

The Senate

Select Committee on the
National Broadband Network

Second interim report

March 2015

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Committee Membership

Core Members

Senator the Hon Kate Lundy, Chair	ALP, ACT
Senator Zed Seselja (to 30 June 2014, Deputy Chair to 30 June 2014)	LP, ACT
Senator Cory Bernardi, (from 1 July 2014 to 3 March 2015, Deputy Chair , 10 July 2014 to 3 March 2015)	LP, SA
Senator the Hon Arthur Sinodinos, (from 3 March 2015, Deputy Chair , from 5 March 2015	LP, NSW
Senator the Hon Lin Thorp (to 30 June 2014)	ALP, TAS
Senator Catryna Bilyk (from 1 July 2014)	ALP, TAS
Senator the Hon Stephen Conroy (Chair , 6 December to 20 December 2013)	ALP, VIC
Senator Scott Ludlam	AG, WA
Senator Anne Ruston	LP, SA
Senator Dean Smith	LP, WA

Participating members who contributed to the inquiry

Senator Deborah O'Neill (ALP, NSW) replaced Senator Kate Lundy from 13 December 2013 to 19 December 2013.

Senator Anne McEwen (ALP, SA) replaced Senator Catryna Bilyk on 12 March 2015.

Secretariat

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Ms Ruth Edwards, Administrative Officer (from 10 March 2015)

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Abbreviations

ACCC	Australian Competition and Consumer Commission
ADSL	asymmetric digital subscriber line
CapEx	capital expenditure
CBA	cost-benefit analysis
CPP review	cost per premises review
FSAM	Fibre Serving Area Module
FTTB	fibre to the building / basement
FTTN	fibre to the node
FTTP	fibre to the premises
FWS Review	Fixed Wireless and Satellite Review
GBE	government business enterprise
GBE guidelines	Commonwealth Government Business Enterprise Governance and Oversight Guidelines
HFC	hybrid fibre coaxial
ISS	interim satellite service
LTSS	long-term satellite service
Mbps	megabits per second
MDU	multi-dwelling unit
MTM	multi-technology mix
NBN	National Broadband Network
NBN Co	NBN Corporation Limited
OpEx	operational expenditure
RSP	retail service provider
SoE	Statement of Expectations
VDSL/VDSL2	very high-bit-rate digital subscriber line

Executive Summary

Cost and timeframe

Eighteen months into this government's term, NBN Co is still too 'uncertain' to divulge how much the multi-technology mix (MTM) will cost or how long it will take to build. The committee notes that the headline financial and deployment numbers that have been divulged to date by NBN Co and the government are dated and unreliable.

The committee found in March 2014 that NBN Co's Strategic Review was 'unreliable in the case of all examined scenarios'. Completed in just five weeks, with no external independent oversight, the committee found that it contained 'financial manipulations and other irregularities'. Over the past 12 months, these concerns have been largely borne out, with key NBN Co management distancing themselves from the report. The committee notes that the Strategic Review underpinned shareholder ministers' decision to direct NBN Co to implement the MTM in April 2014.

The reduced credibility of the Strategic Review for critiquing fibre to the premises (FTTP) policy options has led to yet another review (the 'cost per premises review'). NBN Co has released detailed historical costs for FTTP and fixed wireless—despite the fact that the majority of the rollout under this Government will be made up of hybrid fibre coaxial (HFC) and fibre to the node/basement (FTTN/B), for which NBN Co has divulged no costs. Further, most of the cost increases for FTTP evident in the cost per premises review may be attributed to higher rates and dispute claims negotiated by current NBN Co management since September 2013, and changed accounting practices (such as capitalising operational expenditure). \$4.5 billion in FTTP architecture savings signed off by previous management—attested to by NBN Co personnel as implemented, and borne out by the Melton 10 trial—also appear to have gone missing in these numbers. The committee considers that the cost per premises review should be treated with caution.

The public 'glossy' version of the 2014-17 corporate plan contains no updated forecasts from the Strategic Review, no forecasts for financial year (FY)2016 and FY2017 and no details of NBN Co's financial model out to 2040 (as per previous corporate plans). Further, forecasts for FY2015 contained in the 2014-17 corporate plan have been politically manipulated. The committee notes that the independent external review process of NBN Co's corporate plan has been cancelled by this government. The public version of the NBN Co 2014-17 corporate plan should also be treated with caution.

The committee notes that 18 months into this government's term, the Australian parliament and the Australian people are being kept in the dark by the Minister and NBN Co on the cost and rollout timeframe of the NBN.

Recommendation 1

The committee recommends that NBN Co release an unredacted version of the Strategic Review to enable proper public scrutiny of the assumptions underpinning Scenarios 1 to 5. The committee considers that there are no commercial implications to releasing analysis and forecasts relating to abandoned scenarios.

Recommendation 2

The committee recommends that the government release the full version of NBN Co's 2014-17 corporate plan, as was the practice under the former government, to enable the proper public scrutiny of the project.

Recommendation 3

The committee recommends that the government release the full version of NBN Co's 2015-18 corporate plan, when finalised, to enable the proper public scrutiny of the project.

Recommendation 4

The committee recommends that the government reinstitute the external independent review process of NBN Co's corporate plan to restore the proper probity and accountability to the project.

Governance

NBN Co refuses to divulge the value of the contracts it has entered into on behalf of the taxpayer on the basis that it would harm its commercial prospects, despite the fact that the value of these contracts was released by previous management without harm. Yet NBN Co is content to release detailed historical costs of FTTP and fixed wireless—despite the fact that NBN Co will need to secure contracts to roll out these technologies to 2020 and beyond.

The Revised Agreements, announced by NBN Co and Telstra in December 2014, contain numerous concessions, including *inter alia*:

- the risk of cost increases in remediation has been transferred directly to the Commonwealth. The new remediation arrangements may also result in the transfer of an asbestos risk to the Commonwealth; and
- NBN Co has taken on an indefinite liability to maintain Telstra's HFC network, and at the same time agreed to restrictions on its sale. It is unclear whether these arrangements will result in an effective taxpayer subsidy of pay TV services.

The committee considers that the minister's assertion that these agreements will result in 'no additional cost to taxpayers' is wrong. The taxpayer has lost value in these renegotiations. The committee further notes that the NBN Co officer heading up the negotiations on behalf of the taxpayer still owns Telstra shares.

NBN Co will incur substantial new costs that are not being divulged by the board or management of NBN Co. This includes new costs from the Revised Agreements and significant IT costs. On 15 December 2014 Telstra divulged detailed information to the market on the Revised Agreements, but NBN Co, on behalf of the taxpayer, issued a two-page press release light on details and heavy with political spin. This level of secrecy is unacceptable for a government business enterprise (GBE) accountable to the parliament and the Australian people.

The committee remains concerned about the probity issues evident in the appointment of key personnel to NBN Co, identified in the committee's first interim report. This includes the appointment of the minister's 15 year yachting partner to head up the Strategic Review. The committee is equally concerned with the probity issues evident in the appointment of key personnel to the government's many review processes. This includes the appointment of strident NBN critics and former Liberal Party staffers to conduct the Cost-Benefit Analysis.

NBN Co's 2013-14 annual report contains more probity issues. It indicates that NBN Co approved a \$60,000 contract to CicoMilne Pty Ltd, a company 100 per cent owned by one of its own board members, Mr Justin Milne. The Department of Communications also awarded a \$14,000 contract to CicoMilne Pty Ltd. According to media reports, Mr Milne was approached by the Coalition for an NBN Co position as early as June 2013.

Under the applicable legislation and regulation, GBE personnel are obliged to be apolitical. GBE boards are also required to exercise high standards of fiduciary responsibility and transparency. It is the committee's view that the government and the board of NBN Co are failing in their responsibilities to the Australian taxpayer.

Recommendation 5

The committee recommends that the government investigate the governance and probity issues identified in this report and the first interim report. This should include consideration of NBN Co personnel shareholdings, the awarding of contracts to board members, the pervasive secrecy shrouding the project, and the potential liabilities that have been transferred to the Commonwealth as part of the Revised Agreements.

Other reviews

The committee considers that the government's many reviews of the NBN over the past 18 months—at a cost to the taxpayer of more than \$10 million dollars—have

been conducted as part of what former ACCC Chair Graeme Samuels described as a 'political payback' process rather than a genuine effort to illuminate the policy framework and options available to the government to roll out the NBN.

