft of the Telecommunications Legislation Amendment (National Broadband Network Measures – Access Arrangements) Bill 2010, which was also circulated by the Government on 24 February 2010.

1.22 Chapter 7 outlines and assesses NBN Co's business progress. In particular, it focuses on the commercial viability of the company, the sufficiency of training, accreditation and certification processes for the future workforce deploying the NBN, and the lack of transparency in the appointment process for some senior positions in the company.

1.23 Chapter 8 discusses the progress of the roll-out of the NBN in Tasmania.

1.24 Chapter 9 addresses progress on the wireless and satellite fronts.

1.25 Chapter 10 briefly outlines developments concerning legislation relating to the NBN, specifically legislation designed to structurally separate Telstra, and legislation requiring the deployment of fibre to greenfields developments.

Acknowledgements

1.26 The committee would like to express its appreciation for the cooperation of all organisations and individuals who made their time available to assist the inquiry, whether by personal appearance at a public hearing or by providing the committee with a written submission.

1.27 The committee expressly acknowledges the dedicated and professional work of the officers of the secretariat who assisted with the conduct of the inquiry and the drafting of its reports.

1.28 Particularly, the committee acknowledges that the subject of the inquiry is complex, technical and involves a mix of law, governance and politics. The committee particularly thanks Secretariat Officers Mr Stephen Palethorpe and Ms Fiona Roughley who have, in difficult circumstances and in very constrained timetables, produced a report that is intelligent, relatively easy to read and is sensitive to the wishes of the majority of committee members while maintaining a balance and independence for which the Secretariat is rightly renowned.

1.29 The committee would also like to extend its thanks to staff of the Parliamentary Library, and other officers within the committee office who generously assisted the secretariat. Particular thanks are extended to Mr Hamish Hansford and Mrs Dianne Warhurst.

A note on references

1.30 References to the *Committee Hansard* are to the proof *Hansard*. Page numbers may vary between the proof and the official *Hansard*.

Chapter Two

The Implementation Study

Background to the Implementation Study

2.1 The background to the commissioning of the Lead Advisor (McKinsey-KPMG) to provide an Implementation Study to the Government was comprehensively detailed in the committee's *Third Report.*[1]

2.2 Also detailed in that report was the Government's failure to make publicly available the only interim report provided by the Lead Advisor. It was an interim report the Government received on 14 August 2009, a mere eight weeks after the Lead Advisor's appointment.[2]

2.3 The Government received the Implementation Study from the Lead Advisor on 5 March 2010.[3] Despite repeated calls in Parliament and from industry and other stakeholders, the Government repeatedly refused to publicly release the document until 6 May 2010.[4]

The Implementation Study does not justify the NBN progressing

2.4 The Implementation Study was conducted within very limited parameters. As the Implementation Study itself states,

> [e]xplicitly, it does not:
>
> - Evaluate Government's policy objectives;
> - Evaluate the decision to implement the NBN via the establishment of NBN Co;
> - Undertake a cost-benefit analysis of the macro-economic and social benefits that would result from the implementation of a superfast broadband network.[5]

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1 *Third Report*, November 2009, pp 32–34.

2 See *Third Report*, November 2009, p. 34, [3.24]–[3.26].

3 Mr Daryl Quinlivan, Deputy Secretary, Infrastructure, Department of Broadband, Communications and the Digital Economy, *Committee Hansard*, Canberra, 15 April 2010, p. 63

4 The Hon. Lindsay Tanner, Minister for Finance and Deregulation and Senator the Hon. Stephen Conroy, Minister for Broadband, Communications and the Digital Economy, 'Landmark study confirms NBN vision is achievable and affordable', Joint media release, 6 May 2010, www.minister.dbcde.gov.au/media/media_releases/2010/040 (accessed 6 May 2010).

5 McKinsey-KPMG, *Implementation Study for the National Broadband Network*, 5 March 2010, Executive Summary, p. i.

2.5 Because the Implementation Study does not evaluate the merit of the Government's policy objectives (because it was instructed not to), it provides no analysis whatever of whether the NBN is good policy for Australia. It simply does not address whether the NBN project should even proceed.

2.6 The Implementation Study also does not provide a cost-benefit analysis of the NBN. It does not consider, at any point, whether the project represents value for an enormous outlay of Australian taxpayers' money. The Implementation Study is premised on the assumption that the project will be implemented. At no point does it consider whether it should be.

2.7 At no point has there been a cost-benefit analysis of the macro-economic and social benefits that would result from the implementation of a super-fast broadband network in Australia. The Implementation Study explicitly does not undertake that analysis.[6]

2.8 In its *Third Report*, the committee stated:

> The committee is appalled that, at the time of reporting, almost eight months after the announcement of the commitment to a massive investment of $43 billion for the FTTP NBN, the government still refuses to comply with its own legislative requirements that the NBN must undergo a rigorous cost-benefit analysis.[7]

2.9 Almost six months later, nothing has changed. There remains no analysis about whether or not the social and economic policy implications arising from the NBN merit a multi-billion dollar investment. The Implementation Study is not a substitute for that analysis.

2.10 In the absence of a cost-benefit analysis proving to the contrary, the committee believes the NBN is not justifiable policy. Too much public money is at stake to be thrown away without transparent, accountable, independent assessment of the merit of starting, let alone progressing, the project.

2.11 All in all the committee does not accept that the Implementation Study, nor other evidence given to the committee, supports the NBN in its current form.

2.12 The committee believes that there are better ways to provide fast broadband of a capacity and speed required by most Australians at a cost considerably less than the $26–43 billion suggested by the Implementation Study. The committee believes that by working cooperatively with the industry, a better arrangement could be implemented providing affordable fast broadband at an earlier time than is proposed by the NBN in its current form.

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6 McKinsey-KPMG, *Implementation Study for the National Broadband Network,* 5 March 2010, Executive Summary, pp i–ii.

7 *Third Report,* November 2009, p. 66 [6.18].

2.13 Accordingly, the committee recommends that the Government abandon the National Broadband Network project.

Recommendation 1

2.14 That the Government abandon the National Broadband Network project.

2.15 That if, in the alternative, the Government insists on progressing the NBN, it be progressed in accordance with the recommendations contained in the remainder of this report.

Relevance of Implementation Study compromised

2.16 The stated purpose of the Implementation Study was to 'advise Government on how best to implement its stated policy objectives' of building the NBN.[8] As described above, the underlying premise for the analysis in the Implementation Study was that the NBN project would progress, not the question of whether it should.

2.17 The committee believes that the Implementation Study should only have been commissioned after a thorough cost-benefit analysis of the NBN had been conducted.

2.18 If the results of a thorough cost-benefit analysis had actually justified the massive expenditure that the NBN will involve, then the committee believes that the Implementation Study would have been an important document to commission. However, it needed to be, and should have been, completed prior to the commencement of the roll-out of the network and key decisions on network architecture, product offering and the legislative framework for the NBN being made. That is, the Implementation Study should have been conducted as part of the policy analysis leading up to the 7 April 2009 announcement.

2.19 The committee feels that the Implementation Study is an exercise in retrofitting a justification for the Government's commitment rather than adequately explaining how the NBN can and/or should be implemented.

2.20 Because the Implementation Study was not handed to the Government before 5 March 2010, and then was not made public to industry and key stakeholders before 6 May 2010, any relevance and value of the Implementation Study was fundamentally compromised.

2.21 During the time in which the Implementation Study was not publicly available, NBN Co was making irreversible decisions on network architecture and product offering. To take just one example, NBN Co has already finalised its plans for the roll-out of the NBN in Tasmania which is due to commence providing retail services to Tasmanians within the next two months. Industry stakeholders, future retail customers and telecommunications analysts have had to operate in the dark. The

8 McKinsey-KPMG, *Implementation Study for the National Broadband Network*, 5 March 2010, Executive Summary, p. i.

time for public consultation on this document should have been prior to critical decisions having to be made. The 6 May 2010 release date was too late.

Failure to release the Implementation Study

2.22 As described above, the Government received the Implementation Study on 5 March 2010 but, even in the face of widespread and sustained criticism, refused to make the document public until 6 May 2010.

2.23 At the same time as it was refusing to make the Implementation Study public, the Government was unashamed in publicly acknowledging the central importance of the document to discussions on the NBN. The Hon. Stephen Conroy, Minister for Broadband, Communications and the Digital Economy, stated at a *Communications Day* Summit in Sydney on 20 April 2010:

> [The Implementation Study] is a detailed and comprehensive document.
>
> It includes advice among other things on the detailed operating arrangements, network design, financial analysis, the structure of the company and the legislative framework around how the NBN should operate.
>
> It is over 500 pages long and contains 84 recommendations.
>
> It is a significant and important document for the future of this sector.[9]

2.24 The committee has already stated that the Government's failure to release the Implementation Study was a deplorable demonstration of political posturing which failed every criterion of accountable, transparent, evidence-based government and policy.

2.25 It is not only the committee voicing such views. In an opinion piece in the leading industry publication, *Communications Day*, on 28 April 2010, the respected telecommunications expert Mr Kevin Morgan explained how the Government's conduct has put 'sanctions on open debate':

> NBN 1.0 [ie the original Request For Proposal process for bids to design and build a Fibre to the Node NBN] was marked by secrecy, a cone of silence excused by probity. That secrecy led to an inevitable policy failure as the government dodged critical issues such as the regulatory settings and possible compensation to Telstra. Now NBN 2.0 [ie the Fibre to the Premises proposal] is being framed in a similar cone of silence with decisions being made without public debate or scrutiny.
>
> The Senate Select Committee has sought to step into the void but its work has been hampered because key parties such as DBCDE, the ACCC and NBN Co have been unwilling or unable to give any real insights into how

9 Senator the Hon. Stephen Conroy, Minister for Broadband, Communications and the Digital Economy, 'Address to CommsDay Summit 2010', Sydney, 20 April 2010, www.minister.dbcde.gov.au/media/speeches/2010/006 (accessed 28 April 2010).

> decisions on the NBN have been made or what the real plans are for the future. The reticence of public servants to offer insights either formally or informally is understandable. Unauthorized disclosure of information could attract two years jail under the Crimes Act.
>
> Such sanctions on open debate and the sharing of information may well maintain the integrity of government decision making but they do not create the environment for rational policy formation. The NBN should not merely be open access – it should be planned and built in a wholly open environment where all parties have equal standing and access to information. Anything less threatens further policy failure leaving Australia with a network shaped by little more than political expediency and ambition.[10]

Process of decision making: duplication?

2.26 During the course of its inquiry, the committee learned that, despite the cost of the Implementation Study, the conclusions and recommendations made in it are not necessarily being followed.

2.27 It emerged in evidence given to the committee by NBN Co CEO, Mr Michael Quigley, that NBN Co is itself making the final decisions on its product offering and network architecture, and that when making those decisions, NBN Co uses the Implementation Study as a reference tool only. In addition to the Implementation Study, NBN Co has regard to the results of its own processes of public consultation, and any other material it thinks fit.[11]

2.28 In his oral evidence to the committee, Mr Quigley denied that this was a process of costly duplication:

> Mr Quigley—As you would expect, there is a complementarity between the issues that the implementation study was studying and what we are doing.
>
> Senator FISHER—Is complementarity in any respect the same as duplication?
>
> Mr Quigley—No. I would not use the word 'duplication'.
>
> Senator FISHER—So there is no overlap between the implementation study and the sorts of studies that NBN Co. has been undertaking itself at NBN Co.'s cost—for example, into the network architecture?
>
> …
>
> Mr Quigley—In some of these very complex issues, there is a lot to be gained—a tremendous amount to be gained—by having a very productive debate from two angles. As we know, this is a project in which—
>
> Senator FISHER—So that is not duplication?

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10 Mr Kevin Morgan, 'Time for more disclosure on NBN pricing', *Communications Day*, 28 April 2010, p. 6.

11 Mr Michael Quigley, NBN Co Ltd, *Committee Hansard*, Canberra, 15 April 2010, p. 56.

> Mr Quigley—It is not duplication.
>
> Senator FISHER—That is value-adding, is it?
>
> Mr Quigley—It is value-adding. If I were in private enterprise, spending on a project of this size, we would not hesitate to spend that sort of money upfront to make sure that the issues were investigated from every angle possible.[12]

Committee view

2.29 While the committee understands the need for 'productive debate' on complex issues such as network architecture, it remains concerned that the Implementation Study does not represent value for money. Given the government's delaying tactics, the committee believes the $25 million spent on commissioning the Implementation Study would have been better spent obtaining a thorough cost-benefit analysis of the NBN project itself.

Release of the Implementation Study

2.30 The Implementation Study was finally released on 6 May 2010. The timing of the release raised almost more questions than the Implementation Study answered.

2.31 The Government chose to release the Implementation Study at a time that would give parliamentarians and the industry little chance to absorb the document prior to the Budget three day Parliamentary Week and less than one week before this committee – set up by the Senate to specifically inquire into the NBN – was due to report. It is important to remember that the Senate previously agreed to extend the committee's reporting date so as to enable the committee to closely examine the Implementation Study and any Government response to it. Paragraph 2A of the committee's revised terms of reference instructs the committee to:

> …examine the findings of the National Broadband Network Implementation Study, the Government's response to the Implementation Study and any subsequent impact of that report for the national Broadband Network policy.[13]

2.32 The decision to release the Implementation Study so close to the committee's intended reporting date of 12 May 2010 compromised the committee's ability to address the Implementation Study in sufficient detail in this report.

2.33 It is quite clear that the timing of the release of the Implementation Study is politically motivated and the committee may well ask why it has taken so long to release this document. The only answer could be that the Government deliberately tried to curtail any in-depth analysis of both the document or any future Government

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12 Michael Quigley, NBN Co Ltd, *Committee Hansard*, Canberra, 15 April 2010, p. 56.

13 The paragraph was inserted following the tabling of the committee's *Third Report*, 26 November 2009.

response. That may well be because neither the Implementation Study nor Government announcements to date provide a concrete, detailed business plan outlining the specifics of how, when, and for how much the NBN will be (not 'might be') rolled out in every street in Australia.

Analysis of the Implementation Study

2.34 The Implementation Study is a 534 page analysis of what might be some of the challenges when implementing the NBN. The committee considers that there is no point in rehashing that analysis. In any event, given the timeframe, the committee has not had sufficient opportunity to analyse the document in detail or subject it to public consultation.

2.35 But even from a preliminary analysis of the document, it is evident that some of its most important conclusions, for example regarding the cost of the project and whether Telstra's involvement is necessary, are based on some fairly audacious assumptions and in some crucial areas lack sufficient detail in evidence or analysis to withstand much criticism.

2.36 Further, although the Implementation Study highlights a range of issues that will be important in implementing the NBN and the areas in which Government action or decisions by NBN Co will be needed, in many areas it fails to give the specific details of the actions needed. Simple questions like what the specific product offering will be in specified parts of Australia, how much it will cost end users, the extent of Government subsidies, the timetable of the NBN roll-out to different locations, and the feasibility of some of its suggestions and recommendations, are not answered.

2.37 After an initial overview of the Government's commentary on the Implementation Study, the rest of this chapter will highlight the key areas of the Implementation Study that are in need of closer examination and debate. Those areas and concerns cast significant doubt on the Government's claims that the Implementation Study proves the NBN is a viable project which can be built on time and to budget and without NBN Co reaching any agreement with Telstra for the use of Telstra's assets or, more crucially, for the seamless migration of Telstra's millions of fixed-line telephony and broadband customers onto the NBN.[14]

Government's media response to the Implementation Study

2.38 The Government released the Implementation Study with a media release, the first page of which was as follows:

> The Rudd Government today released the National Broadband Network (NBN) Implementation Study which confirms that high-speed broadband

14 The Hon. Lindsay Tanner, Minister for Finance and Deregulation and Senator the Hon. Stephen Conroy, Minister for Broadband, Communications and the Digital Economy, 'Landmark study confirms NBN vision is achievable and affordable', Joint media release, 6 May 2010, www.minister.dbcde.gov.au/media/media_releases/2010/040 (accessed 6 May 2010).

for all Australians is achievable, and can be built on a financially viable basis with affordable prices for consumers.

The comprehensive report was prepared by McKinsey & Company and KPMG, and has 84 recommendations for the Government about the NBN. These cover the technology, financing, ownership, policy framework, and market structure of this important infrastructure project.

Minister for Broadband, Communications and the Digital Economy, Stephen Conroy said:

'After months of detailed and rigorous analysis, the Implementation Study confirms that the Government's National Broadband Network is achievable, viable and will transform life and business in Australia.'

The Implementation Study also confirms that while infrastructure sharing and other commercial arrangements with existing telecommunications companies can benefit the project, the NBN will be financially viable even without the participation of Telstra.

Key findings and recommendations from the Implementation Study include:

- The NBN will deliver world class broadband infrastructure to all Australians;
- The $43 billion total capital cost of the NBN is a conservative estimate and there are opportunities to significantly reduce the build cost;
- The peak investment required by Government is estimated at $26 billion by the end of year 7, of which $18.3 billion will be required over the next four years;
- Government should retain full ownership of the NBN until the roll-out is complete to ensure that its policy objectives are met – including its competition objectives;
- The fibre component of the NBN should be extended from 90 to 93 per cent and cover the 1.3 million new premises expected to be built by 2017-18;
- Entry level wholesale prices on the fibre should be set at around $30-35 per month for basic broadband 20Mbps plus voice service, to drive affordable retail prices and better value for money for consumers compared to what is available today;
- Fibre to the premise is widely accepted as the optimal future proof technology with wireless broadband a complementary rather than a substitute technology;
- Next generation wireless and satellite services will deliver peak speeds of at least 12 Mbps (and much higher for many wireless users). Satellite services will deliver average data rates which are more than 20 times higher than most users of these technologies experience today and much higher than average DSL usage today;
- NBN Co can build a strong and financially viable business case with the Study estimating it will be earnings positive by year six and able to pay significant distributions on its equity following completion of the roll-out; and

- The Government can expect a return on its equity investment sufficient to fully cover its cost of funds.[15]

Costs of roll-out and the likelihood of take-up

2.39 The Implementation Study projects that the NBN can be rolled out with a peak Government investment of $26 billion and that the total cost of the NBN 'is affordable within Government's initial cost estimate of $43 billion'.[16] As a 'conservative' estimate of the total capital costs of building the NBN, the Implementation Study estimates that at the 'high end of plausible expenditure range', the NBN could be built for $42.8 billion.[17]

2.40 The committee is concerned that a number of the assumptions made in the Implementation Study to underpin the cost analysis may not be supported, in which case there could still be significant cost blow-outs and increases in the overall cost of the NBN. Two key assumptions are take-up rates and wholesale pricing.

2.41 Submitters and witnesses providing evidence to the committee did not have the benefit of the Implementation Study during the committee's consultation process and were therefore unable to comment on its analysis. However, a number of analysts have since provided commentary on the Implementation Study in the media. One of those analysts included the telecommunications expert, Mr Kevin Morgan, who had previously provided a written submission to the committee.[18] In an opinion piece in *Communications Day*, Mr Morgan was one of a number of analysts querying the validity of the key assumptions made in the Implementation Study regarding take-up rates:

> The NBN Implementation study appears to have been reversed engineered in to the government's original cost estimate – it's a post hoc rationalisation for spending $43 billion.
>
> …
>
> Under the revised 'business case', private equity through privatisation would not be introduced until at least 15 years into the project, by which time there might be some retained equity and government equity will have been replaced with government guaranteed debt to give a typical 50/50 debt equity ratio.

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15 The Hon. Lindsay Tanner, Minister for Finance and Deregulation and Senator the Hon. Stephen Conroy, Minister for Broadband, Communications and the Digital Economy, 'Landmark study confirms NBN vision is achievable and affordable', Joint media release, 6 May 2010, www.minister.dbcde.gov.au/media/media_releases/2010/040 (accessed 6 May 2010).

16 McKinsey-KPMG, *Implementation Study for the National Broadband Network*, 5 March 2010, Executive Summary, pp 8 and17.

17 McKinsey-KPMG, *Implementation Study for the National Broadband Network*, 5 March 2010, p. 346.

18 Mr Kevin Morgan, *Submission 122*.

> With privatisation, the government might get its remaining equity back and if the NBN enjoys, as the study foreshadows, overbuild protection, then private investors will enjoy a monopoly built on free taxpayers' funds.
>
> If the assumption the government will fork out S26 billion to earn negligible return is bizarre, then the assumption take-up rates will exceed 70% and could approach 90% is heroic.
>
> This compares to FTTH take up rates in the USA and Holland which have levelled off at 30%.
>
> Despite such realities, the study argues the attractions of fibre for RSPs will drive take up to effectively 100% of fixed line households. Bear in mind 20% of Australian households don't have a computer. Nevertheless, the study believes consumers will be won over by RSPs offering retail services built on an entry level 20Mbit wholesale offering.
>
> [The Implementation Study recommends that NBN Co charge an entry level $30-35 wholesale access price]. But this $30-35 wholesale access price could well more than double with retail mark-ups: so will consumers—especially those who just want the equivalent of a standard telephone service—be keen to migrate when they only pay $30 per month for access now?
>
> True, that a 20 Mbit wholesale product has far greater functionality. That's the key to winning over the RSPs who then will then migrate customers over to the NBN but given RSPs can already offer 8-20 Mbit ADSL 2 on near fully depreciated DSLAMs for an access fee of $15 over copper in metro areas will they rush to the NBN? They will be foregoing a $15 per month margin.
>
> In summary there is little to support the penetration rates suggested by the study—other than the implicit threat of overbuild protection. This means the study is effectively predicated on a de facto monopoly which raise significant competition policy concerns.[19]

2.42 Mr Grahame Lynch, founder of *Communications Day*, also provided a damning next-day analysis of the Implementation Study's assumptions about wholesale access charges and take-up rates, commenting that:

> …when interpreting the government spin about affordability and seven year break-even points and the like, it's worth remembering these forecasts are [far] from inevitable and derived from some contentious beliefs and assumptions.[20]

19 Mr Kevin Morgan, 'So what can you buy for $43b?', *Communications Day*, 7 May 2010, pp 6–7.

20 Mr Grahame Lynch, 'Implementation Study's bullish forecasts rest on heroic assumptions about price, uptake', *Communications Day*, 7 May 2010, p. 5.

2.43 Mr Lynch's analysis identified two forecasts that he believes 'are not so inevitable' but which seem to underpin the Implementation Study's overall positive projections. The first was an assumption about wholesale pricing:

> The study, rightly, identifies that retail service providers will not happily migrate from ULL and LSS based services to fibre unless there is an economic advantage for them in doing so. As a result, it makes great play on preserving current copper pricing for entry-level pricing, but it also makes the heroic assumption that overall retail "conditioning" costs for such elements as active equipment and backhaul will fall in the NBN environment. Indeed, it quantifies this so-called "indifference" premium between copper and fibre at around $12-24 per month. I'm not so sure.
>
> The study explicitly models a wholesale ARPU for NBN Co at $35-38 – a blend of such varying tariffs as a $25-30 "voice only" tariff, a $33-38 tariff for voice, "basic broadband" and IPTV, and, intriguingly, a $60 tariff for small business.
>
> $38 NBN ARPU: Given the NBN is explicitly designed as a replacement to the Telstra Wholesale 'network' business, I note that, today, Telstra Wholesale's average monthly ARPU for broadband services is $24.12, its monthly ARPU for voice services is just under $22—this includes the gamut from fully conditioned 'ready for resale' services through to $2.50 LSS and $16 ULL offerings. Of course, not all access providers are equal. One of the largest ones I know of is believed to spend as little as $8 per service to Telstra for network provision, largely because it is geared towards LSS-derived broadband services in its product mix. Wholesale prices for HSPA services are less competitive, but come in at between $12 and $40 or so depending on data usage.
>
> The study recommends all variety of incentives to induce RSPs to migrate across such as discount offers, free connections and the like, but of course these add to overall project cost and need to run the gamut of competition law. And most significantly it recommends that NBN Co should be able to discriminate on the basis of the type of end user such as a mobile base station, a school or a business. Should that eventuate that would certainly provide ATUG with a new crusade!
>
> At the end of the day, I'm not so sure that the NBN study's proposed 'entry-level' pricing is entry level enough, nor that the small business market will take enthusiastically to $60 wholesale buy prices for services that are today 'end-user' agnostic.[21]

2.44 The second 'shaky assumption' identified by Mr Lynch regarded take-up:

> The study undertakes a great deal of examination of various scenarios for rates of return and the like, but provides little clarity on how many activations it thinks the NBN will gain. One chart models what three scenarios – low demand at 70% take-up of "fixed broadband", 80% 'mid

21 Mr Grahame Lynch, 'Implementation Study's bullish forecasts rest on heroic assumptions about price, uptake', *Communications Day*, 7 May 2010, pp 4–5.

level' and 90% 'high demand' but it isn't clear if this applies to NBN or the entire fixed market. Another chart is more detailed, implying that by 2015, there will be just 31-35% takeup among the homes passed (about half), rising to 54-63% by its completion date and then 75-90% by 2035. 6-12% increases in takeup on an annual basis are projected in another section. But confusingly, another reference in the document provide a slightly contradictory tone - for example, a detailed explanation on the relative merits of fibre and wireless costs makes the startling observation that NBN takeup is expected to be lower in the wireless areas because of competition from DSL and 3G!

Elsewhere the report also assumes that NBN Co will be able to increase wholesale prices by between 0-2% a year throughout the project, a highly contentious assumption given that prices have generally been decreasing by greater amounts in recent times.

The study seems to believe that the advent of fibre will stimulate fixed network usage because of its greater functionalities, and also because it will clearly provide speed and competition advantages in markets with a lack of DSLAM deployment or with low speeds because of loop lengths and pairgain.

But some of its supporting arguments are dubious to say the least, for example it believes the NBN will gain take-up advantages over comparable projects overseas because of the "pride" Australians will feel in it. Hmmm.

PSTN DECLINES, THE UNCONNECTED: The bullish estimates of uptake also would seemed to be belied by a few other inconvenient truths: overall PSTN revenues are declining by over 7% a year and at an accelerating rate, even fixed Internet revenue is flat. Some 30% of internet connections are now wireless and increasing at a double digit annual rate, while at the other end, 28% of households don't have Internet access. Don't expect that latter figure to change too fast, some 22% of households don't have a computer either! Overall household expenditure on communications as a percentage of income has remained incredibly stable across decades and the wireless sector is becoming more and more adroit at staking its claim on it.

The report adopts another contradictory tone on the wireless front: it predicts that wireless broadband growth will slow down partly because providers will not be willing to invest in additional backhaul capacity. At the same time it says that backhaul capacity will become cheaper for fixed carriers and assist the decision to migrate to fibre, even though both would seem to face exactly the same growth issues! Similar leaps on logic are detected in the report's consideration of video - it rightly considers at some length the difficulty of monetising the NBN through video services as a result of the sunk cost advantages of incumbent broadcast networks, but then elsewhere drops a gratuitous reference to the advantage of fibre over wireless in providing next generation HDTV![22]

22 Mr Grahame Lynch, 'Implementation Study's bullish forecasts rest on heroic assumptions about price, uptake', *Communications Day*, 7 May 2010, pp 4–5.

2.45 Even in November, in its *Third Report*, the committee was voicing similar concerns about wireless take-up rates. In that report, the committee noted its considerable concern that take-up rates on fibre may not reach ubiquity given the increasing preference of Australian consumers for wireless solutions.

> The latest figures [on wireless uptake from the Australian Bureau of Statistics, June 2009] demonstrate a remarkable continuation of the increase in wireless broadband uptake, growing from 1.298 million in December 2008 to 1.961 million in June 2009 …The committee is concerned that the government's requirement for FTTP technology to underpin the NBN ignores this trend in wireless broadband uptake, impacting the ability of the network to meet future demand.[23]

2.46 The Implementation Study's answer to these concerns was:

> Rather than substituting for fixed-line broadband connections, as has been widely assumed, most mobile broadband connections are for users who also have a fixed-line connection at home. This suggests that mobile broadband is a complement rather than just a substitute for fixed broadband.
>
> Moreover, research in multiple markets consistently suggests that between 70 and 90 percent of mobile subscriptions are not substitutive. Less than a third of Australian broadband households today are mobile only, according to Telsyte research. That number is estimated at between 20 and 25 percent in the US, 24 percent in the UK, and 9 percent in France.
>
> This suggests that less than 200,000 of the nearly 664,000 mobile broadband accounts added in the six months to June 2009 were added by mobile-only users. The 470,000 remaining were complementary—purchased not by people replacing their fixed broadband accounts but supplementing them.[24]

2.47 The Implementation Study concluded from that analysis that:

> Mobile broadband growth does not directly substitute fixed-line services; they are complementary in many cases, and address different user bases.[25]

Committee view

2.48 The committee believes that no credible case has been made for the NBN in its current form and agrees with respected independent analysts that there are too many questions left unanswered and too many gaps in the case in favour of the NBN for the committee to support the NBN in its current form.

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23 *Third Report*, November 2009, p. 18 (footnotes omitted).

24 McKinsey-KPMG, *Implementation Study for the National Broadband Network*, 5 March 2010, p. 233.

25 McKinsey-KPMG, *Implementation Study for the National Broadband Network*, 5 March 2010, p. 233.

2.49 As already discussed above, the absence of any realistic cost-benefit analysis leads the committee to conclude that the current proposal is unlikely ever to be built and that there are no sound facts supporting the position that the NBN in its current form could ever operate other than as a highly subsidised Government-owned instrumentality relying on on-going taxpayer support for its very existence.

2.50 The committee believes that competition between parallel networks of Telstra, Optus, Vodafone and others will mean that the NBN will be unable to attract customers at prices suggested in the Implementation Study when currently, services for very fast Broadband are available (without NBN) and will continue to be available at prices considerably less than NBN Co's suggested wholesale price.

2.51 The committee is also worried that estimations of the take-up of FTTH of 70–90 per cent take-up of fixed-line broadband services, and 6–12 per cent increases in take-up on an annual basis, are unrealistic. Assumptions that the NBN Co will be able to increase wholesale prices between 0–2 per cent a year throughout the project are highly contentious given that prices have generally been decreasing by greater amounts in recent times.

2.52 The suggestion that the NBN will gain take-up advantages over comparable projects overseas because of 'pride' Australians will feel in the new network is just ludicrous and immature.

2.53 The suggestion that take-up rates will exceed 70 per cent and could approach 90 per cent is heroic compared with FFTH take-up rates in USA and the Netherlands which have levelled off at 30 per cent.

2.54 Similarly, suggestions in the Implementation Study that the $30–35 wholesale access price is irrelevant when one considers that it could double with retail mark-ups so that consumers who want an equivalent of a standard telephone service will be unlikely to migrate when they only pay $30 per month now for the access. Given that Retail Service Providers can already offer 8–20 Mb ADSL2 for an access fee of $15 over copper in metropolitan areas, it is difficult to see the majority of those customers rushing to NBN.

2.55 The committee agrees with the following analysis from Professor Henry Ergas:

> The assumptions, notably about take-up, have already received extensive comment. It hardly needs to be said that there are many uncertainties involved in projecting demand for fixed network high-speed service. Whether the Study has paid enough attention to the emergence of mobility as a dominant feature in consumer preference (as highlighted by the strong demand for the Kindle, the iPhone and even more so the iPad) is especially questionable. Its views about the long-term progress of data rates over wireless are at odds with other studies, and make its conclusions about the demand for NBN Co’s service seem unduly optimistic.

> Additionally, it is surprising, to say the least, that the Study projects very high levels of penetration for the NBN even in a scenario in which Telstra competes with the NBN using both its copper and HFC networks. While the Study claims that the economics of the copper network would force Telstra to progressively decommission copper, this part of its assessment shows a scant knowledge of the operating costs of the Australian copper network. It also seems to ignore the HFC network and the scope not only to upgrade it, but to extend its reach in areas where unit revenues are high and incremental expansion costs low. The likely effect would be not only a fall in NBN Co's market share but also in its unit revenues. If the Study did not take that possibility into account, it is seriously deficient; if it did, its failure to release the relevant results is unfortunate. [26]

2.56 The committee does not believe the analysis in the Implementation Study justifies the conclusion reached and remains concerned that the increasing trends towards wireless will continue unabated and will compromise the assumptions of take-up rates which underpin the Implementation Study's assessment of the commercial viability of the NBN. Wireless take-up rates and the increasing preference of consumers for mobile devices such as the iPhone and the Kindle all suggest a trend away from fixed-line infrastructure. The committee remains concerned that rapid advances in technology could overtake the completion of the build of the NBN which would make the NBN a financially and technologically risky undertaking. The Implementation Study does not appear to have adequately (or at all) addressed this issue.

Services to the final 10 per cent

2.57 To date there has been very little analysis and certainty about how the final ten percent of premises (those outside the original 90 per cent fibre footprint area) would be serviced under the NBN. More specifically there has been very scant detail about the quality and speeds of service to these premises, access prices for them, and likely arrangements for government subsidies to make the broadband services affordable to remote and regional Australians.

2.58 The Implementation Study outlines some details on these matters, but there remains little certainty about exactly what will be done, and what the prices will be, until the Government makes its response to the Study.

2.59 In the interim, however, one point is clear: those in the last ten percent will receive a significantly inferior service. The Implementation Study proposes that the NBN be built in a way which departs from the Government's stated objectives of providing broadband services of 12 Mbps to all Australians, with 90 per cent to receive services of up to 100 Mbps. The Implementation Study concludes that providing broadband speeds of 'at least' 12 Mpbs would be 'prohibitively' expensive

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26 Professor Henry Ergas, 'A critique of the NBN Implementation Study', *Communications Day*, 10 May 2010, p. 7.

and would take the cost of the NBN beyond the $43 billion target figure. The Implementation Study therefore redefines the target speeds for wireless and satellite in terms of 'peak' as opposed to 'committed' speeds, something which will see end users on the urban fringes or in regional and remote areas outside the fibre footprint with substantially inferior services to those end-users serviced by fibre:

> The Implementation Study believes that Government's objective of delivering at least 12 Mpbs should be defined in terms of peak data rates to be enabled in the final 10 percent due to the prohibitively high cost of delivering average data rates of 12 Mpbs.[27]

2.60 A further point to note is the extent to which the Implementation Study's proposals for servicing the final ten percent – to the extent it provides any concrete certainty on the matter – have a striking similarity with the coalition's previous OPEL project.[28] Mr Grahame Lynch provided a particularly insightful commentary on the matter in another opinion piece in *Communications Day*:

> The NBN Implementation Study, for the first time, provides some substantial detail on how the NBN might look for the final 10% – or perhaps 7% – who will not get access to a Layer 2 only FTTH network. And, somewhat bemusingly, it contains a recommendation for a direct return to the original Opel Networks idea. It remains to be seen if minister Conroy will be happy with that one!
>
> The study seems to have taken the original $43b cost projection and worked backwards: basically asking how much extra fibre you can get for your bucks under that scenario. The answer: an extra 3% over the original 90% based on the quite interesting finding that is cheaper to activate fibre than wireless for the 3% of premises at that level of population density.
>
> For the next 4%, a terrestrial wireless network will be the go and according to the study's writers, the best solution there is not to have NBN Co build one but to tender out to private enterprise. Yes, this is a direct return to the former government's wireless tender policy that led to the aborted appointment of Optus-Elders JV Opel Networks to build a rural WiMAX network. NBN Co should only build this network
>
> as a last resort, suggests the study.
>
> The final 3% would gain access to two KA-band satellites, which would also be used to fill in black spots in the wireless footprint – serving about 350,000 households in total. For obvious lead time reasons, such a solution would not be available for some years, so the study also proposes that NBN

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27 McKinsey-KPMG, *Implementation Study for the National Broadband Network*, 5 March 2010, p. 275.

28 The committee's *Third Report* discussed the OPEL proposal in further detail, and also stated the committee's concern that, if it had been allowed to proceed, the OPEL solution would have almost been fully deployed back in November 2009 seeing 1.5 million premises in Australia receiving upgraded wireless solutions from those that they presently have: *Third Report*, November 2009, p. 26.

Co should aggregate existing satellite demand and bid for interim capacity from an existing supplier.

The study acknowledges that getting wireless and satellite tech to hit the 12Mbps mark creates a massive cost challenge. Even with an external antenna, a household would have to be located within 7km radius of a wireless base station to get the required speed. It also talks of a 12Mbps peak data rate, which seems somewhat of a comedown from the 12Mbps average which was implied in earlier announcements.

The idea behind tendering out to the private sector is the hope that one of Telstra, Optus or VHA will come to the party with their existing rural tower and backhaul networks and save the NBN some money. The successful tenderer would be able to offer both wholesale and retail services side-by-side, but perhaps with some top-ups or mandates to ensure universal service provision where retail competition is not present. The study provides a number of tips as to how such a tender should be designed, presumably with the controversy over Opel in mind.

$5.3B FOR THE LAST 10%: All up, the study estimates that its hybrid fibre/wireless/satellite solution for the last 10% will cost up to $5.3 billion, not including backhaul costs which add another few billion to the mix. This is not an insignificant investment and questions do need to be asked as to its efficacy. A KA-band satellite solution, for example, is estimated to cost $11,000 per premises, largely because of the need to deploy a second satellite for redundancy and the tremendous insurance premiums associated with satellite launches. And that wouldn't deliver an ample 12Mbps per user throughput, indeed the study suggests something like 300-400kbps is more likely.

Elsewhere in the study, KPMG and McKinsey suggest a solution for urban areas which could also draw on its rural wireless idea.

The study says that NBN Co should consider using the existing HFC networks – which cover around one-quarter of the proposed NBN footprint – to provide high-speed broadband services ahead of fibre deployment. It's an interesting idea, made all the more compelling by the fact that neither Telstra or Optus consider their HFC networks to be core infrastructure and also by the fact that technological developments in the HFC space would see those networks more than capable of providing NBN-style speeds well into the future. With some caveats, the study recommends that NBN Co be given the option to acquire an HFC network. Which begs a question - if it is good enough to get one of Telstra, Optus or VHA to tender for and provide a wireless service in the bush, why not so the same in the inner cities for HFC? It could certainly save quite a lot of wasted overbuild capital and take some of the tension out of the whole 'urban planning' challenge that the NBN will face.[29]

29 Mr Grahame Lynch, 'Implementation Study shines light on the remaining 10%...is Opel 2.0 on the way?', *Communications Day*, 7 May 2010, pp 5–6.

2.61 In the absence of further information, the committee questions whether the evidence provided by the Implementation Study on wireless and satellite solutions are well thought out. The wireless solution proposed by the Implementation Study sets the onus on the Government to undertake a request for tender process to determine a commercial provider to establish a wireless solution in the last ten per cent, and in the absence of there being any suitable tender, that NBN Co provide these services itself. The committee is concerned that years after the cancellation of the Coalition's OPEL proposal, regional and remote Australians are still years away from receiving adequate services – wireless or otherwise.

Roll-out timetable: prospect of delay and cost implications

Implementation Study recommends delaying roll-out

2.62 The committee was surprised to read, in the Implementation Study, a recommendation that the roll-out be slowed down in order to improve the NBN Co's returns over time 'if costs are higher or take-up lower' than expected.[30]

2.63 The committee believes any extension of the eight-year roll-out timetable is unjustifiable. The committee believes that, given the investment the Government is committing, such a detrimental impact on Australian taxpayers left to wait for broadband services would be deplorable.

Can NBN be rolled out in eight-years in practice?

2.64 The Implementation Study outlines a range of issues that will impact on the successful roll-out of the NBN and whether it is feasible to achieve under budget and within the projected eight-year timeframe. Some of the most significant identified are:

- The enormity of the task required in terms of number of premises needing to be visited per workday (estimated at 5000)[31] and the labour intensiveness of the roll-out;
- Regulatory matters such as infrastructure sharing and access arrangements; and
- Development and landowner consent requirements, in particular for multi-dwelling units which represent 1/3 of Australian premises.

2.65 The committee's concern is that there are potentially major problems in all of these areas that could have significant implications for whether the NBN will actually be built within the eight-year roll-out.

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30 McKinsey-KPMG, *Implementation Study for the National Broadband Network*, 5 March 2010, p. 361.

31 McKinsey-KPMG, *Implementation Study for the National Broadband Network*, 5 March 2010, Executive Summary, p. 9.

2.66 To take just a few, the Implementation Study notes that there may be substantial delay and increased cost caused by development and landowner consent requirements and disputes with local governments, but these do not appear to have been sufficiently taken into account in the modelling:

> …given the large range of local authorities within the fibre footprint, it would not be surprising if disputes arose in some areas. In the absence of voluntary agreement, NBN Co would need to rely upon the regime contained in Schedule 3 of the *Telecommunications Act 1997*.
>
> The cost implications of delay or prevention of network roll-out in various areas could be substantial.[32]

2.67 The committee believes such landowner and development consent obstacles are likely to arise, and indeed were raised by submitters during its public hearings in April 2010.[33] The Implementation Study does not detail how significant any cost or delay implications could be if and when such consent obstacles arise.

2.68 Further, the committee is concerned with the potential for significant obstacles relating to workforce numbers and training to impede the network's roll-out, also compromising the eight-year roll-out timetable. The Implementation Study identifies the enormity of the NBN roll-out task, stating:

> Recognising that the implementation task is enormous, a pragmatic approach is needed. Up to 250,000 kilometres of access network and backhaul fibre must be buried or strung overhead, along most roads across the country. Up to 5,000 customer visits per workday could be required over the 8-year roll-out.[34]

2.69 However, whilst acknowledging the nature of the task, there is only a limited, separate consideration in the Implementation Study of whether there is currently an adequate workforce, or sufficient training and safety standards, or what might be the implications for delay and cost blow-outs if these matters prove challenging. Again, the committee's concern is that these issues will substantially affect the feasibility of the roll-out. The committee discusses the matter in further detail in chapter 7 below.

2.70 Finally, in terms of the fraught area of access rights to bodies corporate, the Implementation Study notes that there may be significant difficulties in adequately servicing multi-dwelling units but does not provide any certainty for how the issue will be addressed in practice. Given approximately one third of Australians live in multi-dwelling units, the committee is particularly concerned with this impediment.

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32 McKinsey-KPMG, *Implementation Study for the National Broadband Network*, 5 March 2010, p. 362.

33 See chapter 3 below.

34 McKinsey-KPMG, *Implementation Study for the National Broadband Network*, 5 March 2010, Executive Summary, p. 9.

2.71 The authors of the Implementation Study did not have the benefit of any extensive trialling of fibre-optic roll-out across different geographic environments to be able to determine the likelihood of impediments to the roll-out eventuating. The committee is hopeful that, following the trials currently being conducted by NBN Co,[35] a detailed, roll-out plan addressing the issues will be developed. In the meantime, however, the committee remains deeply concerned that it is unlikely the NBN can be rolled out within the allotted eight-year timeframe. The committee is therefore deeply concerned about what might be the implications of a delayed roll-out to premises which will wait many more years for superfast broadband facilities to arrive.

Commercial viability

2.72 The committee has not sought to test the accuracy of calculations made in the Implementation Study or the economic validity of their premises. The committee firmly believes these must be properly analysed in the interests of transparency and accountability. In any case, they are critical to the accuracy of the Government's claims that the NBN provides value for money and a sufficient return on the Government's initial investment of at least $26 billion in building the network.

2.73 The committee notes the following analysis of Professor Henry Ergas which appeared in the media in the few days between the release of the Implementation Study and the presentation of this report:

> There are also a number of seeming errors in the analysis. For example, the Study uses the Modified Internal Rate of Return (MIRR) instead of the Internal Rate of Return (IRR). However, neither the MIRR nor the IRR is relevant to deciding whether to go ahead with a project; what is relevant is whether the project has a positive NPV.
>
> Moreover, that NPV needs to be assessed at different levels of the assumed cost of capital, as well as for different revenue and cost scenarios; the Study neither estimates the project NPV nor sets out the sensitivity tests around it. This in itself seriously reduces the value of the Study.
>
> Even more surprisingly, at a number of points in the Study, costs are discounted to the present at 9 per cent, which is higher than the bond rate which the Study (incorrectly) takes as the cost of finance (a point discussed below). The effect is to reduce the present value of costs. It can be perfectly correct to discount costs and benefits at different rates, but this is subject to two constraints: the differences must reflect differences in systematic risk; and the weighted sum of the rates should equal the discount rate for net income under the project. Neither of these conditions seems to be met in this case.
>
> The most serious problems with the Study lie in the conclusions that have been drawn from it. In particular, the Study does not show that the project is commercially viable; on the contrary, all it shows is that under the

35 See chapter 3.

assumptions the Study team made, the project's internal rate of return is slightly higher than the bond rate. This raises two obvious difficulties.

NOT COMMERCIAL: First, the bond rate is far below a commercial rate of return. As the Study acknowledges, a commercial rate of return would be several percentage points above the bond rate: the Study itself suggests a range for that required commercial return that goes to 12.4 per cent. The Study also acknowledges that the Competitive Neutrality provisions enshrined in the Competition Principles Agreement require that capital used in the project be costed at that commercial rate. And readers will not need to be reminded that the government repeatedly claimed that such a commercial rate would be earned by the project. Those claims are comprehensively refuted by the Study.

Second, the bond rate is not even the cost of finance to the public sector. Here the Study errs by ignoring the Department of Finance's own Handbook of Cost Benefit Appraisal which says that "the Government's borrowing rate does not reflect the true opportunity cost of the use of capital funds", a point also stressed by the Productivity Commission in its comprehensive study of the choice of discount rates for public sector investments. Rather, the cost of finance to a project must be grossed up to take account of the systematic risk of the project. (Additionally, and also ignored by the Study, where there are losses that will be financed by taxpayers, the net loss must be grossed up by marginal deadweight cost of taxation). This would yield a cost of public funds for the project close to or even above the private sector pre-tax WACC. Regardless of the precise level of that rate, it is clearly far above the Study's estimate of the project IRR. It is disappointing that the Study does not get this right, as it has a significant bearing on its conclusions and as the correct approach would be obvious to any practitioner in this field.

NO BENEFIT ANALYSIS: That the project fails to cover its capital costs, properly estimated, does not mean it is undesirable. That assessment would require a comparison of the project's properly estimated costs to the properly estimated benefits. The Study is not intended to undertake such a comparison and does not. However, what can be concluded from the Study is that if cost-coverage is the relevant criterion, the project fails, probably by some 10 to 15 billion dollars.

The government, in releasing the report, has suggested that its findings mean that the substantial funding the project requires will not be a drain on the Budget. Even were this claim correct, and for the reasons given above it should not be, it is obviously wrong to suggest that the funds used in this project do not detract from other uses of resources. This project will not be funded by manna from heaven; rather, it will be funded by the taxpayer, who will bear the very significant costs and risks involved. There is therefore no doubt that discontinuing the project would yield large savings that could be used for other purposes; obviously, there is the question of whether those savings would be justified. This question the government

could only have answered if a proper cost-benefit appraisal had been undertaken.[36]

2.74 At a minimum, the passage quoted above rings alarm bells about the commercial viability of NBN Co and the desirability of the NBN project as a whole. The committee believes these issues must be subject to further analysis and public consultation.

Recommendation 2

2.75 That the Government require the Department of Finance and Deregulation (the DoFD) to calculate the net present value of the NBN, using the data and assumptions contained in the Implementation Study, and based on a calculation of the weighted average cost of capital in accordance with the usual principles applied by the DoFD in relation to public capital expenditure.

Unresolved matters of concern

2.76 In relation to a number of highly significant aspects of the NBN, the Implementation Study outlines key issues but does not provide certainty as to how these challenges will be solved.

2.77 The committee is of the view that many of these issues will have a serious impact on the Government and NBN Co's ability to implement the NBN and that they do not support the Lead Advisor's overall recommendation that the NBN can be implemented within the eight-year time period and within the initial funding envelope.

2.78 Uncertainty surrounds such critical questions as:

(a) the future of the Universal Services Obligation under the new NBN;

(b) arrangements for infrastructure that is dependent on copper-based services such as traffic lights;

(c) exactly which premises are within, and which are outside, the NBN fibre footprint;

(d) the sufficiency of existing resources (including workforces) to cope with a roll-out of this size;

(e) the final specifications for installation and deployment of the network;

(f) product specifications such as average speeds (as opposed to theoretical peak or maximum speeds) that consumers will be able to obtain on each of the different technologies;

(g) arrangements for migration of customers, particularly for those consumers currently locked into phone, internet and pay TV plans and

36 Professor Henry Ergas, 'A critique of the NBN Implementation Study', *Communications Day*, 10 May 2010, pp 7–8.

what will be the financial consequences for them of a switch to the NBN;

(h) the specific content of safeguards that need to be built into the governing legislative framework for NBN Co to ensure that, subsequent to privatisation, all Australians continue to receive adequate broadband services;

(i) the long-term plans for pricing (both wholesale and retail) on the network; and

(j) the physical impact that the roll-out of the NBN will have on each premises.

2.79 In the absence of answers in the Implementation Study, there remain no concrete plans for how the NBN will be implemented. For that the public and stakeholders will have to wait for the Government's response which could be at best a couple of months away. More probably, the consumer will need to wait until NBN Co actually provides its product, price and service offerings down the streets in the coming years.

Recommendation 3

2.80 That the Government provide a comprehensive response to the Implementation Study as soon as possible.

2.81 That the response clearly articulate in detail:

- **a mandate for NBN Co and when, how and where that mandate will be formally recorded;**
- **the proposed funding arrangements for NBN Co, including a statement of all intended future equity contributions to NBN Co or NBN Co subsidiaries, the quantum and timing of each, and the arrangements the Government will make to formalise its funding agreement with NBN Co;**
- **a business plan for the NBN, where necessary developed in consultation with NBN Co, and including a cost-benefit analysis;**
- **the proposed timetable for the roll-out of the NBN to all Australian premises, including the type of services that will be available in particular, identified locations;**
- **the future of the Universal Service Obligation and how services will be guaranteed and funded for regional and remote Australian premises.**

Further work of the committee

Need for committee to consult on the Implementation Study

2.82 As already described, in the very short period between the release of the Implementation Study on 6 May 2010 and the presentation of this report on 18 May 2010, the committee has not been in a position to fully digest the contents of the Study, or stakeholder and public concerns about it. Given that the Government does not intend to provide a response until after its consultation process has been undertaken, the committee has, for obvious reasons, also not been in a position to examine, as expressly included in the committee's terms of reference, the Government's response to the Implementation Study.

2.83 However, the committee's preliminary assessment of the Implementation Study, and the reaction of expert analysts in the press, indicate that significant doubts remain about some of the critical assumptions underpinning the Implementation Study's most important and rash conclusions.

2.84 The committee believes that, given the results of its preliminary assessment of the Implementation Study and the amount of taxpayer money that is at stake for this enormous project, it is appropriate that the NBN project remain the subject of scrutiny and reporting requirements. The committee also notes that given the Government's conduct of the NBN to date, conduct which has seen it withhold critical information from key stakeholders and the public and continually time announcements for political gain as opposed to transparency and accountability, this is a Government project which must be held subject to continued scrutiny of a Senate committee.

Details of further hearings and submissions process

2.85 As outlined in chapter 1 of this report, on 12 May 2010, the Senate agreed to extend the final reporting date for the committee to 17 June 2010. The extension was granted to enable the committee to consider and report on the Implementation Study.

2.86 The committee invites submissions, the deadline for which is 27 May 2010.

2.87 The committee will also conduct public hearings on the Implementation Study.

2.88 Further information is available on the committee's website at: www.aph.gov.au/Senate/committee/broadband_ctte/index.htm.

Chapter Three

Progress on the Mainland

Introduction

3.1 Since the committee's *Third Report* there has been some progress in rolling out the NBN in mainland Australia. The key developments have been:

- the selection, in March this year, of five 'pilot' first release sites for the deployment of Fibre to the Premises (FTTP) on the mainland;
- the announcement, in December last year, of the Government's $250 million NBN Regional Backbone Blackspots Program; and
- NBN Co's consultations with industry on product design and network architecture.

3.2 While the committee welcomes these developments, it remains concerned about the lack of a publicly available business plan for the roll-out of the network across Australia. Progress on the NBN seems to be ad-hoc and dictated by a desire for conveniently timed ministerial press releases.

3.3 The committee is concerned that there is not a coherent, comprehensive, publicly available and accessible roll-out plan which indicates to future investors, stakeholders, and the public generally how, when and where the NBN will be rolled out across Australia, and what the product offering will be. It is the committee's view that such detail is necessary to enable businesses and consumers in Australia to make informed choices about their own future plans. It is also necessary to enable proper assessment of whether the Government's NBN policy is good policy, or whether it is better described as an extraordinary waste of a massive amount of taxpayer's money.

3.4 The committee also notes at the outset its disappointment that it did not receive as much assistance from NBN Co as it would have hoped. Although NBN Co provided very helpful and willing assistance to the committee at its hearing in Canberra on Thursday 15 April 2010, the committee only received answers to questions on notice the day before it was due to report, making it very difficult to incorporate those responses into this report.

Five mainland 'first release sites'

3.5 In a joint press conference with the minister on 2 March 2010, NBN Co's Chief Executive Officer, Mr Michael Quigley, announced the selection of five 'first release sites' for the roll-out of the NBN's fibre to the premises in mainland Australia.[1]

3.6 The sites selected were:

- a part of the suburb of Brunswick in Melbourne, Victoria;
- an area of Townsville covering parts of the suburbs of Aitkenvale and Mundingburra, Queensland;
- the coastal communities of Minnamurra and Kiama Downs south of Wollongong, New South Wales;
- an area of West Armidale, including the University of New England, New South Wales; and
- the rural town of Willunga, South Australia.

3.7 These sites were announced as having been selected:

> ...to test the impact on the roll-out of different terrain, housing type and density, demographics, climate, existing infrastructure and other local factors. The sites also allow NBN Co to trial the technology, and how NBN Co will interact with retail service providers.[2]

3.8 An accompanying press release indicated NBN Co's planned timeframe for making the first release sites operational. Following a design phase of 'several months' in which NBN Co plans to partner with companies to develop the local design specifics for the sites, actual construction work 'is expected to start early in the second half of the year'.[3] Three stages were foreshadowed:

> Stage one will see the deployment of the passive components of the network including the fibre optic cable.
>
> In stage two NBN Co will deploy some of the active network equipment in the Fibre Access Nodes. This is the equipment that allows NBN Co to "light up" the fibre in readiness for service delivery.

1 NBN Co Ltd, 'NBN Co announces "first release" sites for high-speed network', Press release, 2 March 2010.

2 NBN Co Ltd, 'NBN Co announces "first release" sites for high-speed network', Press release, 2 March 2010.

3 NBN Co Ltd, 'NBN Co announces "first release" sites for high-speed network', Press release, 2 March 2010.

> Stage three involves working with retail service providers to give them access to the network and, via the network, to end-users so RSPs can test their retail services.[4]

3.9 NBN Co indicated that it would consult with the community about its plans during the design phase, and that the first two construction stages were planned for completion by early 2011.[5]

Evidence from local councils

3.10 The committee was interested to hear about progress on the NBN from the respective local government associations responsible for these first release sites.

3.11 The Councils represented at the committee's public hearing were:

- Armidale Dumaresq Council (responsible for the area of West Armidale);
- Municipality of Kiama (responsible for the communities of Minnamurra and Kiama Downs);
- Townsville Council (responsible for the suburbs of Aitkenvale and Mundingburra); and
- the City of Onkaparinga (responsible for the town of Willunga).

Selection of the first release sites

3.12 All of the Councils indicated that they were surprised but pleased to hear of their selection as a trial site for the NBN roll-out. Mr David Lynch, Executive Manager, Economic Development and Strategic Projects for Townsville Council, expressed the sentiment in Townsville by saying:

> The area that has been picked by NBN Co is the area of Mundingburra and Aitkenvale, and about 3,100 households are being connected there. I understand the reason it was selected is that it is fundamentally a typical suburban area and that is one of the areas they wish to test.
>
> We have had some involvement with NBN Co in recent times. We made approaches to them early on in the piece to ascertain what could be done to encourage NBN Co. to consider Townsville and what we could do to prepare for that opportunity. There had been limited liaison back with regard to that, as I suspect things were all a bit loose with regard to NBN Co.
>
> We were reasonably surprised, but pleased, to hear the announcement that Mundingburra and Aitkenvale were part of the early developments with regard to the NBN Co. arrangements.[6]

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4 NBN Co Ltd, 'NBN Co announces "first release" sites for high-speed network', Press release, 2 March 2010.

5 NBN Co Ltd, 'NBN Co announces "first release" sites for high-speed network', Press release, 2 March 2010.

3.13 Mr Brian Hales, Group Manager for Economic Development in the City of Onkaparinga in South Australia, indicated the City was 'thrilled with the announcement that Willunga was one of the first cabs off the rank for NBN Co', particularly given the region's recent history of losing goods and manufacturing plants:

> The City of Onkaparinga has about 160,000 people. We have been very active in economic development for a number of reasons. It is part of the amalgamation that happened about 12 years ago. We lost the Mitsubishi engine plant. We lost the Mobil refinery and the like, which opens up a whole new realm of possibilities and has the whole region thinking about its future. The plan has been settled. We have got an economic development board and we have actually placed broadband infrastructure near the top of the list of urgent priorities. The reason is that we believe the trade in ideas and services will probably be more important for us in the future than the trade in goods given our relatively poor transport infrastructure. So we were thrilled with the announcement that Willunga was one of the first cabs off the rank for NBN Co.[7]

3.14 The committee was surprised at the lack of notice the Councils had of the selection of areas within their locality as first release sites for the NBN. All of the Council representatives indicated that the first their Council knew of their selection by the NBN Co was either from a telephone call from NBN Co on the day of the public announcement, or from press alerting them to the media release itself.

3.15 When questioned by the committee, Mr Quigley confirmed that NBN Co only attempted to contact the mayor or local government representative of each of the Councils 'just before [NBN Co] publicly announced' its decision.[8] Further answers to a related question on notice confirmed that contact was only attempted to be made with each council's Mayor on the day of the announcement.[9]

3.16 Mr Quigley indicated that the reason NBN Co did not consider it necessary to contact the Councils earlier was that the sites were chosen by NBN Co's engineers, in consultation with him personally, solely on the basis of engineering criteria as a means of testing the NBN architecture and product offering:

> It would be nice to go to councils and ask, ‘Where would you like us to go?’ but the whole exercise is aimed at proving out the architecture and the build method. So if in fact we had gone to each of the five councils and they had said, ‘We really want you to build in CBDs,’ we would have

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6 Mr David Lynch, Manager, Economic Development and Strategic Projects, Townsville City Council, *Committee Hansard*, Melbourne, 14 April 2010, p. 3.

7 Mr Brian Hales, Group Manager, Economic Development, City of Onkaparinga, *Committee Hansard*, Melbourne, 14 April 2010, p. 4.

8 Mr Michael Quigley, CEO, NBN Co Ltd, *Committee Hansard*, Canberra, 15 April 2010, p. 45.

9 NBN Co, answer to question on notice, 15 April 2010 (received 11 May 2010), p. 1.

> ended up building five sets of CBD infrastructure. That is not what we were trying to do.[10]

3.17 He was emphatic that whether the sites were located in marginal electorates had nothing to do with their selection:

> ...what I can tell you is that the question of marginal seats had no bearing at all on the choice. It was not even a factor that we even thought about.[11]

3.18 While the committee – and, it would appear, the affected Councils – understand that it suited NBN Co not to consult with the Councils as to the selection of the first release sites, the committee believes significant potential synergies, cost-savings, and benefits to local residents and businesses were lost in the process.

3.19 Mr Bryan Whittaker, Engineering Director for the Municipality of Kiama, indicated that, although supportive of assisting NBN Co test its product, there could have been greater benefit to the Municipality of Kiama if a different area within the municipality had been selected:

> At Kiama they have chosen a small residential area. Obviously we would have liked to see a roll-out closer to our city centre, but as we understand it the objective of the trial is to try to select some areas which provide different problems and the opportunity to look at different solutions for them. That is why we have some spots more in our rural areas that probably will not be improved by this trial. We understand the approach of NBN and are still delighted to be included in the trial.[12]

3.20 Similarly, additional benefits to Townsville were lost because the NBN Co test area is adjacent to, but not inclusive of, Townsville's 'knowledge precincts':

> There was no consultation in relation to [the area included in the first-release trial site]. I might add that our particular criteria with regard to where we might want things to occur would be substantially different to what NBN Co needs are at this point in time with regard to these particular pilots. Having said that, we have knowledge precincts with tertiary education facilities, tertiary hospitals and so on that would greatly benefit. I might add that they are in proximity to the area we are talking about, but it is not connected with this process.[13]

3.21 Equally, the City of Onkaparinga, although clearly delighted to have been picked for a first release site, indicated it could have realised additional benefits from the broadband test project if another area in the region had been chosen. In response to

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10 Mr Michael Quigley, CEO, NBN Co Ltd, *Committee Hansard*, Canberra, 15 April 2010, p. 46.

11 Mr Michael Quigley, CEO, NBN Co Ltd, *Committee Hansard*, Canberra, 15 April 2010, p. 54.

12 Mr Bryan Whittaker, Director, Engineering and Works and Assistant General Manager, Kiama Municipal Council, *Committee Hansard*, Melbourne, 14 April 2010, p. 11.

13 Mr David Lynch, Economic Development and Strategic Projects, Townsville City Council, *Committee Hansard*, Melbourne, 14 April 2010, p. 7.

a question as to whether the City would have chosen Willunga 'over and above all other areas' in its local council area, the City's representative, Mr Brian Hales, responded:

> No, probably McLaren Vale or an area where there is a much greater concentration of businesses—the wine region, food businesses—but Willunga is close enough. If Willunga becomes the first to point and it extends from there, it will be a matter of time.[14]

Ongoing consultation

3.22 The committee heard evidence of the significant steps that have been taken by NBN Co and the Councils themselves to co-ordinate their activities since the announcements. The committee was impressed at the evident effort that has been made by NBN Co's senior management to engage the local government authorities, and by the Councils themselves to maximise the benefits of the trial process for their local areas. Mr David Lynch of Townsville Council gave a fairly representative summary when he said that, since the announcement of the first release sites:

> ...a number of meetings have occurred within the council here with people right the way down from the CEO of NBN Co., Michael Quigley, and our own CEO and councillors through to people more on the technical side of things. We have subsequently established a number of points of contact as far as council is concerned—a working group within council, if you like. It is being coordinated by the economic development and strategic projects unit of council, but it involves our planners, our construction people—who also are the custodians of the road reserves and so on that they need to have access to—as well as some of our environmental and heritage people and our community services areas with regard to communications and so on.[15]

3.23 Similarly, Mr Brian Hales of the City of Onkaparinga described the impressive steps being taken by that City to capitalise on the potential of the NBN for the area:

> We are keen to make sure that we make the path as easy as possible for NBN Co. to roll-out the cabling. Also, we are pretty active at the moment in building demand for broadband services through programs that we have run through our Business Enterprise Centre, Exporters Club and the like. We have got 40,000 new residents coming in the next 15 to 20 years and we want to make sure that the developers and the Land Management Corporation, which is our state government landholder for urban development, are right on the ball with specifying the infrastructure, the pits

14 Mr Brian Hales, Group Manager, Economic Development, City of Onkaparinga, *Committee Hansard*, Melbourne, 14 April 2010, p. 10.

15 Mr David Lynch, Economic Development and Strategic Projects, Townsville City Council, *Committee Hansard*, Melbourne, 14 April 2010, p. 3.

> and the pipes that are required for NBN Co. to run out the fibre to the premises.[16]

3.24 At the same time, it is also clear that a number of matters remain unresolved.

Unresolved matters of concern

Availability of sufficient human resources

3.25 One particular concern raised by the Councils related to resourcing: the effect that servicing NBN Co's significant number of work teams will have on a Council's ability to continue to adequately service other utility and infrastructure organisations. As Mr David Steller, Director of Engineering and Works at Armidale Dumaresq Council put it:

> We regularly get asked to locate our infrastructure for other telecommunication companies as well as gas companies and Country Energy, who are the power authority up here. So that is something that we need to set up some protocols about so that we get enough notice to provide that information [to NBN Co]. The other issues are helping [NBN Co] with their design plans, and traffic management and traffic control is something that we want to make sure the subcontractors are well aware of, and we want to do sufficient planning in respect of undertaking the works.[17]

Infrastructure deployment

3.26 Various concerns relating to infrastructure deployment were voiced by the Councils.

3.27 For the municipality of Kiama, a critical issue is the lack of an agreement by NBN Co for the sharing of infrastructure with utilities providers:

> I guess one of council's concerns—and I understand the reason for this, but we believe it is somewhat unfortunate—is that there will be no sharing of infrastructure, or there has been no resolution about the sharing of infrastructure, with other service authorities, particularly for underground, so there will be new open trenching, road openings and so forth that will have to be performed by the trial.[18]

3.28 The contentious matter of whether fibre is deployed aerially or underground remains a matter of acute significance. The committee heard from Townsville Council

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16 Mr Brian Hales, Group Manager, Economic Development, City of Onkaparinga, *Committee Hansard*, Melbourne, 14 April 2010, p. 4.

17 Mr David Steller, Director, Engineering and Works, Armidale Dumaresq Council, *Committee Hansard*, Melbourne 14 April 2010, p. 2. See also, Mr Bryan Whittaker, Kiama Municipal Council, *Committee Hansard*, Melbourne, 14 April 2010, p. 2.

18 Mr Bryan Whittaker, Director, Engineering and Works and Assistant General Manager, Kiama Municipal Council, *Committee Hansard*, Melbourne, 14 April 2010, p. 3.

that NBN Co have 'made it pretty clear'[19] that its policy is to deploy fibre aerially where there is existing aerial infrastructure, regardless of whether aerial (as opposed to underground) deployment is in the long-term interests of the community. In Townsville much of the pre-existing telephone and power infrastructure is aerial. However, due to climatic conditions such as cyclones, the Council's strong preference is that fibre be deployed underground.[20]

3.29 The committee's *Third Report* contained significant analysis of the issue of underground versus aerial deployment. In that report the committee voiced its concern that 'the perceived short term benefits of aerial deployment will over-ride sound business practices'.[21] The committee went on to 'strongly caution...against expediency' and highlighted that 'aerial deployment of the NBN merely provides a quick-fix, bandaid solution that is not worthy of an infrastructure project of [the NBN's] magnitude'.[22]

3.30 Written submissions to the committee received since the publication of the committee's *Third Report* have again emphasised community concern and outrage over any aerial deployment of the NBN infrastructure. Repeating concerns they had stated to the committee previously, Dr Ross Kelso and Mr Peter Downey wrote:

> Since the serious problems arising from aerial construction of the National Broadband Network were first raised towards the latter part of 2009, NBN Tasmania and NBN Co have shown a wilful disregard of the adverse impact on broadband service reliability and visual amenity throughout Australia. Such an approach is totally incompatible with any pretence of constituting a nation-building investment.
>
> A truly nation-building alternative would be to underground all aerial utility construction, bundling the NBN along with undergrounded electricity distribution lines.[23]

3.31 Despite the evident community outrage over aerial cabling, as well as the strong justification for deploying the NBN using underground infrastructure from the outset, it appears that Townsville's experience is likely to be repeated throughout the country. NBN Co's General Manager of design and planning, Mr Peter Ferris, reportedly stated at an NBN Co industry information session in Sydney in late March that:

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19 Mr David Lynch, Economic Development and Strategic Projects, Townsville City Council, *Committee Hansard*, Melbourne, 14 April 2010, p. 6.

20 Mr David Lynch, Economic Development and Strategic Projects, Townsville City Council, *Committee Hansard*, Melbourne, 14 April 2010, p. 6.

21 *Third Report*, p. 51, [4.42].

22 *Third Report*, pp 51–52, [4.42]–[4.45].

23 Dr Ross Kelso and Mr Peter Downey, Chair, Sydney Cables Downunder, *Submission 124*, p. 1.

> ...if the power's underground, we're underground. If there is an aerial power distribution, we may have an aerial local fibre distribution. We will evaluate those on an individual, module-by-module basis.[24]

3.32 The committee repeats its position that the Government favour underground cabling in the remainder of the 90 per cent Fibre to the Premises footprint, ensuring long-term, future proof benefits for the network, its investors and its consumers.[25]

Recommendation 4

3.33 That NBN Co consult with local councils at the earliest possible stage as to the most appropriate local roll-out plan and local planning requirements.

3.34 That each local roll-out plan seek to coordinate the roll-out of the NBN with other activities occurring in the local government area so as to best realise potential synergies, cost savings, and benefits to local residents and businesses.

3.35 That the Government favour underground cabling in the remainder of the 90 per cent Fibre to the Premises footprint, ensuring long-term, future proof benefits for the network, its investors and its consumers.

Development and landowner consent requirements: potential hurdles?

3.36 Evidence to the committee indicated that there is significant confusion amongst the local councils as to whether, under current legislative and planning policy arrangements, NBN Co will require development consent from landowners to deploy its fibre network.

3.37 If NBN Co (or any alternate fibre installer) does require such consent, significant delays and disruptions could be caused to the timetable for, and success of, the network's roll-out. The committee is concerned that such matters have not yet been adequately addressed.

3.38 Clause 67 of the exposure draft legislation for the National Broadband Network Companies Bill 2010 explicitly provides that NBN Co is taken not to have been incorporated or established for a public purpose, or to be a public authority, or to be entitled to any immunity or privilege of the Commonwealth 'except so far as express provision is made by this Act or any other law or the Commonwealth, or by a law of a State or of a Territory'.[26]

3.39 During the committee's hearings, it emerged that the effect of the NBN Co not being a 'public authority' is that it may not be entitled to exemption from development consent requirements unless amendments to Commonwealth and/or State and

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24 Mr Petroc Wilton, 'NBN Co plans to use power companies' access infrastructure: no need for Telstra ducts?', *Communications Day*, 26 March 2010, p. 1.

25 *Third Report*, p. 52, [4.46].

26 National Broadband Network Companies Bill 2010, cl 67.

Territory legislation and/or State and local government planning policies are made. As Mr David Gow of Armidale Dumaresq Council explained:

> If they are a public authority, then the [New South Wales] state policy simply says that development for the purposes of telecommunications facilities, which includes [broadband fibre infrastructure], may be carried out by a public authority without consent on any land... They have pretty broad powers if they are a public authority.[27]

3.40 The committee believes immediate clarification is required as to whether NBN Co is, or will be, exempted from development consent requirements in all States and Territories, and the nature of that exemption.

3.41 Further, given that NBN Co's network only goes to the premises, but not inside the premises, consideration also needs to be given to whether retail service providers installing fibre inside the premises are or will also be entitled to a similar exemption.

3.42 A further issue is landowner consent requirements. Evidence given to the committee by the network service provider iiNet indicated that landowner consent requirements may present significant obstacles to the NBN becoming operational unless exemptions are given to retail service providers as well. It appears that in Tasmania at least, exemptions which enabled carriers to enter premises and cross property without permission of the landowner were subject to a sunset clause and have now ceased. As Mr Stephen Dalby of iiNet explained, iiNet is:

> …concerned that, if we have to provide a service to Mr and Mrs Smith living in a premises that they do not own, or they do not own the land that the premises are on, in addition to negotiating with Mr and Mrs Smith for appointment times to come and install the modem and connect up the service, we will also have to get permission off the landowner. I think that is a bit of a weak point in the current legislation as it stands. The power was there [in Tasmania] in the past and it appears that it is no longer there—it has expired.[28]

3.43 The committee did not receive evidence from any other witness as to whether similar concerns exist in other States or Territories, and whether NBN Co might be exempted from development consent under alternate legislative, regulatory or planning exemptions. Nor did the committee receive evidence from any of the State or Territory Governments indicating the extent to which State and Territory environmental planning laws may present a future obstacle for the roll-out of the NBN.

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27 Mr Stephen Gow, Director, Planning and Environmental Services, Armidale Dumaresq Council, *Committee Hansard*, Melbourne, 14 April 2010, p. 13.

28 Mr Stephen Dalby, Chief Regulatory Officer, iiNet Ltd, *Committee Hansard*, Melbourne, 14 April 2010, p. 25.

3.44 As discussed in chapter two, the Implementation Study also raises the possibility that consent requirements could cause significant disruption to the roll-out of the NBN across the nation. The Implementation Study states:

> Where possible, it is desirable that NBN Co carries out its network roll-out on a co-operative basis with state and local government. However, given the large range of local authorities within the fibre footprint, it would not be surprising if disputes arose in some areas. In the absence of voluntary agreement, NBN Co would need to rely upon the regime contained in Schedule 3 of the *Telecommunications Act 1997*.
>
> The cost implications of delay or prevention of network roll-out in various areas could be substantial. Enhancing the powers and immunities regime in Schedule 3 could be achieved without the delays and uncertainty implicit in the legislative process by amending of the Telecommunications (Low-impact Facilities) Determination 1997 (the Determination) to add additional Low Impact Facilities, being facilities that NBN Co could more easily roll-out without obtaining state and local government approval.
>
> …
>
> Recommendation 55. That Government, in consultation with NBN Co, expand the definition of Low Impact Facility in the Telecommunications (Low-impact Facilities) Determination 1997 to include facilities likely to be included in NBN Co's roll-out; that Government consult NBN Co to determine the appropriate items for inclusion in the revised definition.[29]

3.45 Schedule 3 of the *Telecommunications Act 1997* enables a carrier to, in certain circumstances, enter land in order to install or maintain a facility on that land. In the absence of having a facility-installation permit for each specific facility, and as long as notice is given to the relevant land-owners, a carrier can install and maintain facilities without requiring consent of land-owners if the facilities are 'low-impact facilities'.[30] By written instrument, the Minister may determine what is a low-impact facility.[31] The relevant instrument is the Telecommunications (Low-impact Facilities) Determination 1997.

3.46 The committee calls for immediate clarification from the Government as to what the position is across Australia, and what (if any) action it proposes to take to facilitate the roll-out. The committee also recommends that Commonwealth, State and Territory legislation and State and local government planning policies concerning development consent requirements and environmental planning laws be reviewed to ensure that fibre and related infrastructure can be effectively and efficiently deployed both to the premises, and within premises.

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29 McKinsey-KPMG, *Implementation Study for the National Broadband Network*, 5 March 2010, pp 362–363.

30 See *Telecommunications Act 1997*, Schedule 3, cl 1.

31 *Telecommunications Act 1997*, Schedule 3, cl 6(3).

Recommendation 5

3.47 That the Government clarify whether NBN Co (and its subcontractors) will be exempt from development consent and landowner consent requirements in all States and Territories.

Recommendation 6

3.48 That Commonwealth, State and Territory environmental and planning legislation, and State and local government planning policies concerning development and landowner consent requirements, be reviewed to ensure that fibre and related infrastructure can be effectively and efficiently deployed both to the premises and within premises.

Regional Backbone Blackspots Program

3.49 On 4 December 2009, the Government announced an 'NBN Regional Backbone Blackspots Program'.[32] Under this program, 6,000km of regional fibre broadband backbone links are to be constructed to six locations: Geraldton (WA), Darwin (NT), Emerald and Longreach (QLD), Broken Hill (NSW), Victor Harbor (SA) and South West Gippsland (VIC). A public consultation process preceded selection of the placement and reach of the backbone links.

3.50 Leighton Holdings-owned Nextgen Networks will build, operate and maintain the infrastructure for five years after its completion. Nextgen Networks secured the contract following a competitive tender process.

3.51 At the launch of the program, the minister described the program as constituting 'the first building blocks of the National Broadband Network on mainland Australia' and claimed the '$250 million investment will directly benefit more than 395,000 people in 100 regional locations and create new jobs across five states and the Northern Territory'.[33] It was reported that Nextgen Networks expects the project will create more than 1,000 full-time equivalent jobs.

3.52 Few submitters addressed these developments in the roll-out of the NBN. Nextgen Networks did not respond to the committee's invitation to appear.