The Cost-Benefit Analysis (CBA) conducted by the Government is deeply flawed and not credible. Compiled by personnel hand-picked by the minister, including strident NBN critics and former Liberal Party staffers, the CBA is replete with absurd assumptions and dubious manipulations. The Review of Regulation was conducted by the same personnel, with predictable results. One former board member of NBN Co described the Governance Review as a 'witch hunt', with others noting that 'we generally disagree with the findings in the [report], and consider a number of them to be unsupported by the facts'. The 'Independent Audit of the NBN Policy Process' has been described by a former ACCC Commissioner as 'fundamentally flawed in its evidence base' and insulting and offensive in its dismissal of the evidence. The Broadband Quality and Availability Report has also been widely lampooned for inaccuracy.

The committee considers that these reviews do not comprise a suitable evidence base upon which to make decisions about the NBN.

Chapter 1

Introduction

Terms of reference and conduct of the inquiry

1.1 On 14 November 2013, the Senate established the Select Committee on the National Broadband Network to inquire into and report on the government's reviews of the National Broadband Network (NBN) and the governance of NBN Co, with interim reports as the committee sees fit and a final report on or before 10 June 2014.

1.2 The committee's terms of reference identify the following areas of inquiry:

- the establishment of the government's strategic review of the NBN including:
 - the adequacy of the terms of reference,
 - the selection of personnel and expert advisers to the review,
 - the data provided to the strategic review, in particular, any variation between that data and data used by NBN Co in preparing its annual report and corporate plan, and
 - the impact of the strategic review on the operational effectiveness of NBN Co;
- the outcome of the strategic review of the NBN, including:
 - the extent to which the review fulfilled its terms of reference,
 - the reliability of assumptions made in the review, including, inter alia, the cost of alternative network equipment, the revenues of NBN Co under alternative scenarios, construction requirements and access to Telstra's copper network,
 - the implications of any alternatives considered for the long-term structure of the industry, in particular, the structural separation of access networks from retail operations, and
 - any other matters arising from the strategic review;
- the establishment and findings of the government's cost benefit analysis;
- the conduct and findings of the government survey of the availability of broadband in Australia; and
- any related matter.¹

1.3 The committee held eight public hearings between November 2013 and March 2014. It tabled its first interim report on 26 March 2014.

1.4 On 14 May 2014, the Senate agreed to extend the date for the presentation of the committee's final report to the last sitting day of the 44th Parliament.² The

1 *Journals of the Senate*, No. 3, 14 November 2013, p. 133.

committee subsequently agreed to continue accepting submissions and has held eight further public hearings since the tabling of the first interim report. The sixteen hearings held to date have taken place in Canberra, Sydney, Hobart, Perth and Terrigal (NSW).

1.5 The submissions made to the committee, additional documents provided and public hearings held are listed in Appendices 1, 2 and 3.

1.6 The committee thanks all those who have assisted with its inquiry to date, including those who have made submissions and given evidence at hearings.

Structure of this report

1.7 This second interim report examines issues relevant to the committee's terms of reference since the first interim report, including significant developments in the rollout of the NBN project, the cost-benefit analysis and other NBN reviews issued during 2014 and 2015, and the governance and management of NBN Co.

1.8 The report is structured as follows:

- chapter 1 (this chapter) outlines the background to the NBN project and to this inquiry, the key findings of the committee's first interim report and the government response to that report;
- chapter 2 analyses relevant developments with the NBN since the first interim report and any governance issues arising, including progress on implementation of the government's multi-technology mix (MTM) rollout, the release of the 2014-17 NBN Co corporate plan, the cost per premises review, and the finalisation of the Revised Agreements between the Commonwealth and Telstra, and NBN Co and Telstra and Optus;
- chapter 3 discusses the key findings of NBN Co's Fixed Wireless and Satellite Review, and related issues around the deployment of fixed wireless and satellite;
- chapter 4 examines the Cost-Benefit Analysis and Review of Regulation prepared for the government by the 'Vertigan Panel' of experts;
- chapter 5 discusses the Broadband Quality and Availability report, and related issues around the reliability of its findings and methodology, and prioritisation in the delivery of the NBN;
- chapter 6 discusses issues related to NBN Co governance, including the 'Independent audit - NBN public policy processes April 2008 to May 2010', known as the Scales Review; and the KordaMentha 'Governance Review' of NBN Co; and
- chapter 7 provides a summary of the committee's conclusions and its recommendations.

1.9 The committee will pursue further lines of inquiry, and continue to monitor the rollout of the NBN and the governance of the NBN project and NBN Co, before presenting further interim reports as required, and its final report to the Senate.

Background to the inquiry

1.10 The history of the NBN is set out in some detail in chapter 1 of the committee's first interim report.³

1.11 In brief, the National Broadband Network was initially proposed by the Labor government in 2008 as a partnership between government and the private sector. A panel of experts was established to consider proposals from the private sector to create the network, but the panel reported to government in early 2009 that none of the six proposals received was sufficiently well developed to present a value-for-money outcome.⁴ The expert panel also advised the government that rolling out a fibre to the node (FTTN) network was unlikely to offer a cost effective upgrade path to a fibre to the premises (FTTP) network.⁵

1.12 Following this advice, the government decided to consider an alternative plan for the NBN, which was developed under Cabinet oversight between January and April 2009. On 7 April 2009 the government announced the establishment of a new government business entity (later named NBN Co) to design, build and operate a super-fast National Broadband Network, a national wholesale-only, open access broadband network using primarily FTTP to provide speeds of up to 100 megabits per second (Mbps) to 90 per cent of premises (later revised upward to 93 per cent), supplemented by wireless and satellite technologies outside the fibre footprint.⁶

1.13 Work toward implementing the NBN began shortly after the announcement, including the commissioning of an implementation study, which was delivered to the government in March 2010. In December 2010 NBN Co's first corporate plan, and the government's Statement of Expectations (SoE) to NBN Co were released.

1.14 The commencement date for rollout of the FTTP NBN was effectively 7 March 2012, nine months later than expected, due to the time taken to finalise the necessary agreements between NBN Co and Telstra Corporation. In August 2012

3 Senate Select Committee on the National Broadband Network, *Interim Report*, March 2014, pp 2–11.

4 'Extract From The Evaluation Report For The Request For Proposals To Roll-Out And Operate A National Broadband Network For Australia', 20 January 2009, at: http://www.archive.dbcde.gov.au/2013/september/national_broadband_network/extract_from_evaluation_report/extract_from_the_evaluation_report2.pdf

5 'Extract From The Evaluation Report For The Request For Proposals To Roll-Out And Operate A National Broadband Network For Australia', 20 January 2009, at: http://www.archive.dbcde.gov.au/2013/september/national_broadband_network/extract_from_evaluation_report/extract_from_the_evaluation_report2.pdf

6 Hon Kevin Rudd MP, Prime Minister and Senator the Hon Stephen Conroy, Minister for Broadband, Communications and the Digital Economy, 'New Broadband Network', Media Release, 7 April 2009.

NBN Co's second corporate plan was released, covering 2012-15. In March 2013 NBN Co revised its 2013 forecasts downwards, due to the failure of its contractors to mobilise the necessary resources to meet the corporate plan's projected timelines. In May 2013 Telstra temporarily ceased pit remediation work to resolve asbestos handling issues; the remediation was recommenced in August.

1.15 In April 2013 the Coalition opposition launched its alternative NBN policy, promising a faster and cheaper rollout, with all Australians to be delivered a download speed of up to 25Mbps by 2016, and a completed rollout with up to 100Mbps by 2019. This would be achieved by replacing the fibre rollout with a technology mix comprising 71 per cent FTTN and 22 per cent FTTP in the fixed line footprint.⁷

1.16 Following its election in September 2013, the Coalition government announced six reviews into the NBN:

- the Strategic Review;
- an independent cost-benefit analysis and regulatory review;
- a broadband quality and availability study;
- an NBN governance review;
- an independent audit of the NBN public policy process; and
- a fixed wireless and satellite review (added by the Strategic Review in December 2013).

1.17 The Strategic Review was submitted to the government in December 2013. The Strategic Review was analysed in detail in this committee's first interim report, which is discussed further below.