3.53 The Northern Territory Government, however, described in detail how the provision of backhaul fibre capability to Darwin under this program is 'a significant

32 Senator the Hon. Stephen Conroy, Minister for Broadband, Communications and the Digital Economy, '6,000km regional broadband backbone for National Broadband Network', Press Release, 4 December 2009, www.minister.dbcde.gov.au/media/media_releases/2009/109, accessed 19 April 2010.

33 Senator the Hon. Stephen Conroy, Minister for Broadband, Communications and the Digital Economy, '6,000km regional broadband backbone for National Broadband Network', Press Release, 4 December 2009.

step forward in meeting [the Northern Territory Government's] communications goals for the future':[34]

- High speed broadband envisaged by the NBN (minimum 100 megabits per second) is not generally available anywhere in the Northern Territory except for a few fibre connected corporate sites in Darwin and Alice Springs.
- Pricing for basic consumer products relies on national pricing to ensure affordability. High backhaul costs currently limit innovation or the availability of more demanding broadband services typically sought by the business market.
- The current backhaul cost component encourages higher customer/backhaul ratios for competitive service provider offerings, thus limiting the service quality that is generally available in other Australian cities.
- Greater competition afforded by competitive fibre provided under NBN should reduce prices and increase competition. By way of comparison, the number of DSLAM (devices that enable multiple internet access points) installed by internet providers other than Telstra in the North Sydney exchange is 138, in Ryde, the figure is 153. The corresponding number for the whole of the Northern Territory is two.
- Equivalent wholesale access is essential to promote competition in the retail market place. This, when combined with national pricing for core services, will create a level playing field and promote keener pricing for business and private consumers.[35]

3.54 In a similar vein, Dr William Glasson AO, Chair of the Regional Telecommunications Independent Review (RTIRC), said that the RTIRC was:

> …extremely heartened by the Government's December 2009 $250 million investment in competitive regional backhaul. Enhancing backbone competition will encourage broadband and telephony providers to improve the range, quality and prices of the services they offer in regional areas.[36]

3.55 The provision of regional backhaul is consistent with a number of recommendations made by the RTIRC in Chapter 2.5, 'Backhaul', of its influential report, *Regional Telecommunications Independent Review Committee Report 2008: Framework for the future*.[37] For example, the Government's program is consistent with Recommendation 2.5.6 which recommended the Government 'develop suitable

34 Northern Territory Government, *Submission 123,* Attachment A, p. 1.

35 Northern Territory Government, *Submission 123,* Attachment A, p. 1.

36 Dr William Glasson AO, Chair, Regional Telecommunications Independent Review, *Submission 120,* p. 3.

37 Regional Telecommunications Independent Review Committee, *Regional Telecommunications Independent Review Committee Report 2008: Framework for the future,* September 2008, Chapter 2.5.

policies or programs to facilitate investment in new or enhanced open access backhaul infrastructure'. The committee did not receive information which illuminated the extent to which the Government's program is consistent with, or has addressed, other recommendations made by the RTIRC in relation to backhaul, specifically those concerning arrangements for third-party access to Nextgen Networks' regional backhaul infrastructure once it is constructed:

> *Recommendation 2.5.1:* The Australian Government should ensure effective open access arrangements to backhaul services, including to backhaul services rolled out as part of Government funding programs.
>
> *Recommendation 2*.5.2: In ensuring open access to backhaul services funded through Government programs, the Australian Government require the provision of undertakings on the terms and conditions for third party access to backhaul, rather than solely relying upon commercial negotiation and dispute resolution.[38]

Committee view

3.56 The committee welcomes the decision to improve communications infrastructure in regional and remote areas.

3.57 The provision of regional backhaul links is consistent with the committee's previous recommendation[39] (and that of the RTIRC)[40], that the NBN be 'rolled in' to urban areas from under-serviced regional and remote areas, as opposed to 'rolled out' from them.

3.58 However, as the Regional Backbone Blackspots Program is being managed by DBCDE and is separate from the broader NBN Co process, the committee is concerned that this represents only an isolated instance of a 'roll in' strategy and that the NBN itself may still be rolled out from urban and metropolitan centres first.

3.59 Until NBN Co releases a detailed business plan indicating where and when it plans to deploy the network, it is not possible to comment further, except to indicate that the failure to publicly disclose such information is not only preventing a fully-informed analysis of the policy merits of the Government's NBN proposal (and NBN Co's strategy) and the associated enormous expenditure of public moneys, but also inhibiting desirable coordination and planning between State, Territory, local Government, and community entities. Such coordination is necessary to better

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38 Regional Telecommunications Independent Review Committee, *Regional Telecommunications Independent Review Committee Report 2008: Framework for the future,* September 2008, p. 225.

39 *Third Report,* p. 17, Recommendation 1.

40 Dr William Glasson AO, Chair, Regional Telecommunications Independent Review, *Submission 120,* p. 4.

facilitate the availability of adequate communications technology in specific local communities.[41]

Mainland product design and architecture

3.60 Decisions on network architecture and NBN Co's product offering are matters which have largely been left to NBN Co to develop itself in consultation with industry. Given the significance of the matter, it is addressed separately in the following chapter of this report.

41 See also Recommendations 1.2.1–1.9.1 and 2.4.2–2.5.6 of the *Regional Telecommunications Independent Review Committee Report 2008: Framework for the future,* September 2008, pp XV–XVIII, which all recommend coordination to better enhance the delivery of communications infrastructure to regional and remote areas.

Chapter Four

Product offering and network architecture

Overview

4.1 The importance of decisions on the final design of the NBN is that these decisions will, by default, go a long way to determining matters of market structure and product offering, as well as the cost to taxpayers of establishing the network.

4.2 Decisions as to product offering and network architecture therefore affect the extent to which the NBN can and will:

- realise the Government's stated policy objectives;
- enable trans-sectoral uses (such as eHealth applications) and deliver trans-sectoral benefits;
- enable innovation; and
- be commercially viable.

4.3 An over-arching concern expressed by a number of submitters was that NBN Co's product offering and network architecture decisions have been, and continue to be, made in the absence of three critical pieces of information:

- a cost-benefit analysis of the NBN proposal – analysis which has not been undertaken at any stage of the NBN project by the Government, the Department, or commissioned consultants;[1]
- a publicly available, detailed business plan which comprehensively outlines and consolidates the policy framework for the operation of NBN Co, the role of NBN Co, and the extent to which it will operate as an alternative to Telstra's pre-existing ubiquitous copper network or as a replacement service that is mandatory for Australian premises; and
- a finalised and publicly available Implementation Study and a Government response to it. As discussed in detail in chapter 2, the Implementation Study was not released publicly until 6 May 2010, meaning that it was not available to industry and the public during all consultation and design phases of the NBN project before that date. The Implementation Study is now subject to a public consultation period with submissions due at the end of May 2010. Given that timeframe it is unlikely any Government response will be publicly

1 In its *Third Report*, the committee described in detail its concerns about, and the implications of, the absence of any cost benefit analysis having been undertaken: *Third Report*, November 2009, pp 64–66, [6.8]–[6.18]. See also the discussion in chapter 2, above.

released until at least late June 2010, over three months after the Government received the Implementation Study from the Lead Advisor.

4.4 The committee believes that the absence – publicly or at all – of this critical information has severely compromised the transparency, merit and adequacy of decisions that have been made on the design of the NBN.

4.5 Responsibility for determining the NBN's final network architecture and NBN Co's product offering has been left to NBN Co. NBN Co has now decided on its product offering but has made final decisions on only some aspects of the network's architecture. Submissions to the committee varied in the extent to which they supported the decisions made. The key issues raised are discussed below. Also discussed below are matters raised in submissions which relate to those aspects of network architecture – of which there are many – which remain undecided.

The absence of critical information

4.6 As described above, decisions on product offering and network architecture have been, and continue to be, made in the absence of three critical pieces of information:

- a cost-benefit analysis of the NBN proposal;
- a publicly available, detailed business plan which comprehensively outlines and consolidates the policy framework for the operation of NBN Co and the role of NBN Co; and
- the Implementation Study and the Government's response to it.

4.7 In its *Third Report*, the committee deplored the Government's failure to acquire a cost-benefit analysis for the NBN, a failure which is in contravention of the Government's own legislative requirements for infrastructure projects.[2] Almost six months later the position has not changed. At no point has the Government undertaken or commissioned a cost-benefit analysis.

4.8 Writing prior to the release of the Implementation Study, Mr Kevin Morgan, an independent telecommunications consultant, succinctly expressed the problems that now exist for network architects whom the Government has put in the impossible position of designing network architecture in the absence of a cost-benefit analysis:

> Given the lack of any underpinnings derived from a full cost benefit analysis the [Implementation Study] will have to mount an unimpeachable case that the untried model of a national wholesale network can be viable and that the government's unprecedented experiment can work. If it is to do that the [Implementation Study] will have to present findings that defy the orthodoxy in the international telecommunications industry which remains that the vertically integrated model of network operation and retail service

2 *Third Report*, November 2009, p. 66, [6.18].

> provision remains the most efficient structure for the industry, even in the age of fibre and Next Generation Networks (NGN's). The reality that the study has to overcome is that the government's structurally separated model ignores the weight of international evidence and ignores the reality that large scale fibre deployments, including FTTH upgrades, are being led by the vertically integrated operators in all leading markets including the USA, Japan, Korea and in Europe.[3]

4.9 The discussion in chapter 2, including the extended quotations of Mr Morgan's commentary on the Implementation Study, indicates that the Implementation Study has fallen far short of mounting such a case.

4.10 The Business Council of Australia explained in its submission the sterilising effect that uncertainty and a lack of publicly available information has on the investment decisions of commercial entities:

> Companies need a level of stability in the policy framework, and fewer surprises, in order to make the long-term investments needed to bring new and better telecommunications products to market. Uncertainty around the role of NBN Company, particularly given its public ownership, will raise investor uncertainty. Clearly, if policy settings have the effect, intended or otherwise, of companies deferring or withholding investments, it will take longer for new technologies to get to market and Australia's productivity will fall behind.[4]

4.11 Finally, the imperative of having a comprehensive document that clearly articulates the Government's policy objectives and the role of NBN Co was highlighted in comments made by the leading communications consultant, Mr Paul Budde of Paul Budde Communication Pty Ltd. After stating that it is 'crucial' that 'focus is kept on why we are building this infrastructure in the first place, and why we are spending taxpayer dollars on it',[5] Mr Budde explained that if the NBN's priorities remain unclear, the realisation of the full potential of the infrastructure may be compromised:

> In order to deliver e-health, smart grids and public safety it is essential that the NBN be nationally integrated – an infrastructure that is capable of supporting end-to-end trans-sector [Quality of Service]. If support for the end-to-end [Quality of Service] levels required by these sectors is not part of the basic NBN infrastructure then it will be very difficult for these sectors to use that network.
>
> What we have seen so far is a consumer-based NBN which will consist of 200 local loops and a variety of backhaul options. The question is: will such a network be of sufficient quality to be used for health records, MRIs, mission-critical energy and environmental information, etc?

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3 Mr Kevin Morgan, *Submission 122*, pp 1–2.

4 Business Council of Australia, *Submission 107*, p. 4.

5 Paul Budde Communication Pty Ltd, *Submission 105*, p. 1.

…

> We certainly need to ask the question: what gets priority here – competition policy subtleties or the national interest? I would like to stress that the issue is the creation of an infrastructure such that competition may be maximised at the services level.[6]

4.12 The committee asked Mr Michael Quigley, CEO of NBN Co about where the objectives of NBN Co are formalised. The following interchange took place:

> Senator FISHER—On the structure and governance of NBN Co., what sets out the objects? Where can I find the raison d'etre for NBN Co.?
>
> Mr Quigley—You can find it in the letter that was written to me as the original interim executive chair. There was in my appointment letters a set of objectives that the government has set.
>
> Senator FISHER—When will those be formalised and how will they be formalised?
>
> Mr Quigley—They are on government letterhead. I take them as quite formal.[7]

4.13 Subsequent further questions also raised other possible locations setting out the policy framework and objectives for NBN Co:

> Senator FISHER—Do you have a memorandum of association as do publicly listed companies?
>
> Mr Quigley—We have various formal documents—constitutional and the usual things. There is no reason why we cannot make those available.
>
> Senator FISHER—Is that publicly available?
>
> Mr Quigley—Yes.
>
> Senator FISHER—Presumably that would contain something about your objects.
>
> Mr Quigley—Yes, it may…Our annual report will probably have a lot of that. What we are trying to do is make it quite clear.[8]

4.14 At the same hearing, representatives of the Department continually emphasised that the details of the Government's objectives and business model will be found in the Implementation Study and the Government's response to it:

> CHAIR—Is it expected that the NBN Co. will follow the implementation study?
>
> Mr Quinlivan—The critical thing there will be the government's response to the implementation study, which will obviously follow its release. The

6 Paul Budde Communication Pty Ltd, *Submission 105*, p. 1.

7 Mr Michael Quigley, NBN Co Ltd, *Committee Hansard*, Canberra, 15 April 2010, p. 58.

8 Mr Michael Quigley, NBN Co Ltd, *Committee Hansard*, Canberra, 15 April 2010, p. 59.

> government's response will form the policy framework which will guide the project and NBN Co. into the future. That is a critical issue.
>
> CHAIR—Has there been any announcement as to when the government might respond, or do you have any expectation that you can share with us?
>
> Mr Quinlivan—No, Senator, not at this stage.[9]

4.15 The Implementation Study, when released subsequently on 6 May 2010, contained one version of what the mandate for NBN Co might be, but even the wording of the recommendations (for example 'Government *should* set NBN Co an objective…') implicitly acknowledged that the Government is yet to decide and formalise what NBN Co's mandate will actually be.[10] In a chapter entitled 'Establishing a mandate for NBN Co' the Implementation Study outlined the multiple facets that might form part of an NBN Co mandate and how NBN Co's fulfilment of each aspect might be measured.[11]

Committee view

4.16 The committee remains exasperated that critical information and documents have not been disclosed to the public for such a significant period of time, and that in the interim, decisions on network architecture have been made in what appears to be a largely ad hoc process.

4.17 The committee believes that a comprehensive policy framework and detailed business model must be provided by the Government and NBN Co to the Australian public. The committee does not consider that broadly-worded objectives expressed at a high-level in ministerial press releases, letter of appointment or littered throughout various documents related to NBN Co are an adequate substitute for such a document. Nor does the committee consider adequate ministerial or departmental reassurances that claim the detail and justification for the NBN project will be found in documents yet to be made public.

4.18 Although the committee was heartened to see discussion, in the Implementation Study, of some matters that relate to the establishment of a comprehensive policy framework and detailed business model for NBN Co, the committee remains of the belief that the discussion is far from sufficient. The Implementation Study offers little certainty to stakeholders and the public as to what the Government and NBN Co will actually do in practice. In those circumstances, suggestions from the Government or the Department that the Government's response

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9 Mr Daryl Quinlivan, Deputy Secretary, Infrastructure, Department of Broadband, Communications and the Digital Economy, *Committee Hansard*, Canberra, 15 April 2010, p. 65.

10 McKinsey-KPMG, *Implementation Study for the National Broadband Network*, 5 March 2010, Chapter 2, p. 56.

11 McKinsey-KPMG, *Implementation Study for the National Broadband Network*, 5 March 2010, Chapter 2, pp 56–131.

to the Study, which will only be provided on some as yet unspecified date, is a promise of too little, too late.

4.19 The committee believes that the Government, having had the Implementation Study for more than two months now, should release a comprehensive response to the document as soon as possible. The committee has already outlined in chapter 2 of this report its recommendations for some of the essential matters that the Government must urgently address, including that the Government provide a clear articulation of the mandate for NBN Co and where that mandate will be formally recorded.

NBN Co's decisions on network architecture

4.20 The Government has tasked NBN Co with: connecting 90 per cent of Australian premises to a NBN with fibre-based services of 100 Mbps; delivering broadband services of 12 Mbps to the remaining 10 per cent using next generation satellite and/or wireless technologies; and providing equal, wholesale access to retailers to enable them to deliver advanced digital services to the nation.

4.21 Within those parameters, NBN Co has been given broad discretion to decide on the architecture it will use to build the NBN and the wholesale product it will offer.

4.22 NBN Co has sought to design the network's architecture, and hence its wholesale product offering, in consultation with wholesale customers and the telecommunications industry. On 21 December 2009, NBN Co released a Product Consultation Paper that provided an outline of NBN Co's plans for the NBN.[12]

4.23 It is important to understand that NBN Co does not intend to – and will not – provide all the fibre and related infrastructure that will ultimately comprise the NBN. NBN Co's role is more limited. Its intention is to offer fibre services only between an end user's premises and what is called a Point of Interconnect (PoI). At a PoI, NBN Co's services will cease and it will be possible to connect with the existing backhaul services[13] of Retail Service Providers and/or Wholesale Service Providers. As Ms Christy Boyce, Head of Industry Engagement for NBN Co, explained in one of NBN Co's Industry Consultation Sessions:

> [NBN Co] is about facilitating the delivery of [retail service providers' services]…to end users. [NBN Co is] simply moving bits from one place to another, from a premise to a point of interconnect, and allowing [NBN Co's] customers, [that is,] the RSPs, to take care of the rest.[14]

12 NBN Co Ltd, *NBN Co consultation paper: proposed wholesale fibre bitstream products*, December 2009, www.nbnco.com.au/content/upload/files/NBN001_concept_paper_final.pdf.

13 Backhaul services are the data carriage services provided over high-speed, high-capacity fibre lines, which carry aggregated network traffic between a PoI and a centralised or 'core' part of the network, for example an Internet Service Provider's data centre.

14 Ms Christy Boyce, Head of Industry Engagement, NBN Co Ltd, *NBN Co Industry Consultation Session*, Melbourne, 1 February 2010,

4.24 The Product Consultation Paper used the following diagram (Illustration 1) to illustrate, at a high level, NBN Co's proposed infrastructure for what it terms a 'Fibre Serving Area' (FSA). The FSA is the limited part of the NBN that will in fact be serviced by NBN Co – the remainder of the network will be serviced by infrastructure and services owned and provided by other Wholesale and Retail Service Providers.

Illustration 1—Fibre Serving Area – Indicative Access Infrastructure

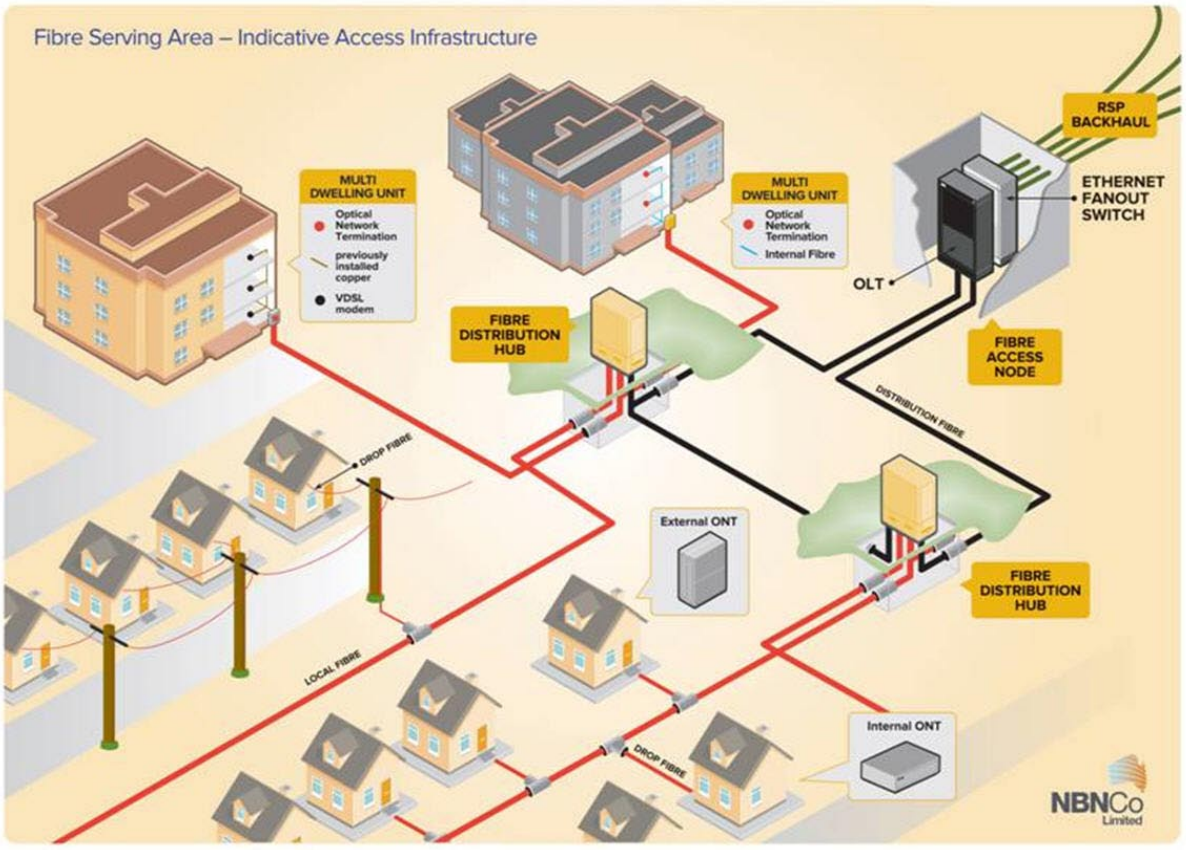

Illustration taken from NBN Co Ltd, *NBN Co consultation paper: proposed wholesale fibre bitstream products*, December 2009, p.6, www.nbnco.com.au/content/upload/files/NBN001_concept_paper_final.pdf and reproduced with the permission of NBN Co Ltd.

4.25 An FSA runs from an end user's premises to a Fibre Access Node (FAN) – the facility which houses the active equipment providing the network services to the FSA. As is evident in the diagram, NBN Co proposed that the access infrastructure have a degree of in-built flexibility enabling:

- aerial or underground deployment of fibre to an end user's premises;
- the installation of internal or external Optical Network Termination (ONT) devices at an end user's premises; and
- differing arrangements for the deployment of fibre to single dwellings as opposed to multi-dwelling units.

4.26 The Product Consultation Paper outlined NBN Co's intentions as to the:

- level ('layer') of its fibre wholesale offering;[15]
- wholesale products which it would offer;
- high-level technology standards for the network;
- policy to inform the choice of location for Points of Interconnect (PoIs);[16] and
- service features which NBN Co will support with its wholesale fibre products.

4.27 Almost fifty submissions were received by NBN Co in response.

4.28 In March 2010, NBN Co published a detailed response to those submissions in a document which also included its final decisions on some key aspects of network architecture.[17]

4.29 NBN Co decided that its wholesale fibre offering will be a 'Layer 2 Ethernet Bitstream' service.[18] The Ethernet Bistream service will be offered as:

- a Local Ethernet Bitstream (LEB) product in urban and regional centres; and
- an Aggregated Ethernet Bitsream (AEB) product for less densely populated areas.

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15 There are a number of 'layers' of service which combine to provide the communications and computer services delivered across a broadband network. The architectural decisions on the NBN have been made with reference to what is known as the Open System Interconnection (OSI) Reference Model. This Model divides network architecture into seven layers. At the bottom (Layer 1) is the passive infrastructure – the 'dark fibre' which is sometimes referred to as the 'dumb fibre'. Layer 2 (otherwise known as the link or active layer of the network) involves active electronic components that add intelligence to the dumb fibre of Layer 1. More specifically, these components encode and decode packets of information into 'bits' and transmit ('carry') the bits across the fibre using an ethernet connection. In the context of the NBN, this Layer 2 service is known as an 'ethernet bitstream service'. Layer 3 is the Network layer which creates paths for transmitting data from node to node. It includes services for switching, routing and forwarding packets of information between nodes. The higher layers (Layers 4–7) add further 'value', ultimately resulting in the provision (at Layer 7) of application services such as email and internet browsing applications with which an end user interfaces.

16 A Point of Interconnect (PoI) is a connection point that allows a Retail Service Provider (RSP) or a Wholesale Service Providers (WSP) to connect its network, transport (eg backhaul) and/or application and content services (eg email) to NBN Co's access capability. That is, the Point of Interconnect is the point at which an RSP or WSP can access the wholesale data transmission services that NBN Co provides from the PoI to an end users' premises.

17 NBN Co Ltd, *NBN Co response to industry submissions – proposed wholesale fibre bitstream products*, March 2010, www.nbnco.com.au/content/upload/files/Response_to_Industry_Submissions/NBN_Co_response_to_consultation_submissions.pdf.

18 See footnote 17 above for an explanation of what is an ethernet bitstream service.

4.30 The LEB and AEB products will be offered on a mutually exclusive basis so that where the AEB product is offered, an LEB product will not also be available and vice versa.

4.31 The difference in service between the LEB and AEB products is based on the location of the relevant PoI for the FSA. The LEB, as its name suggests, is a 'local' link. It will run within an FSA, linking an end user's premises to a Point of Interconnect (PoI) located at the FAN. Illustration 2 below depicts the arrangement.

Illustration 2—Local Ethernet Bitstream product

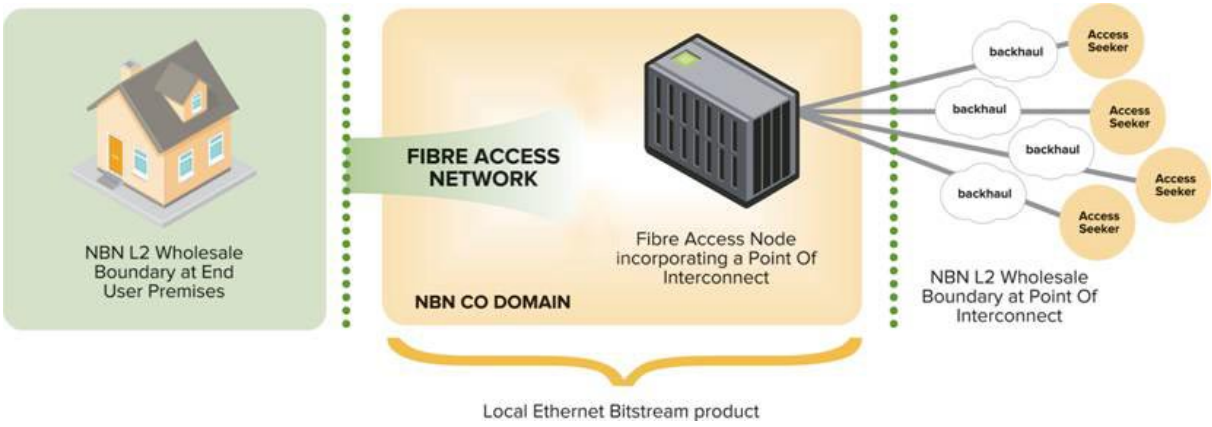

Illustration reproduced with the permission of NBN Co Ltd.

4.32 In contrast, the AEB product will be offered where the PoI is not located at a Fibre Access Node, but rather further upstream at what NBN Co describes as an 'Aggregation Node'. The Aggregation Node aggregates traffic from a number of Fibre Access Nodes, and the AEB product provides an 'aggregated' link between the PoI located at this Aggregation Node and a number of FSAs. Illustration 3 depicts the arrangement.

Illustration 3—Aggregated Ethernet Bitstream product

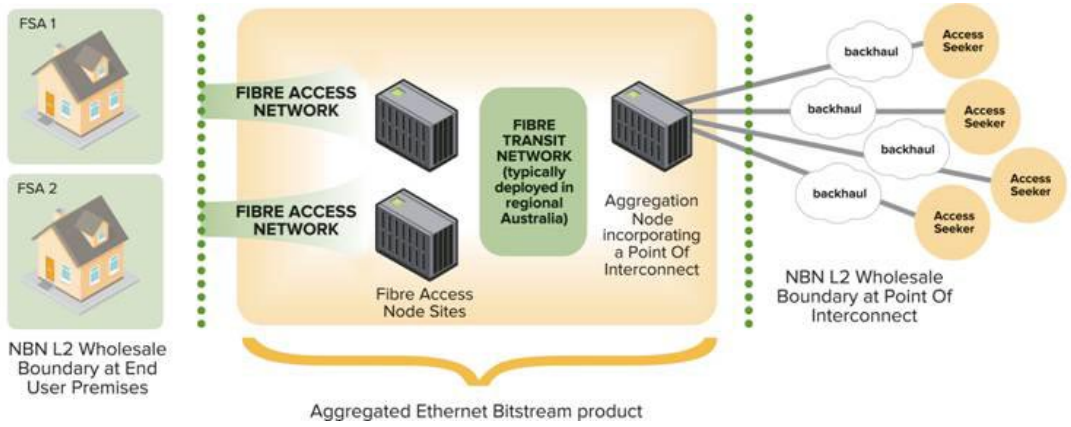

Illustration provided by NBN Co Ltd and reproduced with the permission of NBN Co Ltd.

4.33 The rationale for the different products (ie LEB and AEB products) lies chiefly in a policy decision informing where NBN Co will locate PoIs. NBN Co has said that it will locate PoIs so as to support competition among Retail Service Providers and with regard to the availability of contestable backhaul. In practical effect, this policy means that, ordinarily, a PoI will be located at the point where two or more backhaul services exist so that there will be competition amongst wholesalers and retailers to provide backhaul services from that PoI back to core parts of the network. Many regional areas today are serviced by none, or only one, backhaul service provider (usually Telstra). Where these areas are within NBN Co's 'fibre footprint', NBN Co's intention is to locate the PoI not where that backhaul first becomes available, but where *contestable* backhaul becomes available or is likely to become available (ie, where a competing backhaul link from a second or third backhaul service provider exists or is likely to exist). This issue is discussed in more detail later in this chapter.

4.34 The AEB product will provide an aggregated link from a number of FANs to that point (at which the Aggregation Node incorporating a PoI will be located). NBN Co's policy of aggregating traffic is designed 'to provide RSPs with access to a larger number of end users through a single POI [and therefore] create incentives for RSPs to offer [regional] services in that location, and in turn increases the likelihood of competitive back-haul build-out to that point'.[19] Because NBN Co will not also provide a PoI where backhaul first becomes available, any backhaul links, or parts of backhaul links, existing below the PoI (ie closer to the individual FANs) may be left stranded from the network.

4.35 Finally, NBN Co's LEB and AEB products will both provide active services including security and Quality of Service capability[20] and IP multicast[21], and will, in the ordinary case, be delivered using Gigabit Passive Optical Networks (GPON) technology (as opposed to Point-to-Point technology).[22]

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19 NBN Co Ltd, *NBN Co response to industry submissions – proposed wholesale fibre bitstream products*, March 2010, p. 17, www.nbnco.com.au/content/upload/files/Response_to_Industry_Submissions/NBN_Co_response_to_consultation_submissions.pdf.

20 'Quality of Service' refers to the extent to which a certain level of network performance (ie data flow across the network) can be guaranteed. It is about the predictability of service delivery and a wide range of networking technologies and techniques are involved. Specific criteria of measurement include availability, bandwidth, latency and error rates.

21 IP multicast is a way of transmitting, in a single transmission, Internet Protocol (IP) datagrams (ie packets of information) to a number of recipients. One present application is the streaming of media applications (eg Pay-TV) over the internet, the advantage being that multiple end users can be serviced in a single transmission from the retail service provider.

22 Point to Point technology would see every premises allocated a dedicated fibre. In the GPON alternative, a single optical fibre is 'split' into multiple strands so it can be utilised for multiple premises. The premises then share the bandwidth available on the fibre. The committee's *Third Report* contains more detail on the relative merits of GPON and Point-to-Point technology: *Third Report*, November 2009, pp 12–13.

Commentary on NBN Co's network architecture

4.36 Submissions to the committee indicated a significant amount of dissatisfaction amongst some industry players and members of the public with some of the decisions made by NBN Co. The major contentions relate to:

- the decision to supply a Layer 2 service;
- the policy informing the choice of location of PoIs;
- the decision to aerially deploy fibre on a significant scale, as opposed to deploying all NBN infrastructure underground; and
- a perceived lack of consultation with consumer groups when designing the network.

Layer 2 service

4.37 As described above, there are a number of 'layers' of services which combine to create the final products delivered and used over a broadband connection. The layered structure is often referred to as 'the technology stack'. The agreed industry standard model for describing the layers in the technology stack is the Open System Interconnection (OSI) reference model. Diagram 1 below illustrates the seven layers of this model.

Diagram 1—Open System Interconnection (OSI) reference model

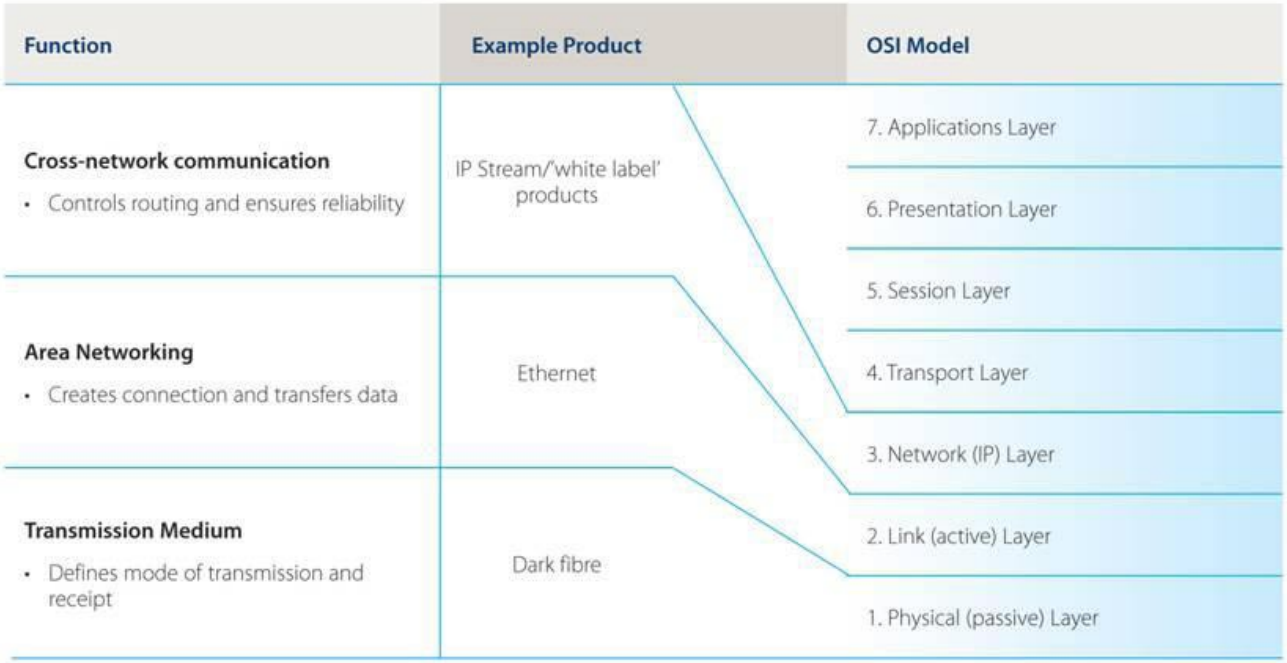

Illustration provided by NBN Co Ltd and reproduced with the permission of NBN Co Ltd.

4.38 When announcing the NBN, the Government stated that it would be a wholesale-only, open access network.[23] There was broad consensus that this meant NBN Co would be limited to offering product services at Layer 3 or below, and that it would offer these services on a wholesale basis only. (Discussion as to whether the exposure drafts of legislation subsequently released by the Government in February 2010 revoke the commitment to NBN Co being a wholesale only service provider are discussed in chapter 5). The important point for present purposes is that NBN Co's network architecture was limited to a choice between providing Layer 1, 2 or 3 services.

NBN Co's justification for a Layer 2 service

4.39 As described above, NBN Co has decided to supply a Layer 2 service, specifically a Layer 2 Ethernet Bitstream Service. Mr Michael Quigley, CEO of NBN Co, described to the committee the rationale for that decision as follows:

> The layer 2 bitstream product construct that we decided upon was a compromise. You could go with layer 1, which is just dark fibre with no electronics on it. Layer 2 bitstream is kind of the network plumbing. We can move bits from one location, from a premise, to a point of interconnect. We do not move above that into layer 3, although there are certain constituencies who would like us to do so, for various reasons. Likewise, we also have people who say we should be operating just at layer 1. I have even had people tell me that we should be operating at layer zero, which means that we should just dig holes in the ground for other people to lay fibre in all over the country. There is a judgment to be made about where you can get ubiquitous coverage but make the smallest possible footprint, both in a geographic sense and in a value chain sense. We wanted to leave plenty of opportunity for retail service providers to innovate, to add functionality, on top of the layer 2 bitstream. So it was a considered judgment. We also had a look at what was going on in other parts of the world, particularly Ofcom in the UK and parts of Europe. There seemed to be general convergence that this was the right point in the value chain, in the stack, to form a wholesale only access product.[24]

4.40 Mr Quigley went on to explain that NBN Co is embedding some Layer 3 functionality into their network 'because [NBN Co has] to do that to provide some sophisticated Layer 2 services' but that NBN Co will not be offering those Layer 3 services as a product at either a retail or wholesale level:

> Senator LUNDY—I ask you specifically: do NBN Co. plan to offer services above layer 2 on your fibre network?

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23 The Hon. Kevin Rudd, MP, Prime Minister, the Hon Wayne Swan MP, Treasurer, the Hon Lindsay Tanner MP, Finance Minister, and Senator the Hon. Stephen Conroy, Minister for Broadband, Communications and the Digital Economy, 'New National Broadband Network', Joint Press Release, 7 April 2009, www.minister.dbcde.gov.au/media/media_releases/2009/022, accessed 24 April 2010.

24 Mr Michael Quigley, CEO, NBN Co Ltd, *Committee Hansard*, Canberra, 15 April 2010, p. 50.

> Mr Quigley—No.
>
> Senator LUNDY—Not at all?
>
> Mr Quigley—We have no plans to provide any services above layer 2—with one exception. We are embedding some layer 3 functionality in the network because we have to do that to provide some sophisticated layer 2 services, but we are not offering those layer 3 services as a product.
>
> Senator LUNDY—At a retail level.
>
> Mr Quigley—That is right—or even at a wholesale level. We are simply not offering that. It is just a functionality that is inbuilt into the network.[25]

4.41 Finally, Mr Quigley clarified for the committee how the NBN Co's open access model and provision of wholesale Layer 2 services will herald an end to the status quo experienced by some users located in multiple dwelling units or estates who, because of present infrastructure arrangements, find themselves forced into having only one option of a Retail Service Provider:

> Mr Quigley—If it is an estate in which there are multiple dwellings, if we established a fibre network there, our intention would be wholesale only, once again, open access... [W]hat people sometimes refer to is whole estates being locked up with one carrier and no option for the consumer to move. That would absolutely not be our intent because we can support multiple retail service providers so that different people in the estate could have different retail service providers if those retail service providers chose to use underlying network. We are not the people who have the relationship with the end customer. They are free to choose whatever retail service provider decides to use our network. In fact, we have the capability in this layer 2 network to supply an end user who chooses to have two retail service providers or three. They could have one for video, one for voice and one for high-speed internet—
>
> Senator LUNDY—In the same house?
>
> Mr Quigley—In the same house and all on the same fibre because we are partitioning the product to allow that to happen. We can provide quality of service for each of those streams. We can hand each of those streams that are embedded within the stream that is in the fibre at the point of interconnect back off to different retail service providers.[26]

Comments on NBN Co's decision

4.42 The committee received a range of opinions on NBN Co's decision to supply a Layer 2 service.

4.43 Only one submitter argued that NBN Co should be supplying services below Layer 2. Professor Walter Green of the Communications Expert Group expressed

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25 Mr Michael Quigley, CEO, NBN Co Ltd, *Committee Hansard*, Canberra, 15 April 2010, p. 50.

26 Mr Michael Quigley, CEO, NBN Co Ltd, *Committee Hansard*, Canberra, 15 April 2010, p. 51.

concern that the higher up NBN Co provides services, the greater the potential for architecture decisions to limit innovation:

> I believe the whole area of variations for access and such should be reworded, principally to allow modifications of interface standards—because that is where the real technical advantages and innovations are—and to eliminate either pricing conditions or protocol-type access.
>
> CHAIR—When you say a service that is protocol-independent, is that the same as a layer 2 service?
>
> Prof. Green—No, it goes beyond. It is in fact layer 1 and below.[27]

4.44 Mr Stephen Dalby, Chief Regulatory Officer of Internet Service Provider iiNet Ltd, gave a statement of support for NBN Co's decision to provide Layer 2 services that was fairly typical of the attitude of other existing Internet Service Providers and Retail Service Providers:

> We would be very comfortable with layer 2. Similarly, we would be comfortable with layer 1 services. Whilst layer 1 may have been desirable—and that would be similar products to, say, unconditional local loop on the copper network or dark fibre as backhaul services from point A to point B—we are not restricted from acquiring backhaul services from other sources anyway. So that is not really an issue. In terms of the other benefits that come with the NBN, we are quite comfortable with living with a layer 2 world.[28]

4.45 Optus argued that if NBN Co were to supply services above Layer 2, it would compromise competition in the higher layers:

> …our philosophical perspective is that NBN Co. should operate in areas where there is a market failure. We would perceive that to be at layer 2 and below. We argue that there is a prospectively highly contestable market at layer 3 and above and therefore that is why NBN Co. probably should be precluded from operating above layer 2, because you can get competition in that sector. If, however, NBN Co. is able to go up the value chain, then perhaps that competition will not eventuate.[29]

4.46 The Australian Competition and Consumer Commission (the ACCC) expressed qualified support for arguments that NBN Co should provide Layer 2 or below services in the interests of competition, stating that it has 'some sympathy for a

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27 Professor Walter Green, Director, Communications Experts Group Pty Ltd, *Committee Hansard*, Melbourne, 14 April 2010, p. 70.

28 Mr Stephen Dalby, Chief Regulatory Officer, iiNet Ltd, *Committee Hansard*, Melbourne, 14 April 2010, p. 16.

29 Mr Andrew Sheridan, General Manager, Interconnect and Economic Regulation, Optus, *Committee Hansard*, Melbourne, 14 April 2010, p. 47.

position that says, in the first instance at least...services should be offered as low in [the technology] stack as possible to allow potential competition to develop'.[30]

4.47 The main calls for NBN Co to provide – or at least build into its network architecture the capacity to provide – wholesale Layer 3 services came from consumer and telecommunications user groups and independent consultants. In contrast to established telecommunications carriers and service providers like Optus and iiNet, these groups and individuals argued to the committee that it was in the interests of end-users and trans-sectoral services that a Layer 3 NBN Co service be either possible or available to wholesale purchasers.

4.48 The rationale advanced was that a competitive wholesale market for the supply of Layer 3 services may not develop. This would compromise the extent to which new players and trans-sectoral services like healthcare operators, could either have access to, or afford to deliver services over, the NBN given they would need to build for themselves that Layer 3 capability.

4.49 Ms Rosemary Sinclair, Chair of the Australian Telecommunications Users Group (ATUG) explained the concern:

> My question is: will the people who buy layer 2 wholesale themselves offer layer 3 wholesale services [unbundled from higher layer services] when they have a foot in the retail camp?
>
> ...
>
> [I]f we have a ubiquitous high-speed network, there may be other people [eg healthcare providers] that want to come into this market and deliver their services using the communications platform that is enabled by the NBN. I am not sure what value-adding there is in requiring those people to invest in bits of telecommunications infrastructure, so I want to make sure that those people can get a higher level wholesale service which does not require them to invest in being a telco at any level of the stack but allows them to deliver their services.[31]

4.50 The proposal put forward by ATUG was that there be a reserve power afforded to the Minister, exercisable on the recommendation of the ACCC, to compel NBN Co to provide wholesale Layer 3 services if a competitive market for the supply of these services does not develop by itself. Ms Sinclair expressed the hope that such a power:

> ...would be like the minister's reserve pricing power [under the *Trade Practices Act 1974* (Cth)]. It would never need to be used but having it there, as we have said about that power, is a very good safety net for all of us. The best position is if it is not used and the market says, 'Okay, there is a

30 Mr Michael Cosgrave, Communications Group General Manager, Australian Competition and Consumer Commission, *Committee Hansard*, Melbourne, 14 April 2010, p. 63.

31 Ms Rosemary Sinclair, Chair, Australian Telecommunications Users Group, *Committee Hansard*, Canberra, 15 April 2010, p. 11.

> need for these services for these sorts of customers and we are going to offer them those services'.[32]

4.51 Mr Paul Budde of Paul Budde Communication Pty Ltd similarly argued that it may be in the national interest for NBN Co to provide higher layer services, and that a Ministerial exemption to enable NBN Co to wholesale supply higher layer services may be appropriate:

> The competitive advantages that are said to flow from an NBN that is constructed to as basic a formula as possible have been claimed but not proved. However these commercial advantages stand in stark contrast to the difficulties that will arise due to the fact that very few trans-sectoral services can afford to run over an NBN, which would potentially force these sectors to use services that can only be provided by one national wholesale player…
>
> This concern seems to be addressed to a certain extent in the proposed NBN Co legislation, which will give the government the possibility of allowing sectors to buy infrastructure capacity directly from NBN Co.[33]

4.52 The Internet Society of Australia (ISOC-AU) also argued that NBN Co should provide Layer 2 and also aggregated Layer 2 and Layer 3 services to reduce 'the financial barriers to entry into the broadband market...and [enable] service providers...[to] focus on the layers where true innovation is highest: services, applications and content'.[34] Mr Tony Hill, President of ISOC-AU expressed concern that a Layer 2 only service will fail to adequately service regional and remote users:

> Our experience of competition policy is that low-density population centres have been served by only one provider under the [Universal Service Obligation] provisions of telephone services... [W]e are suggesting that, if only layer 2 is reaching those areas because of the NBN's activities, those people will not have the freedom of choice of layer 3. Let us posit a situation where NBN becomes a provider of layer 2 and layer 3... [T]he layer 3 services would then be freely available across the whole breadth of the NBN service and not depend on investment by particular service providers to install layer 3 equipment at the far reaches of the NBN network.[35]

Committee view

4.53 The committee understands that NBN Co's decision to supply a Layer 2 service only was a 'compromise' that sought to balance a number of competing

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32 Ms Rosemary Sinclair, Chair, Australian Telecommunications Users Group, *Committee Hansard*, Canberra, 15 April 2010, p. 17.

33 Paul Budde Communication Pty Ltd, *Submission 105*, p. 2. Provisions of the exposure draft legislation (the 'NBN Co legislation') are discussed in detail in chapter 5.

34 Internet Society of Australia, *Submission 118*, p. 4.

35 Mr Tony Hill, President, ISOC-AU, *Committee Hansard*, Canberra, 15 April 2010, p. 4.

arguments. The committee believes that it is appropriate for NBN Co to pitch its wholesale product offering at Layer 2. However, the committee is concerned by suggestions from a number of submitters that there may be significant consequences for the NBN to deliver trans-sectoral benefits and create opportunities for innovation if a competitive market for the supply of unbundled Layer 3 services does not develop.

4.54 The committee notes the commentary provided on this point by the Implementation Study:

> It is reasonable to expect that given the low barriers to entry, wholesale Layer 3 providers will emerge—either as standalone businesses, or as wholesale arms of retail providers. Furthermore, national networks will not be required on day one. As NBN Co begins to commission POIs, Layer 3 operators can deploy equipment progressively, managing their investment and optimising their model as the NBN grows. In addition to wholesale providers, it is likely that there will be sufficient competition between Layer 3 retailers to ensure customers have access to a wide range of IP-enabled services. End users will receive better services, and more choice, in either case…
>
> A diverse, mass market, national Layer 3 market could be slow to emerge. Most operators of Layer 3 networks initially will be retail ISPs and telecommunications carriers, who will focus on using their own IP services to deliver today's retail offers of broadband, voice, and TV. As a result, some services which require bespoke, new IP services—for example, home health monitoring that depends on real time class of service—may not be delivered immediately.
>
> However, these services should in most cases be complementary to today's ISP and telecommunications services, and carriers could be expected to pursue these wholesale opportunities over time. A worst case scenario is possible if Layer 3 becomes commoditised, consolidated, and dominated by one or two national providers. In this case, a small number of concentrated providers could exercise control over the product offering at Layer 3, and potentially foreclose retail competition. If Layer 3 competition is limited in particular regions, those areas would suffer from a poorer set of available options. Limited competition would also limit the prospects for ASPs and other non-carrier operators.
>
> Should the Government conclude in the future that a Layer 3 market is not functioning, to the detriment of innovation and end-user benefits, intervention may be justified. One option would be to address shortfalls through regulation—for example, obliging retail service providers to offer a Layer 3 service which can support applications deemed important to the public interest. Another option, given the relatively low cost of deploying a national Layer 3 network, would be for Government to tender for the deployment of a Layer 3 service with Government as an anchor customer. Such a network could support public services such as health and education, as well as serving ASPs who are unable to source the wholesale services they require in the market.

> At this stage, such measures would be premature. Ongoing ACCC monitoring of this market will enable Government to identify any further interventions that are necessary to foster healthy competition.[36]

4.55 The committee recommends that the Government detail its understanding of the likelihood that there might be failure in the Layer 3 wholesale market, and what it understands would be the consequences of any such failure for service delivery and innovation potential.

Recommendation 7

4.56 That the Government detail its understanding of the likelihood that there might be failure in the Layer 3 wholesale market, and what it understands would be the consequences of any such failure for service delivery and innovation potential.

Location of Points of Interconnect

4.57 NBN Co has publicly stated the general policy it intends to use to inform its selection of PoI locations, one of supporting competition among Retail Service Providers and encouraging innovation and efficient investment in backhaul infrastructure.[37] In its response paper to industry submissions on its proposed wholesale fibre bitstream product, NBN Co stated that there appeared to be general support for its intended approach.[38]

4.58 One substantial dissenter from NBN Co's proposed approach, however, is Telstra. Telstra did not make a submission to the committee on this point. However, in a submission to NBN Co, Telstra indicated its dissatisfaction with NBN Co's decision not to offer a PoI at every FSA.[39] Telstra submitted that NBN Co is constrained by 'commitments Australia has made in respect of telecommunications services in the WTO General Agreement on Trade in Services,[40] as well as in several bilateral Free

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36 McKinsey-KPMG, *Implementation Study for the National Broadband Network*, 5 March 2010, pp 427–428.

37 NBN Co Ltd, *NBN Co response to industry submissions – proposed wholesale fibre bitstream products*, March 2010, p. 17, www.nbnco.com.au/content/upload/files/Response_to_Industry_Submissions/NBN_Co_response_to_consultation_submissions.pdf, accessed 24 April 2010.

38 NBN Co Ltd, *NBN Co response to industry submissions – proposed wholesale fibre bitstream products*, March 2010, p. 17, www.nbnco.com.au/content/upload/files/Response_to_Industry_Submissions/NBN_Co_response_to_consultation_submissions.pdf, accessed 24 April 2010.

39 Telstra Corporation Ltd, *Response to NBN Co Consultation Paper: Proposed Wholesale Fibre Bitstream Product*, 12 February 2010, p. 8, www.nbnco.com.au/content/upload/files/Response_to_Industry_Submissions/Companies/Telstra.pdf, accessed 24 March 2010.

40 WTO Negotiating Group on Basic Telecommunications, Reference Paper, 24 April 1996, available at www.wto.org/english/news_e/pres97_e/refpap-e.htm.

Trade Agreements'[41] and went on to state that 'these trade commitments include obligations in respect of the provision of interconnection by major suppliers in Australia.'[42] It is not clear from Telstra's submission whether it is arguable that NBN Co's policy would in fact breach the commitments identified, and further, what status those commitments have under international and domestic law.

4.59 As a matter of policy as opposed to law, in Telstra's view, the AEB product would punish an RSP (which in the ordinary case would be Telstra) who has taken the first-mover risk and built its own backhaul infrastructure in a previously un-serviced area:

> NBN Co's proposed determination of the location of PoIs would force an RSP that has already built or acquired backhaul to those FSAs where interconnect is not offered by NBN, to acquire network components (namely the AEB Transit Link) which the RSP would not require for the retail service to be provided, had a PoI been made available at the relevant FSA. This policy would advantage RSPs which have not built or acquired backhaul to those FSAs.[43]

4.60 The matters at stake were succinctly summarised in a submission to the committee by telecommunications consultant, Mr Kevin Morgan:

> The network topography outlined by NBN Co, with limited numbers of [PoIs] which will be sited where there is contestable backhaul, has enormous implications for Telstra and for the costs of the NBN. Clearly the decision to host PoIs where there was more than one provider of backhaul i.e. where there is another carrier's network beside Telstra (typically Optus backhaul) threatens to strand thousands of kilometres of Telstra backhaul network and will mean NBN Co is running thousands of kilometres of backhaul at considerable cost. The rule of thumb is rural backhaul will cost $40000–50000 per kilometre to build.
>
> The decision to limit the PoIs in this way is not an engineering one but a policy decision ostensibly to remove any monopoly on backhaul. Telstra owns 90% plus of the backhaul in regional areas and it is integrated into both fixed line and mobile service. Rendering Telstra's backhaul unusable for fixed line traffic in this way will have damaging impacts on the

41 For example, the bilateral Free Trade Agreements concluded with the United States, Singapore, Chile, and ASEAN and New Zealand, all include specific chapters in respect of telecommunications services. See, generally, www.dfat.gov.au/trade/ftas.html.

42 See Article 2 of the WTO Telecommunications Reference Paper, Article 12.11 of the Australia-United States FTA; Article 9.7 of the Singapore-Australia FTA; Article 11.10 of the Australia-Chile FTA; and Article 6 of the Annex on Telecommunications to Chapter 8 of the Agreement Establishing the ASEAN–Australia–New Zealand Free Trade Area.

43 Telstra Corporation Ltd, *Response to NBN Co Consultation Paper: Proposed Wholesale Fibre Bitstream Product*, 12 February 2010, p. 8, www.nbnco.com.au/content/upload/files/Response_to_Industry_Submissions/Companies/Telstra.pdf, accessed 24 March 2010.

> economics of wireless service in regional areas if fixed line revenues are removed from its regional network.
>
> Also from a general pro competitive perspective the limited numbers of PoIs will place significant costs on smaller RSPs and increase the challenges they face. It is clear from the work done by Ofcom in the UK that flexibility in the location of PoIs and a proliferation of PoIs within next generation networks is seen as essential to encouraging competition.[44]

4.61 It is important to note that it is not only Telstra that may be detrimentally affected by NBN Co's decision to locate PoI's at an aggregated node in those areas where only the AEB product is offered. Evidence to the committee indicated that smaller RSPs – particularly RSPs offering local or regional services – will also be significantly affected. Mr Morgan alluded to this in the extract above when he said that the restricted location of PoIs 'will place significant costs on smaller RSPs and increase the challenges they face'.

4.62 From evidence presented to it by Professor Walter Green of the Communications Experts Group, the committee understands that the explanation for why the location of PoIs will affect regional RSPs is as follows. Regional and local RSPs locate their data centres in regional and local areas, for example Geraldton in Western Australia. To service a customer also located in Geraldton, a Geraldton-based RSP needs to have a data link between its data centre (in Geraldton) and the premises of the end-user (also in Geraldton). Data travels between the RSP and the customer via that link. The NBN Co product will service only part of that link, namely that part which transmits data to and from the customer and the PoI. At the PoI, the RSP 'connects' its services with those of NBN Co. It is then for the RSP to make its own arrangements for transmitting the data the rest of the way, namely from the PoI back to the RSP's data centre. Where NBN Co offers the AEB product, it is locating the PoI at the point where backhaul becomes contestable. NBN Co will make arrangements to either build the intermediate backhaul or else contract with the existing monopoly backhaul provider for use of the pre-existing infrastructure. That is beneficial to an RSP which has a data centre located further upstream (eg at a metropolitan centre). That RSP has the option of choosing between a number of backhaul providers for backhaul services from the PoI 'back' to a metropolitan centre. But the issue for the regional RSP is that it needs to obtain transmission services not to a metropolitan centre (for which there would be multiple backhaul service providers from which to choose), but instead back to the regional area and for that transmission service it must negotiate access with the only existing (and therefore monopoly) backhaul provider. The choice of location of the PoI is therefore requiring an unnecessary 'boomerang' arrangement for data transmissions between regional RSPs and their regional customers. This is what Professor Green was meaning when he said:

> [NBN Co] have said that if there is no contestable backhaul then there will be no access to the NBN at a regional or remote centre. Throughout WA there is no contestable backhaul, so that means by default that Perth is the

44 Mr Kevin Morgan, *Submission 122*, p. 7.

> only area [for a PoI]... At the moment, the only people who can provide a fibre connection from Perth to the major regional centres is Telstra… NBN will, via various negotiations with Telstra, get access to fibre to bring all the connections back to Perth. The problem that you have got is that people in Kalgoorlie, Bunbury, Geraldton, Port Hedland, Karratha and all those places will then have to go back to Telstra to buy a link from Perth to their centres. So the NBN is negating what I believe were the benefits. They should make the connections available in Geraldton and then provide backhaul from them in competition with Telstra to allow people to build the networks they want.[45]

4.63 In its response paper to all submissions received, NBN Co did not nominate its intended PoI locations. That paper deferred further discussion on the PoI topic to a more detailed discussion paper that it indicated would be released in late March 2010. As at the date of writing this report, the committee understands that the paper has not yet been released.

4.64 From the committee's preliminary assessment of the Implementation Study, it does not appear that that document progresses the debate to any great extent. The Implementation Study acknowledges the obvious importance of the location of POIs and states that '[t]o create a national level playing field, NBN Co will need to carefully choose POI locations and design an appropriate transit backhaul product'.[46] Following a rather cursory analysis of the options NBN Co has in terms of selecting POI locations, the Implementation Study concludes with the rather thin recommendation that 'the location of NBN Co's POIs be reviewed on a regular basis to permit new investment below the POIs and to ensure the objectives of affordability and a level playing field are met above the POIs.'[47]

Committee view

4.65 The committee believes that the as yet unknown location of POIs throughout Australia is another instance of key stakeholders and the public being left in a vacuum of information about critical aspects of the NBN's architecture. The location of POIs will affect the commercial viability of a number of asset owners and retail service providers' operations, not to mention the costs associated with any trans-sectoral applications run over the NBN.

4.66 The committee would question why NBN Co has not yet released its promised discussion paper on POIs, and would urge NBN Co to release that document and commence the consultation process as soon as possible.

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45 Professor Walter Green, Director, Communications Experts Group Pty Ltd, *Committee Hansard*, Melbourne, 14 April 2010, p. 72.

46 McKinsey-KPMG, *Implementation Study for the National Broadband Network*, 5 March 2010, p. 333.

47 McKinsey-KPMG, *Implementation Study for the National Broadband Network*, 5 March 2010, p. 334.

Aerial versus underground deployment

4.67 As discussed in chapter 3 above in relation to progress on the mainland and the selection of first release sites, NBN Co has stated an intention to deploy fibre aerially in some areas, and go underground where power infrastructure is already underground. As discussed extensively in its *Third Report*, the committee strongly believes that underground deployment should be preferred and is concerned that aerial deployment represents only a band-aid solution and is inappropriate for a long-term infrastructure project.[48] The committee's views are set out in chapter 3.

Consultation with consumers

4.68 NBN Co undertook an extensive industry consultation process as a part of its network design process. As explained to the committee by Mr Quigley:

> [NBN Co has] been developing a wholesale product for some time now and we have been involved in a range of industry consultations, particularly over the past four months or so. Those consultations have involved public presentations in which we provide information on our proposed products and answer numerous questions. They have also involved detailed discussions with service providers to hear directly from them. We have released an industry consultation paper on our wholesale product proposal and we have received feedback from industry.[49]

4.69 The committee applauds NBN Co for its evident hard work in seeking input from industry as it designs the network architecture and refines its wholesale product offering.

4.70 However, the committee was concerned by comments made by the Australian Competition and Consumer Action Network (ACCAN) that the consultation process has not adequately engaged consumer groups or consumers' requirements. ACCAN submitted:

> ...there are [currently] 9 major NBN-related government initiatives, processes and consultations underway on various aspects of the NBN, some of which fail to adequately embed consumer requirements. For example, the Communications Alliance[50] has seven streams of NBN activity at various stages of development, including critical consumer issues such as end user premises and end user migration. Yet consumer groups do not qualify to be members of Communications Alliance and therefore are ineligible to be

48 *Third Report*, p. 52.

49 Mr Michael Quigley, CEO, NBN Co Ltd, *Committee Hansard*, Canberra, 15 April 2010, p. 43.

50 The Communications Alliance is a peak policy development organisation for the telecommunications industry. Its membership is comprised of service providers, vendors, consultants and suppliers.

> members of the Communications Alliance committees developing the NBN rules of operation.[51]

4.71 At the committee's hearing, Ms Teresa Corbin, Deputy CEO of ACCAN, elaborated on the current consultation between NBN Co and consumer groups and ACCAN's proposal that there be a legislative consumer advisory group:

> [Y]ou should have a consumer advisory group. We do have to have this for NBN Co. because, at the moment, there is a very loose engagement between ACCAN and NBN Co. We are having coffee, we are having lunch and that kind of thing—we are building that relationship—but we need to actually have a structured dialogue that has some objectives, some things you are trying to achieve. You do develop a different type of dialogue that way; it has a bit more depth... [With a consumer advisory group] you get some real exchange of views and an understanding of each other's perspectives. That is when you get change, that is when you get things moving forward and you find solutions to problems you would never have expected that you could find.[52]

4.72 In response Mr Quigley commented:

> We have had some very extensive consultation on...architecture with groups such as the Communications Alliance and others, and I have stood up at events numerous times—almost once a week—making sure we articulate our architecture as we move along. I would invite anybody who would like to know a little bit more about the architecture to come along to one of those meetings. If ACCAN would like me to spend a couple of hours talking to their people about the architecture, about our product construct, about information that is in fact available on the web and our 1800 number that people can ask questions on, I would be more than happy to do so. There is a lot of information out there already if people choose to go get it.[53]

Committee view

4.73 The committee believes that genuine consultation and accommodation of consumer interests in the actual design of the network is imperative, and that it is not satisfied by merely providing information after the event to consumers as to what the network architecture will be.

4.74 The committee urges NBN Co to formally engage consumer groups in its consultation processes as well as general information sessions. The committee recommends such action by NBN Co as an interim measure. For the longer term, the committee believes it is appropriate to entrench consultation with consumer advocacy

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51 Australian Competition and Consumer Alliance, *Submission 121*, p. 5.

52 Ms Teresa Corbin, Deputy CEO, ACCAN, *Committee Hansard*, Canberra, 15 April 2010, p. 35.

53 Mr Michael Quigley, CEO, NBN Co Ltd, *Committee Hansard*, Canberra, 15 April 2010, p. 43.

groups in the governing legislation for NBN Co. For that reason, the committee recommends in chapter 5 below that the exposure draft bill for the governance arrangements of NBN Co (the National Broadband Network Companies Bill 2010) be amended so as to create a statutory consumer advisory group for the NBN, similar to the Consumer Consultation Forum which exists for the Australian Communications and Media Authority (ACMA).

Recommendation 8

4.75 That NBN Co formally engage consumer groups in its industry consultation processes. That such consultation be in addition to the involvement of consumer groups in NBN Co's information sessions.

Commentary on unresolved matters of network architecture

4.76 Submissions to the committee also raised concerns relating to aspects of network architecture and overall management which have not been finally determined, or at least for which there has been no public disclosure of the Government and/or NBN Co's intentions. The major concerns relate to:

- uncertainty surrounding what role Telstra's assets will play in the NBN, how customer migration will be handled; and the extent of any compensation that will be offered to Telstra (and subsequently other service providers) for the acquisition of their assets and migration of their customers to the NBN;[54]
- the timeframe in which NBN will provide services to regional and remote areas in Australia, and the details of the proposed progression for that roll-out;[55]
- NBN Co's network access pricing, including whether there will be a cross-subsidy arrangement for regional areas and whether NBN Co will be commercially viable;[56]
- end-user pricing, including how expensive broadband services will be for end-users and whether there will be a cross-subsidy arrangement for regional users;[57]

54 For example, Mr Kevin Morgan, *Submission 122*, pp 5–8.

55 AUSTAR United Communications Ltd, *Submission 116*, p. 1.

56 For example, Mr John de Ridder, Principal, De Ridder Consulting Pty Ltd, *Submission 113*, pp 4–5; Mr Paul Budde, Managing Director, Paul Budde Communication Pty Ltd, *Submission 105*, p. 2; Indigenous Remote Communications Association, *Submission 110*, p. 1; Communications Law Centre, UTS, *Submission 111*, pp 1–3; Australian Telecommunications Users Group, *Submission 112*, p. 23, Mr Kevin Morgan, *Submission 122*, p. 5.

57 For example, Mr John de Ridder, Principal, De Ridder Consulting Pty Ltd, *Submission 113*, pp 4–5; Mr Paul Budde, Managing Director, Paul Budde Communication Pty Ltd, *Submission 105*, p. 2; Indigenous Remote Communications Association, *Submission 110*, p. 1; Communications Law Centre, UTS, *Submission 111*, pp 1–3; Australian Telecommunications Users Group, *Submission 112*, p. 23, Mr Kevin Morgan, *Submission 122*, p. 5.

- the complaints handling mechanism for NBN end-users and whether existing industry ombudsman and consumer representative groups are sufficient (both in terms of expertise and resourcing);[58]
- NBN Co's intentions as to wireless and satellite services;
- the future of Telstra's Universal Service Obligation;[59] and
- the existence of a lifeline telephony service.[60]

4.77 A number of these areas involve 'macro' decisions on the NBN: decisions on these matters will fundamentally affect the commercial viability of NBN Co, the content of, and timetable for, services to be delivered over the NBN as a whole, and how the network will ultimately affect the lives and wallets of end-users.

4.78 The absence of certainty in the areas listed above is yet another example of how the NBN project lacks coherency and is being progressed in an ad hoc, non-transparent manner. It is demonstrative of Government policy that is inexcusably deficient in accountability and detailed planning.

4.79 A number of the areas listed above are addressed elsewhere in this report. For ease of reference, cross-references are provided below.

- No decision on what will be NBN Co's final access prices and pricing model: see chapter 7;
- No arrangements for an effective complaints-handling and consumer representation mechanisms: see chapter 5;
- No detail on NBN Co's intentions as to wireless and satellite services: see chapter 9; and
- No detail on the future of Telstra's Universal Service Obligation, including whether a universal service obligation will exist in the future for broadband services: see chapter 6.

4.80 The balance of these issues are discussed individually below.

Telstra's assets, customer migration, and the matter of compensation

4.81 Telstra and NBN Co have been negotiating for months to reach agreement on whether NBN Co will acquire Telstra-owned assets and infrastructure, and at what price.

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58 For example, Australian Communications Consumer Action Network, *Submission 121*, p. 3.

59 For example, Australian Communications Consumer Action Network, *Submission 121*, p. 5; Northern Territory Government, *Submission 123*, p. 1.

60 For example, Mr Allan Horsley, *Submission 108*, p. 5; Internet Society of Australia (ISOC-AU), *Submission 118*, p. 5.

4.82 Telstra owns the ubiquitous copper network covering much of Australia and over which telephony and internet services are currently delivered to the vast majority of Australian premises. Of critical importance is the size of Telstra's customer base, in addition to the assets and infrastructure that it owns and which could be utilised as part of the NBN (eg ducts, pits, poles, pipes and backhaul). The committee found helpful the following analysis of the key issues from Mr Kevin Morgan:

> Telstra's involvement in the NBN would not only secure the network's customer base and guarantee it immediate access to significant cash flows it would also significantly lower the network build cost by many billions of dollars. This is not necessarily because of access to Telstra's assets such as ducts and the pit and pipe distribution network in suburban streets. The value of those assets was limited for Telstra itself when it deployed the HFC network in the mid 1990's. Fifteen years ago Telstra found that much of the pit and pipe infrastructure needed extensive and costly rehabilitation before it could be used for HFC and consequently Telstra used aerial deployment in all but limited areas.
>
> Far more importantly than access to infrastructure, Telstra's agreement to transfer its traffic to the NBN would give certainty to the network rollout. If Telstra, which controls not just its own customer base but effectively the customer base of other ISP's reliant on Unbundled Local Loops (ULL) and Telstra wholesale products, agreed to 'turn off' its copper then it would bring 100% of the market to NBN. This would mean NBN could connect premises as it rolled out fibre leading to significant efficiency gains for the NBN as it would not have to backtrack later to connect premises. The alternative scenario to connection of homes as they are passed by the cable rollout would be for individual Retail Service Providers (RSPs) to identify customers in areas where fibre was being deployed, with the customers then being connected on a piecemeal basis. This would be inordinately expensive for NBN Co, leading to repeated visits to the same neighbourhood and even the same street.
>
> In reality Telstra's agreement to transfer traffic to the NBN is vital to its success but that does not necessarily imply commercial success unless customers are prepared to accept far higher access charges that will be passed on to them by their RSPs. Commercial success would also demand very high rates of take up of top line packages that will maximise the wholesale payment made by the RSPs.[61]

4.83 NBN Co and Telstra settled on terms of engagement for their negotiations in December 2009.[62] Despite repeated industry rumours and media speculation that a deal has been near for months, no agreement had been reached at the time of writing this report. On 19 March 2010, Telstra released a statement to the Australian Stock

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61 Mr Kevin Morgan, *Submission 122*, p. 5.

62 The Hon. Stephen Conroy, Minister for Broadband, Communications and the Digital Economy, 'Terms of engagement agreed between Telstra and NBN Co', Press release, 18 December 2009, www.minister.dbcde.gov.au/media/media_releases/2009/117, accessed 29 April 2010.

Exchange saying that it believed there remained a significant gap between the parties as to what would be acceptable financial outcomes.[63]

4.84 The Minister has stated publicly that it is not necessary for NBN Co to reach agreement with Telstra for the NBN to be operational and commercially viable:

> We will build the NBN with or without Telstra and while it would be cheaper and quicker with Telstra's help, we don't need them to build the network, we are building the network irrespective of the outcome of the talks with Telstra.[64]

4.85 The committee is not in a position to test the accuracy of that statement. It did not have access to the Implementation Study during its consultation process, nor did it receive sufficient guidance from the Minister or the Department. Representatives of the Department and NBN Co stated at the committee's hearings that the matter was one of commercial sensitivities and confidentiality and would not be discussed.[65] Telstra declined the committee's invitation to submit, noting the commercial sensitivities at that time surrounding its position.

4.86 Since the committee's consultation process however, the Implementation Study has been released with the bold assertion that the NBN is viable without a deal being reached with Telstra. The Implementation Study models its analysis of the feasibility of NBN Co on the assumption no deal with Telstra is reached.[66] Responding to this aspect of the report, one analyst, Mr Ian Martin of RBS Equities, is reported to have said:

> The figures in the study shine some light on press reports, suggesting NBN Co values Telstra's cooperation at around A$8bn: A$5bn+ build saving from use of Telstra's ducts and backhaul dark fibre, plus incentive payments of [about] A$2.5bn to migrate customers (ie A$300 per customer for Telstra's 7.5m basic access and 1.3bn ISDN lines). If the government is willing to pay some extra to significantly de-risk the whole project, then we believe a deal can still be reached at around the A$11bn level that we would see as offering fair value to Telstra…

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63 Mr Mitchell Bingemann, 'Telstra fight for compensation over NBN rollout far from over', *The Australian*, 19 March 2010, www.theaustralian.com.au/business/industry-sectors/telstra-fight-for-compensation-over-nbn-rollout-far-from-over/story-e6frg9hx-1225842759445, accessed 28 April 2010.

64 Quoted in John Durie, 'Senator Stephen Conroy won't delay NBN legislation for Telstra', *The Australian*, 14 October 2009, www.theaustralian.com.au/business/news/senator-stephen-conroy-wont-delay-nbn-legislation-for-telstra/story-e6frg90f-1225786575788, accessed 28 April 2010.

65 Mr Michael Quigley, CEO, NBN Co Ltd, *Committee Hansard*, Canberra, 15 April 2010, p. 44; Mr Daryl Quinlivan, Deputy Secretary, Infrastructure, Department of Broadband, Communications and the Digital Economy, *Committee Hansard*, Canberra, 15 April 2010, p. 69.

66 McKinsey-KPMG, *Implementation Study for the National Broadband Network*, 5 March 2010, Chapter 7.

> The government's implementation study assumes NBN Co will sign up 54–63% of premises on fibre, equivalent to 100% of current broadband penetration. It expects 75–90% of premises on fibre by 2035, but with mobile-only households already at 10%, which we think will rise to 20% over 5 years, this is an optimistic assumption. It makes no allowance for a substantial targeted market response by Telstra. Telstra's HFC covers [about] 20% of premises and Telstra may also roll out FTTN or FTTP in target areas. Also 35% of premises are MDUs [Multi Dwelling Units], which are relatively easy to target with competitive fibre (many already have fibre access).[67]

4.87 The committee would also point out that a failure of NBN Co to negotiate terms of access with Telstra, or indeed any other infrastructure owner, would be inconsistent with the Implementation Study's own recommendation that 'NBN Co should not construct an end-to-end network across the country'. As the Study goes on to provide:

> Where the market already provides the necessary infrastructure to enable superfast broadband services, and retailers can access that infrastructure at reasonable prices, NBN Co should not enter. Entry by NBN Co into these markets would be an inefficient use of funds, provided that a market emerges to support adequate national connectivity for those service providers who desire it.[68]

4.88 The committee also does not believe it is the national interest for NBN Co to construct an end-to-end network across the country, believing that this would see an inefficient, wasteful result where identical infrastructure was replicated for no increased service gain.

4.89 In addition, the committee would voice its concern that prices are being negotiated with Telstra when critical information about Telstra's assets and customer base are not known. When the committee asked the Department 'how much of Telstra's assets are usable in the NBN?', it was told:

> The Department does not have access to sufficient details of Telstra's assets to answer this question. The Government has a Bill in the Parliament the Network Information Bill 2009 which would enable collection of this information, but it has not been passed as yet.[69]

4.90 Similarly, when the committee asked 'What work has been done to assess the quality of individual assets (eg has anyone looked at the quality of the copper network pipes being discussed)?', the Department responded:

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67 Quoted in 'RBS focuses on NBN's high take-up projections', *Communications Day*, 10 May 2010, p. 5. See also chapter 2 above.

68 McKinsey-KPMG, *Implementation Study for the National Broadband Network*, 5 March 2010, p. 61.

69 Department of Broadband, Communications and the Digital Economy, answer to question on notice, 20 April 2010, (received 23 April 2010).

> Information concerning Telstra's assets is held by Telstra. In the absence of an appropriate authority of the kind described above, the Department has no ability to access this information. The extent of disclosure of this information in the negotiations between NBN Co and Telstra is a matter for commercial agreement.[70]

Compensation to Telstra and others

4.91 The committee is concerned that there is a significant risk that the NBN Co or the Australian Government will be required to compensate Telstra or other infrastructure owners in respect of infrastructure that they own and which is stranded from the NBN or rendered redundant as a result of network architecture decisions made by NBN Co. The committee's concern is that this could see a significant cost-blow out in the already enormous price-tag of the NBN.

4.92 When the committee raised the general question of compensation with the Department, it received the following response:

> The telecommunications industry is an open market and new entrants can build, buy or lease assets which may impact other current industry participants. Further, technology developments mean equipment and software upgrades often occur in a 3–5 year lifecycle. Industry participants need to adapt to changing circumstances and new competitors. It is not apparent that compensation liability arises in this situation.[71]

4.93 The committee also asked the following, more specific question about compensation to the Department:

> The NBN Co is progressively announcing network architecture details. Recently NBN Co indicated more details about Points of Interconnect (POIs). The media reported that there "are still a significant number of premises for which NBN Co will aggregate fibre access net sites back to a POI in reach of contestable backhaul – stranding existing uncontested infrastructure along the aggregation route".[72]
>
> (a) What is the likely quantum of such compensation? How is it calculated? What work has been done to quantify it?
>
> (b) Who will be liable to pay compensation – Government or NBN Co? Will this affect the potential for NBN Co to subsequently be sold?
>
> (c) If the government will be liable for compensation owed because of NBN Co's network architecture decisions, what oversight / assessment of

70 Department of Broadband, Communications and the Digital Economy, answer to question on notice, 20 April 2010, (received 23 April 2010).