1.18 An interim revised SoE for NBN Co was issued by the new government on 24 September 2013, and subsequently replaced by a further revised SoE dated 8 April 2014 and released on 2 May, which remains in effect at the date of this report. Citing the findings of the Strategic Review, the new SoE set out the requirement of the government that the NBN transition from a primarily FTTP model to an 'optimised multi-technology mix' (MTM) under which NBN Co is to 'determine which technologies are used on an area-by-area basis so as to minimise peak funding, optimise economic returns and enhance the Company's viability', guided by the Abbott government's policy objective of providing all premises with download speeds of at least 25Mbps (with commensurate upload rates), and 90 per cent of fixed line premises with 50Mbps.⁸

7 'The coalition's plan for fast broadband and an affordable NBN', April 2013, at <http://lpaweb-static.s3.amazonaws.com/Policies/NBN.pdf>

8 The Hon Malcolm Turnbull MP, Minister for Communications and Senator the Hon Mathias Cormann, Minister for Finance, 'Government Expectations' letter to NBN Co, 8 April 2014, at <http://www.nbnco.com.au/content/dam/nbnco2/documents/SOE-Shareholder-Minister-letter.pdf>, p. 2.

1.19 The Broadband Availability and Quality Report was submitted to government in December 2013, and released in full in February 2014. The remaining four reviews commissioned by the government were released between May and October 2014. The cost per premises review was released on 24 February 2015. These are all discussed in detail in the later chapters of this report.

Parliamentary committee scrutiny of the NBN

1.20 Prior to the establishment of this committee, three parliamentary committees inquired into various aspects of the NBN project: the first Senate Select Committee on the NBN from 2008-2010;⁹ a 2010-11 inquiry by the House of Representatives Standing Committee on Infrastructure and Communications;¹⁰ and a Joint Committee on the NBN from 2011-13.¹¹ In addition, scrutiny of relevant legislation and policy on the NBN continues to be undertaken from time to time by the Senate Standing Committees on Environment and Communications, including through the Estimates process.

The committee's first interim report

1.21 The committee's first interim report focused on its terms of reference relating to the process and content of the 2013 Strategic Review of the NBN. Based on evidence received up to March 2014, the committee expressed significant concerns with the accuracy and reliability of the Strategic Review, related government policy, and governance arrangements for the NBN.

1.22 The committee noted with concern that the Strategic Review was developed in just five weeks, and was subject to no independent external oversight.¹² Moreover, the publicly-released version of the Review was heavily redacted, and the government declined to allow the committee to see the unredacted version (even *in camera*).¹³

1.23 Drawing on the evidence available in the redacted report and gathered from its own hearings and research, the committee found that the assumptions and conclusions set out in the Strategic Review were unreliable in the case of all examined scenarios, and the FTTP 'revised outlook' in particular included financial manipulations and other irregularities. Moreover, important characteristics of broadband quality such as upload speeds and the comparative reliability of differing

9 http://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Former_Committees/broadband/index

10 http://www.aph.gov.au/parliamentary_business/committees/house_of_representatives_committees?url=ic/nbn/report.htm

11 http://www.aph.gov.au/parliamentary_business/committees/house_of_representatives_committees?url=jcnbn/reports.htm

12 Senate Select Committee on the National Broadband Network, *Interim Report*, March 2014, pp viii, 96.

13 Senate Select Committee on the National Broadband Network, *Interim Report*, March 2014, pp 20–21.

technologies were not taken into account. The committee described this as a 'systemic fault' in the Strategic Review.¹⁴

1.24 The committee expressed equally strong concerns with the reliability of assumptions underpinning the MTM, the recommended option. The committee assessed that the Strategic Review's estimates relied on cost and revenue assumptions that were often not based on empirical evidence—perhaps most notably, the absence of verifiable information about the state of Telstra's copper network and the remediation and maintenance costs involved in using it for an FTTN rollout. In addition, the committee observed that increased operational costs arising from the more complex technology environment of the MTM were not reflected. Moreover, while the Strategic Review acknowledged the need for the eventual upgrade of FTTN services to FTTP, no explicit costs were included for such an upgrade, rendering the MTM costings short-to-medium term estimates only.

1.25 The committee also expressed concern that the MTM model suggested a variation in broadband quality based on the socioeconomic profile of different areas: a discriminatory model inappropriate for a taxpayer-funded government business enterprise, and one which, in proposing the provision of user-pays 'fibre on demand' to non-FTTP customers, would disadvantage small businesses and individuals outside the fibre footprint. The committee concluded that the Coalition's model would entrench broadband inequality in Australia.¹⁵

1.26 The committee concluded that the Strategic Review did 'not comprise a sufficient information base for the NBN Co Board or the Minister to adopt an alternative deployment path for the NBN'. The committee recommended the preparation of a significantly revised strategic review addressing the errors and inadequacies visible in the December 2013 document.¹⁶

1.27 The committee raised concerns about the governance arrangements for NBN Co, finding that key appointment processes to the board and management of the company following the change of government were conducted in such a way as to create 'the perception, at least, that these are political appointments for a political purpose',¹⁷ and queried the board's endorsement of the Strategic Review 'given its clear deficiencies'.¹⁸

14 Senate Select Committee on the National Broadband Network, *Interim Report*, March 2014, p. 72.

15 Senate Select Committee on the National Broadband Network, *Interim Report*, March 2014, p. 96

16 Senate Select Committee on the National Broadband Network, *Interim Report*, March 2014, p. 97.

17 Senate Select Committee on the National Broadband Network, *Interim Report*, March 2014, p. 108.

18 Senate Select Committee on the National Broadband Network, *Interim Report*, March 2014, p. 116.

1.28 The committee also assessed that transparency had 'decreased markedly at NBN Co since the change of government', noting difficulties experienced both by the committee itself and by members of the public in gaining access to key documents and statistics, and answers to questions on notice.¹⁹

1.29 The recommendations of the committee's first interim report are provided at [Appendix 4](#).

The government's response to the first interim report

1.30 The government's response to the committee's interim report was not provided until 13 August 2014. It did not engage with any of the substantive issues raised in the first interim report. Instead, it referred to political material contained in the Coalition Senators' dissenting report, and to an article published by the Minister for Communications, the Hon Malcolm Turnbull MP, on his blog on 2 May 2014, *Response to the Senate Select Committee on the NBN*.²⁰

1.31 In that document, the minister stated that the government 'categorically rejects each one of [the committee's] claims' that the cost, revenue and rollout figures in the Strategic Review were distorted.²¹ The Minister rather reiterated the bases cited in the Strategic Review for its conclusions on these matters.

1.32 The minister also offered '[a] response... to several NBN myths perpetrated in the interim report',²² rejecting for example the assertion of the committee that efficiencies and improvements already in train would cut FTTP costs significantly, to resemble the Strategic Review's 'radically redesigned' scenario rather than the 'revised outlook'. The Minister stated that the consultants to the Strategic Review had advised that \$3.9 billion of the \$4.9 billion design-related savings identified by NBN Co and cited by the committee were still at a preliminary phase, not yet approved by the Board of Directors, and inconsistent with the extant (2012) NBN Co corporate plan.²³ The remaining \$1 billion efficiencies were discounted by 50 per cent in the Strategic

19 Senate Select Committee on the National Broadband Network, *Interim Report*, March 2014, p. 132.

20 At <http://www.malcolmturnbull.com.au/media/response-to-the-senate-select-committee-on-the-nbn>

21 The Hon Malcolm Turnbull MP, Minister for Communications, *Response to the Senate Select Committee on the NBN*, 30 April 2014, at <http://www.malcolmturnbull.com.au/media/response-to-the-senate-select-committee-on-the-nbn>, p. 2.

22 The Hon Malcolm Turnbull MP, Minister for Communications, *Response to the Senate Select Committee on the NBN*, 30 April 2014, at <http://www.malcolmturnbull.com.au/media/response-to-the-senate-select-committee-on-the-nbn>, p. 1.

23 The Hon Malcolm Turnbull MP, Minister for Communications, *Response to the Senate Select Committee on the NBN*, 30 April 2014, at <http://www.malcolmturnbull.com.au/media/response-to-the-senate-select-committee-on-the-nbn>, p. 12.

Review due to 'long lead times and uncertainty over the magnitude of cost reduction'.²⁴

1.33 In addition, the minister expressed scepticism as to whether, under the oversight of a Labor government, NBN Co could have achieved the 'vast transformation in organisational culture, behaviour and capabilities necessary' to implement the Strategic Review's 'radically redesigned' FTTP model.²⁵

1.34 The minister's response rejected the committee's criticism that the need to upgrade the network in future was not factored into the forecast costs for the MTM, and then confirmed that this was the case. The minister stated that:

The Strategic Review's discussion of upgrade paths is necessarily illustrative because there is no certainty when (or whether) the upgrades described will be required as a response to increased demand for broadband.

In addition, there is also considerable uncertainty about the future path of technological advances...

It is not accurate to state that the Strategic Review is silent on these costs, however. On the contrary, its analysis demonstrates that even after allowing for possible future upgrade costs, there is a significant net benefit in choosing the multi-technology mix NBN over FTTP.²⁶

1.35 The minister argued that 'a credible upgrade path' to download speeds of 100Mbps or more was available for all of the technologies in the MTM fixed line footprint, but these were not likely to be needed—if at all—until at least the 2020s, and delaying upgrade would result in reduced costs.²⁷

1.36 The minister refuted the committee's concerns about decreased transparency within NBN Co, defending the redactions in the published Strategic Review as 'modest' and necessary, and stating that measures had rather been taken to increase transparency within NBN Co since the change of government.²⁸

24 The Hon Malcolm Turnbull MP, Minister for Communications, *Response to the Senate Select Committee on the NBN*, 30 April 2014, at <http://www.malcolmturnbull.com.au/media/response-to-the-senate-select-committee-on-the-nbn>, p. 14.

25 The Hon Malcolm Turnbull MP, Minister for Communications, *Response to the Senate Select Committee on the NBN*, 30 April 2014, at <http://www.malcolmturnbull.com.au/media/response-to-the-senate-select-committee-on-the-nbn>, p. 29.

26 The Hon Malcolm Turnbull MP, Minister for Communications, *Response to the Senate Select Committee on the NBN*, 30 April 2014, at <http://www.malcolmturnbull.com.au/media/response-to-the-senate-select-committee-on-the-nbn>, p. 23.

27 The Hon Malcolm Turnbull MP, Minister for Communications, *Response to the Senate Select Committee on the NBN*, 30 April 2014, at <http://www.malcolmturnbull.com.au/media/response-to-the-senate-select-committee-on-the-nbn>, p. 24.

28 The Hon Malcolm Turnbull MP, Minister for Communications, *Response to the Senate Select Committee on the NBN*, 30 April 2014, at <http://www.malcolmturnbull.com.au/media/response-to-the-senate-select-committee-on-the-nbn>, pp 25–26.

Chapter 2

Key developments since the committee's first interim report

2.1 The 12 months following the tabling of the committee's first interim report have seen, in addition to the various reviews discussed in this report, a range of issues arise in relation to the formalisation of the multi-technology mix (MTM) and the commencement of its rollout, trials and pilots of various technologies, the release of a new NBN Co corporate plan, a cost-per-premises review, and the finalisation of the revised agreements between the Commonwealth and Telstra, and NBN Co, Telstra and Optus. This chapter reviews those developments and their implications.

The multi-technology mix

2.2 As noted in chapter 1, on 8 April 2014 the government issued a revised Statement of Expectations (SoE) to NBN Co, which was made public on 2 May. Although the government's cost-benefit analysis was yet to be finalised, the SoE set out the government's direction that the NBN rollout transition from a primarily fibre to the premises (FTTP) model to the MTM.¹

2.3 On 13 November 2014, NBN Co released its 'Multi-Technology Deployment Principles'. The principles stated that for each service area NBN Co would consider the ability of existing infrastructure to deliver the required bandwidth and reliability to premises, the construction capacity available to deliver the service, consistent use of technology within areas to reduce the complexity of the network, and any impact of advances in technology. In addition, opportunities to prioritise underserved areas 'to the extent commercially and operationally feasible' and to achieve early/high revenue (such as in areas with a concentration of business customers) would be taken into consideration.²

2.4 NBN Co explained that this meant households and businesses:

- already served by Optus' or Telstra's hybrid fibre coaxial (HFC) cable networks would receive broadband via HFC;
- already built or in the 'advanced stages' of build with FTTP would most likely keep FTTP; and
- earmarked for fixed wireless and satellite would remain so.

1 The Hon Malcolm Turnbull MP, Minister for Communications and Senator the Hon Mathias Cormann, Minister for Finance, 'Government Expectations' letter to NBN Co, 8 April 2014, at <http://www.nbnco.com.au/content/dam/nbnco2/documents/SOE-Shareholder-Minister-letter.pdf>, p. 2.

2 NBN Co Limited, 'NBN Multi-Technology Deployment Principles', 13 November 2014, at http://www.nbnco.com.au/content/dam/nbnco2/documents/nbn_multi_technology_deployment_principles.pdf.

2.5 Premises in areas not falling into one of the above categories were 'likely to receive fibre to the node deployment (FTTN)' or, for multi-dwelling units such as apartment blocks, fibre to the building (FTTB).³

2.6 NBN Co's Chief Executive Officer, Mr Bill Morrow, said that NBN Co would review the principles on an ongoing basis 'to ensure the company was making the best use of the taxpayers' investment and identifying opportunities to incorporate technology advancement'.⁴

2.7 On 1 December 2014, NBN Co released the first MTM 18-month rollout plan, specifying approximately 480 planned rollout areas and the technologies to be deployed in them between December 2014 and June 2016.⁵ The Minister for Communications, the Hon Malcolm Turnbull MP, reaffirmed that servicing underserved areas remained a key government priority.⁶

2.8 In January 2014, technology website ZDNet released an internal NBN Co document, obtained under freedom of information legislation, setting out the 'five steps in the MTM planning process' which would be utilised by NBN Co to determine the technology used in each area. Estimating costs and potential revenues in each area, to maximise net present value and cash flow, were central to the process.⁷

2.9 NBN Co did not concur with concerns expressed by the committee that the principles adopted by the coalition government for the MTM rollout, including the introduction of fibre on demand (see below), threatened to compromise the NBN's foundation principles of equitable broadband access for all Australians, and the prioritisation of underserved areas. Mr Morrow argued, strangely, that affluence would not affect the choice of technology in an area, although its revenue potential would:

In terms of laying out an operational plan, you would naturally look first of all at our expectation, which is prioritising underserved areas and getting universal access, and therefore within the general universal access we are going to naturally target those higher revenue, higher density areas, [multi-

3 NBN Co Limited, 'NBN Multi-Technology Deployment Principles', 13 November 2014, at http://www.nbnco.com.au/content/dam/nbnco2/documents/nbn_multi_technology_deployment_principles.pdf.

4 NBN Co Limited, 'NBN Co outlines principles for Multi-Technology rollout', Media Release, 13 November 2014, at http://www.nbnco.com.au/corporate-information/media-centre/media-releases/nbn_co_outlines_principles_for_multi_technology_rollout.html.

5 NBN Co Limited, 'NBN Co rolls out new national construction plan', Media Release, 1 December 2014, at <http://www.nbnco.com.au/corporate-information/media-centre/media-releases/nbnco-rolls-out-new-national-construction-plan.htm>.

6 The Hon Malcolm Turnbull MP, Minister for Communications, 'NBN Rollout Will Reach One in Three Australians by June 2016', Media Release, 1 December 2014, at <http://www.malcolmturnbull.com.au/media/nbn-rollout-will-reach-one-in-three-australians-by-june-2016>.

7 Josh Taylor, 'How NBN Co will determine what connection you get', *ZDNet*, 14 January 2015, at <http://www.zdnet.com/article/how-nbn-co-will-determine-what-connection-you-get/>.

dwelling units] and things of that nature that help us with those financial constraints...

If I can give my example, if there is a strong business centre and NBN is going to be focused in that area and we know they are going to want as high a product as we can provide—they are less price sensitive—we are going there with fibre...