71 Department of Broadband, Communications and the Digital Economy, answer to question on notice, 20 April 2010, (received 23 April 2010).

72 *Communications Day*, 25 March 2010, p. 2.

> NBN Co decisions is the Department undertaking to calculate and mitigate future liabilities?[73]

4.94 In response, the Department did not indicate whether any work had been done on this issue, only that it is 'premature to conclude' that the question of compensation will arise:

> NBN Co issued a discussion paper in December 2009 which amongst other things, sets out the company's initial approach to providing POIs. There have been no decisions made as yet by the Government in relation to the proposed approaches. However, continued utilisation of existing backhaul infrastructure will be a matter for the owner of that infrastructure.
>
> In view of the not yet settled arrangements in regard to proposed POIs, it is premature to conclude that the question of compensation will arise.[74]

4.95 The committee is particularly mindful of the importance of the issue of compensation given the findings of the Auditor-General in the Australian National Audit Office's report into the NBN Request for Proposal Process.[75]

4.96 The Auditor-General concluded that the Department failed to adequately assess and provide timely advice to the Government on compensation risks relating to the Government's initial Request for Proposal process. That process, which was ultimately terminated by the Government, asked for proposals from private enterprises to build, operate and maintain the NBN.[76] The Auditor-General criticised the Department's failure to adequately assess the compensation risks, concluding that 'information on the scale of potential compensation would have better informed, and may have influenced, the Government's approach':

> The department considered the compensation risk was 'significant' for a FTTN solution but did not estimate the quantum of this risk until relatively late in the process. Consequently, the department was not in a position to provide early advice to the Government on its likely impact on the viability of non-Telstra proposals, having regard to the Government's proposed contribution. While an estimate of any compensation range, understandably, would be broad and caveated, there was a need, earlier in the process, to put some dimensions to the 'significant risk' that a non-Telstra solution may require the payment of compensation to Telstra. The estimate of the potential cost of compensation developed by the department

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73 Senator Fisher, Written additional question on notice to NBN Co, 20 April 2010.

74 Department of Broadband, Communications and the Digital Economy, answer to question on notice, 20 April 2010, (received 23 April 2010).

75 Australian National Audit Office, *The National Broadband Network Request for Proposal Process: Department of Broadband, Communications and the Digital Economy*, 3 February 2010, www.anao.gov.au/uploads/documents/2009-10_Audit_Report_20.PDF, accessed 5 May 2010.

76 A full chronology of the Request for Proposal process and its ultimate termination is provided in chapter 2 of the committee's *Third Report.*

> 10 months into the RFP process was some billions of dollars. The compensation risk had a considerable bearing on the outcome of the process following the exclusion of Telstra. No other national proponent was able to meet the Commonwealth's objectives and accept the potential compensation costs.
>
> Estimating the potential compensation could have begun early in the process by using publicly available information and engaging specialist expertise, and been updated when better information became available (as noted in paragraph 2.57). While recognising the approach to delivering the NBN would be a decision for the Government, information on the scale of potential compensation would have better informed, and may have influenced, the Government's approach.[77]

4.97 The committee believes that the Department should conduct analysis as to whether there is a risk that an obligation to pay compensation may arise in the future in relation to the activities of NBN Co and the design of the NBN. The committee believes that waiting to assess the question of compensation until *after* all network architecture decisions have been made, and all commercial negotiations have been concluded, is too late. Such an approach risks repeating the very same mistakes that the Department made, and which the Auditor-General criticised, in relation to the handling of issues of compensation regarding the Request For Proposals process.

Recommendation 9

4.98 That the Department immediately consider whether potential decisions on network architecture will create a risk that NBN Co and/or the Government will be liable to pay compensation to third parties, and the likely quantum of any compensation.

Services to regional and remote Australia

4.99 NBN Co has not disclosed a detailed roll-out plan for its network build. Nor has it decided on the areas that will actually be included in the 90 per cent fibre coverage footprint.

4.100 There is no publicly available timetable of where and when services will be delivered to regional and remote Australian premises.

4.101 Elsewhere in this report the committee has commented on the historical neglect and under-servicing of regional and remote areas in terms of the provision of telecommunications infrastructure and services.[78] The committee also noted the overwhelming focus of recommendations of the Regional Telecommunications

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77 Australian National Audit Office, *The National Broadband Network Request for Proposal Process: Department of Broadband, Communications and the Digital Economy*, 3 February 2010, www.anao.gov.au/uploads/documents/2009-10_Audit_Report_20.PDF, accessed 5 May 2010, p. 25.

78 See chapter 3, above.

Independent Review Committee's report that there needs to be better co-ordination between all levels of government and telecommunications providers.

4.102 The committee is concerned that the absence of a detailed roll-out plan is having a chilling effect on the building of infrastructure in regional and remote areas. It is also being kept secret whether NBN Co will, as the committee and others such as the Regional Telecommunications Independent Review Committee have called for, be 'rolled-into' urban centres from the bush as opposed to being 'rolled-out'. The latter option would leave under-serviced regional and remote communities neglected for years to come.

Recommendation 10

4.103 That NBN Co release a detailed implementation plan describing how and when services will be provided to specified regional and remote locations, and what the cost of connection will be for regional householders.

4.104 That the implementation plan prioritise the servicing of regional and remote locations so that the network is 'rolled-into' urban areas from regional and rural areas.

End-user pricing

4.105 More than 12 months after the Government announced its intention to build the NBN, it is still not known how much it will cost the average Australian user to access services over the NBN. The average Australian users' taxes are contributing to the enormous cost of building the NBN. But an average Australian household has no way of knowing whether it will even be able to afford to purchase superfast broadband services over the network. There is simply no answer to the simple question: 'what will this cost me?'

4.106 As NBN Co is a wholesale-only provider, end-user pricing is ultimately a matter for Retail Service Providers. But until NBN Co finalises and makes publicly available its wholesale access pricing, Retail Service Providers cannot finalise their pricing of products for consumers and businesses. In evidence to the committee, Mr Quigley made it apparent that it is not even possible to take NBN Co's wholesale prices in Tasmania as indicative of what NBN Co might charge for access on the mainland. As Mr Quigley stressed, the Tasmanian access charges are 'interim prices' only.[79]

4.107 The only indication of how much broadband services over the NBN might cost the average Australian residential premises in the future was provided by the Internet Service Provider, iiNet. iiNet will be offering broadband services to Tasmanians from July 2010. As an indication of its expected pricing for Tasmanians,

79 Mr Michael Quigley, CEO, NBN Co Ltd, *Committee Hansard*, Canberra, 15 April 2010, p. 47.

iiNet referred to its current pricing of FTTH services in Point Cook in Victoria.[80] Based on those prices, to purchase a package with 100 Mbps download speed (and somewhere between 1–5 Mbps upload speed), will cost an Australian residential premises between $129.95–159.95 per month.[81] Cheaper prices exist for slower speeds, but assuming NBN Co does not charge higher access fees on the mainland from its 'interim' pricing in Tasmania, to get the 100 Mbps service that the Government touts as the true benefit of the NBN, will still cost the average Australian just under $2000 per year.

Lifeline telephony service

4.108 'Lifeline telephony services' refers to the ability to maintain the use a telephone service in the event of a power failure, for example to dial emergency services. The current copper network can transmit electricity, meaning that an end-user could still make telephone calls on a non-cordless landline telephone even if the mains electricity to the premises is cut. Unlike copper, the fibre lines cannot transmit electricity.

4.109 The issue was succinctly expressed by the Internet Society of Australia:

> Electricity cannot be transmitted over optical fibre. That means that the existing situation in which electricity can be sent over copper wire into people's homes in cases of emergency cannot be replicated in a fibre NBN. Back up power must be provided where it will clearly be needed in emergency situations (fire and police stations, hospitals, nursing homes, etc). There will also need to be an extensive education campaign [to] ensure members of the public are aware that their fixed phone service may no longer operate in emergency situations. Special provision will also need to be made for residences in which people with special health or other special needs.[82]

4.110 Mr Alan Horsley also submitted that:

> Commonwealth and State Governments have recently established arrangements which provide for emergency information telephone calls to be made to the homes of people threatened by natural disasters.
>
> Individual members of the community as users and Government will reasonably expect that any basic telephone service that may be made available directly from the National Broadband Network Termination Unit

80 Point Cook is a test site for Fibre to the Premises technology that was launched by Telstra in December 2009.

81 Mr Stephen Dalby, Chief Regulatory Officer, iiNet Ltd, *Committee Hansard*, Melbourne, 14 April 2010, p. 21. See also, iiNet Ltd, answer to question on notice, 14 April 2010 (received 27 April 2010).

82 Internet Society of Australia (ISOC-AU), *Submission 118*, p. 5.

> and located at customers' premises will function at a time of mains power failure.[83]

4.111 After identifying the problem, the Implementation Study proposed that:

> NBN Co should design its [optical network termination device] to provide end users with the option of a self-supplied, self-maintained battery backup to maintain telephone access in the event of a power failure. There are customers who will need assistance with maintaining the battery backup—principally designated priority assistance customers who qualify for lifeline services and currently receive special assistance from telecommunications providers. Government should pay to provide and maintain battery backup for these priority assistance customers, and NBN Co should enable such features as required via contractual arrangements.[84]

Committee view

4.112 The committee believes that it is essential that priority assistance customers, like the elderly, hospitals, and emergency services, have access to a working landline telephone service in the event of a mains power failure to the premises. However, the committee is concerned that such a solution does not go far enough. Australian users expect that their non-cordless landlines will work during a power failure, even if that failure lasts for days. The committee is concerned that there will be circumstances where end-users have not paid for or maintained a battery backup and there could be tragic consequences as a result. At the very least, the committee agrees with the Internet Society of Australia that there will need to be a mass-education campaign to alert end-users to the consequences of a non-copper telephony service in the event of a mains failure to the premises.

Recommendation 11

4.113 That priority assistance customers, like the elderly, hospitals, and emergency services, have access to a working landline telephone service in the event of a mains power failure to the premises.

4.114 That there be a mass-education campaign to alert end-users to the consequences of a non-copper telephony service in the event of a mains failure to their premises.

83 Mr Alan Horsley, *Submission 108*, p. 5.

84 McKinsey-KPMG, *Implementation Study for the National Broadband Network*, 5 March 2010, pp 36–37.

Chapter Five

The exposure drafts: NBN Co Bill

Introduction

5.1 On the same day the Government announced that it would establish a company (NBN Co Ltd) to build and operate a new super-fast National Broadband Network, it also foreshadowed that it would introduce legislation establishing:

- governance, ownership and operating arrangements for the wholesale only NBN company; and
- the access regime to facilitate open access to the NBN for retail level telecommunications service providers.[1]

5.2 That announcement was made on 7 April 2009. Over ten months later, on 24 February 2010, the Minister finally released exposure drafts of the foreshadowed legislation.[2] The two drafts released were the:

- National Broadband Network Companies Bill 2010 (the 'NBN Co Bill'); and
- Telecommunications Legislation Amendment (National Broadband Network Measures—Access Arrangements) Bill 2010 (the 'Access Bill').

5.3 Explanatory Notes for the exposure drafts were also circulated.

5.4 The Government has stressed that the exposure drafts of the legislation are just that – drafts – and that they have been issued 'to facilitate consideration of the proposed legislation prior to it being introduced into Parliament'.[3] The Government has also stated that it is 'willing to consider amendments to the legislation if compelling arguments are put forward'.[4]

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1 Commonwealth of Australia, *National Broadband Network: Regulatory Reform for the 21st Century Broadband*, Discussion Paper, 7 April 2009, p. 2, www.dbcde.gov.au/__data/assets/pdf_file/0006/110013/NBN_Regulatory_Reform_for_the_21st_Century_Broadband_low_res_web.pdf, accessed 26 April 2010.

2 The Hon. Lindsay Tanner MP, Minister for Finance and Deregulation, and Senator the Hon. Stephen Conroy, Minister for Broadband, Communications and the Digital Economy, 'Draft legislation released for NBN Co Operations', Joint press release, 24 February 2010, www.minister.dbcde.gov.au/media/media_releases/2010/011, accessed 26 April 2010. During the ten months of delay, the committee called for the Government to bring forward this legislation. For example, recommendation 3 of the committee's *Third Report* in November 2009 called for the Government to 'expediently bring forward the legislation that will provide the governance and funding framework for the NBN Co Ltd'.

3 *Explanatory Notes for Exposure Drafts of Bills*, p. 1.

4 *Explanatory Notes for Exposure Drafts of Bills*, p. 1.

5.5 Simultaneous with the committee's inquiry, the Department has undertaken its own consultation process on the exposure drafts of the legislation. At the time of writing, the Department had not published the 20 submissions it had received.[5] The committee's expectation is that once the bills have been finalised and introduced into Parliament, they will be subject to further, and comprehensive, scrutiny by a standing legislative committee of the Senate.

5.6 For that reason the committee has restricted itself to highlighting the key areas of concern raised in submissions to it. The remainder of this chapter addresses matters raised in relation to the NBN Co Bill. Chapter six addresses the Access Bill.

NBN Co Bill

General outline

5.7 In broad terms, the NBN Co Bill provides for:

- the operations of NBN Co, including rules about the supply of services by NBN Co and its wholly owned subsidiaries (Part 2);[6]
- the ownership and control of NBN Co, including that it is to be a Commonwealth majority owned company during the rollout of the NBN but that once the NBN is declared 'built and fully operational' by the Communications Minister, the Commonwealth must sell its remaining equity in NBN Co within the following five years unless that period is extended by the Finance Minister (Part 3). This Part of the Bill also provides for what constitutes 'unacceptable private ownership or control' situations and the consequences to apply;[7] and
- miscellaneous matters, including that NBN Co is not a public authority, that it may be wound up in accordance with the *Corporations Act 2001* (Cth), and that the Communications Minister and the Finance Minister may delegate all or any of their Ministerial powers and functions under the Act (Part 7).[8]

5.8 Submissions to the committee were quite focussed as to the key areas of contention. They related to:

- whether NBN Co would be restricted to supplying only wholesale services, what would constitute the appropriate service, to whom that service could be supplied, and the circumstances in which any exemptions should apply;

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5 Mr Philip Mason, Assistant Secretary, NBN and Fibre Rollout Regulation, Department of Broadband, Communications and the Digital Economy, *Committee Hansard*, Canberra, 15 April 2010, p. 70.

6 NBN Co Bill, Part 2.

7 NBN Co Bill, Part 3.

8 NBN Co Bill, Part 7.

- the merit of the cessation of majority Commonwealth ownership and the implications of this event occurring;
- the comprehensiveness of provisions governing the terms of private ownership and control; and
- other additional matters not currently provided for in the NBN Co Bill and which it was proposed the NBN Co Bill should be amended to address.

Wholesale only services

5.9 In Part 2, clause 9, the Bill provides that NBN Co must only supply services to 'a carrier' or 'a service provider'. The terms 'carrier' and 'service provider' are defined as having the same meanings as in the *Telecommunications Act 1997*.[9] In effect, this restricts NBN Co to supplying services to either a holder of a carrier license,[10] or a 'carriage service provider' or 'content service provider'.[11] A 'carriage service provider' is a person who supplies or proposes to supply a listed carriage service to the public (meaning the carriage of communications between two end users each of whom is outside the immediate circle of the supplier of the service).[12] A 'content service provider' is a person who uses or proposes to use a listed carriage service to supply a content service to at least one end user who is outside the immediate circle of the supplier of the content.[13]

5.10 After providing that NBN Co can only supply services to carriers or service providers, clause 9 immediately provides for an exemption. Subclause (9)2 enables the Communications Minister to, by legislative instrument, exempt a specified service from the scope of subclause 9(1) 'subject to such conditions (if any) as are specified in the exemption'.[14] In effect this would enable NBN Co to supply a specified service to persons other than carriers, carrier service providers or content service providers, subject to conditions specified by the Minister.[15] One example given in the Explanatory Notes is an exemption allowing NBN Co to offer services directly to certain end-users, for example, government agencies.[16] The Minister is obliged to consult with the ACCC before exempting a service.[17]

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9 NBN Co Bill, cl 5.

10 *Telecommunications Act 1997* (Cth), s 7, '*carrier*'.

11 *Telecommunications Act 1997* (Cth), ss 7, '*service provider*', 86.

12 *Telecommunications Act 1997* (Cth), ss 87, 88.

13 *Telecommunications Act 1997* (Cth), s 97.

14 NBN Co Bill, cl 9.

15 NBN Co Bill, cl 9.

16 *Explanatory Notes for Exposure Drafts of Bills*, p. 4.

17 NBN Co Bill, cl 9(4).

5.11 There was considerable confusion amongst submitters as to three principal aspects of the operation of clauses 9 and 10.

- First, concerning the operation of subclause 9(1): to whom would NBN Co ordinarily be able to supply services. Specifically, who would qualify as a 'service provider' for the purpose of obtaining services from NBN Co.
- Second, concerning the operation of subclause 9(2): what would the exemption in subclause 9(2) enable the Communications Minister, and consequently NBN Co, to do?
- Third, concerning the operation of clause 10: the extent to which the exemption to the prohibition on NBN Co supplying content services undermined the extent to which NBN Co will be a 'wholesale only' company consistent with the Government's stated policy objectives.

5.12 Some submitters commented that the Ministerial exemption provisions could potentially enable NBN Co to provide retail services to end-users. Others expressed the belief that, particularly in regards to subclause 9(2), it would merely enable NBN Co to provide Layer 3 services (which are effectively wholesale services) to companies other than telcos and should be exercised in the event that a competitive wholesale market for the supply of these services does not develop.[18] Submitters differed in the extent to which they supported the Ministerial power and the circumstances in which it might be exercised.

Critics of clauses 9 and 10

5.13 The Business Council of Australia interpreted clauses 9 and 10 and the provision for Ministerial exemption, as potentially allowing NBN Co to 'offer fully integrated wholesale services and direct supply to end-users'.[19] It continued that the provisions:

> ...therefore allows NBN Co. to expand its product offer further into the value chain, a significant departure from both the original policy intent and from the understanding in the industry and wider community about the NBN Company's function and operation in the market.
>
> The change in policy has no obvious supporting rationale nor an assessment of the net benefits from this greater level of government intervention in the market. It is also puzzling that the government would take action to remove vertical integration in the fixed line sector only to then replicate the same integrated structure within a government business. Furthermore, the suggested ministerial discretion lacks proper safeguards and will create uncertainty for competing private investors as long as it is in place.

18 Ms Rosemary Sinclair, Chair, Australian Telecommunications Users Group, *Committee Hansard*, Canberra, 15 April 2010, p. 14.

19 Business Council of Australia, *Submission 107*, p. 5.

> The expansion of NBN Company's scope of operations and the inclusion of ministerial discretion should be removed from the draft legislation.[20]

5.14 The Western Australia Chamber of Commerce and Industry similarly argued that it is 'essential to ensure NBN Co does not operate in the retail market where it could provide preferential treatment to its own retail services to the detriment of competition'.[21]

5.15 Optus was typical of the attitudes of incumbent retail internet and telecommunications service providers such as AUSTAR United Communications[22] and iiNet,[23] when it criticised the Ministerial exemption provision in clauses 9 and 10 as being contrary to the policy rationale for the NBN Co:

> For the NBN to fully realise its potential Optus has always maintained that the NBN would need to be true to the Government's clear commitment that it will be operated as a structurally separated, wholesale-only operation on genuine open access arrangements. Such an approach would avoid the well documented problems we have witnessed in the current fixed line market structure. Moreover, a regime built on these principles has the potential to set a platform for a highly competitive retail market to emerge which in turn is likely to lead to affordable high-speed broadband services and high take-up by businesses and consumers.[24]

5.16 Based on those policy arguments, Optus submitted that, because it believes that the Bill 'provides NBN Co with significant scope to operate as a retail service provider of telecommunications or content services', it represents 'a significant and deeply worrying step-back from the Government's clear commitment to operate the NBN Co as a wholesale-only provider'.[25] Optus therefore proposed:

> The draft Bill should be amended to remove the discretion of the Minister to make any exemptions to NBN Co's ability to operate as a wholesale-only provider of telecommunications and content services…
>
> NBN Co should be restricted to supplying services at Layer 2 and below.[26]

5.17 In a separate submission, Primus argued that instead of removing the Ministerial exemption power in clause 9, there should be clarification and circumscription of its potential use:

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20 Business Council of Australia, *Submission 107,* p. 5.

21 Western Australia Chamber of Commerce and Industry, *Submission 115,* p. 2.

22 AUSTAR United Communications Ltd, *Submission 116,* pp 5–6.

23 Mr Stephen Dalby, Chief Regulatory Officer, iiNet Ltd, *Committee Hansard,* Melbourne, 14 April 2010, pp 16–17.

24 Optus, *Submission 114,* p. 3.

25 Optus, *Submission 114,* p. 3.

26 Optus, *Submission 114,* p. 4.

> Firstly, there is a lack of detail about when the Communications Minister could make such a determination. Primus suggests the Government establish specific criteria or guidance around the making of such a determination.[27]
>
> The other concern of Optus and other incumbent internet service providers was the extent to which non-carriers could be characterised as 'service providers' and therefore be eligible, even in the absence of the exercise of Ministerial discretion, to acquire services from NBN Co. Optus submitted that 'NBN Co should be restricted to supplying services to carriers only'.[28] Primus argued that:…to ensure a wholesale arrangement is not artificially constructed to undermine the 'wholesale only' principle, the Government should impose further rules defining when a 'carrier or service provider' can acquire services from NBN Co. For example, a company should actively provide services to the end-user market and have a standing offer available for acceptance in order to be characterised as a service provider.[29]

5.18 iiNet also submitted that, if retained, the definition of a 'service provider' needs clarification because:

> If I was Wesfarmers or the Department of Defence or some other large corporation that had the skills and the resources internally to develop their own telecommunications services for internal corporate use, what is stop them going out and putting a jingle up that says 'I'm a wholesale customer'?[30]

5.19 Consumer and end-user advocacy groups were divided in their attitudes to clauses 9 and 10 of the NBN Co Bill. The Internet Society of Australia (ISOC-AU) recommended that the exemption powers be abolished. In the alternative, ISOC-AU submitted that, if retained, 'the need for such exemptions should be made clear, and the section significantly tightened so that exemption can be made only in very limited, specific circumstances and where such a significant change to the wholesale access only policy can be justified'.[31] The Australian Communications Consumer Action Network (ACCAN) recommended that NBN Co operate solely as a wholesale provider and the exemption powers, which might allow it to operate retail services, be removed from the Bill.[32]

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27 Primus Telecom Australia, *Submission 117*, p. 4.

28 Optus, *Submission 114*, p. 4.

29 Primus Telecom Australia, *Submission 117*, p. 4.

30 Mr Stephen Dalby, Chief Regulatory Officer, iiNet Ltd, *Committee Hansard*, Melbourne, 14 April 2010, pp 16–17.

31 Internet Society of Australia (ISOC-AU), *Submission 118*, pp 3–4.

32 Australian Communications Consumer Action Network, *Submission 121*, p. 6.

Supporters of clauses 9 and 10

5.20 On the other hand, Ms Rosemary Sinclair, Chair of the Australian Telecommunications Users Group (ATUG) explained that in her view, commentary such as that of Optus, was 'misunderstanding' the purpose of clauses 9 and 10 and that it was in fact a good thing for the prospects of future innovation and service delivery over the NBN:

> I do not know whether it is the lawyer in me, but I read the whole thing, so when I got to clause 9...after having read the definitions—clause 1, 2, 3, up to 8—and read it in the context of all the previous statements that say NBN is going to be a wholesale only company, I say, 'Okay, that means that there's the potential for NBN to offer wholesale type services to other than telcos.' I think that is a good prospect because I think that one of the problems that we have is that, if we do not have that kind of reserve power, we are actually limiting the prospects for innovation to the existing communications sector. From where I sit, the prospects for innovation are going to come from outside that sector.[33]

5.21 However, Ms Sinclair also indicated that, although supportive of proposed clauses 9 and 10, ATUG considers the current definition of customers of NBN to be insufficient:

> ATUG would like to see the definition of customers of NBN broadened to include businesses and government agencies who wish to use NBN broadband to deliver services to their customers or clients eg Health Department, Education Department, Systems Integrators, Content Service Providers.
>
> The current definition of "carriage service provider" does not seem to ATUG to envisage this new group of wholesale service customers and the existing obligations on service providers would not be appropriate to these new service providers.
>
> The existing definition of content service provider suggests the services are provided to the public at large rather than a defined group of clients or service end users including businesses in the case of Systems Integrators.[34]

5.22 Mr Paul Budde, explained his view of the merit of clauses 9 and 10 as follows:

> We certainly need to ask the question: what gets priority here – competition policy subtleties or the national interest? I would like to stress that the issue is the creation of an infrastructure such that competition may be maximised at the services level.

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33 Ms Rosemary Sinclair, Chair, Australian Telecommunications Users Group, *Committee Hansard*, Canberra, 15 April 2010, p. 14.

34 ATUG, answer to question on notice, 16 April 2010 (received 28 April 2010), p. 1.

> This concern seems to be addressed to a certain extent in the proposed NBN Co legislation, which will give the government the possibility of allowing sectors to buy infrastructure capacity directly from NBN Co.[35]

Explanation from the Department

5.23 Following the committee's final hearings, the committee sought an explanation from the Department as to the decision to insert a Ministerial discretion in proposed subclause 9(2) of the NBN Co Bill enabling the Minister to exempt NBN Co from wholesale-only service restrictions. The Department provided the following response:

> The objectives of the NBN Co Bill make it clear that NBN Co will operate on a wholesale-only basis (proposed section 3(2)(a)). NBN Co has clearly stated that it will offer Layer 2 bitstream services. These are, by their nature, wholesale services, not retail services.
>
> …
>
> This provision was included because some sophisticated end-users, such as some government agencies and corporate users, may want to buy wholesale services directly for their own internal use. It was considered appropriate that the option should exist for such end-users to be able to seek services directly from NBN Co for their use, rather than having to force them to use intermediary providers that could simply add unnecessarily to their cost structures. The Australian Telecommunications Users Group (ATUG) has supported this provision. Clearly if NBN Co were to supply such end-users it would need to be on the basis that they were not favoured over other customers of wholesale services.
>
> For any end-user to be able to benefit from such an exemption, it would need to be able to invest in equipment to transform the bitstream service into useable services such as telephony or broadband. This is not a simple undertaking and would require the end-user to invest in necessary equipment and staff as opposed to simply purchasing higher level service from other providers. NBN Co would not be competing directly with retail providers to provide services to customers simply seeking a broadband or telephony service in the everyday retail marketplace.
>
> While this is the reason the provision has been included in the Bill, the Bill is an exposure draft designed to elicit feedback. The legislation will be finalised in light of that feedback.[36]

35 Paul Budde Communication Pty Ltd, *Submission 105*, p. 2.

36 Department of Broadband, Communications and the Digital Economy, answer to question on notice, 20 April 2010 (received 23 April 2010), p. 11.

Committee view

5.24 The committee believes that NBN Co should be a supplier of wholesale services only. By 'wholesale', the committee means that NBN Co should not be permitted to supply services higher than Layer 2.

5.25 The committee believes that NBN Co should only provide services at Layer 2 and below.[37] In the event that a competitive market for the supply of unbundled Layer 3 services does not develop, then the committee recommends that a Universal Service Obligation should be considered for addressing this failure, particularly in regional and remote areas.

Recommendation 12

5.26 That the NBN Co Bill be amended so that NBN Co can only provide services at Layer 2 and below.

5.27 That, in the event that a competitive market for the supply of unbundled Layer 3 services does not develop, the Government consider arrangements for a Universal Service Obligation to address this failure, particularly in regional and remote areas.

Cessation of majority Commonwealth ownership

5.28 In Part 3, clauses 21–25, the Bill provides for the Communications Minister to declare, before 30 June 2018, that the NBN should be treated as 'built and fully operational'.[38] The Finance Minister must, within five days, then declare that either (a) conditions are suitable for the entering into and carrying out of an NBN Co sale scheme[39] (with the consequence that the Commonwealth must then sell all of its remaining equity in NBN Co within five years or an extended period if the Finance Minister so declares[40]), or (b) declare a 'sale deferral period' during which the Commonwealth is not required to sell its equity in NBN Co.[41] The deferral period must not be longer than 12 months,[42] but the Bill contains no limit on the number of deferrals that the Finance Minister may make. The declaration by the Communications Minister, and the subsequent declarations by the Finance Minister, are not legislative instruments.[43]

37 See the discussion in the previous chapter of this report on product offerings, specifically NBN Co's decision to supply only a Layer 2 service.

38 NBN Co Bill, cll 21–22.

39 NBN Co Bill, cl 25.

40 NBN Co Bill, cl 24.

41 NBN Co Bill, cl 25.

42 NBN Co Bill, cl 25(4).

43 NBN Co Bill, cll 22(8), 24(7), 25(8).

5.29 Some submitters raised concerns about the implications that a cessation of majority Commonwealth ownership will have, particularly for service delivery in regional and remote areas. For example, the Indigenous Remote Communications Association (IRCA) submitted that because of its concerns that 'remote Australia will not provide viable returns for future purchasers of NBN Co, thus leading to reduced services', IRCA would 'like to see the Government retain a stake in NBN Co beyond its sale, in relation to wholesale service provision of broadband to remote Australia'.[44] IRCA submitted this was necessary to ensure 'the ongoing provision of quality, subsidized or affordable broadband to sparsely populated regions'.[45]

5.30 The Australian Communications Consumer Action Network submitted that the 'object of the [NBN Co] Bill be expanded to enshrine the role of the NBN Co in ensuring access to affordable fast broadband, accompanied by a requirement to produce five-year implementation plans'.[46] ACCAN submitted such an amendment would provide a legislative protection to 'deliver the type of broadband future that Australians want and need'.[47]

5.31 The Communications Law Centre of the University of Technology Sydney, submitted that the current ownership limitations 'do not shed light on the way in which NBN Co will have incentive to maintain and upgrade its network once the Government sells down its shares'.

> In a worst-case scenario, this would result in Australia's telecommunications infrastructure being controlled by a monopoly immune from market pressure.[48]

5.32 Finally, Mr Allan Horsley, an individual with some 45 years of experience in design, operational, representative and regulatory telecommunications roles, drew attention to the lack of reporting obligations on NBN Co when it ceases to be a Commonwealth majority owned corporation. Part 4 of the NBN Co Bill requires, amongst other things, NBN Co to keep the Communications Minister and the Finance Minister informed of the operations of NBN Co and NBN Co subsidiaries,[49] an obligation which would presumably include providing information about the service performance of the NBN. However, all reporting obligations contained in Part 4 of the Bill cease to apply once the Commonwealth ceases to hold a majority of the voting shares in NBN Co.[50] Mr Horsley submitted that the lacuna in information disclosure should be remedied by amending the NBN Co Bill:

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44 Indigenous Remote Communications Association, *Submission 110,* p. 1.

45 Indigenous Remote Communications Association, *Submission 110,* p. 1.

46 Australian Communications Consumer Action Network, *Submission 121,* p. 4.

47 Australian Communications Consumer Action Network, *Submission 121,* p. 4.

48 Communications Law Centre, University of Technology Sydney, *Submission 111,* p. 7.

49 NBN Co Bill, cl 54.

50 NBN Co Bill, cl 59.

> The legislation [should] require the development of appropriate regulations by the Australian Communications and Media Authority...to establish an appropriate monitoring and reporting arrangement to ensure Government and the community are fully informed on the service performance of the NBN, reporting each six months for the first five years of full network operation and then each twelve months thereafter if service quality is considered to have been generally satisfactory in the initial five years.[51]

Committee view

5.33 The committee does not believe that it is necessary for the Commonwealth to retain majority ownership of NBN Co in the long term, as long as legislation governing NBN Co's operations also sets out mandatory minimum service requirements for the company. Those requirements should, at a minimum, statutorily require NBN Co to fulfil the Government's stated policy objectives for the NBN. They are that:

- 100 per cent of Australian premises receive super-fast broadband services (with 90 per cent receiving Fibre to the Home services with speeds of up to 100 Mbps, and the remaining 10 per cent receiving speeds of at least 12 Mbps); and
- NBN Co provide wholesale services on an open-access and equivalent basis.

5.34 The governing legislation should also impose on NBN Co a continuing obligation to upgrade services to Australians into the future so as to positively ensure that Australia's broadband network is not 'frozen' at present technological standards and capabilities.

5.35 The committee understands that the draft legislation would not enable the Commonwealth's majority ownership to be sold down until the Communications Minister has declared that the NBN should be treated 'as built and fully operational'.[52] The committee is concerned that there is a lack of definition in the NBN Co Bill as to what constitutes 'built and fully operational'. The committee believes that subclause 22(5) of the NBN Co Bill (which provides the matters to which the Communications Minister must have regard in deciding whether to make the declaration) should be amended so that a declaration cannot be made unless the NBN in fact covers 90 per cent of Australians with services of 100 Mbps, and the remaining 10 per cent of Australians with services of at least 12 Mbps.

5.36 Additionally, the committee has the following three concerns about the implications which will flow from cessation of majority Commonwealth ownership.

- First, that there is currently no obligation explicitly set out in the draft legislation requiring NBN Co to maintain its capability to provide broadband

51 Mr Allan Horsley, *Submission 108,* p. 4.

52 NBN Co Bill, cl 21.

services to 100 per cent of Australian premises with services of at least 12 Mbps. The committee understands that one potential method of ensuring continued coverage might be to mandate it as a condition of NBN Co's carrier licence.[53] However, the committee believes that it is more appropriate that such an obligation be explicitly set out in the governing legislation, as a minimum service obligation, providing upfront certainty for all Australians and stakeholders as well as future investors.

- Second, that loss of Commonwealth majority ownership will remove any future incentive for NBN Co to upgrade its services to unprofitable areas – likely to be regional and remote areas – following the initial rollout of the NBN. The result is that broadband services to these areas may be 'frozen' at levels which prove inadequate for future communications needs. The committee notes on this point the commentary in the Implementation Study that 'NBN Co, as a monopoly and after completion of the roll-out and if the copper and HFC networks are deactivated, will lack competitive pressure to optimise its operations.'[54] After noting that one consequence may be higher prices charged to operators, the Implementation Study commented that '[i]n the absence of competitive pressure, NBN Co will have limited incentive to engage in rigorous cost management'.[55] The committee believes the Government should amend the legislation so as to require NBN Co – regardless of the Commonwealth's equity stake in it –to ensure that broadband services are available to all Australians on an equitable basis[56] and to a minimum level service standard.
- Third, that loss of Commonwealth majority ownership may result in the cessation of public disclosure obligations of NBN Co as to its service performance. The committee believes that NBN Co should be subject to continual public disclosure requirements as to its service performance, and that these requirements should continue even after the cessation of majority Commonwealth ownership. The committee did not receive sufficient guidance from submitters as to whether requirements under the *Corporations Act 2001* (Cth) would sufficiently fulfil any lacuna.

Recommendation 13

53 The Department indicated in answer to a question on notice that it considered requirements being placed on NBN Co by license conditions would be one option that would be available, and might be applied, 'as necessary': Department of Broadband, Communications and the Arts, answer to question on notice, 20 April 2010 (received 23 April 2010), p. 13.

54 McKinsey-KPMG, *Implementation Study for the National Broadband Network*, 5 March 2010, p. 444.

55 McKinsey-KPMG, *Implementation Study for the National Broadband Network*, 5 March 2010, p. 444.

56 Noting the 90 per cent at 100 Mbps and 10 per cent at 12 Mbps divide.

5.37 That provisions of the NBN Co Bill relating to the future privatisation of NBN Co be amended to clarify what is meant by 'built and fully operational'.

Recommendation 14

5.38 That the NBN Co Bill be amended so that a declaration by the Communications Minister that the NBN should be treated as built and fully operational is a disallowable instrument. That is, that clause 22(8) of the NBN Co Bill stating that such a declaration is 'not a legislative instrument' be deleted.

Recommendation 15

5.39 That the NBN Co Bill be amended so as to expressly require NBN Co to meet minimum service obligations after the cessation of Commonwealth majority ownership. Those obligations must include that:

- **NBN Co retain its capacity to provide broadband services to 100 per cent of Australian premises;**
- **NBN Co retain its capacity to service 90 per cent of Australian premises with Fibre to the Home services with speeds of up to 100 Mbps;**
- **NBN Co retain its capacity to service the remaining 10 per cent of Australian premises with broadband connections of speeds of at least 12 Mbps;**
- **NBN Co develop and maintain its capacity to supply Layer 2 services to 100 per cent of Australian premises; and**
- **NBN Co maintain its open-access network, providing wholesale services on an equitable basis.**

Recommendation 16

5.40 That the Government consider ways to 'future-proof' NBN Co's services. This must include a specific requirement that NBN Co report to the ACCC every five years on developments in broadband services in other comparable advanced economies, and that if the report demonstrates that NBN Co's services are falling behind those available to a majority of end users in other comparable advanced economies, lay out a plan to close the gap.

Recommendation 17

5.41 That the NBN Co Bill be amended so as to explicitly require NBN Co to publicly disclose its service performance even after the cessation of majority Commonwealth ownership.