In a suburb we would just look at the technology options according to the model I gave you. Affluence has no effect in terms of changing technology by the criteria and guidelines that we are talking about.⁸

Fibre on demand

2.10 When releasing the MTM Principles in November 2014, Mr Morrow announced that work was under way on developing guidelines for a 'fibre on demand' product, allowing individuals, businesses or small communities in non-FTTP areas to purchase a fibre connection to their premises.⁹ NBN Co's Chief Customer Officer Mr John Simon advised the committee that:

There are three types of categories: a fibre to single dwelling; higher speeds to multi-dwellings; and an area switch, where you get a number of premises, businesses et cetera that put together to switch an area or add to that area. We are working through that process to come up with those offerings.¹⁰

2.11 NBN Co was unable to indicate likely prices, but advised that fibre on demand products would be on offer by the first half of 2015, and the pricing structure would be similar to that used by British Telecom in the United Kingdom.¹¹ NBN Co's January 2015 product roadmap indicated that consultations with industry were ongoing regarding the provision of fibre on demand infrastructure.¹²

2.12 On 12 March 2015, NBN Co quietly released its 'Technology Choice' policy on its website. NBN Co stated:

The Technology Choice Program has been set up for interested individuals, local governments and communities who wish to apply for a change to their National Broadband Network (NBN) infrastructure. It provides an opportunity for eligible applicants to select an alternate technology solution by paying the incremental cost of the change.¹³

8 Mr Bill Morrow, *Committee Hansard*, 26 September 2014, pp 48–49.

9 NBN Co Limited, 'NBN Co outlines principles for Multi-Technology rollout', Media Release, 13 November 2014, at http://www.nbnco.com.au/corporate-information/media-centre/media-releases/nbn_co_outlines_principles_for_multi_technology_rollout.html

10 Mr John Simon, *Committee Hansard*, 2 December 2014, p. 53.

11 *Committee Hansard*, 2 December 2014, pp 49–50.

12 <http://www.nbnco.com.au/content/dam/nbnco/documents/Integrated-Product-Roadmap.pdf>

13 <http://www2.nbnco.com.au/connect-home-or-business/technology-choice-program.html>

2.13 NBN Co noted that the cost of fibre on demand for the 'Individual Switch' option 'could range from a few thousand dollars to tens of thousands of dollars' and the cost for the 'Area Switch' option 'could range from tens of thousands of dollars to several millions of dollars depending on the size and complexity of the project'.¹⁴

Rollout progress

2.14 The 2013 Strategic Review stated that under the proposed MTM, the NBN will have reached approximately 5.3 million premises in total (including 4.5 million premises in the fixed line footprint, or approximately 43 per cent of that footprint), as well as completing the entire fixed wireless and satellite deployment, by the end of 2016. The Strategic Review projected completion of the MTM rollout by the end of 2020.¹⁵

2.15 The Strategic Review contained no forecasts for FY2015 or FY2016 for the MTM. NBN Co's implementation schedule to reach its targets was similarly redacted in Exhibit 4-11 of the Strategic Review, at figure 1 below.

Exhibit 4-11: Sequencing of key activities (not indicative of network completion date)



Figure 1: extract from NBN Co Strategic Review¹⁶

14 NBN Co Limited, *Technology Choice Policy*, 12 March 2015, at: <http://www2.nbnco.com.au/content/dam/nbnco2/documents/Technology%20Choice%20Policy.pdf>, p. 4.

15 NBN Co Limited, *Strategic Review*, December 2013, p. 97.

16 NBN Co Limited, *Strategic Review*, December 2013, p. 109.

2.16 NBN Co reported that at the end of the 2014 financial year, it had 552,618 serviceable premises across all technologies, with a total of 210,628 services in operation.¹⁷ Of these, 381,146 were brownfields FTTP premises passed, approximately 70,000 short of the Minister's stated target of 450,000.¹⁸

2.17 In November 2013, NBN Co undertook to issue build contracts for 150,000 premises by February 2014.¹⁹ However, an answer to a question on notice confirms that 'as of end April [2014], there have been 52 build instructions issued since 24 September 2013 with an estimated total premises count of 115,542.'²⁰

2.18 Speaking on the release of the MTM rollout plan on 1 December 2014, Minister Turnbull advised that as of November 2014, 'over 1.2 million homes and businesses can either access the NBN or are in areas where construction is currently underway', and of these, over 650,000 were able to connect to the NBN. The minister undertook that the new rollout plan would provide for 'one in three Australians' to have access to, or be under construction for, the NBN by June 2016.²¹

2.19 The committee notes with interest the minister's adoption of the rollout metric 'work underway'. In opposition, Mr Turnbull had a great deal to say about the use of this metric by former management (called 'construction commenced' instead of 'work underway' at this time). For example:

Now, what the NBN does, and this is I think a deliberate effort to mislead people, because it really does mislead people, is they use a metric that is used nowhere else in the industry that I've ever heard of, and this is premises in areas where construction has commenced or has been completed...Now there are two metrics that are really relevant. The most relevant one is obviously premises where you have an active service, where you actually are connected and you've got a customer that's paying you good money for that service. The second one is what they describe as premises passed, which is when the fibre is going past a premise - of course, could be cable, doesn't have to be fibre - but the network is going past a premise and if the occupant rings up and says

17 NBN Co Limited, *Annual Report 2013-14*, 30 June 2014, pp 12–13.

18 See page 37 of the Committee's First Interim Report, available here: http://www.aph.gov.au/Parliamentary_Business/Committees/Senate/National_Broadband_Network/NBN/Interim_Report/~/_media/Committees/Senate/committee/broadband_ctte/interim_report/report.pdf

19 See: <http://www.theage.com.au/it-pro/government-it/150000-more-fibre-connections-approved-for-nbn-20131031-hv2bn.html>

20 Answer to Question on Notice No. 45, Public Hearing 17 December 2013.

21 The Hon Malcolm Turnbull MP, Minister for Communications, 'NBN Rollout Will Reach One in Three Australians by June 2016', Media Release, 1 December 2014, at <http://www.malcolmturnbull.com.au/media/nbn-rollout-will-reach-one-in-three-australians-by-june-2016>.

'I'd like a service', they can send a nice person around with a van within a day or two to connect it.²²

2.20 Stories of delay in the NBN rollout have continued to emerge. Discussing ongoing problems with the NBN rollout in Tasmania in May 2014, the ABC reported that customers in that state were waiting almost four times the 35-day national average timeframe for connection.²³ NBN Co acknowledged to the committee in July 2014 that 'we have openly said we are not where we want to be in terms of delivering faster installation at the right customer experience levels', emphasising that NBN Co was undertaking 'multiple programs' to try and improve rollout performance.²⁴

2.21 In July 2014 the committee queried NBN Co in relation to the promises made by the Government and the predictions in the Strategic Review regarding MTM rollout progress by 2016 and completion by 2019 or 2020. Mr Morrow reaffirmed that:

At this point we do not see any reason as to why we cannot stick with the strategic review projections. There is nothing saying that we cannot meet those.²⁵

...

By the end of 2019 we will have covered all 12½ million homes across the country and we will connect roughly eight million of those by that time frame.²⁶

2.22 At the same hearing, however, noting issues which may impact on the rollout including FTTN trials and the Telstra negotiations, Mr Morrow said: 'I do not feel under pressure in order to stay with the schedule that was laid out within the strategic review'.²⁷

2.23 NBN Co's 2014-17 corporate plan, released in November 2014, stated that by the end of FY2015, 1,168,000 premises would be passed, with 1,033,000 of these serviceable and 481,000 activated.²⁸ The committee notes that the operational targets included in the 2014-17 corporate plan for FY2015 were excessively conservative. For example, NBN Co's greenfields targets have been 'lowballed' to such an extent that it met its 30 June 2015 greenfields activations forecast nearly six months early—by 22

22 Malcolm Turnbull, 'Turnbull disputes NBN connection figures', ABC Radio National *PM with Mark Colvin*, 21 November 2012, at: <http://www.abc.net.au/pm/content/2012/s3638019.htm>

23 'NBN's Tasmanian rollout problems continue', ABC News online, 13 May 2014, at <http://www.abc.net.au/news/2014-05-13/nbn27s-tasmanian-rollout-problems-continue/5450418>.

24 Mr John Simon, *Committee Hansard*, 11 July 2014, p. 36.

25 Mr Bill Morrow, *Committee Hansard*, 11 July 2014, p. 41.

26 Mr Bill Morrow, *Committee Hansard*, 11 July 2014, p. 47.

27 Mr Bill Morrow, *Committee Hansard*, 11 July 2014, p. 42.

28 NBN Co Limited, *Corporate Plan 2014-17*, 11 November 2014, p. 48.

January 2015—and at its current rate will meet its greenfields premises passed target in mid-March 2015.