Private ownership and control

5.42 Division 3, clauses 41–46 make provision for restrictions on what is termed 'an unacceptable private ownership or control situation'[57] occurring or continuing. The NBN Co Bill leaves it to regulations, developed after consultation with the ACCC, to determine what in fact will constitute an unacceptable private ownership or control situation.[58]

5.43 Optus was the most vocal on this issue, suggesting that these arrangements are 'wholly inadequate' because the prospect remains that 'a retail telecommunications provider could gain an effective controlling stake in NBN Co which significantly compromises the reform credentials of the NBN'.[59] Optus submitted the NBN Co Bill should be amended so as to limit a retail telecommunications provider from taking more than a 20 per cent stake in NBN Co, and clearer rules should be established to prevent a minority shareholder from exercising effective control of the NBN Co.[60]

5.44 The Department explained that it was intended that regulations which would be made subject to consultation with the ACCC and which would be disallowable instruments, would sufficiently address concerns such as those voiced by Optus.[61] However, the Department also stated that 'the Government is now considering its approach in light of the submissions on the exposure drafts and the Implementation Study'.[62]

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57 NBN Co Bill, cl 41(1).

58 NBN Co Bill, cl 41.

59 Optus, *Submission 114*, p. 3.

60 Optus, *Submission 114*, p. 4.

61 Department of Broadband, Communications and the Arts, answer to question on notice, 20 April 2010 (received 23 April 2010), p. 12.

62 Department of Broadband, Communications and the Arts, answer to question on notice, 20 April 2010 (received 23 April 2010), p. 12.

5.45 Other submitters raised concerns about whether, during the term in which NBN Co is majority Commonwealth owned, private investors will have sufficient access to information provided by NBN Co to the Government. The Business Council of Australia submitted that:

> The Bill does not, however, explicitly set out the rights to information for any future minority non-government owners of NBN Co... For the avoidance of any doubt, the Bill should set out the basis on which minority equity owners can request access to any information provided by NBN Co. to the government. In principle, all information provided to the Ministers for Communications and Finance should also be provided to minority equity holders.[63]

5.46 The Department stated in response that NBN Co 'should receive the same legal treatment as other Commonwealth companies' and referred to the continuous disclosure obligations under the *Corporations Act 2001* and the reporting obligations in the *Commonwealth Authorities and Companies Act 1997*.[64]

Committee view

5.47 The committee believes that, given regulations made under clause 41 will be legislative instruments, and hence subject to parliamentary scrutiny and disallowance, it is appropriate that restrictions on private ownership be provided for in regulations.

5.48 The committee believes that it is appropriate to explicitly set out the basis on which minority equity owners can request access to any information provided by NBN Co to the Government.

Recommendation 18

5.49 That the NBN Co Bill be amended to explicitly set out the basis on which minority equity owners can request access to any information provided by NBN Co to the Government.

Matters not currently addressed in the Bill

5.50 A number of submitters raised additional matters that they argued should be addressed in the NBN Co Bill. Two key matters raised were:

- a need for additional provisions safeguarding consumer interests;[65] and
- that provision be made for national training standards and the development of national training and upskilling modules that will apply to members of the future workforce that will construct and install the NBN.[66]

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63 Business Council of Australia, *Submission 107,* p. 8.

64 Department of Broadband, Communications and the Arts, answer to question on notice, 20 April 2010 (received 23 April 2010), p. 13.

65 Australian Communications Consumer Action Network, *Submission 121,* p. 3.

Consumer interests

5.51 Concerns about consumer interests – and suggestions for amendment to the NBN Co Bill to address these – were made by the Australian Communications Consumer Action Network (ACCAN). ACCAN made two primary suggestions:

- a proposal that the NBN Co Bill establish a designated consumer representative on the NBN Board and establish a consumer advisory group;[67] and
- that a regulatory instrument be adopted to ensure that wholesale and retail service providers have clear responsibilities in resolving end-user complaints;[68]

5.52 In oral evidence, ACCAN's representative, Ms Teresa Corbin, elaborated on how current consumer groups and the Telecommunications Industry Ombudsman are inadequately resourced to meet the needs of consumers in an NBN-world and that more formal arrangements between consumer interest positions and NBN Co need to be established.[69]

5.53 The committee does not believe it appropriate to establish a designated consumer representative on the NBN Co Board because it considers that such a position could be difficult to reconcile with directors' duties to act in the best interests of the company. However, the committee recommends the establishment of a consumer advisory group along the lines of the Consumer Consultation Forum. That forum is one to which the Australian Communications and Media Authority is required to have regard when performing its functions.

5.54 Further, the committee believes the question of complaints handling is one requiring urgent attention from the Government. It is deeply concerned by the evidence it received that the Telecommunications Industry Ombudsman is overwhelmed and ill-equipped to take on the additional workload that will emerge as the NBN is rolled out and becomes operational.

Recommendation 19

5.55 That the Government establish a consumer advisory group dedicated to the NBN. That the NBN Co Bill be amended to require NBN Co to have regard to the advice of that consumer advisory group when performing its functions.

Recommendation 20

66 Communications and Information Technology Training Ltd, *Submission 127a and 127b*.

67 Australian Communications Consumer Action Network, *Submission 121,* p. 3.

68 Australian Communications Consumer Action Network, *Submission 121,* p. 3.

69 Ms Teresa Corbin, Deputy CEO, ACCAN, *Committee Hansard,* Canberra, 15 April 2010, p. 36.

5.56 That the Government and NBN Co prepare a strategy to address how end-user complaints are to be handled, and review the sufficiency of current resourcing and processes of the Telecommunications Industry Ombudsman to handle the expected future workload.

5.57 The committee addresses training of the future workforce deploying and installing the NBN in chapter seven below.

Chapter Six

The exposure drafts: Access Bill

Introduction

6.1 The background to the Government's release of an exposure draft of the Telecommunications Legislation Amendment (National Broadband Network Measures—Access Arrangements) Bill 2010 (the 'Access Bill') was set out in the previous chapter.

6.2 This chapter outlines the key areas of concern raised by submitters in relation to the Access Bill.

Access Bill

General outline

6.3 The intent of the Access Bill is to 'introduce new access and equivalence obligations relating to the supply of wholesale services by NBN Co, and any wholly-owned subsidiaries'.[1]

6.4 As the Explanatory Notes explain, the Access Bill 'follows recent reforms to the telecommunications competition regime introduced through the Telecommunications Legislation Amendment (Competition and Consumer Safeguards) Bill 2009 (the CCS Bill)'[2] which was intended to reform the access regime in Part XIC of the *Trade Practices Act 1974* (Cth) but is yet to be passed by the Senate. Although NBN Co will be subject to that reformed access regime (if the CCS Bill is passed by Parliament), the Access Bill is intended to make additional, specific provision for NBN Co that reflect 'the unique wholesale only nature of NBN Co'.[3]

6.5 The Access Bill would amend the *Telecommunications Act 1997* and the *Trade Practices Act 1974* as set out in Schedule 1 to the Access Bill.

6.6 In submissions to the committee, little of the Access Bill was contentious. The focus fell on three issues:

- *Scope of access regime.* The access regime provided for in the Access Bill is drafted so as to apply only to 'NBN Co' or an 'NBN corporation'. Proposed

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1 Explanatory notes for exposure drafts of Bills, p. 11.

2 Explanatory notes for exposure drafts of Bills, p. 11.

3 Explanatory notes for exposure drafts of Bills, p. 11.

sections 25–26 of the Access Bill would amend the Trade Practices Act to provide that 'NBN Co' and 'NBN corporation' have 'the same meaning as in the *National Broadband Network Companies Act 2010.* If enacted, the effect of these provisions is to limit the access regime only to the activities and assets of NBN Co Ltd, NBN Tasmania, or a company that is a wholly-owned subsidiary of NBN Co.[4] Some submitters queried whether the access regime should apply more broadly so as to capture any asset forming part of the NBN, regardless of whether it is owned by NBN Co, NBN Tasmania, or a wholly-owned subsidiary.

- *Equivalence provisions.* Under the heading 'No discrimination between access seekers', the Access Bill provides that an NBN Corporation 'must not ...discriminate between access seekers' when complying with its access obligations.[5] However, this provision is immediately followed by exceptions. The exceptions would enable NBN Co to discriminate on grounds relating to creditworthiness;[6] or if the discrimination 'aids efficiency' and 'all access seekers with like circumstances have an equal opportunity to benefit from the discrimination';[7] or if it is discrimination on grounds or in circumstances specified in a legislative instrument made by the ACCC.[8] Submitters queried what would constitute 'efficiency' for the purposes of the second exception to the equivalence rule, whether such an exception is either necessary or appropriate, and the adequacy of the transparency and monitoring mechanisms overseeing its use.
- *The future of the Universal Service Obligation*. Some submissions argued that the future of the Universal Service Obligation (USO) currently applicable to Telstra in relation to telephony services remains unaddressed. Submitters argued that the Access Bill provides the opportunity for enhancing USO capability to guarantee minimum broadband services to all Australian premises.

Scope of the Access Bill

6.7 A number of submitters proposed that the access regime provided for in the Access Bill should apply more broadly than just to infrastructure owned, and/or services offered, by NBN Co, NBN Tasmania, or a wholly owned subsidiary.

6.8 Ms Lucy Cradduck, a lecturer in Business and Property Law at the University of Queensland, put the point succinctly when she recommended that:

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4 NBN Co Bill, cl 5, *'NBN Co', 'NBN corporation'*.

5 Access Bill, proposed subsection 152AXC(1).

6 Access Bill, proposed subsection 152AXC(2).

7 Access Bill, proposed subsection 152AXC(3).

8 Access Bill, proposed subsections 152AXC(4)–(5).

> A better definition of what is the 'NBN' for proposed and future regulatory regimes would be one that identifies the NBN by reference purely to the network as constructed, or acquired, or subsumed irrespective of where the creative or economic input came from, or who built it in the first place. Additionally, to capture future as yet unthought-of possibilities for how networks may be constructed, the legislation should include the ability to extend the definition to include networks specified by Ministerial designation.[9]

6.9 The Australian Telecommunications Users Group (ATUG) captured the rationale for the concept when it said that the access regime provisions:

> ...should apply to any network elements used to provide NBN services (whether by NBN Co or any other company) where those network elements are bottleneck eg fibre deployments in new estates (including existing deployments) and fibre access in multi-story buildings (up the building, not to the building).

6.10 The committee raised the matter with the Australian Competition and Consumer Commission (ACCC) and received the following written response:

> The ACCC's view is that an access regime is likely to be required to promote competition where a facility has enduring bottleneck characteristics, and businesses require access to that facility in order to compete. Some telecommunications infrastructure displays the characteristics of an enduring bottleneck — infrastructure where, for a number of reasons, it is more efficient to have all consumers served by a single provider than to have multiple competing providers.
>
> Under the current Part XIC of the *Trade Practices Act 1974* (TPA) the ACCC is able to declare access services provided on bottleneck infrastructure if the ACCC considers doing so will promote the long-term interest of end-users, thereby subjecting the supplier of the services (whether it be NBN Co or other suppliers) to the access regime contained in Part XIC of the TPA.
>
> The telecommunications access regime in Part XIC of the TPA, with or without the incorporation of the amendments made under the Telecommunications Legislation Amendment (Competition and Consumer Safeguards) Bill 2009 (CCS Bill) and the Exposure Draft of the Telecommunications Legislation Amendment (National Broadband Network Measures—Access Arrangements) Bill 2010 (the NBN Access Exposure Draft), is designed to allow for access to declared services supplied by any carrier or carriage service provider over bottleneck infrastructure regardless of whether the underlying infrastructure is leased or owned.[10]

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9 Ms Lucy Cradduck, Lecturer in Business and Property Law, University of Queensland, *Submission 119*, p. 1.

10 Australian Competition and Consumer Commission, answer to question on notice, 14 April 2010 (received 22 April 2010).

6.11 The ACCC also noted in response to a separate question on notice, that 'access to non carrier facilities such as ducts and poles, which could for example be owned by utility companies, is currently provided for under Schedule 3 of the *Telecommunications Act 1997*'.[11]

Committee view

6.12 In light of the written response provided by the ACCC, the committee does not consider that amendment of the Access Bill is appropriate in relation to the scope of its operation.

Equivalence provisions

6.13 The primary concern of submitters related to the content and proposed operation of the 'efficiency' exception to NBN Co's charter of supplying services on a non-discriminatory basis. Proposed subsection 152AXC(2) would enable NBN Co to discriminate where, in its opinion, the discrimination 'aids efficiency'. An oversight mechanism would be provided by inserting into the Trade Practices Act the following subparagraph after subsection 152BB(1):

> (1AA) If the Federal Court is satisfied that an NBN corporation has contravened the rule in subsection 152AXC(1), the Court may, on the application of:
>
> (a) the Commission; or
>
> (b) any person whose interests are affected by the contravention;
>
> make all or any of the following orders:
>
> (c) an order directing the NBN corporation to comply with that rule;
>
> (d) an order directing the NBN corporation to compensate any other person who had suffered loss or damage as a result of the contravention;
>
> (e) any other order that the Court thinks appropriate.[12]

6.14 The explanatory notes to the Access Bill explain that the 'concept of "efficiency" is intended to be read broadly and to facilitate normal business options such as offering volume-based discounts, passing on savings arising from capital investments, discrimination based on risk sharing, discounts in response to competitive circumstances, migration incentives and other efficiencies'.[13]

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11 Australian Competition and Consumer Commission, answer to question on notice, 14 April 2010 (received 22 April 2010).

12 Access Bill, Schedule 1, Part 1, item 44A.

13 Explanatory notes to the exposure Bills, p. 14.

6.15 Professor Walter Green, Director of the Communications Experts Group, was fairly typical of submitters to the committee in his response to the equivalence provisions:

> Equivalent access is an essential feature of NBN Co services. The scale of economies achieved through the Government's investment in the NBN infrastructure must be available to all retail players. Any price discrimination should be based on objectively identified efficiencies that improve or encourage innovation and competition. Volume discounts should be clearly excluded. Volume discounts will enable the current dominance problem to be carried forward into an NBN environment.[14]

6.16 Optus[15] and Primus Telecom Australia[16] both submitted that the meaning of 'equivalence' requires clarification in the legislation. AUSTAR United Communications submitted that it should be removed because the efficiency concepts envisaged 'are all ones which can only be offered by retail providers with scale' and that the proposed exemption to the prohibition on discriminatory behaviour is therefore 'likely to reinforce the incumbency of the current players'.[17]

6.17 Further, Optus raised concerns about whether the oversight arrangements for regulating how NBN Co interprets and applies the 'efficiency' criteria and discriminates between access seekers are sufficient. Optus submitted that 'the transparency comes after the event – so if equivalence is being breached, what is the remedy?'[18] The problem was outlined as follows:

> The Bill seeks to provide some transparency in the circumstances where an access seeker is able to negotiate different terms of access. However, the only transparency requirement that applies in relation to departures from the terms of a standard form of access agreement or any access undertaking is that within seven days after the day on which the access agreement was entered into the NBN must publish certain information on its website.
>
> This raises a significant problem. The disclosure requirement happens after the NBN Co is bound by the terms of its departing supply agreement which is arguably too late. By this time there is no opportunity for third-party objection or for legal intervention. Further, the information which is to be published on the website identifies and describes the differences between the agreement entered into and the standard form of access agreement or access undertaking. There is no obligation to post the actual agreement.

14 Professor Walter Green, Director, Communications Experts Group Pty Ltd, *Submission 126,* p. 3.

15 Optus, *Submission 114,* p. 5.

16 Primus Telecom Australia, *Submission 117,* p. 4.

17 AUSTAR United Communications Ltd, *Submission 116,* p. 7.

18 Mr Andrew Sheridan, General Manager, Interconnect and Regulation, Optus, *Committee Hansard,* Melbourne, 14 April 2010, p. 46.

> Accordingly, the descriptive information may not be sufficient to enable other access seekers to negotiate identical terms.[19]

Committee view

6.18 The committee believes that the Access Bill should set out examples of 'efficiency' criteria which might be considered by NBN Co for the purposes of determining whether an exemption to the prohibition on non-discriminatory service supply might be appropriate. The committee also believes that the Access Bill should clearly provide that volume considerations cannot qualify as 'efficiency' criteria.

6.19 The committee shares Optus' concerns that the current retrospective oversight provisions are inadequate. The committee believes that, where NBN Co proposes to grant access to an access seeker on favourable terms on the grounds that the discrimination 'aids efficiency', such an agreement should not take effect until granted ACCC approval. The committee acknowledges that ACCC approval arrangements will need to be carefully considered so as to balance the needs of respecting commercial confidentiality and maintaining sufficient scope for flexibility in negotiations with a sufficiently rigorous and transparent oversight mechanism.

Recommendation 21

6.20 That the Access Bill be amended so as to provide guidance on what is meant by 'efficiency' for the purpose of the equivalence provisions. The amendments should also ensure that volume considerations cannot be counted as matters which 'aid efficiency' for the purpose of obtaining an exemption to the non-discrimination obligations on NBN Co.

Recommendation 22

6.21 That the Access Bill be amended so that ACCC pre-approval is required of any agreement to which NBN Co is a party and under which an access seeker is granted access on discriminatory terms on the basis of the 'efficiency' exception.

Future of the Universal Service Obligation

6.22 In chapter five the committee recommended that the NBN Co Bill be amended to expressly require that NBN Co meet a minimum service obligation. A minimum service obligation is not the same as a Universal Service Obligation. Telstra is currently subject to a Universal Service Obligation to provide telephony services. A Universal Service Obligation on NBN Co to provide broadband would differ from the proposed minimum service obligation in that the former would constitute an enforceable obligation on NBN Co to provide a specified level of retail broadband services to end users, whereas the minimum service obligation would only require that NBN Co have and maintain the capability to connect every Australian premises to the

19 Optus, *Submission 114*, p. 19.

NBN (leaving it to retail service providers to actually service end users with retail services and applications).

6.23 The Access Bill does not currently require the NBN Co to provide services in fulfilment of a Universal Service Obligation to supply broadband services to end users. That is perhaps unsurprising given the intention that NBN Co be a wholesale-only service provider that does not provide retail broadband services to customers. However, the exposure drafts of the Bills also do not address the future of Telstra's USO to provide telephony services once the NBN becomes operational, nor whether there will be an enhanced USO in the future which includes both telephony and broadband services. The two matters are linked because presently Telstra's USO relating to telephony services is related to its ownership of the ubiquitous copper network. It is highly probable that the foreshadowed commercial arrangements between NBN Co and Telstra concerning the copper network and other Telstra-owned assets and infrastructure will impact on the future of any USO to provide telephony and/or broadband services.

6.24 A number of submitters commented on whether the exposure drafts of the Bills should be amended to create a Universal Service Obligation in relation to the supply of broadband services to end users.

6.25 The Northern Territory Government stated that the Northern Territory 'relies heavily upon the USO for the provision of even the most basic telecommunications facilities' and that '40 per cent of the population of the Northern Territory would find it prohibitively expensive to obtain basic telephony if not for the cross-subsidisation provided by the USO'.[20] In light of that background, the Northern Territory Government submitted that the NBN project 'provides the opportunity for enhancing USO capability to include broadband as well as telephony'.[21]

6.26 In a similar vein, the Australian Communications Consumer Action Network stated that it 'sees a role for NBN Co in the delivery of basic, low-band width services, possibly in fulfilment of a USO obligation placed on the wholesaler'.[22]

6.27 The Australian Telecommunications Users Group (ATUG) went further, arguing that it:

> would prefer to see explicit commitments for ubiquitous access in the NBN Co Act. ATUG would like to see a Universal Service Obligation on providers at the retail level, and explicit Government policy and subsidy programs for non-commercial markets (if any) to ensure 100% take-up as with the Digital Switchover Plans.[23]

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20 Northern Territory Government, *Submission 123,* p. 1.

21 Northern Territory Government, *Submission 123,* p. 1.

22 Australian Communications Consumer Action Network, *Submission 122,* p. 6.

23 Australian Telecommunications Users Group, answer to question on notice, 16 April 2010 (received 28 April 2010), p. 3.

Committee view

6.28 The committee acknowledges the critical importance of this issue.

6.29 The committee urges the Government to clarify its intentions as to the future of Telstra's USO in relation to telephony services, and whether it proposes to create a universal service obligation for the supply of broadband services.

Recommendation 23

6.30 That the Government make public its intentions as to the future of Telstra's USO in relation to telephony services.

Recommendation 24

6.31 That the Government make public its intentions as to whether and how there will be a future universal service obligation to provide broadband services, and the associated cost implications for the Australian people.

Chapter Seven

NBN Co: business progress

Overview

7.1 Since the committee's *Third Report*, NBN Co has continued to progress as a business. Some areas of activity, such as the selection of first release trial sites and the company's well-documented consultation processes about product offering and network architecture have been discussed at length elsewhere in this report.[1] The major developments on the mainland not already described concern:

- the appointment of a new Chair of the company, Mr Harrison Young;
- the announcement of a number of other senior executive appointments, many of which were not advertised and one of which was tainted by an individual's long-standing connection with the Australian Labor Party;
- the build up of a management team to plan and coordinate network construction activities;
- the selection of new office premises in Sydney;
- the awarding of contracts, following competitive tender processes, for some core business functions; and
- the issuance of requests for capability statements and requests for proposals for network technology and equipment services.[2]

7.2 Few submitters commented directly on the progress of NBN Co's business arrangements. Most comments relating to the governance, operations and services of the NBN Co focussed on the exposure draft legislation discussed in the preceding chapters. Of those submitters who did comment on other aspects of NBN Co's business progress, the main concern raised was that appointments to senior positions within NBN Co were contaminated by conflicts of interest and a non-transparent process.[3]

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1 See chapters 3 and 4.

2 Mr Michael Quigley, CEO, NBN Co Ltd, *Committee Hansard*, Canberra, 15 April 2010, pp 43–44.

3 Mr Blake Roet, *Submission 104*, p. 8.

NBN Co summary of business progress

7.3 The committee received a detailed update on NBN Co's progress from CEO, Mr Michael Quigley. Mr Quigley outlined the many developments in NBN Co's business activities that have occurred since he last gave evidence to a Senate committee in February 2010:

> We have now got about 150 people, with offices in Sydney, Melbourne, Hobart and Canberra. We have got a management team in place now that has quite deep experience in telecommunications. We are also very fortunate to have a new chairman, Mr Harrison Young, who brings a great deal of experience to the Board, and I am sure he is going to be a real asset for the company. We are taking now all the steps you would expect us to take with regard to establishing the processes and capability which we will need. This includes things like IT systems, financial controls and human resource processes.
>
> ...
>
> [W]e are currently preparing the documentation necessary to lodge a special access undertaking with the ACCC. We plan to lodge the undertaking in June this year. As part of the ACCC undertaking we will have to establish our wholesale prices.
>
> ...
>
> To implement the architecture and the designs we are doing, we will of course procure a range of equipment and capabilities. We are currently engaged in an RFP process for GPON, active equipment and services, and also for aggregation and transmission equipment and services. We ran a request for a capability statement process for our… operational support systems and business support systems. That closed in March [2010] and we are currently reviewing the responses prior to going to an RFP. The RFP for passive network hardware and services has only just recently closed and we are reviewing their responses to that… [T]he request for capability statement for design and construction of a fibre access network, is open now and closes on 27 April [2010]. Overall, I am generally pretty happy with the progress we have made with the procurement of many of these complex pieces of equipment systems. It is no easy job putting together all of the documentation to run those systems.
>
> We are also engaged in the planning of our construction activities, and since I last spoke to you we have taken on the head of construction who is now building up the management team for the construction activity. They will look after all the construction activities we will be doing. We are well aware of the magnitude of the construction program and the need to engage the construction industry and the need for training to provide all the necessary skills that we are going to need in the build process. That is something we are now paying increasing attention to.[4]

4 Mr Michael Quigley, CEO, NBN Co Ltd, *Committee Hansard*, Canberra, 15 April 2010, pp 43–44.

7.4 Mr Quigley also described NBN Co's progress in Tasmania and in relation to wireless and satellite services. That aspect of the evidence is discussed in the following chapters.

7.5 The committee repeats its disappointment, expressed above in chapter 3 of this report, that it did not receive answers from NBN Co, within any reasonable time period, to questions taken on notice at that hearing. A number of those questions related to matters dealt with in the remainder of this chapter.

Committee's key areas of concern

7.6 Overall, the committee notes business progress of NBN Co. However, the committee has three areas of concern:

- Commercial viability of the business;
- Sufficiency of training, accreditation and certification processes for future NBN construction workforce; and
- Lack of transparency in appointment process for some senior positions in NBN Co.

Commercial viability of NBN Co

7.7 Chapter 6 of the committee's *Third Report*, discussed at length the committee's, and indeed key stakeholders', concerns as to whether NBN Co can be a commercially viable Government Business Entity (GBE).[5]

7.8 The committee does not propose to repeat the analysis, although it notes that a number of submissions since the publication of the *Third Report* continued to raise matters relating to the commercial viability of NBN Co. For example, Mr Kevin Morgan, an industry consultant, explained that international experience of Fibre to the Home projects casts doubts on whether NBN Co will be able to generate a sufficient return to attract future investment:

> [T]he economics of FTTH even in leading markets remains in question with NTT in Japan struggling to break even on its investment, and the Korean deployment is yet to yield returns, but it is clear that the vertically integrated model is giving better results than the wholesale only model. This begs the critical question of whether wholesale model can ever be self sustaining and it must be asked, given the government's commitment to private investment and ownership, whether investors will 'buy' the notion of the NBN as utility and consequently accept utility returns on their investments. It should be noted that the concept of utility returns and low cost capital are integral to the government's wholesale only model.[6]

5 *Third Report*, November 2009, Chapter 6, pp 63–98.

6 Mr Kevin Morgan, *Submission 122*, p. 4.

7.9 A number of other submissions argued that questions of pricing – in particular, the pricing model ultimately adopted – will significantly affect the commercial viability of NBN Co. For example, Mr John de Ridder, Principal of De Ridder Consulting Pty Ltd, submitted that 'the goal should be to make the NBN another utility network like electricity and water,' with pricing to be based on a 'low monthly rental' fee for all premises and then traffic charges to apply based on each end-user's amount of usage (not speed of the connection).[7]

7.10 The pricing model NBN Co adopts does not merely affect the commercial viability of NBN Co. It also affects the extent to which the NBN as a whole will realise the trans-sectoral and truly nation-building objectives the Government seeks. As Mr Paul Budde, Managing Director of Paul Budde Communication Pty Ltd put it:

> From the beginning [the Government] clearly stated that the NBN should also be used for non-commercial applications. And if the NBN is not made available to these sectors on a utilities basis the cost of using the NBN for such purposes will be too high. This would result in a continuation of the private networks that are currently used within these sectors and the opportunity for an important revenue stream for NBN would be lost.[8]

7.11 The committee believes that from the perspective of end-users, a utility pricing model is the optimal pricing model for the supply of broadband services. The committee notes, however, that given it will be retail service providers (as opposed to NBN Co) who will actually interface with end-users, the pricing model adopted will ultimately be a matter for those retail service providers to decide.

7.12 As stated in chapter 4 above, NBN Co is yet to announce its wholesale pricing intentions, although its stated intention is to lodge an access undertaking – which will include its wholesale prices – with the ACCC in June this year.[9]

7.13 In response to questioning from the committee, Mr Quigley stated that his 'hope' is for a 'satisfactory return' over about a '20- to 30-year time frame':

> Mr Quigley— ... [T]he board's role is to get a satisfactory long-term return on the capital that the government invests. It is up to the government to determine what that return rate is, but we would hope to generate a return. You can have plenty of debates about what is a satisfactory return; that is up to the government to decide. But yes: that is our aim.
>
> CHAIR—Over what period of time?
>
> Mr Quigley—This is a long-term project. For this type of nation-building infrastructure, I would imagine that you are looking at a 20- to 30-year time frame.[10]

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7 Mr John de Ridder, Principal, De Ridder Consulting Pty Ltd, *Submission 113*, pp 4–5.

8 Mr Paul Budde, Paul Budde Communication Pty Ltd, *Submission 105*, p. 1.

9 Mr Michael Quigley, CEO, NBN Co Ltd, *Committee Hansard*, Canberra, 15 April 2010, p. 43.

10 Mr Michael Quigley, CEO, NBN Co Ltd, *Committee Hansard*, Canberra, 15 April 2010, p. 47.

7.14 Mr Quigley went on to explain that NBN Co is currently preparing a three-year business plan, which it is required to do as a GBE, to submit to the Government on 31 May 2010. That document will 'lay out [NBN Co's] projections for the business in the long term'.[11] Mr Quigley's expectation is that the Government will 'have a look at the business plan and see if they agree with it' and that '[n]o doubt' there will follow discussions between NBN Co and the Government 'about the long-term funding assumptions that [NBN Co has] made in that business plan'.[12]

7.15 In a speech to industry shortly after the committee's public hearing, Mr Quigley reportedly sought to qualify his comments to the committee, explaining that NBN Co's business case showed three things:

- first, NBN Co should generate a return on its costs before the end of the eight-year construction period;
- second, NBN Co will recover its yearly costs, including capital costs, within a few years after the end of that construction period; and
- third, the NBN will be built in a way that enables the company to 'repay all the government's equity contribution within the normal life of a telecommunications project, which is a 20-to-30-year period'.[13]

7.16 Questions to the department as to how private investment will be encouraged and whether the plan to have commercial investment of up to 49 per cent equity in NBN Co is viable in practice, were met with a response that such information is not yet publicly available. A representative of the Department stated: '[t]he policy arrangements around financing and equity will be dealt with in responding to the implementation study'.[14]

7.17 In chapter 2 of this report the committee noted the Implementation Study's finding that the NBN can be built with an initial Government outlay of $26 billion and can, over time, provide the Government with a return on its investment sufficient to recover its costs. However, more importantly, the committee also documented in chapter 2 the significant criticisms that have already, in the few days since the release of the Implementation Study, been made of the flawed assumptions that underpin the Implementation Study's findings on commercial viability. Any Government response to the Implementation Study would need to address those criticisms.

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11 Mr Michael Quigley, CEO, NBN Co Ltd, *Committee Hansard*, Canberra, 15 April 2010, p. 48.

12 Mr Michael Quigley, CEO, NBN Co Ltd, *Committee Hansard*, Canberra, 15 April 2010, p. 48.

13 Mr Michael Quigley, CEO, NBN Co Ltd, quoted in Dominic White and Brian Corrigan, 'NBN chief clarifies profit target', *The Australian Financial Review*, 21 April 2010, p. 5.

14 Mr Daryl Quinlivan, Deputy Secretary, Infrastructure, Department of Broadband, Communications and the Digital Economy, *Committee Hansard*, Canberra, 15 April 2010, p. 67.

Committee view

7.18 The committee has not seen NBN Co's three-year business plan which it expects to provide to the Government on 31 May 2010.

7.19 The committee also did not have the benefit during its public consultation process of having either the Implementation Study or the Government's response to that document.

7.20 In the absence of all three critical pieces of information, the committee had no evidence before it on which it could consult with stakeholders and experts, or indeed objectively assess for itself, whether NBN Co can, and is likely to be, commercially viable in the future. The committee repeats its deep frustration that critical documents for objectively assessing the merits of the NBN project and its commercial viability have been withheld from the Australian public.

7.21 The committee has, however, already stated in chapter 2 of this report its view as to the commercial viability of NBN Co. In summary, the committee strongly doubts that NBN Co can be commercially viable in the future. That is a view backed up by analysts' opinions and concerns as articulated following the release of the Implementation Study on 6 May 2010 (see chapter 2 for examples).

Workforce training, accreditation and certification

7.22 The committee is concerned that workforce training, accreditation, and certification processes have not yet been adequately identified and addressed by NBN Co and/or the Government. If the NBN is in fact rolled out over the intended eight-year timeframe, an enormous skilled and accredited workforce will be required and it is imperative that there be sufficient training and safety procedures in place before the roll-out commences.

7.23 In its *Third Report*, the committee recommended that 'the Government immediately undertake...a skills audit for the NBN, detailing the training course[s] required, the training timeframes involved and the training institutions available to ensure there is a fully skilled workforce ready to deploy the NBN in each region'.[15]

7.24 The committee has subsequently received further evidence which suggests there has not been sufficient progress on the matter, that there is an urgent need for a national training and accreditation system to be deployed to support any NBN roll-out, and that the Department is currently doing little, if anything at all, to support sufficient training, accreditation and safety procedures being in place for the NBN workforce.

7.25 When the committee asked the Department what it and/or other areas of Government were doing 'to ensure there is a sufficiently trained and accredited

15 *Third Report*, November 2009, Recommendation 6. See also the committee's analysis of the expected skills shortage issue at pp 96–98, [6.174]–[6.186] of that report.

workforce to roll-out the NBN', and also whether there will be a skills shortage that hampers the roll-out,[16] the Department responded with:

> This is largely a task for NBN Co to manage.[17]

7.26 If the NBN project continues to progress, it will involve more than ten million points of connection, with approximately four to five thousand of those being connected each day of the eight-year roll-out period.[18]

7.27 In a presentation to an NBN Co Information Session, Mr Patrick Flannigan, Head of Network Construction for NBN Co, estimated that, at its peak, the project will need a direct construction workforce of between 15–20 000 full time equivalent workers.[19]

7.28 The committee was interested to hear from representatives of Communications and Information Technology Training (CITT) as to their thoughts about the training, education, workforce deployment and strategic planning issues associated with the NBN. CITT is a national industry training company responsible for the promotion of training packages and new apprenticeships within the information technology sector. Training remains the organisation's main focus.[20]

7.29 The representatives of CITT outlined their main concerns about the current level of skills preparedness of the industry:

> ...in all of the forums that CITT is engaged in it is very obvious that there are a number of areas of concern in the skills formation area for this particular government initiative.[21]

7.30 CITT identified a number of 'priority areas' for the 'immediate NBN roll-out in the context of running the cable down the streets, down the estates and into the buildings',[22] chief of which was the need for 'upskilling' of the intended workforce:

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16 Senator Fisher, additional written question on notice, Question 8, 20 April 2010.

17 Department of Broadband, Communications and the Digital Economy, answer to question on notice, question 8, 20 April 2010 (received 23 April 2010).

18 NBN Co Ltd, *NBN Co Network & Operations Information Session*, March 2010, Slide 24, www.nbnco.com.au/content/upload/files/Network_and_Operations_Information_Session_Presentation.pdf, accessed 24 April 2010. See also McKinsey-KPMG, *Implementation Study for the National Broadband Network*, 5 March 2010, Executive Summary, p. 9.

19 NBN Co Ltd, *NBN Co Network & Operations Information Session*, March 2010, Slide 24.

20 Mr Kevin Fothergill, Industry Manager, Communications and Information Technology Training Ltd, *Committee Hansard*, Melbourne, 14 April 2010, p. 29.

21 Ms Cherry Cole, Human Resources Consultant, CITT, *Committee Hansard*, Melbourne, 14 April 2010, p. 29.

22 Mr Kevin Fothergill, Industry Manager, Communications and Information Technology Training Ltd, *Committee Hansard*, Melbourne, 14 April 2010, p. 30.

> What we see as the more immediate need is upskilling of the people who are going to be doing the run-out work down the streets, whether it be cable or underground, and the people who will be running the lead-in across to the customers' premises.[23]

7.31 By 'upskilling', CITT was referring to a need for all cablers to have sufficient training (and up-skilling or refresher skills training where necessary) in the following 'core skills' areas:

- OH&S – particularly for construction sites, underground cabling and pipe awareness, lead-in cable, wireless, and new optical fibre techniques.
- Fibre Optics – basic principles e.g. splicing/jointing applications and safety.
- Coaxial Cable – basic applications and safety.
- Antennae/Satellite – basic applications, installation practices and safety.
- Power safety – power infrastructure is often used for telecommunications equipment mounting. Grid-fed power to some equipment types and mains power supply for optical network termination units are also an issue and suitably qualified telecommunications staff will need to be given nationally accredited courses to gain limited electrical qualifications, if they are to install basic 240 volt power supply points to supply ONTs [Optical Network Terminal].
- Testing and commissioning of NTD [Network Termination Devices] /ONT operation and cabling. Both external and internal situations will need to be covered.
- Customer relations – more customer interface is likely and role/relationships of NBNCo, retail service providers and traditional carriers will require some explanation to customers at installation of the network termination device, which itself will often be an issue regarding location on or in the building.[24]

7.32 CITT explained the reason such training is necessary:

> For the cabling in the sector of the customers' premises and in the network itself there will have to be occupational health and safety training and there will have to be fibre training, because there are hazards with fibre. People do not always understand this, but there are laser hazards and prick hazards…
>
> Then there is the testing and commissioning of the network termination device. The network termination device is not just a box that is dead, just a terminal, as it is in current telecommunications. This will be live. It will be powered by 240 volts. The 240 will be broken down into telecommunications voltages, but nevertheless will be 240 to the optical

23 Mr Kevin Fothergill, Industry Manager, Communications and Information Technology Training Ltd, *Committee Hansard*, Melbourne, 14 April 2010, p. 31.

24 CITT, *Submission 127a*, p. 7.

> network termination unit, which may be outside the building or may be inside.[25]

7.33 The seriousness and accuracy of CITT's concerns was demonstrated by subsequent reports of serious safety incidents occurring in Tasmania during the initial roll-out of the NBN. On 28 April 2010 newspaper reports detailed how a spate of incidents, including one reported electrocution, had occurred.[26] They also reported allegations that some employees had been fired after raising safety concerns about the roll-out.[27] A spokesperson for NBN Tasmania is reported to have told the industry publication *Communications Day* that:

> …six incident reports had been logged, and that concerns around two of these had led NBN Tasmania and Aurora Energy (project manager and agent for construction and roll-out of the NBN Stage One project in the state) to suspend work for a period of refresher training for all contractors. [The spokesperson] added that there had been no further incidents reported since work resumed.[28]

7.34 Other concerns expressed by CITT related to the increase in the workforce numbers that will be necessary to support the NBN roll-out. CITT stated that there are currently approximately 63 000 cablers who are licensed and registered with the Australian Communications and Media Authority (ACMA) to work on the inside of premises, almost all of whom CITT estimates would be actively engaged in that sort of work in Australia at present.[29] But in response to questioning from the committee, CITT indicated that it estimates that an additional 30 000 cablers will be needed to satisfy the needs of the network roll-out, additional workers who may be either sourced from other parts of the industry, other sectors, or be entirely new to the trade.[30] Workers will therefore be coming to any industry training 'with very different underpinning skills and knowledge'.[31] Representatives of CITT spoke of the

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25 Mr Kevin Fothergill, Industry Manager, Communications and Information Technology Training Ltd, *Committee Hansard*, Melbourne, 14 April 2010, p. 31.

26 Mr Michael Stedman, 'Safety probe of NBN', *The Mercury*, 28 April 2010, www.themercury.com.au/article/2010/04/28/142585_tasmania-news.html, accessed 29 April 2010; Mr Petroc Wilton, 'NBN Co talks tough on safety after outbreak of incidents', *Communications Day*, 28 April 2010, p. 3.

27 Mr Michael Stedman, 'Safety probe of NBN', *The Mercury*, 28 April 2010; Mr Petroc Wilton, 'NBN Co talks tough on safety after outbreak of incidents', *Communications Day*, 28 April 2010, p. 3.

28 Mr Petroc Wilton, 'NBN Co talks tough on safety after outbreak of incidents', *Communications Day*, 28 April 2010, p. 3.

29 Mr Kevin Fothergill, Industry Manager, Communications and Information Technology Training Ltd, *Committee Hansard*, Melbourne, 14 April 2010, p. 31.

30 Mr Kevin Fothergill, Industry Manager, Communications and Information Technology Training Ltd, *Committee Hansard*, Melbourne, 14 April 2010, p. 31.

31 Ms Cherry Cole, Human Resources Consultant, CITT, *Committee Hansard*, Melbourne, 14 April 2010, p. 32.

significant proportion of new industry members that will need to be brought on board given the fact that the existing workforce, many of whom are ex-Telstra cablers nearing the end of their careers, is an ageing one.[32]

7.35 The challenges inherent in such a significant increase in the workforce – an increase generated from diverse backgrounds of experience – evidently raise implications for training and accreditation. CITT stated the industry is 'very well equipped potentially to do much of the training and reskilling that is necessary' and that there is 'a large amount of hidden training effort undertaken by enterprises, carriers and the like'.[33] However, in CITT's opinion, the critical matter is designing and implementing a 'workforce development strategy that is for the short term, the medium term and the long term'.[34] The problem is particularly acute and difficult because of the changes to the industry's structure and to the traditional means of delivering training that have been brought on by the increased use of outsourcing and contracting arrangements:

> Managing the big contractor is one thing, but then the big contractor outsources to small contractors, and that is where the training issues come in, because small contractors quite often do not have the time. They are under pressure and they do not have the time to do the training. So unless there is something in the contract requirement that says that they should have a minimum level or whatever, that is where the problems come in.[35]

7.36 CITT explained that the current dispersion of skills training would need to be replaced by a nationally-coordinated effort to ensure registered training providers are supplying adequate training programs to guarantee a safe and effective roll-out of the NBN:

> So for us the issue is about getting quality training and quality outcomes on the job. There would be a need to ramp up and increasingly support the existing VET infrastructure to take on board the very large and national training effort that would be necessary to create that workforce. Whilst the infrastructure is there, the organisations are there, Skills Australia is very strong—and has recently published a very interesting document associated with workforce development across the economy—and the industry skills councils that are relevant to this industry are very active in their industry-specific planning, there would need to be a fairly considered and nationally coordinated effort to ensure that all of the registered training providers and others would in fact be capable of delivery and would be

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32 Mr Kevin Fothergill, Industry Manager, Communications and Information Technology Training Ltd, *Committee Hansard*, Melbourne, 14 April 2010, p. 37.

33 Ms Cherry Cole, Human Resources Consultant, CITT, *Committee Hansard*, Melbourne, 14 April 2010, p. 32.

34 Ms Cherry Cole, Human Resources Consultant, CITT, *Committee Hansard*, Melbourne, 14 April 2010, p. 32.

35 Mr Kevin Fothergill, Industry Manager, Communications and Information Technology Training Ltd, *Committee Hansard*, Melbourne, 14 April 2010, p. 37.

> delivering the right types of programs so that in the end you would be guaranteed of having a workforce that could deliver a timely, cost-effective and quality NBN.[36]

7.37 CITT made the following non-exhaustive list of recommendations as part of its proposal for the nationally co-ordinated program:

> A National Digital Economy Co-Ordination Centre should be established to undertake a more collegiate approach to supporting converging technologies and skills in meeting the broadband and the digital economy needs by using industry benchmarks and the co-regulation quality model adopted by ADTIA [Australian Digital Television Association Inc]. An objective would be to work to provide flexibility and national consistency within the existing the Vocational and Training System (VET).
>
> A national audit should be undertaken to identify current vocational training facilities and teaching resources for ICT and the digital economy and facilitate development actions, including brokering workplace training places in enterprises.
>
> New entrants should be encouraged into the telecommunications industry by wider use of apprenticeships, cadetships, traineeships, recognition of prior learning, employer incentives and linking uptake to contracts wherever possible.
>
> There should be a national co-ordinator for the VET (Vocational Education & Training) in schools programs and a listing of schools that meet industry requirements; for example, with trades centres.[37]

7.38 Part of that national training program would be an accreditation certificate for cablers installing or working with the live Optical Network Termination (ONT) device at an end-user's premises. Mr Kevin Fothergill of CITT outlined a proposal to create a special telecom-electricity licence and short retraining courses for people who have backgrounds in telecoms and the military:

> I am not saying it is a popular view with some of our colleagues in the industry sector, but we have put forward that a telecommunications technician, already suitably trained and meeting the requirements of the ACMA, should be given a training program to get what I will call for this session a limited—or restricted, or telecommunications—electrical licence permit to be able to install a power supply for the network termination device. If we do not do that, what you will find is that there will be all sorts of IR [Industrial Relations] issues and the like, with arguments over who actually does the installation. There are not enough electricians to do this work. That is a fact of life. To be specific, we believe that there [should be] a very short training program for people who are, say, ex-Telstra, ex-Optus or ex-military for them to be able to install either a power point or to be

36 Ms Cherry Cole, Human Resources Consultant, CITT, *Committee Hansard,* Melbourne, 14 April 2010, p. 33.

37 CITT, *Submission 127a*, pp 2–3.

> able to work to put the power to the network termination device—nothing else, no other electrical work. People who are relatively new in the industry, who come in from employment elsewhere or whatever and who are not trained by a carrier or somebody [who] has got a reputable training program, may need a bit more...
>
> [M]ost people would already have some training in electrical cabling. But they would absolutely need some extra training.[38]

7.39 CITT submitted that any training standards should be set out in 'the overriding act and regulations arising to implement the NBN'.[39] CITT emphasised that the national standards would need to complement and/or address the different state-based training and accreditation schemes and state legislation which currently apply to some aspects of the industry.

7.40 The committee subsequently asked Mr Quigley to outline what NBN Co's views are on its 'anticipated workforce load, given the ambitious nature of this roll-out, and what [NBN Co is] doing now in engaging with the Industry Training Council network and those charged with the responsibility of making sure that workers or contractors engaged are suitably qualified at a technical as well as an occupational health and safety level'.[40] Mr Quigley responded that NBN Co is currently broadly addressing the matters:

> Our head of construction, Patrick Flannigan, is building up his staff. He is engaged with the construction industries. We have started to have discussions about exactly what the job is and how we can do it as efficiently as possible, how we can use some of the latest construction methodologies and technologies to reduce the amount of work that needs to be done in the field and have more of it, for example, done in the factories—for example, preconnectorisation. On the other side, Kevin Brown, who is in charge of corporate services including human resources, is engaged with various entities discussing training needs and how qualification will take place.[41]

7.41 In an answer to a related question taken on notice, NBN Co provided the following outline of its activities related to addressing safety and training considerations:

> We have appointed a Chief Safety Officer who will be working with the Head of Construction to ensure that safety is given the utmost priority. The company has established safety systems, audit policies and approved work practices and ensures that these are followed. For instance, no person will

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38 Mr Kevin Fothergill, Industry Manager, Communications and Information Technology Training Ltd, *Committee Hansard*, Melbourne, 14 April 2010, p. 34.

39 Mr Kevin Fothergill, Industry Manager, Communications and Information Technology Training Ltd, *Committee Hansard*, Melbourne, 14 April 2010, p. 39.

40 Senator Kate Lundy, Question to Mr Michael Quigley, *Committee Hansard*, Canberra, 15 April 2010, p. 53.

41 Mr Michael Quigley, CEO, NBN Co Ltd, *Committee Hansard*, Canberra, 15 April 2010, p. 53.

> be admitted to an NBN work site without the appropriate site induction. No person will be able to commence work on any NBN Co site without the appropriate qualifications whether they be trade or engineering. NBN Co and all of its contractors and subcontractors will undergo all of the appropriate rigorous induction and training and be fully qualified in the required skills to do their specific task.
>
> The company is actively promoting a 'no blame' culture in which the workforce is encouraged to raise any safety concerns so that they can be addressed.
>
> It is also worth noting that the telecommunications and utilities sectors generally have well established operating procedures both from an Operation & Maintenance and Construction perspective, which have been developed over many years of experience. But we will not rely on this alone and have therefore established an Internal Training Group, which in addition to the normal training requirements for any organization provides a forum for the industry to continually address the specific needs of organizations such as Communications and Information Technology Training.[42]

Committee view

7.42 The committee believes that having a sufficiently trained and accredited workforce to roll-out the NBN safely is not merely 'a task for NBN Co to manage' as the Department suggests, but a matter of critical importance for the Government to address.

7.43 The committee repeats its previous recommendation that the Government immediately undertake a skills audit for the NBN, although the committee believes this should now be done in consultation with NBN Co.

7.44 Further, the committee recommends that the Government, in consultation with industry groups and NBN Co, develop a national training program that will ensure that there is an adequately trained workforce, and one of sufficient size, to safely and efficiently deploy the NBN.

Recommendation 25

7.45 That the Government, in consultation with NBN Co, immediately undertake a skills audit for the NBN to ensure there is a fully skilled workforce ready to deploy the NBN in each region. The audit should detail:

(a) the training courses required;

(b) the training timeframes involved; and

(c) the training institutions available.

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42 NBN Co, answer to question on notice, 15 April 2010 (received 11 May 2010), p. 4.

Recommendation 26

7.46 That the Government, in consultation with industry groups and NBN Co, develop national standards and national training modules and accreditation processes to ensure the NBN workforce is appropriately skilled.

7.47 That such modules and accreditation processes be tailored to suit the differing needs of workforce participants who will come to the NBN with varied levels of prior relevant experience.

Appointment process for senior NBN Co positions

7.48 A number of appointments to senior positions within NBN Co have been made over the past several months. Two notable appointments were that of a new Chair for NBN Co, Mr Harrison Young, and a senior Government Relations advisor, Mr Mike Kaiser.

7.49 During Budget Estimates hearings in February, it emerged that a significant proportion of NBN Co appointments were not advertised positions. Mr Quigley, CEO of NBN Co, explained that 'a little over 40 per cent of [NBN Co's] permanent employees came by way of referral'.[43] It also emerged that at least one of those appointments was tainted by Labor party allegiances.

7.50 Former Labor Party apparatchik, Mr Mike Kaiser, was appointed to a reported $450 000 'Government Relations' position that was not advertised at any point[44] and which followed a private recommendation from Labor's Senator the Hon. Stephen Conroy, Minister for Broadband, Communications and the Digital Economy.[45] There was no shortlist.[46] Senator Conroy was the only person to put forward Mr Kaiser's name as a possible candidate.[47] Mr Kaiser was appointed to the position despite a controversial history in which he had resigned from the Queensland Parliament after being mentioned during a Royal Commission into electoral fraud.[48]

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43 Mr Michael Quigley, Chair and CEO, NBN Co Ltd, *Committee Hansard*, Environment, Communications and the Arts Legislation Committee, Canberra, 8 February 2010, p. 96.

44 Mr Michael Quigley, Chair and CEO, NBN Co Ltd, *Committee Hansard*, Environment, Communications and the Arts Legislation Committee, Canberra, 8 February 2010, p. 100.

45 Mr Michael Quigley, Chair and CEO, NBN Co Ltd, *Committee Hansard*, Environment, Communications and the Arts Legislation Committee, Canberra, 8 February 2010, p. 96.

46 Mr Michael Quigley, Chair and CEO, NBN Co Ltd, *Committee Hansard*, Environment, Communications and the Arts Legislation Committee, Canberra, 8 February 2010, p. 97.

47 Mr Michael Quigley, Chair and CEO, NBN Co Ltd, *Committee Hansard*, Environment, Communications and the Arts Legislation Committee, Canberra, 8 February 2010, p. 102.

48 The Hon. Senator Ian Macdonald, *Committee Hansard*, Environment, Communications and the Arts Legislation Committee, Canberra, 8 February 2010, p. 103.

7.51 The matter was raised again in the committee's hearings in Canberra on 15 April 2010. At that hearing Mr Quigley mounted a vigorous defence of Mr Kaiser's performance in his position:

> I would like to put on the record here that I find Mr Kaiser an extremely valuable member of the team. He is providing a lot of value-add to the company. That is not just my view; that is shared by the entire management team.[49]

7.52 Whether or not Mr Kaiser is performing his job effectively, the committee deeply disapproves of the decision to appoint him to a very highly paid position, funded by taxpayer dollars, for which there was no formal recruitment process, advertisement of the position, or even a shortlist of candidates. The committee believes such appointments necessarily result in a level of suspicion of the merit of other appointments to NBN Co and compromise the integrity, transparency, and accountability of the NBN project as a whole.

49 Mr Michael Quigley, CEO, NBN Co Ltd, *Committee Hansard*, Canberra, 15 April 2010, p. 55.

Chapter Eight

Progress in Tasmania

Overview

8.1 Little has changed in the committee's assessment of the roll-out of the NBN in Tasmania since the publication of its *Third Report.* In that report, the committee stated that:

> [T]he roll-out in Tasmania has apparently commenced in what is virtually an information vacuum...there is no structured Business Plan to inform the public how this [Government Business Enterprise] will ensure that it will provide 'accessibility and affordability' in broadband services...
>
> With services due to commence in July 2010, Tasmanians remain ignorant of the prices they will have to pay to access broadband. Details of the level of Federal funding for the Tasmanian roll-out are also sketchy...[1]

8.2 Since the publication of that report, the committee received evidence about progress in Tasmania from NBN Co, the Department, and two internet service providers who have contracted with NBN Co for wholesale access to the network and who will offer retail services to end-users in Tasmania from July 2010. The Tasmanian Government declined the committee's invitation to provide a submission on progress.

8.3 The committee remains of the view that progress in Tasmania has been ad hoc, non-transparent, and has largely been made in an information vacuum. The general public was not given a detailed roll-out plan in advance of the roll-out. Instead, the roll-out was announced piecemeal, by press release, and without at any time being accompanied by a comprehensive business plan. The general public was therefore not told, in advance and in a single document, where, when and for how much services over the NBN would be available in individual locations in Tasmania. The same information vacuum has surrounded the equity arrangements for NBN Tasmania, with the public being kept in the dark as to the overall financing arrangements for NBN Tasmania, the total cost of the roll-out, and the expected timing and quantum of each individual equity injection in the company that the Government expects to make.

8.4 The committee believes the piecemeal release of details – usually by press release for each small step being made – has not provided stakeholders and the Australian public with sufficient transparency, accountability and certainty as to the roll-out of the NBN.

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1 *Third Report*, November 2009, p. 60.

Ad hoc Government statements of progress

8.5 On 24 September 2009, the commencement of work on a seven-kilometre fibre-optic backbone link between Cambridge and Midway Point in Tasmania was announced.[2] The link was previously announced, in July 2009, as constituting 'Stage 1' of the NBN roll-out in Tasmania.[3] The same press release contained details of the establishment of NBN Tasmania (which did not in fact hold its first Board meeting until 13 August 2009)[4] and its ownership and operating agreements with the state owned utility company, Aurora Energy.

8.6 In July 2009, the first Tasmanian towns to receive fibre under the NBN roll-out were also announced,[5] but it was not until October 2009 that the Government announced which towns would be next in the roll-out.[6] What was to be included in 'Stage 3' of the process, and which further towns were to be included and when, was not announced until March this year. In a joint press release on 1 March 2010, the Government announced that Stage 3 of the roll-out would include the major population centres of Hobart, Launceston, Devonport and Burnie, and would also involve an equity contribution of $100 million from the Government in NBN Tasmania 'to facilitate the further roll-out of the fibre-to-the-home broadband in that State'.[7]

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2 The Hon. David Bartlett MP, Premier of Tasmania, and Senator the Hon. Stephen Conroy, Minister for Broadband, Communications, and the Digital Economy, 'Construction of key NBN link in Tasmania', Joint press release, 24 September 2009, www.minister.dbcde.gov.au/media/media_releases/2009/090, accessed 24 April 2010.

3 Senator the Hon. Stephen Conroy, Minister for Broadband, Communications and the Digital Economy, 'Stage 1 of the National Broadband Network roll-out in Tasmania begins', Press release, 16 July 2009, www.minister.dbcde.gov.au/media/media_releases/2009/064, accessed 24 April 2010.

4 The Hon. Kevin Rudd MP, Prime Minister of the Commonwealth of Australia, and Senator the Hon. Stephen Conroy, Minister for Broadband, Communications and the Digital Economy, 'Tasmanian NBN Co Limited established', Joint press release, 13 August 2009, www.minister.dbcde.gov.au/media/media_releases/2009/075, accessed 25 April 2010.

5 The Hon. Kevin Rudd MP, Prime Minister of the Commonwealth of Australia, and Senator the Hon. Stephen Conroy, Minister for Broadband, Communications and the Digital Economy, 'Smithton, Scottdale and Midway point first towns for National Broadband Network in Tasmania', Joint press release, 25 July 2009, www.minister.dbcde.gov.au/media/media_releases/2009/069, accessed 25 April 2010.

6 The Hon. Kevin Rudd MP, Prime Minister of the Commonwealth of Australia, the Hon. David Bartlett MP, Premier of Tasmania, and Senator the Hon. Stephen Conroy, Minister for Broadband, Communications and the Digital Economy, 'Seven new locations to receive superfast broadband in Tasmania', Joint press release, 21 October 2009, www.minister.dbcde.gov.au/media/media_releases/2009/093, accessed 25 April 2010.

7 Senator the Hon. Stephen Conroy, Minister for Broadband, Communications and the Digital Economy, '$100 million injected into NBN Tas as Stage 3 roll-out is announced', Press release, 1 March 2010, www.minister.dbcde.gov.au/media/media_releases/2010/015, accessed 25 April 2010.

8.7 On 15 March 2010, the Minister opened a 'Proof of Concept Test Centre' in Tasmania which is designed to 'provide retail service providers with access to a live environment to test their services as part of the roll-out of the National Broadband Network'.[8]

8.8 The same press release announced the names of the three Retail Service Providers – iiNet, Primus, and Internode – which will retail internet services to Tasmanians. The committee understands that at the time of the announcement, formal agreements between NBN Co and the three RSPs were yet to be concluded, but that the parties were, in principle, committed to wholesale access terms and had agreed (but not formalised) the wholesale prices that the RSPs will pay to NBN Co for access to the network from July 2010.[9]

Update from NBN Co on progress

8.9 NBN Co CEO, Mr Michael Quigley, provided the committee with an update on NBN Co's progress in Tasmania:

> In Tasmania we have been making good progress. We are rolling out to the networks in the towns of Midway Point, Smithton and Scottsdale. We have sent letters to the residents of Midway Point seeking consent to access their properties for the drops into their homes from the network. We have opened the Cambridge Data Centre and three ISPs are currently demonstrating their services on the network in our proof-of-concept centre. The network operation centre in Tasmania is now nearing completion and we are on track for the July [2010] connection of the first operational services.[10]

8.10 Mr Quigley also explained the nature of the 'understanding' between NBN Co and the Retail Service Providers as to what NBN Co's interim wholesale pricing in Tasmania will be:

> Mr Quigley—...There is certainly an understanding. I would have to come back to you after checking the actual contractual position. As you would understand, you have discussions and you kick things around and then you paper it all up. As to exactly where we are on the actual contracts, I would have to check; I am not 100 per cent sure.
>
> CHAIR—But, whether or not the prices are signed off, they are resolved?
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> Mr Quigley—Yes.[11]

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8 Senator the Hon. Stephen Conroy, Minister for Broadband, Communications and the Digital Economy, 'First Tasmanian NBN Retail Service Providers Announced', Press release, 15 March 2010, www.minister.dbcde.gov.au/media/media_releases/2010/022, accessed 25 April 2010.

9 Mr Stephen Dalby, Chief Regulatory Officer, iiNet Ltd, *Committee Hansard*, Melbourne, 14 April 2010, p. 19; Mr Michael Quigley, CEO, NBN Co Ltd, *Committee Hansard*, Canberra, 15 April 2010, p. 47.

10 Mr Michael Quigley, CEO, NBN Co Ltd, *Committee Hansard*, Canberra, 15 April 2010, p. 44.

11 Mr Michael Quigley, CEO, NBN Co Ltd, *Committee Hansard*, Canberra, 15 April 2010, p. 44.

8.11 Although NBN Co has agreed on its interim wholesale prices that it will charge RSPs in Tasmania, it was not in a position to comment on whether retail pricing for end-users has been set. As NBN Co explained to the committee, '[what RSPs] decide to charge their retail customers and end-users is really up to them'. Mr Quigley also made it apparent, however, that NBN Co's wholesale prices in Tasmania are 'interim prices' only and may not be indicative of what the company will charge access seekers in Tasmania or on the mainland in the future.[12]

Update from Retail Service Providers on progress

8.12 Representatives of iiNet Ltd outlined the significant work that that company has taken in preparation for offering retail internet, telephony, and television services to Tasmanian end-users over the NBN network.[13] These included: increasing capabilities in network infrastructure; building ordering, provisioning and billing systems; and training staff.[14]

8.13 iiNet also informed the committee that the company is aiming to offer FTTH services over the NBN to end-users in Tasmania from June 2010, but have not yet commenced marketing or sales activities to customers.[15] iiNet said that it had not yet released the pricing for Tasmania because the wholesale pricing agreement it needs to have in place with NBN Co had not, at that point, been formally executed:

> We have not released the pricing for Tasmania as yet because we still have not executed the terms of agreement with NBN Tas. We are fairly comfortable that we have that agreement very close to execution but it is not executed as yet.[16]

8.14 As an indication of its expected pricing, iiNet referred to its current pricing of FTTH services in Point Cook in Victoria.[17] Those prices range from an entry level price of $49.95 per month for a 25 Mbps bandwidth of download speed/1 Mbps upload,

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12 Mr Michael Quigley, CEO, NBN Co Ltd, *Committee Hansard*, Canberra, 15 April 2010, p. 47.

13 In addition to the evidence it received from iiNet Ltd, the committee received a written submission from Primus Telecom Australia (Primus Telecom Australia, *Submission 117)* but it was related to other matters and did not address the progress of the NBN in Tasmania. Internode did not respond to the committee's invitation to make a submission.

14 Mr Stephen Dalby, Chief Regulatory Officer, iiNet Ltd, *Committee Hansard*, Melbourne, 14 April 2010, p. 15.

15 Mr Stephen Dalby, Chief Regulatory Officer, iiNet Ltd, *Committee Hansard*, Melbourne, 14 April 2010, p. 16.

16 Mr Stephen Dalby, Chief Regulatory Officer, iiNet Ltd, *Committee Hansard*, Melbourne, 14 April 2010, p. 19.

17 Point Cook is a test site for Fibre to the Premises technology that was launched by Telstra in December 2009.

to 100 Mbps download/5Mbps upload speed for either $129.95 per month (with 120 GB of quota) or $159.95 per month (with 180 GB of quota).[18]

8.15 Mr Stephen Dalby, Chief Regulatory Officer of iiNet, also sketched for the committee what iiNet's intentions are as to marketing and pricing of its product to Tasmanians, and how it will compare with the current services that such end-users already receive with copper connections:

> Mr Dalby—We are planning on fairly targeted marketing to those potential customers [located in the Stage 1 pilot region in Tasmania]. We already have customers connected via the copper network in those locations. They will be our primary group that we will target to offer services via the NBN. As I said, it will not need a massive television campaign; we will do that directly with those customers, because we have their contact details.
>
> CHAIR—To those currently on your copper network, would you expect to be offering them a service at the same price, or a higher or lower price? Clearly, you would be offering them a better service [because fibre services, unlike current services over copper networks, provide guaranteed speeds irrespective of the customer's distance from the local exchange], but do you expect it to be at the same price or at a higher or lower price—or am I asking commercial-in-confidence questions?
>
> Mr Dalby—No, no; that is fine. These numbers are public already. As I said, the fibre products that we are offering to Point Cook [in Victoria] are planned as the basis of our offering over fibre in Tasmania. They are not exactly like for like but, if we compare similar to similar, you can get the DSL2+ service that we offer today on copper for $49.95 a month. On fibre for Point Cook, there is a 25 megabits per second service, which is similar to what we are offering for DSL2+ on copper, which is also $49.95. So similar for similar is the same price.[19]

8.16 This raises the question how iiNet can offer services on the Fibre to the Premises NBN network (which has somewhere between a $26–43 billion build figure) at the same prices as those being charged for services on the old 'paid off long ago' copper network. This can only be achieved if the wholesale price is comparative which suggests that either there is subsidisation of the wholesale price or NBN Co is proposing to price below cost in the short-term with an objective of ramping up prices in the long term once the copper network has been forced into retirement because it has lost the economies of scale.

8.17 iiNet was not in a position to estimate its expected take-up rates in either Tasmania or on the mainland. The company expects that its forthcoming experience in

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18 Mr Stephen Dalby, Chief Regulatory Officer, iiNet Ltd, *Committee Hansard,* Melbourne, 14 April 2010, p. 21. See also, iiNet Ltd, answer to question on notice, 14 April 2010 (received 27 April 2010).

19 Mr Stephen Dalby, Chief Regulatory Officer, iiNet Ltd, *Committee Hansard,* Melbourne, 14 April 2010, p. 23.

Tasmania will enable it to commence making projections of that kind, and will also provide an indication of the likely numbers of connections iiNet will need to be capable of servicing on any one day during the full NBN roll-out.[20]

8.18 A key concern for iiNet is that landowner consent requirements may obstruct the connecting of prospective end-user's to the network.[21] As discussed in chapter 3 in relation to progress on the mainland and the experiences in the first-release pilot sites, the matter concerns the extent to which iiNet and other RSPs doing the internal wiring to connect an end-user to the NBN are exempt from landowner consent requirements. The matter is particularly acute for rental properties.[22]

8.19 Landowner or building owner consent requirements are also a concern for NBN Co in its roll-out of the network in Tasmania to multi-dwelling units. Mr Quigley explained to the committee that:

> It is a little more complex because some of these the multi-dwelling units are private. You cannot just go and wire up inside a multi-dwelling unit even if an individual consumer in a particular apartment would like you to do so, because they do not have title. So our first intention would be to put a piece of equipment in the basement of the building. If the building is already prewired for fibre, it is relatively straightforward; if not, we would try and run fibre in the building. We cannot force the building owners to allow us to run fibre if they choose not to. In that case, if there is copper we have a fallback solution—we could, for example, use VDSL [Very high speed Digital Subscriber Line technology].[23] On a very short length of copper you can get quite high speeds—around 50 megs. That is a fallback. Our first preference would be to wire the building with fibre but if that proves simply impossible we have a fallback.[24]

Need for more information to end-users

8.20 It appears to the committee that there is a lack of information available to future end-users and other stakeholders regarding the roll-out of the NBN, the products that will be available to end-users following its roll-out (and how they differ from current services), and the prices that will apply.

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20 Mr Stephen Dalby, Chief Regulatory Officer, iiNet Ltd, *Committee Hansard,* Melbourne, 14 April 2010, p. 22.

21 In general terms, NBN Co will be responsible for connecting end-user's premises to the NBN and will take the fibre from the network to that premises. It will be for RSPs to organise the internal wiring of an end-user's premises.

22 Mr Stephen Dalby, Chief Regulatory Officer, iiNet Ltd, *Committee Hansard,* Melbourne, 14 April 2010, p. 25.

23 VDSL technology consists of twisted pair copper wire.

24 Mr Michael Quigley, CEO, NBN Co Ltd, *Committee Hansard,* Canberra, 15 April 2010, p. 47.

8.21 Although the committee understands that there are a number of formal agreements which need to be negotiated as to wholesale pricing in order to determine retail pricing, and that a number of additional matters other than pricing are also involved in such negotiations (such as complaints handling, conditions of access, network standards, and technology interfaces), the committee believes the current dearth of publicly available information is causing unnecessary confusion and uncertainty amongst the community – both in Tasmania and elsewhere.

8.22 Ms Teresa Corbin, Deputy CEO of the Australian Communications Consumer Action Network, explained how future customers and community organisations are struggling to operate and arrange their affairs in an information vacuum:

> We would really like to see NBN Co. engaging with the community a bit more. We know that they have some community meetings planned for Tasmania in July [2010]. They really need those community meetings in Tasmania now because we are getting a lot of inquiries from Tasmania about what is going on. They are asking when they are getting their service and what is different to the ADSL connection that they have now. They are asking about the equipment they have to purchase and that kind of thing…
>
> Whilst [end-users] have seen the government announcements and they have even seen local press about it, they have not heard anything more about what this actually means for them…
>
> Our members in Tassie simply do not know what is going on. I have spoken to quite a number of organisations that have simply said, 'We know it's coming, but we don't know what it is or what it means.' So they are commenting to me in a vacuum as well.[25]

Committee view

8.23 NBN Co has stated it will provide information sessions to Tasmanian end-users in the Tasmanian pilot regions in the near future. The RSPs also clearly intend to provide 'fairly targeted marketing' of their fibre-based retail offerings 'closer to the launch date' in June or July 2010.[26]

8.24 The committee believes there is a need for additional communication to end-users on a much bigger scale. End-users need to know:

- when NBN services will be offered in their region;
- how the NBN-based products will differ from their current services;
- what preparation of their premises they need to, or should do, prior to installation;

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25 Ms Teresa Corbin, Deputy CEO, ACCAN, *Committee Hansard*, Canberra, 15 April 2010, pp 34, 39, 41.

26 Mr Stephen Dalby, Chief Regulatory Officer, iiNet Ltd, *Committee Hansard*, Melbourne, 14 April 2010, pp 19, 22.

- what potential property disruption could be caused to their premises or surrounding areas during the deployment of the NBN or the internal installation of equipment within their premises; and
- how much the services will cost them to purchase from a retailer.

8.25 The above information needs to be conveyed as soon as possible to end-users who are both within, and outside of, the pilot regions.

Recommendation 27

8.26 That the Government and NBN Tasmania create a single public document, to be released as soon as possible, which sets out all remaining stages in the planned roll-out of the NBN in Tasmania, including the expected timetable for the roll-out, and the expected timing and quantum of any future Government-funded equity injections.

Recommendation 28

8.27 That NBN Co make widely available, for all prospective end-users across Australia, information on:

- **when NBN services will be offered in their region;**
- **how the NBN-based products will differ from their current services;**
- **what preparation of their premises they need to, or should do, prior to installation;**
- **what potential property disruption could be caused to their premises or surrounding areas during the deployment of the NBN or the internal installation of equipment within their premises; and**
- **how much the services will cost them to purchase from a retailer.**

Chapter Nine

Progress on wireless and satellite

Overview

9.1 Overall, the committee received little evidence related to progress on the wireless and satellite fronts, the next generation technologies which are supposedly going to service the up to 10 per cent of Australian premises left out of the 90–93 per cent fibre footprint area.

9.2 The committee is unsure whether the lack of information received reflected a lack of progress, lack of transparency on behalf of NBN Co and the Government, or a lack of effective communication to key stakeholders and the public.

9.3 The committee's main concern is that the design and roll-out of the NBN's next generation wireless and satellite services does not seem to be being prioritised by the Government or by NBN Co. The committee is deeply worried that, if this is indeed the case, regional and remote Australians are set to remain deprived of effective, affordable, broadband services and essential telecommunications infrastructure while their comparatively well-serviced urban cousins receive all the benefits of Fibre to the Premises broadband services.

Evidence received

9.4 Of the evidence that was provided to the committee, the two primary concerns raised were that:

- the lack of information available is compromising investments in infrastructure and forward planning by businesses and end-users; and
- regional and remote Australians' needs are being deferred until after the fibre network is rolled-out, or at least substantially progressed.

Lack of available information

9.5 The Australian Communications Consumer Action Network described how the lack of information is a key concern for prospective end-users who may be in the 10 per cent:

> Ms Corbin—With the National Broadband Network we have got 100 megabits per second in some areas and a lot less in some remote spaces. So we are getting a lot of feedback from those people who believe they are going to be in the 10 per cent. What should they expect if their service is being delivered by satellite or wirelessly?

> Senator FISHER—I am not sure they know enough about the government's promise in that respect to even start to work out what they are entitled to expect, do they?
>
> Ms Corbin—That has been a massive problem too.[1]

9.6 AUSTAR United Communications, describing itself as regional Australia's leading subscription television provider, suggested that the current approach is prioritising the roll-out of fibre in urban and metropolitan centres in a way which is detrimental to not only the 10 per cent who will ultimately be outside the NBN's fibre footprint, but also those who may ultimately get FTTP but will have to wait until towards the end of the NBN's eight-year roll-out to receive those fibre-based services:

> Since our original Senate Select Committee response nine months ago, AUSTAR has refined its views on how a 4G wireless broadband network could play an integral part in the rapid roll-out of NBN level services to regional and remote parts of Australia. Regional and rural Australia remains a broadband backwater, and we continue to be concerned by the potential delay, by years, of a fibre roll-out to most of our market.
>
> AUSTAR holds the 2.3GHz and 3.5GHz spectrum licences within regional areas, and we believe the short- and long-term benefits of a wireless solution should not be overlooked in the buildout of the NBN. The NBN will strive to connect as many homes as possible to a fibre network, but wireless will offer speeds beginning at 12Mbps and growing to 100Mbps+ with technologies being developed around the world compatible with AUSTAR's spectrum holdings. Wireless can be rolled out much more quickly and at a much lower cost than fibre technologies, and in markets where it will eventually overlap, will be a complementary consumer offering.[2]

Update from NBN Co on progress

9.7 At the committee's hearing in Canberra on 15 April 2010, Mr Michael Quigley, CEO of NBN Co, provided the following update on progress:

> We are also working on the satellite and wireless solutions for the approximately 10 per cent of premises not covered in the fibre footprint and, in providing those radio solutions, the dimensioning becomes even more important…we have got to provide committed information rates. To implement the architecture and the designs we are doing, we will of course procure a range of equipment and capabilities.[3]

9.8 Subsequently, Mr Quigley indicated that although NBN Co may be 'working on the satellite and wireless solutions', when it comes to working out the wholesale

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1 Ms Teresa Corbin, Deputy CEO, ACCAN, *Committee Hansard*, Canberra, 15 April 2010, pp 38–39.

2 AUSTAR United Communications Ltd, *Submission 116*, p. 1.

3 Mr Michael Quigley, CEO, NBN Co Ltd, *Committee Hansard*, Canberra, 15 April 2010, p. 44.

pricing of wireless and satellite services, those are matters NBN Co is deferring until after fibre-prices have been settled:

> If you are talking about trying to get a uniform price across the country, our first step is to try to make sure we can design the network to get a uniform price across the fibre footprint, which is where we are focusing the attention at the moment. We will then come to the wireless and satellite parts of the network and try to do likewise. But remember: we have to do all of this in consultation with the ACCC. Even for Tasmania stage 1 we consulted with the ACCC to make sure that when it comes to pricing issues we get guidance from the regulator.[4]

9.9 In response to a question on notice, NBN Co provided further details of their progress on wireless, stating:

> The wireless network design for the remaining 10% has been progressing with investigations into a range of factors including:
>
> - Spectrum options for the wireless network;
> - Technology choices (eg. LTE or WiMax); and
>
> Workshops have been held with potential technology vendors but no formal technology procurement process has been initiated (as is the case with the fibre and satellite networks) as the technology choice will depend on the outcomes of the investigations above.[5]

9.10 In relation to satellite, NBN Co explained:

> The satellite network design is progressing based on an assumption of NBN Co launching a minimum of two satellites in the 2014/15 timeframe to provide broadband services to premises in the non-fibre and non-wireless areas. A formal procurement process has commenced with a Request for Capability Statement released in January 2010. Responses to this RCS are being evaluated and it is our intention to release a Request for Proposal later in 2010.[6]

Commentary from the Implementation Study

9.11 The Implementation Study, released on 6 May 2010, contained significant discussion on the challenges and options available to the Government and NBN Co in terms of next-generation wireless and satellite services. In a chapter titled 'Ensuring national availability of high-speed broadband', the Implementation Study recommended that the fibre footprint be extended to 93 per cent of premises (up from 90 per cent), that another four per cent of premises (the 94th to 97th percentiles) be serviced by wireless operators (following a yet-to-be-started Expression of Interest and tender process that may ultimately be unsuccessful anyway), and that the final

4 Mr Michael Quigley, CEO, NBN Co Ltd, *Committee Hansard*, Canberra, 15 April 2010, p. 61.

5 NBN Co, answer to question on notice, 15 April 2010 (received 11 May 2010), p. 28.

6 NBN Co, answer to question on notice, 15 April 2010 (received 11 May 2010), p. 29.

three percent (the 98th to 100th percentiles) be serviced by a satellite program yet to be launched by NBN Co.[7]

Committee view

9.12 In the absence of any compelling evidence to the contrary, the committee can only assume that the Government and NBN Co have not come up with a business plan or decided upon a final course of action.

9.13 In terms of the proposals contained in the Implementation Study as a way forward from the mess the Government has created, both the wireless and satellite solutions proposed by the Implementation Study, as discussed in chapter two, already depart from the Government's objective of delivering at least 12 Mbps to the final ten percent.

9.14 Although these premises were already, under the Government's initial FTTP announcement, going to be receiving substantially inferior services to those premises serviced by fibre (speeds of 12 Mpbs as opposed to the up to 100 Mbps promised for fibre), the Implementation Study's recommendation is to extend the discrepancy even further, recommending that the 12 Mpbs speed be redefined as a 'peak data rate target'.[8] In practice, this means that those on satellite services might expect a mere 300–400 kilobits per second (kbps),[9] which equates to just 0.3–0.4 Mpbs.