2.24 NBN Co advised the committee in early 2015 that as at the end of 2014, the average weekly rollout rate required to reach the FY2015 targets set out in the 2014-17 corporate plan would be:

- 10294 premises passed ('ready for service') per week
 - 7567 fixed line, 2727 fixed wireless & satellite;
- 11,001 premises serviceable per week²⁹
 - 8273 fixed line, 2727 fixed wireless & satellite; and
- 6134 premises activated per week
 - 5071 fixed line, 1063 fixed wireless & satellite.³⁰

2.25 Releasing its half-yearly results for the 2014-15 financial year on 26 February 2015, NBN Co stated that its 12-week rolling average as at the end of December 2014 was 8,900 premises serviceable per week. NBN Co said that the rollout rate was continuing to increase, with the rate as of February 2015 'tracking at 10,200 serviceable premises per week'.³¹

FTTN trials

2.26 In February 2014, preparations were announced for FTTN trials on up to 20 nodes at Umina in NSW and Epping in Victoria, to run from May to October 2014. These trials would use 'spare pairs' on existing nodes and as such, would not involve construction of new nodes or the migration of active services.

2.27 On 21 March 2014 NBN Co signed a letter of intent with Telstra to undertake a larger, '1000 node trial' of FTTN.³² The trial was publicly announced by NBN Co on 26 June 2014.³³ According to an NBN Co fact sheet on the trial,³⁴ it would be conducted over 12 months and would pilot the planning, design and construction of

29 'Premises serviceable' indicates those premises or lots which have been passed and are ready for a service to be connected. It excludes those brownfields premises previously passed but rated 'Service Class 0' because service is not yet able to be connected to them without further work.

30 NBN Co, answer to question on notice (question 213) following Environment and Communications Legislation Committee, Supplementary Budget Estimates hearings, November 2014.

31 NBN Co Limited, 'NBN Co tracks towards full year targets as network transitions to new rollout model', Media Release, 26 February 2015, at <http://www.nbnco.com.au/corporate-information/media-centre/media-releases/nbn-co-tracks-towards-full-year-targets-as-network-transitions-to-new-rollout-model.html>.

32 Answer to question on notice (Question 184) from Senate Environment and Communications Legislation Committee, Supplementary Budget Estimates hearings, November 2014.

33 NBN Co Limited, 'NBN Co and Telstra expand construction of Fibre to the Node', Media Release, 26 June 2014, at <http://www.nbnco.com.au/corporate-information/media-centre/media-releases/nbn-co-and-telstraexpandconstructionoffibretothenode.html>

34 <http://www.nbnco.com.au/content/dam/nbnco2/documents/ftn-construction-fact-sheet.pdf>

1000 nodes in various locations in Queensland and NSW, using very high-bit-rate digital subscriber line (VDSL2) vectoring hardware, followed by consideration of piloting the connection of premises.

2.28 NBN Co advised that while the technology to be used for the trials had demonstrated capabilities of up to 100 megabits per second (Mbps) upload and 40Mbps download at a 400m distance from the premises:

[a]ctual performance will vary based on a range of factors including the distance from the node, the quality of the copper, equipment used in the premises and the service providers' own network.³⁵

2.29 Commencement of the Umina and Epping trials was delayed because agreement was not reached with Telstra for the use of its copper in the trials until late May, and power issues further delayed the progress of the Epping trial.³⁶ As of July 2014, NBN Co advised the committee that negotiations with Telstra meant that the trials remained in 'early days' with no end-users connected.³⁷ Power issues continued to delay the Epping trial, in which no nodes had been activated.³⁸

2.30 In relation to the 1000-node trial, Mr Greg Adcock, NBN Co's Chief Operating Officer, also qualified the 12-month timing:

I just want to be very clear: the estimate for the project plan is a 12-month trial. That is for us to plan, design, construct and deploy 1,000 nodes. But in all these things, the plan is the plan but there will be valid reasons where it may shorten—if you get a good run of weather—or there will be valid reasons where it might extend. We are still in negotiations with some of the utilities to reticulate power to the node. A plan is as good as the assumptions set at a point in time.³⁹

2.31 On 22 August 2014, in a press release entitled 'NBN speeds soar in Umina Beach', Minister Turnbull announced that 'the first customers connected to the NBN in its fibre-to-the-node pilot are achieving internet download speeds of around 100 megabits per second', and upload speeds of 30Mbps, at distances of more than 500 metres:

35 <http://www.nbnco.com.au/content/dam/nbnco2/documents/fttn-construction-fact-sheet.pdf>.

36 Mr Greg Adcock, *Committee Hansard*, 5 May 2014, p. 33; Senate Environment and Communications Legislation Committee, *Committee Hansard*, Budget Estimates hearings 29 May 2014, p. 153.

37 Mr Greg Adcock, *Committee Hansard*, 11 July 2014, p. 39.

38 *Committee Hansard*, 11 July 2014, p. 55.

39 Mr Greg Adcock, *Committee Hansard*, 11 July 2014, p. 46.

These results are an early indication that the NBN rollout will achieve the Government's commitment to upgrading Australia's broadband sooner, at less cost to taxpayers and therefore more affordably to consumers.⁴⁰

2.32 On the same day, NBN Co and the minister further announced that the FTTN construction program would be expanded to an additional 300 nodes in Woy Woy, NSW, and Warner, Queensland; essentially extending the 1000-node trial to 1300 nodes.

2.33 In November 2014, technology website ZDNet reported that information obtained under freedom of information laws indicated that both Telstra and the Department of Communications had advised the government to include a disclaimer on its announcement of the Umina pilot results, indicating that they may not be reflective of the speeds customers could access in the real world.⁴¹ No such disclaimer was included in the minister's press release.

2.34 In December 2014, NBN Co confirmed to the committee that the Umina and Epping trials would be extended to the end of September 2015.⁴² At the end of 2014, 53 customers had been connected in the Umina FTTN trial footprint, while no customers were yet connected in the Epping trial. Of the 53 customers connected in Umina, NBN Co reported a wide variance in download and upload speeds, averaging out to 85-91Mbps download and 34-37Mbps upload. NBN Co noted that achievable speeds 'may vary between premises depending on various factors including the quality and length of the copper', and that NBN Co had not to that date been given access to Telstra's data on the copper in the trial area.⁴³

2.35 NBN Co's January 2015 Integrated Product Roadmap indicated that a service and customer experience pilot of FTTN would commence in the third quarter of 2015.⁴⁴

FTTB

2.36 On 12 March 2014, NBN Co announced that it had agreed with four telecommunications carriers (Telstra, Optus, iiNet and M2) to participate in a FTTB

40 The Hon Malcolm Turnbull MP, Minister for Communications, 'NBN speeds soar in Umina Beach', Media Release, 22 August 2014, at http://www.minister.communications.gov.au/malcolm_turnbull/news/nbn_speeds_soar_in_umi_na_beach.

41 Josh Taylor, 'Turnbull, NBN Co ignored Telstra real-world FttN speed warnings', *ZDNet*, 25 November 2014, at <http://www.zdnet.com/article/turnbull-nbn-co-ignored-telstra-real-world-fttn-speed-warnings/>.

42 Mr John Simon, *Committee Hansard*, 2 December 2014, p. 54.

43 NBN Co Limited, answer to question on notice (Question 187) following Senate Environment and Communications Legislation Committee, Supplementary Budget Estimates hearings, November 2014.

44 NBN Co Limited, Integrated Product Roadmap, January 2015, at: <http://www.nbnco.com.au/content/dam/nbnco/documents/Integrated-Product-Roadmap.pdf>

pilot in the Melbourne suburbs of Carlton, Parkville and Brunswick.⁴⁵ Although the trial was announced as a three-month exercise, in May 2014 NBN Co advised the committee that it would 'be at least going to the end of the financial year, if not a little bit longer'.⁴⁶

2.37 In May 2014, NBN Co stated that the FTTB trial to that date had yielded average download speeds of 106Mbps, and 47Mbps upload.⁴⁷

2.38 By July 2014, while maintaining that it was 'still early days' on the FTTB trial and that it was likely to be three months more before outcomes were available, NBN Co advised that around 50 services were active.⁴⁸

2.39 As at November 2014, iiNet reported that the results of NBN Co's FTTB trials had still not been made public.⁴⁹ On 19 January 2015, however, NBN Co stated that it was 'delighted' with the results of the trials, and had identified 43 apartment blocks with approximately 6000 users in Melbourne, Sydney and Canberra to receive FTTB in the first half of 2015, with 2000 to be ready for service by the end of March.⁵⁰ An FTTB 'service and customer experience pilot' would launch within the same timeframe.⁵¹

HFC

2.40 Relatively little solid information was available to the committee about the proposed HFC rollout, given that until December 2014 it was awaiting the completion of the revised agreements with Telstra and Optus. The committee was advised that NBN Co had, during 2014, undertaken some technical testing in relation to HFC deployment in preparation for eventual rollout. However, as late as November 2014, with a corporate plan released indicating that HFC would comprise 27 per cent of the MTM rollout, NBN Co advised that it had not secured access to any part of the Telstra or Optus HFC networks for the purpose of preliminary trials.⁵²

45 NBN Co Limited, 'Telcos and consumers sign up for FTTB pilot', Media Release, 12 March 2014, at <http://www.nbnco.com.au/corporate-information/media-centre/media-releases/telcos-and-consumers-sign-up-for-fttb-pilot.html>.