9.15 To add insult to injury, the Implementation Study then recommends that an 'entry-level service' for satellite services should be provided 'with a lower peak data rate and average data rate' of just 6 Mpbs and 200 kbps respectively and that this should be 'priced at a comparable level to entry-level fibre and wireless products'.[10] Such a suggestion translates into those Australians in the three percent of premises covered only by satellite solutions being asked to pay the same 'entry-level' price for what is a vastly different service to that available on fibre. While the entry-level fibre service is likely to provide (and the Implementation Study recommends that it does provide) committed speeds of 20Mbps, the entry-level package for satellite services will provide an average service speed that is one one-thousandth (or 0.1 per cent) of what is available for the same price on fibre.

9.16 Additionally, the wireless solution proposed by the Implementation Study, as discussed in chapter two, is not actually a solution. Rather, what the Implementation

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7 McKinsey-KPMG, *Implementation Study for the National Broadband Network*, 5 March 2010, Chapter 5.

8 McKinsey-KPMG, *Implementation Study for the National Broadband Network*, 5 March 2010, p. 275.

9 McKinsey-KPMG, *Implementation Study for the National Broadband Network*, 5 March 2010, p. 293.

10 McKinsey-KPMG, *Implementation Study for the National Broadband Network*, 5 March 2010, p. 297.

Study proposes is that the Government conduct an as yet unstarted Expression of Interest and then tender process for a commercial provider to build and operate a fixed-wireless network.[11] In the absence of an acceptable bid, the Implementation Study proposes that NBN Co 'be required to build the network and offer services on a wholesale-only basis'.[12] Translated into reality, the effect of that recommendation is that even the watered-down next-generation wireless services trumpeted by the Government as such an improvement on the current services available to rural and remote Australian premises are years away. And presently, no-one is even sure what the solution will actually end up being in any case.

9.17 Finally, the committee notes that even if the Government does follow the Implementation Study's recommendations and seeks to have next-generation wireless and satellite services operating at some future point, there is little in the Implementation Study which suggests these will ever be commercially viable without significant government subsidies. The Implementation Study is largely silent on just how large and ongoing those subsidies will need to be. What is clear is that large subsidies akin to those provided under the current Australian Broadband Guarantee program[13] will remain a fixture of the commercial and government funding landscape.

9.18 The committee repeats its calls in previous chapters of this report that the Government immediately provide a response to the Implementation Study and that the Government and NBN Co also provide a detailed business plan for how, when, where and for how much the NBN will be rolled out throughout the entirety of the nation.

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11 McKinsey-KPMG, *Implementation Study for the National Broadband Network*, 5 March 2010, Recommendation 45, p. 309.

12 McKinsey-KPMG, *Implementation Study for the National Broadband Network*, 5 March 2010, Recommendation 45, p. 309.

13 The Australian Broadband Guarantee is an initiative designed to help residential and small business premises access a metro-comparable broadband service regardless of where they are located. Under the Australian Broadband Guarantee, a metro-comparable broadband service is defined as any service that offers a minimum 512kbps download and 128kbps upload data speed, 3GB per month data usage at a total cost of $2500 GST inclusive over three years (including installation and connection fees). From 1 July 2010, these minimum standards are being increased to 1 Mbps download, 256 kbps upload and 6 GB per month data usage. The program works by paying internet service providers that register with the program a subsidy to provide metro comparable broadband services to residential and small business premises where such services would not otherwise be available. The Government has allocated $250.8 million over four years to fund the Australian Broadband Guarantee. See: Department of Broadband, Communications and the Digital Economy, 'Australian Broadband Guarantee', www.dbcde.gov.au/broadband/australian_broadband_guarantee, accessed 11 May 2010; Senator the Hon. Stephen Conroy, 'Threshold service speeds to double under the Australian Broadband Guarantee', Media release, 10 May 2010, http://www.minister.dbcde.gov.au/media/media_releases/2010/043, accessed 13 May 2010.

Chapter Ten

Related legislative developments

Telecommunications Competition and Consumer Safeguards Bill

10.1 The Telecommunications Legislation Amendment (Competition and Consumer Safeguards) Bill 2009 (the CCS Bill) seeks to introduce a series of regulatory reforms intended to enhance competitive outcomes in the Australian telecommunications industry and strengthen consumer safeguards. It seeks to address Telstra's vertical and horizontal integration, streamline the telecommunications access and anti-competitive conduct regime, and strengthen consumer safeguards, including the Universal Service Obligation (USO) and the Customer Service Guarantee (CSG).

10.2 The CCS Bill was introduced into the House of Representatives on 15 September 2009. On 17 September 2009 it was referred to the Senate Environment, Communications and the Arts Legislation Committee for inquiry and report. That committee tabled its report in October 2009.[1]

10.3 In its *Third Report*, this committee discussed the provisions of the CCS Bill and recommended:

> That further consideration of the bill not proceed until after the NBN Implementation Study has been completed, the government has tabled its response to the Implementation Study and the Senate has certainty about the network structure of the NBN Co and the regulatory framework which will surround it.[2]

10.4 During the first parliamentary sittings periods of 2010, the CCS Bill was subject to protracted procedural wrangling on the basis of the Government's failure to table the Implementation Study, and continued uncertainty about the Government and NBN Co's commercial negotiations with Telstra as to the acquisition of its assets and customer migration for the NBN.

10.5 At the time of writing this report, the CCS Bill had not passed the Senate.

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1 Environment, Communications and the Arts Legislation Committee, *Telecommunications Legislation Amendment (Competition and Consumer Safeguards) Bill 2009 [Provisions]*, 26 October 2009, www.aph.gov.au/senate/committee/eca_ctte/tlaccs/report/index.htm, accessed 19 April 2010.

2 *Third Report*, p. 134.

Fibre in greenfields policy

10.6 When announcing its plans to build the NBN, the Government also indicated that it would '[p]rogress legislative changes that will govern the national broadband network company and facilitate the rollout of fibre networks, including requiring greenfield developments to use FTTP technology from 1 July 2010'.[3] This was known as the Government's 'fibre in greenfields' policy.

10.7 The Government introduced the Telecommunications Legislation Amendment (Fibre Deployment) Bill 2010 (the Fibre Deployment Bill) to implement that policy.

10.8 On 18 March 2010 the Senate referred provisions of the Fibre Deployment Bill to the Environment, Communications and the Arts Legislation Committee for inquiry and report by 12 May 2010.

10.9 In light of that process, this committee does not propose to discuss the provisions of the Fibre Deployment Bill, except to note that a response by the Department to one of the questions on notice raised during the course of that inquiry was particularly alarming to this committee.

10.10 In response to a question about whether it would be inequitable to require greenfield estates (ie new developments) to pay for the installation of fibre-related infrastructure while existing premises would (presumably) be serviced for free as part of the national NBN roll-out, the Department suggested that no premises may receive free installation and deployment of fibre to the premises. The Department stated:

> It was noted in the Second Reading Speech [for the Fibre Deployment Bill] that the cost recovery arrangements that may ultimately apply in greenfields will depend on the commercial arrangements that emerge between all relevant parties as fibre-to-the-premises is deployed more widely. How roll-out costs will be recovered in both brownfields and greenfields will depend on a range of factors and it cannot simply be assumed that stakeholders in greenfields will have to meet costs in one way while those in brownfields are expected to meet them in another. In all instances, NBN Co is expected to operate on a commercial basis and to recover its costs.[4]

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3 The Hon. Kevin Rudd MP, Prime Minister of the Commonwealth of Australia, the Hon. Wayne Swan MP, Treasurer of the Commonwealth of Australia, the Hon. Lindsay Tanner MP, Minister for Finance, the Hon. Stephen Conroy MP, Minister for Broadband, Communications and the Digital Economy, 'New National Broadband Network', Joint press release, 7 April 2009, www.minister.dbcde.gov.au/media/media_releases/2009/022, accessed 27 April 2010.

4 Department of Broadband, Communications and the Digital Economy, answer to question on notice to the Senate Environment, Communications and the Arts Committee (Legislation), Question 5, 19 April 2010 (received 28 April 2010), Attachment B, Item 1, p. 1.

10.11 If owners of existing Australian premises will indeed be required to pay for the costs of deployment of the NBN to their premises (and by 'deployment' the committee is encompassing more than just the costs of internal wiring of the home once the fibre is deployed down the street), then significant questions arise as to whether such an arrangement would mean Australians will in effect be paying twice for the network: first as taxpayers whose dollars are funding the roll-out; second, as residents who, through presumably a network connection fee, usage charge or some other similar arrangement, are required to pay a second time for the NBN to actually service their individual premises.

Senator Ian Macdonald

Chair

Minority Report – Government Senators

The National Broadband Network will connect all Australians, wherever they live, to each other and to the rest of the world and will allow a plethora of new services and opportunities. Government Senators share this vision for the NBN:

> We can build a comprehensive national broadband network… A broad range of services and applications would flourish on this platform. There would be entertainment options much richer than we have today. Two-way and multi-party videoconferencing world be commonplace. With broadband in every home, new services would spring up: banking, shopping, information. Educational and health services would expand to take advantage of this new, widely available communications channel…[1]
>
> Equally importantly, there would be a continuing ferment of innovation. With multiple service providers able to deliver services over the new network, there would be new ideas emerging all the time, including many attractive choices which are not available today.

Regrettably the view of the same writer that 'Amid the fierce disagreement on most other issues, one assumption seems to be accepted on all sides: building a better broadband network would bring great benefits to Australia'[2] does not appear to be held by Opposition Senators and so their principal recommendation – that the NBN be abandoned – is opposed by Government Senators and motivates the preparation of this dissenting report.

Opposition Senators say there are better ways to provide fast broadband for lower cost; namely by working co-operatively with industry (para 2.12). Government Senators know, however, that such faith/market-based approaches have not worked in Australia in the past given the current industry structure.

Government Senators support the intention that the National Broadband Network serve 100% of the population and that it operate on a wholesale, open access basis. Government Senators do not consider that that the market will deliver such an outcome.

Government Senators note the remarks of Mr Kevin Morgan who observes that around the world, fibre networks are being rolled out by vertically integrated incumbents and that this is the only workable model. Unsaid in Mr Morgan's considerations is that these incumbents cherry pick the most valuable customers leaving much of the rest of these countries with non-fibre solutions. Also unsaid is that these networks tend to be closed with the only retail offerings being those of the network owner. The availability of other service offerings depends on the existence of

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1 Paul Fletcher, *Wired Brown Land* (2009), p. 208.

2 Paul Fletcher, *Wired Brown Land* (2009), p. 161.

other facilities or on the legislated opening up of access which, as we see in Australia, vertically integrated companies have a strong incentive to resist.

Government Senators therefore consider that the government's approach will deliver better outcomes for all Australians.

Opposition Senators display a perplexing inconsistency in their backward looking view of this nation building initiative.

They say they don't want an FTTH network yet they recognise it as a superior technology. They say that the NBN is no good for the mainland – and that they'll abandon it - but it's good for Tasmania. They complain that they can see little progress yet they take every opportunity to obstruct the roll-out of the network. They say they cannot judge the merits of the NBN before they see the Implementation Study; yet they declared that they will abandon it before the Study was released. They said they could not consider any NBN-related legislation before seeing the Implementation Study but they announce that they will not pass anything anyway. And they say the NBN costs too much but they recommend measures that will make it more costly.

Remarkably, a recurring theme in the report of Opposition Senators is there is little transparency. However, the evidence is there that the Government has consulted openly at each step of the way. It released a discussion paper on 7 April 2009, the day it announced its FTTH initiative. It has established a stakeholder reference group to provide a forum for discussion for its 'fibre-in-greenfields' policy initiative and published a position paper on the details of the legislation. It has released discussion drafts of the NBN Companies Bill and the NBN Access Bill prior to their introduction. It released the Implementation Study, announcing that it would do so less than three weeks after receiving it on 5 March 2010. It has invited the public to express their views on the Study and will publish its response soon.

Similarly, NBN Co has issued discussion papers on network technologies and service offerings and has taken and responded to submissions. Officers from the company speak regularly at forums around the country and have attended and provided frank answers to this committee.

Compare this with the record of the previous coalition Government. To take just one example it allowed only one day for a Senate committee to consider the legislation for the final sale of the Commonwealth's share in Telstra.

Implementation Study

Opposition Senators contrive to attempt to undermine the Implementation Study with their over-played refrain that it did not undertake a cost-benefit analysis seemingly oblivious to the chorus of support from witnesses to whom the benefits are obvious. For instance, all of the councils where the NBN's first release sites are located indicated that they were pleased to hear of their selection.

Mr David Lynch, a senior executive at Townsville Council was pleased to hear the announcement that Mundingburra and Aitkenvale were to be first release sites.[3] Mr Bryan Whittaker, Engineering Director for the Municipality of Kiama, was 'delighted' to be included in the trial. Mr Brian Hales, from the City of Onkaparinga spelled out why he was 'thrilled' with the announcement that Willunga was one of the first cabs off the rank for NBN Co, outlining how the city's economic development board had placed broadband at the top of the list of urgent priorities to revitalise the region following the loss of the Mitsubishi engine plant and the Mobil oil refinery.

Similarly, the evidence of the Northern Territory Government was entirely positive about the building of a backhaul link to Darwin as part of the Government's Regional Backbone Blackspots Program. This was described in its submission to the Committee as 'a significant step forward in meeting the [Northern Territory Government's] communications goals for the future'.

The Implementation Study confirms that the NBN is achievable, will generate affordable prices for consumers and can be built on a financially viable basis even without a deal with Telstra. The study shows that taxpayers will receive a return on their investment sufficient to cover its cost of funds.

The Study models an entry level wholesale price on fibre for a 20Mbps service of $25-30 with an extra $5 for a voice service.[4]

The Study has been widely applauded. Optus CEO Paul O'Sullivan, said:

> Today represents a major win for competition, with Australia one key step closer to a nationwide, 21st Century wholesale-only open access broadband network we so desperately need.
>
> With the release of the NBN Implementation Study, we are now on a path to building a world class broadband network, a network that will ensure Australia's place in the leading economies of the world.

Alan Asher, the CEO of leading consumer body ACCAN, said:

> What Australians need from the NBN is improved accessibility, affordability and availability of communications services and the study's findings support this becoming a reality.

Leading telecommunications analyst and commentator, Paul Budde observed that:

> So far all elements of the broadband plan have moved forwards in a positive way and as such the project remains well and truly on the rails, so there is a very good chance that Australia can pull this off the ground. (Budde Blog)

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3 Page 33, Opposition report.

4 McKinsey-KPMG, *Implementation Study for the National Broadband Network*, 5 March 2010, Exhibit 4 46, p.268.

and

> What everybody wants is a low wholesale price so they can build on top of that network innovative new products at an affordable price. The wholesale price [that NBN Co] revealed today makes it possible that, for example, you get a broadband service 10 times faster than what most people have now plus a telephone service bundled together for $50 or $60 as a retail price.

Philip Cronin, the managing director of Intel Corporations, said 'This is the utility of the 21st Century and is as important to our future economy as transport infrastructure is today.' 'The NBN has the potential to deliver significant long term benefits to consumers and small businesses alike.'

The Government is now inviting key stakeholders and the general public to provide their views on the Implementation Study before final decisions are made. This process will provide an opportunity for the Government to consider some of the matters raised by Opposition Senators in their alternative recommendations.

Concluding remarks

Despite their strained efforts to find fault in the Government's NBN initiative, some of the Opposition Senators' recommendations are not entirely without merit and touch on subjects that are already receiving consideration, for example, the need for an appropriately skilled workforce – the subject of recommendation 25 and 26.

Given the evidence unequivocally shows that the National Broadband Network will connect all Australians, wherever they live, to each other and to the rest of the world thus closing the digital divide and creating a range of new social and economic opportunities, particularly in areas outside cities that are hungry for reliable, affordable high broadband, Government Senators are dismayed that the primary recommendation is to abandon the NBN.

This short-sightedness defies the previous nature of the broadband debate in Australia which has been around what industry structure and regulatory model will best deliver the most universal, highest bandwidth, affordable network to serve Australia's future needs. With the Opposition Senators now opposing the NBN, this is no longer the case.

Government Senators recommend that the NBN proceed forthwith.

Senator Kate Lundy

Senator Glenn Sterle

Additional Comments – Australian Greens

As with the Select Committee's previous reports, the 4th report concentrates a range of informed commentary on the proposed National Broadband Network (NBN) and hence is a valuable resource. The Australian Greens agree with many of the majority's recommendations. However, our views diverge at a number of important points, including from the general tone of outraged hostility that infuses much of the majority's commentary. The following discussion takes the majority's recommendations as a convenient starting point for detailing our views.

The Australian Greens do not agree with the majority that the absence of a cost-benefit analysis alone justifies abandoning the NBN. As we remarked in the committee's third interim report, a cost-benefit analysis would certainly be useful, especially on specific, concrete aspects of the NBN proposal where such an analysis would be more meaningful (such as aerial vs underground cabling). However, a cost-benefit analysis for the project as a whole would be a far more speculative endeavour than the majority suggests and would not result in a clear and incontestable conclusion with regard to whether the NBN should proceed. Such an analysis would need to anticipate and evaluate the range of uses that will be enabled by a nationwide high speed network over the course of its lifetime and their economic and social impacts, and then pit those against the likely costs and impacts of not building the network, or building a different sort of network. Certainty will not be found through this kind of crystal ball gazing.

The difficulty in making these kinds of judgements also raises questions about analyses that seek to judge the worth of the NBN by focussing exclusively on its commercial prospects. Even if it is true that the NBN will not generate a return that is of commercial interest to the private sector, or will not repay taxpayers' investment within the various forecast timeframes, this does not mean that the project is worthless and should not be pursued. Such a conclusion is akin to arguing that transport infrastructure should not be built because it will not generate a profit for the Government. The reasons for making these kinds of public investments are found in the broader social and economic outcomes that they enable.

However, the majority's broader point that this project has been rushed ahead in the absence of adequate planning is well made. Commencing construction of the network *before* receiving the implementation study and finalising the broad range of important issues the Implementation Study raises is an obvious example of the Government's unduly hasty approach. This rush to implement has unnecessarily undermined confidence in the feasibility of the project, and has also resulted in the information vacuum that the majority refers to throughout their report. As is detailed in the majority report, the absence of adequate public information about the timing of the rollout, the costs for consumers (i.e. costs that are not wholly within the control of retailers, such as the potential connection fee mentioned in the final paragraphs of the majority report), the differences and advantages of high speed broadband, what it will mean in terms of new equipment and access to the private property of consumers, and

so on, has led to a flurry of inquiries to consumer organisations, local governments being unable to plan their activities and look for opportunities to combine works and share infrastructure (e.g. digging one trench for many purposes), and other avoidable outcomes.

Consequently, we endorse a number of the majority's recommendations concerning greater public dissemination of information to key stakeholders and the general public. Majority recommendations 3, 4, 10, 27 and 28 are all targeted at this information deficit from different angles, and we support those aspects of them.

We have no quarrel with recommendation 5 seeking clarification of NBN Co's position with respect to development consent and landowner consent requirements, however we would add that NBN Co should not be permitted to circumvent local control of planning or individuals' rights to control access to their own homes. To reduce the likelihood of opposition and costly delays to the NBN's rollout, we urge NBN Co to engage early with local government and consumers so that a cooperative approach can be agreed before the rollout is scheduled to begin in their area.

Majority recommendations 15–17 are aimed at mitigating the risks that NBN Co will no longer act in the interests of consumers once it has been privatised. As a private, profit-driven monopoly, it will have no incentive to continually upgrade its infrastructure and services, or to continue to service new premises in sparsely populated and therefore uneconomic areas, or to keep the public informed of its service performance. If privatisation is to proceed, regulation of the sort detailed in these recommendations will certainly be needed. The Implementation Study also suggests some important safeguards against consumer-unfriendly monopoly conduct, such as ensuring that there is strong competition at Layer 2 prior to privatisation. However, the Greens remain of the view that the only truly effective means of safeguarding against these risks is to keep this monopoly in public hands where it can be run exclusively for the benefit of end users. If we can not prevail on that point, then a far more detailed public discussion of the safeguards that must be implemented prior to privatisation will be necessary. We will have much more to say on this point if things proceed to that stage.

The Greens support recommendations 8, 19 and 20 on enhanced engagement with consumer groups. Unlike the majority, we have no problem with the following suggestion from ACCAN:

> …board position should be deemed to be a person who represents the interests of end users. This would mirror arrangements at the Australian Competition and Consumer Commission and the Productivity Commission which define specific roles for people with expertise in consumer issues.[1]

The majority rejected this suggestion on the grounds that it could give rise to a conflict between the board's fiduciary duty to shareholders and the interests of

1 ACCAN, *Submission 121*, p. 5.

consumers. To us, that simply highlights the problem with privatisation. We have no difficulty granting end users priority over shareholders.

Majority recommendations 25–26 seem sensible given the evidence submitted by the Communications and Information Technology Training (CITT). The media accounts of safety incidents in Tasmania appear to have been exaggerated, but given the potential safety risks and the workforce needs that CITT foresees, and the potential costs if rollout is delayed due to workforce shortages, planning ahead to ensure that there are sufficient skilled workers to efficiently handle the rollout is sensible.

Finally, we wish to draw attention once more to the careful management that will be required to manage the 'digital divide'. The majority drew attention to the Implementation Study's scaling back of the service that will be delivered by wireless and satellite to 7 per cent of the population. It now seems that they will have a dramatically poorer level of service. This is a concern, given the range of essential services that are expected to be delivered over the NBN, and the aspirations for greater engagement with Government online that have been outlined in the Government 2.0 project. It appears that the lower level of service that will be available via wireless and satellite is an unavoidable consequence of the technology at this time. However, this is no reason for complacency. To ensure the 7 per cent enjoy equitable social and political participation, Government must lay plans for complementary service delivery to compensate for the digital divide, as suggested by ACCAN,[2] and Government and NBN Co must always be on the lookout for an upgrade pathway to bring the 7 per cent back into the fold. This latter challenge is another area where consumers will be ill-served by a privatised NBN Co with a fiduciary duty to its shareholders to *not* upgrade services *especially* in remote areas where its investment will be poorly repaid.

The other aspect of the digital divide that requires further thought and planning is social. Some Australian households do not even have computers, and some have limited means to secure access to high speed broadband. Again, we wish to endorse ACCAN's thoughtful contribution on this point:

> ACCAN sees a role for NBN Co in the delivery of basic, low-band width services, possibly in fulfillment of a USO obligation placed on the wholesaler. We envisage that NBN Co should have a duty to work with retailers to deliver specific services for low income consumers and other classes of consumers for whom the market alone may not deliver adequate or appropriate services. It may be necessary to expressly legislate for a class of access that is in fulfillment of a USO obligation.[3]

This is one good option for overcoming the social aspect of the digital divide. We are also well disposed toward Professor Gans' suggestion that a basic level of broadband access, sufficient to access essential Government services, be provided free to all, and

2 ACCAN, *Submission 121*, p. 4.

3 ACCAN, *Submission 121*, p. 6.

an income-tested subsidy be introduced to ensure that low income families can purchase basic computer equipment (see paragraphs 6.145 and 6.146 of the Committee's Third report). Doubtless, there are also other good suggestions. Further thought, consultation and planning on this point is required.

Senator Scott Ludlam

Appendix 1

Terms of Reference

(Revised by the Senate on 26 November 2009, 17 March 2010 and 12 May 2010: revisions shown in bold)

1. That a select committee, to be known as the Select Committee on the National Broadband Network, be established to inquire into and report by **17 June 2010** on:

   a. the Government's decision to establish a company to build and operate a National Broadband Network (NBN) to:

      i. connect 90 per cent of all Australian homes, schools and workplaces with optical fibre to the premise (FTTP) to enable broadband services with speeds of 100 megabits per second;

      ii. connect all other premises in Australia with next generation wireless and satellite technologies to deliver broadband speeds of 12 megabits per second or more;

      iii. directly support up to 25,000 local jobs every year, on average, over the eight year life of the project.

   b. the implications of the NBN for consumers and taxpayers in terms of:

      i. service availability, choice and costs,

      ii. competition in telecommunications and broadband services, and

      iii. likely consequences for national productivity, investment, economic growth, cost of living and social capital.

2. That the committee's investigation include, but not be limited to:

   a. any economic and cost/benefit analysis underpinning the NBN;

   b. the ownership, governance and operating arrangements of the NBN company and any NBN related entities;

   c. any use of bonds to fund the NBN;

   d. any regulations or legislation pertaining to the NBN;

e. the availability, price, level of innovation and service characteristics of broadband products presently available, the extent to which those services are delivered by established and emerging providers, and the prospects for future improvements in broadband infrastructure and services (including through private investment);

f. the effects of the NBN on the availability, price, choice, level of innovation and service characteristics of broadband products in metropolitan, outer-metropolitan, semi-rural and rural and regional areas and towns;

g. the extent of demand for currently available broadband services, the factors influencing consumer choice for broadband products and the effect on demand if the Government's FTTP proposal proceeds;

h. any technical, economic, commercial, regulatory, social or other barriers that may impede attaining the Government's stated goal for broadband availability and performance in the specified timeframe;

i. the appropriate public policy goals for communications in Australia and the nature of any necessary regulatory settings to continue to develop competitive market conditions, improved services, lower prices and innovation;

j. the role of government and its relationship with the private sector and existing private investment in the telecommunications sector;

k. the effect of the NBN on the delivery of Universal Service Obligations services;

l. whether, and if so to what extent, the former Government's OPEL initiative would have assisted making higher speeds and more affordable broadband services available.

2A That the committee is to examine the findings of the National Broadband Network Implementation Study, the Government's response to the Implementation Study and any subsequent impact of that report for the national Broadband Network policy.

3. That, in carrying out this inquiry, the committee will:

a. expressly seek the input of the telecommunications industry, industry analysts, consumer advocates, broadband users and service providers;

b. request formal submissions that directly respond to the terms of reference from the Australian Competition and Consumer Commission, the Productivity Commission, Infrastructure Australia, the Department of the Treasury, the Department of Finance and Deregulation, and the Department of Infrastructure, Transport, Regional Development and Local Government;

c. invite contributions from organisations and individuals with expertise in:

   i. public policy formulation and evaluation,

   ii. technical considerations including network architecture, interconnection and emerging technology,

   iii. regulatory framework, open access, competition and pricing practice,

   iv. private sector telecommunications retail and wholesale business including business case analysis and price and demand sensitivities,

   v. contemporary broadband investment, law and finance,

   vi. network operation, technical options and functionality of the 'last mile' link to premises, and

   vii. relevant and comparative international experiences and insights applicable to the Australian context;

d. advertise for submissions from members of the public and to the fullest extent possible, conduct hearings and receive evidence in a manner that is open and transparent to the public; and

e. recognise the Government's NBN proposal represents a significant public sector intervention into an increasingly important area of private sector activity and that the market is seeking openness, certainty and transparency in the public policy deliberations.

Appointment of the Committee

4. That the committee consist of 7 senators, 2 nominated by the Leader of the Government in the Senate, 4 nominated by the Leader of the Opposition in the Senate, and 1 nominated by any minority party or independent senators.

5. a. On the nominations of the Leader of the Government in the Senate, the Leader of the Opposition in the Senate and any minority party and independent senators, participating members may be appointed to the committee;

   b. participating members may participate in hearings of evidence and deliberations of the committee, and have all the rights of members of the committee, but may not vote on any questions before the committee; and

   c. a participating member shall be taken to be a member of the committee for the purpose of forming a quorum of the committee if a majority of members of the committee is not present.

6. That the committee may proceed to the dispatch of business notwithstanding that all members have not been duly nominated and appointed and notwithstanding any vacancy.

7. That the committee elect as chair one of the members nominated by the Leader of the Opposition in the Senate.

8. That the chair of the committee may, from time to time, appoint another member of the committee to be the deputy chair of the committee, and that the member so appointed act as chair of the committee at any time when there is no chair or the chair is not present at a meeting of the committee.

9. That, in the event of an equally divided vote, the chair, or the deputy chair when acting as chair, have a casting vote.

10. That the committee have power to appoint subcommittees consisting of 3 or more of its members, and to refer to any such subcommittee any of the matters which the committee is empowered to examine.

11. That the committee and any subcommittee have power to send for and examine persons and documents, to move from place to place, to sit in public or in private, notwithstanding any prorogation of the Parliament or dissolution of the House of Representatives, and have leave to report from time to time its proceedings and the evidence taken and such interim recommendations as it may deem fit.

12. That the committee be provided with all necessary staff, facilities and resources and be empowered to appoint persons with specialist knowledge for the purposes of the committee with the approval of the President.

13. That the committee be empowered to print from day to day such papers and evidence as may be ordered by it, and a daily Hansard be published of such proceedings as take place in public.

Appendix 2

Public hearings

Wednesday, 14 April 2010 – Melbourne, VIC

CHAPPELL, Mr Gary, Design and Deployment Officer
iiNet Ltd

COLE, Ms Cherry, Human Resources Consultant
Communications and Information Technology Training Ltd

COSGRAVE, Mr Michael, Communications Group General Manager
Australian Competition and Consumer Commission

DALBY, Mr Stephen, Chief Regulatory Officer
iiNet Ltd

FOTHERGILL, Mr Kevin, Industry Manager
Communications and Information Technology Training Ltd

GOW, Mr Stephen, Director, Planning and Environmental Services
Armidale Dumaresq Council

GREEN, Professor Walter, Director
Communications Experts Group Pty Ltd

HALES, Mr Brian, Group Manager, Economic Development
City of Onkaparinga

KRISHNAPILLAI, Mr Maha, Director, Corporate and Government Affairs
Optus

LYNCH, Mr David, Manager, Economic Development and Strategic Projects
Townsville City Council

PEARSON, Mr Mark, Executive General Manager, Regulatory Affairs
Australian Competition and Consumer Commission

RAGG, Mr Elliott, Co-Chair
Digital Television Industry Association Inc

SHERIDAN, Mr Andrew, General Manager, Interconnect and Economic Regulation
Optus

STELLER, Mr David, Director, Engineering and Works
Armidale Dumaresq Council

WHITTAKER, Mr Bryan, Director, Engineering and Works, and Assistant General Manager
Kiama Municipal Council

Thursday, 15 April 2010 – Canberra, ACT

CORBIN, Ms Teresa, Deputy Chief Executive Officer
Australian Communications Consumer Action Network

COX, Mr Dermot, Marketing Director
C-COR Broadband

de RIDDER, Mr John
Private capacity

HILL, Mr Tony, President
Internet Society of Australia

MASON, Mr Philip, Assistant Secretary, NBN and Fibre Rollout Regulation
Department of Broadband, Communications and the Digital Economy

QUIGLEY, Mr Michael, Chief Executive Officer
NBN Co. Ltd

QUINLIVAN, Mr Daryl, Deputy Secretary, Infrastructure
Department of Broadband, Communications and the Digital Economy

SINCLAIR, Ms Rosemary Anne, Managing Director
Australian Telecommunications Users Group

Appendix 3

Submissions received

Submission No.	Submitter
1	Paul Budde Communication
1a	Paul Budde Communication
2	WA Department of Industry and Resources
3	iiNet Ltd
4	AAPT
5	QLD Government
6	Internet Society of Australia
7	Australian Telecommunications Users Group Ltd
8	Competitive Carriers Coalition
8a	Competitive Carriers Coalition
8b	Competitive Carriers Coalition
8c	Competitive Carriers Coalition
8d	Competitive Carriers Coalition
8e	Competitive Carriers Coalition
8f	Competitive Carriers Coalition
8g	Competitive Carriers Coalition
9	Vodafone Australia
10	Australian Federation of Deaf Societies/ Australian Communication Exchange
11	Infrastructure Partnerships Australia
12	Terria Ltd
13	Professor Trevor Barr
14	Mr Doug McArthur
15	Professor Joshua Gans
16	AUSTAR United Communications Ltd
17	Chamber of Commerce and Industry WA
18	Digital Tasmania
18a	DigitalTasmsania
18b	Digital Tasmania
19	Optus
19a	Optus
19b	Optus
20	Primus Telecom
20a	Primus Telecom
21	Mr Gregory Schiemer
22	Mr Kevin Morgan
22a	Mr Kevin Morgan
23	Electronic Frontiers Australia

24	Dr Ross Kelso
25	Adam Internet
26	Torres Shire Council
26a	Mr Russell Barkus in conjunction with Torres Shire Council
27	Northern Territory Government
28	Consumers' Telecommunication Network
29	Google
30	GetUp!
31	Communications Experts Group Pty Ltd
31a	Communications Experts Group Pty Ltd
31b	Communications Experts Group Pty Ltd
32	Australian Industry Group
33	Axia NetMedia
34	BT Global Services
34a	BT Global Services
35	Attorney General's Department, Territories and Native Title Division
36	C-COR Broadband
36a	C-COR Broadband
37	Communications Law Centre, University of Technology Sydney
38	Mr J Scott Marcus
39	Juniper Networks
40	ADTRAN Networks Pty Ltd
41	Mr Fraser Swift
41a	Mr Fraser Swift
42	Professor Joshua Gans
43	Mr Serge Jean Noel Perombelon
44	Optical Network Engineering
45	Mr Malcolm Moore
45a	Mr Malcolm Moore
45b	Mr Malcolm Moore
46	Australian Institute for Commercialisation
47	Professor Trevor Barr
48	The Hon. Bob Such MP JP
49	Creative Commons Clinic
50	Southern Cross Equities
51	Alcatel-Lucent
52	Business Council of Australia
53	Optus
54	National e-Health Transition Authority
55	C-COR
56	Market Clarity
57	Australian Information Industry Association
58	Indigenous Remote Communications Association
59	VERNet
60	Mr Richard Hockey
61	Energy Networks Association Ltd

62	Australian Mobile Telecommunications Association (AMTA)
63	Mr Russell Barkus
64	INTELSAT Asia Pty Ltd
65	Australian Federation of Deaf Societies (AFDS)
66	Australian Industry Group
67	Fibre to the Home Council Asia Pacific
67a	Fibre to the Home Council Asia Pacific
68	Mr Patrick Kelso
69	NICTA
70	Office of the Privacy Commissioner
71	Australian Library and Information Association
72	Australian Institute of Family Studies
73	AUSTAR United Communications Limited
74	Australian Office of Financial Management
75	Australian Local Government Association
76	Deutsche Bank Australia
77	Standards Australia
78	Department of Commerce WA
79	AusCERT
80	CSIRO
81	Infrastructure Partnerships Australia
82	03b Networks
83	Google
84	Mr Francis Young
85	Northern Territory Government: Department of Business and Employment
86	Bullseye
87	Productivity Commission
88	AC3 Australian Centre for Advanced Computing and Communications
89	Chief Minister's Department
90	Axia NetMedia
91	iSoft Group Ltd
92	Mr Kevin Morgan
93	Government of Western Australia
94	Dr Ross Kelso & Mr Peter Downey
95	Cables Downunder
95i	Cables Downunder- Attachment A
95a	Mr Greg Bleazard
95b	Mr Peter Downey
95c	Mr Peter Downey
96	The Haberfield Association Inc
97	Senetas
98	Adelaide Hills Regional Development

99	Mr Henry Ergas
100	Eckermann & Associates
100a	Eckermann & Associates
101a	Mr David Fagan
101b	Mr David Fagan
102	Mr Wijitha Gunaratne
103	Urban Taskforce
103a	Urban Taskforce
104	Mr Michael Blake Roet
105	Paul Budde Communication Pty Ltd
106	Optical Network Engineering
107	Business Council of Australia
108	Mr Allan Horsley
109	C-COR Broadband
110	Indigenous Remote Communications Association
111	Communications Law Centre, University of Technology, Sydney
112	Australian Telecommunications Users Group (ATUG)
113	De Ridder Consulting Pty Ltd
114	Optus
115	Chamber of Commerce and Industry WA
116	AUSTAR United Communications Ltd
117	Primus Telecom Australia
118	Internet Society of Australia (ISOC-AU)
119	Ms Lucy Cradduck
120	Regional Telecommunications Independent Review Committee (RTIRC)
120a	Attachment to RTIRC's submission
120b	Attachment to RTIRC's submission
121	Australian Communications Consumer Action Network (ACCAN)
122	Mr Kevin Morgan
123	Northern Territory Government
124	Dr Ross Kelso and Mr Peter Downey
125	Cables Downunder
125a	Cables Downunder
126	Communications Experts Group Pty Ltd
126a	Attachment to Communications Experts Group Pty Ltd's submission
127	Communications & Information Technology Training Limited
127a	Communications & Information Technology Training Limited

Appendix 4

Additional materials

Additional information received

'Broadband Solutions for Consumers with Disabilities': provided by Allan Asher, Chief Executive Officer, ACCAN, 12 March 2010.

'NBN Consultation Paper: Proposed Wholesale Fibre Bitstream Products': provided by Tony Hill, President, Internet Society of Australia.

'NBN Readiness': provided by Stephen Dalby, Chief Regulator Officer, iiNet Ltd.

'Workforce Development of the Digital Reception Sector': provided by Hugh Ragg, Co-Chair and Donimic Schipano, National Executive Officer, ADTIA.

'Members of the Telecommunications Panel for the NBN': provided by Dominic Schipano, CITT.

Answers to questions on notice: Melbourne, VIC (14 April 2010)

Armidale Dumaresq Council (NSW)	21 April 2010
Australian Competition and Consumer Commission	22 April 2010
City of Onkaparinga	23 April 2010
Communications Experts Group Pty Ltd	24 April 2010
iiNet Ltd	27 April 2010
Municipality of Kiama (NSW)	20 April 2010
Optus	22 April 2010
Townsville Council	21 April 2010

Answers to questions on notice: Canberra, ACT (15 April 2010)

Australian Telecommunications Users Group Limited	28 April 2010
Department of Broadband, Communications and the Digital Economy	23 April 2010
NBN Co Ltd	11 May 2010