46 Mr Gary McLaren, Chief Technology Officer, NBN Co Limited, *Committee Hansard*, 5 May 2014, p. 26.

47 Mr Greg Adcock, Environment and Communications Legislation Committee, *Committee Hansard*, Budget Estimates hearings, 29 May 2014, pp 154–155.

48 Mr Greg Adcock, *Committee Hansard*, 11 July 2014, p. 62.

49 <http://blog.iinet.net.au/nbn-case-study-denises-nbn-fibretothebuilding-trial/>

50 NBN Co Limited, 'NBN Co announces location of first 6,000 homes to receive Fibre to the Building', Media Release, 19 January 2015, at <http://www.nbnco.com.au/blog/nbn-co-announces-location-of-first-6000-homes-to-receive-fibre-to-the-building.html>.

51 NBN Co Limited, Integrated Product Roadmap, January 2015, at: <http://www.nbnco.com.au/content/dam/nbnco/documents/Integrated-Product-Roadmap.pdf>

52 Senate Environment and Communications Legislation Committee, *Committee Hansard*, Supplementary Budget Estimates, 20 November 2014, pp 21–22.

2.41 At the committee's 2 December 2014 hearing, 12 days prior to the signature of the Telstra agreements, NBN Co advised that it expected the HFC footprint to cover more than the 3.27 million premises posited in the Strategic Review, but declined to quantify its revised expectation, saying that a HFC rollout plan would be finalised in the first half of 2015.⁵³

2.42 NBN Co's Chief Technical Officer, Mr Dennis Steiger, outlined the significant remediation and preparation work that would be required on the Telstra and Optus HFC networks to ready them for NBN services:

After we obtain access to the HFC networks, the fibre lines, the CEOs and the exchanges we will begin a very methodical process which will really start around the clearing of the spectrum. So, not only do we need access to the physical facilities, we also need access to the spectrum on that HFC network because it is currently in use. My understanding is that there is a DOCSIS 1 modem in existence that we need to replace to clear up some of the spectrum. So we will go through a process...

the older technology is removed and it creates some space for the network that we will be overbuilding on the HFC on a separate spectrum. At that point we have to qualify the HFC network to make sure that it is properly operational, good signal-to-noise ratios, and the node sizes are appropriate for the amount of traffic demand that we expect over the next few years. We will be splitting any nodes and tightening the plants. Preparing the plant is a big part of our process.

We will also be defining the architecture that we are going to be deploying. As you are aware we are going to be acquiring two networks which cover some of the same areas, so we have to develop an architecture that supports us doing that operation, which we have given quite a bit of thought to, and we have some ideas around. We will then be deploying the CMTSs and tying the CMTSs with the HFC network and the NBN transit network. We also have to go through a rigorous process around product definition and onboarding our responsibilities, which will take some time, and providing the operational support throughout an OSS and operational capabilities in the network operation centres to support an HFC network, which is new to NBN.

After that we go through a series of trials starting with technology demonstration followed by construction trials. So that gives us a good insight into the infrastructure that is in place and the procedures and processes that NBN is going to need to roll out its network over the HFC that is in place. Finally, a customer trial with an RSP prior to a more significant launch.⁵⁴

2.43 While unable to offer precise figures, NBN Co also advised at that time that its estimates suggested that up to 50 per cent of premises in the HFC footprint,

53 *Committee Hansard*, 2 December 2014, pp 4–5.

54 Mr Dennis Steiger, *Committee Hansard*, 2 December 2014, pp 7–8.

perhaps 1.5 million premises, did not have HFC lead-in and would need to be connected.⁵⁵

2.44 No detailed costing was provided for the HFC rollout in the 2014-17 corporate plan, and on 4 December 2014 NBN Co's Chief Financial Officer, Mr Stephen Rue, indicated that it was still too early for NBN Co to provide any cost estimate for the deployment of HFC.⁵⁶

2.45 NBN Co's January 2015 Integrated Product Roadmap indicated that a service and customer experience pilot of HFC would commence in the final quarter of 2015.⁵⁷

2.46 On 23 February 2015 NBN Co announced that it had signed a contract with US company Arris for the technology required to upgrade the existing HFC networks for the NBN.⁵⁸ The financial value of the contract was not disclosed, but was reported by the media as approximately \$400 million.⁵⁹

Release of commercial products

2.47 By the end of 2014, commercial products had not yet been provided to retail service providers (RSPs) to sell FTTN, FTTB, HFC or long-term satellite services. Predicted product release dates for the various technologies indicated to the committee and others throughout 2014 slipped, and slipped again.

2.48 The commercial release of FTTB became a particularly pressing issue in 2014, following the commencement of commercial FTTB offerings by competitor TPG in selected multi-dwelling units (MDUs) in central Sydney, Melbourne and Brisbane. In May 2014, Mr Morrow advised the committee that NBN Co would accelerate its FTTP rollout in order to counter the TPG threat:

Fibre-to-the-basement was the plan for a lot of these already. They had a different date than TPG was targeting. Therefore, we accelerated in certain areas that we could to offer a competitive response. We have been told by customers, the building owners, the RSPs, that they like the fact that we are doing this. Those dates by the end of the financial year which we have announced are to actually turn up service within those basements...

The idea was that there is a potential problem to the model behind NBN if we have this large-scale material change of cherry-pickers. We felt it was in the interest of the taxpayers and in the interest of NBN Co to offer a competitive response. We have outlined which areas we will do that in and we have said that we will do it by the end of the financial year. The only

55 *Committee Hansard*, 2 December 2014, pp 9–11.

56 Mr Stephen Rue, *Committee Hansard*, 4 December 2014, pp 8–9.

57 NBN Co Limited, Integrated Product Roadmap, January 2015, at: <http://www.nbnco.com.au/content/dam/nbnco/documents/Integrated-Product-Roadmap.pdf>

58 NBN Co Limited, 'NBN Co's HFC Network: Start the engines!', Media Release, 23 February 2015, at <http://www.nbnco.com.au/blog/nbnco-hfc-network-start-the-engines.html>.

59 David Ramli, 'NBN deal promises higher speeds on cable TV networks', *Australian Financial Review*, 23 February 2015.

product that we have available today is fibre-to-the-premise and that will be the product which we are offering.⁶⁰

2.49 NBN Co indicated that its larger plan remained to counter the competitive threat in MDUs—from TPG and, potentially, from others—with speedy release of an FTTB product, which representatives indicated they hoped to have in place by October 2014.⁶¹ Mr Adcock confirmed at a Senate Estimates hearing later that month that FTTB products would be commercially launched by the end of 2014.⁶² In July, however, Mr Adcock revised his advice, stating that FTTB would be ready for commercial launch by February 2015.⁶³

2.50 NBN Co consistently emphasised to the committee that timetables were fluid, processes remained under development, and everything was subject to change. Discussing the FTTB delay, Mr Simon noted the complexity for NBN Co of developing and commercialising its offerings across different technologies under the MTM:

The attempt for October, I believe, is that that would be the beginning of the onboarding of [retail service providers]. So, if you think of what we have to do—our IT upgrades and network upgrades—we make that then available for RSPs to test. They go through their build and development. So the February date that we are talking about as being the full commercial release is the end-to-end capability with the RSPs. We commence onboarding in October.⁶⁴

2.51 In December 2014, NBN Co assured the committee that its FTTB product set would be released, allowing RSPs to commence connecting actual services, by the end of March 2015.⁶⁵ On 26 February 2015 NBN Co stated that the FTTB product release was 'imminent'.⁶⁶

2.52 Meanwhile, timing for the completion of trials and subsequent delivery of FTTN products to the market also continued to slide. In December 2014 NBN Co indicated that its FTTN product release would take place by the end of September 2015.⁶⁷ These timings were reflected in NBN's January 2015 Integrated Product

60 Mr Bill Morrow, *Committee Hansard*, 5 May 2014, p. 29.

61 *Committee Hansard*, 5 May 2014, p. 30.

62 Mr Greg Adcock, Environment and Communications Legislation Committee, *Committee Hansard*, Budget Estimates hearings, 29 May 2014, p. 155.

63 Mr Greg Adcock, *Committee Hansard*, 11 July 2014, p. 39.

64 Mr John Simon, *Committee Hansard*, 11 July 2014, p. 62.

65 *Committee Hansard*, 2 December 2014, pp 55-56.

66 NBN Co Limited, *Half Year Results Presentation*, 26 February 2015, at <http://www.nbnco.com.au/corporate-information/media-centre/media-releases/nbn-co-tracks-towards-full-year-targets-as-network-transitions-to-new-rollout-model.html>

67 *Committee Hansard*, 2 December 2014, pp 55-56.

Roadmap,⁶⁸ but in the presentation of its half-yearly results on 26 February 2015, NBN Co wrote that FTTN products would be released in the first quarter of 2016.⁶⁹

2.53 An initial product release for hybrid fibre coaxial (HFC) services is scheduled by NBN Co to occur in the first quarter of 2016.⁷⁰ Progress on satellite services is discussed in chapter 3.

7. NBN Co – Stated Targets

TARGET	STATUS
25/5 mbps to all Australians by 2016	MISSED
450,000 Premises Passed (BF) by 30 June 2014	MISSED
Build Contracts for 150,000 premises by February 2014	MISSED
Weekly Run Rate of 6,000 Premises by 30 June 2014	MISSED
Telstra negotiations complete by 30 June 2014	MISSED
Umina and Epping FTTN Trials underway by 1 May 2014	MISSED
FTTB product set released by October 2014	MISSED
FTTP to apartments in TPG areas by 30 June 2014	MISSED

Figure 2: Slide shown at public hearing 11 July 2014⁷¹

The Melton FTTP trial

2.54 On 6 September 2014, Fairfax media published a story citing a 'confidential' test rollout conducted for NBN Co in Melton, Victoria, which, it stated, showed that Labor's all-fibre national broadband network could have been delivered faster and for

68 NBN Co Limited, Integrated Product Roadmap, January 2015, at: <http://www.nbnco.com.au/content/dam/nbnco/documents/Integrated-Product-Roadmap.pdf>

69 NBN Co Limited, *Half Year Results Presentation*, 26 February 2015, at <http://www.nbnco.com.au/corporate-information/media-centre/media-releases/nbn-co-tracks-towards-full-year-targets-as-network-transitions-to-new-rollout-model.html>

70 NBN Co Limited, Integrated Product Roadmap, January 2015, at: <http://www.nbnco.com.au/content/dam/nbnco/documents/Integrated-Product-Roadmap.pdf>

71 Available at: http://www.aph.gov.au/Parliamentary_Business/Committees/Senate/National_Broadband_Network/NBN/Additional_Documents.

less money than originally forecast',⁷² and for significantly less than indicated in the government's Strategic Review and cost-benefit analysis.

2.55 The leaked presentation detailed a pilot installation of FTTP to 2,484 premises, commenced in February 2014, utilising design changes formulated by NBN Co in an internal review conducted in 2013. Key innovations employed in the Melton trial included:

- use of the 'Render' deployment management system;
- new technical equipment such as smaller-diameter cable and small-form multiports;
- faster and more effective testing methods; and
- a new contracting model and work practices, including more streamlined 'build-drop' installation.⁷³

2.56 The evaluation, presented to NBN Co in August 2014, stated that 90 per cent of the Melton installation was completed within 104 working days, 61 per cent faster and 50 per cent cheaper than rollouts under previous models, with various aspects of construction being concluded 22 to 400 per cent faster than comparative rollouts.

2.57 At first, NBN Co rejected the story entirely, claiming on 7 December on Twitter that there had been 'no such pilot'.⁷⁴ The following day the company acknowledged that the trial had taken place but maintained that it did not produce the results claimed in the document and reported by the press. NBN Co stated in a press release on 8 September 2014 that:

The work underway in Melton delivered no such conclusions... the claims being made in the Fairfax report – and extrapolated out to the entire NBN project – are based on work in a single area that is atypical and which is employing construction methods that are not unique, they are already widely in use. It also required more oversight and more resources than usual to make it a success.⁷⁵

2.58 Notably, NBN Co also offered that:

our construction crews tell us there have been rollouts elsewhere in Victoria which cost less per premises and which have suffered fewer defects and had fewer design variations.⁷⁶

72 David Braue, 'NBN fibre rollout was going to be cheaper, sooner, pilot results show', *The Age*, 8 September 2014.

73 NBN Co Limited (letterhead), '3MLT-10 deployment trial post-implementation results and recommendations – industry pack', as published by the media and tabled by Senator Conroy at the committee's public hearing on 26 September 2014, at: http://www.aph.gov.au/Parliamentary_Business/Committees/Senate/National_Broadband_Network/NBN/Additional_Documents, document no. 17.

74 See *Committee Hansard*, 26 September 2014, pp 24-25.

75 NBN Co Limited, 'Two sides to every story', Media Release, 8 September 2014.

76 NBN Co Limited, 'Two sides to every story', Media Release, 8 September 2014.

2.59 NBN Co rejected any suggestion that the Melton results warranted a re-consideration of the costs and benefits of FTTP across the full NBN rollout, while reiterating that fibre 'remains an important part of the multi-technology mix'.⁷⁷

2.60 Addressing the committee on 26 September 2014, Mr Morrow said:

I would like to say something about what has been described as an NBN study or pilot in a suburb in northern Melbourne. Documents with an NBN letterhead claiming material FTTP improvements were leaked to a journalist. These were documents, I might say, that none of us here had actually seen before the media brought them to our attention. It was important for NBN to respond to this story and place context around these documents—which may have been seen by the public as representing NBN's considered view, which they do not.

I would like to make clear to the committee that, in order to meet the objectives given to us by the board of directors, we must find efficiencies across the company and across all technologies. Projects like the one described in the media are taking place throughout the company and we expect there to be efficiency gains from them, but nothing we have seen will alter the direction of the company when it comes to the MTM model.⁷⁸

2.61 At the same hearing Mr Adcock confirmed that the Melton trial was the first and only deployment area (known as a fibre serving area module, FSAM) in Australia to incorporate the full suite of technological and efficiency improvements identified for FTTP, including the 'Render' work scheduling program.⁷⁹ NBN Co was not prepared, however, to accept the positive results of the trial, describing the presentation of its results as:

a preliminary document that was prepared by the [NBN Co project] team prior to peer review. It has not reached the executive yet, because the assertions made in it had not been subject to peer review. That review is still ongoing.⁸⁰

2.62 Mr Adcock indicated, for example, that the claim that the Melton rollout was completed in 104 business days may not be correct, querying the stated commencement date of 28 February 2014.⁸¹ NBN Co later advised the committee that:

NBN Co issued two instructions for work to commence at Melton. The first was on 9 January 2014. This was on day rates as we had not at this stage agreed scope of work. The second was on 28 February 2014 on an agreed schedule of rates (SOR).⁸²

77 NBN Co Limited, 'Two sides to every story', Media Release, 8 September 2014.

78 Mr Bill Morrow, *Committee Hansard*, 26 September 2014, p. 2. The document,

79 Mr Greg Adcock, *Committee Hansard*, 26 September 2014, pp 9-10.

80 Mr Greg Adcock, *Committee Hansard*, 26 September 2014, p. 4.

81 *Committee Hansard*, 26 September 2014, p. 12.

82 NBN Co Limited, response to question on notice (question 13) following the 26 September 2014 public hearing.

2.63 More generally, NBN Co would not accept the factual accuracy of any of the Melton trial results as they had not been 'validated' by management.⁸³ While advising that some of the improved processes and equipment used in Melton such as smaller-diameter cable had already been incorporated into standard FTTP rollout practice elsewhere,⁸⁴ NBN Co indicated that other clear and internationally-verified efficiencies identified in 2013 had still not been accepted by NBN Co as uniform or mandatory procedure.⁸⁵

2.64 Mr Morrow went as far as to say that:

It may turn out that there are heaps of savings behind these various projects and trials that we have underway. I do hope, in fact, that there are. Once we can validate those and once we can bake them in... [o]f course we will bake these in. But this whole thing is premature and has a bad smell to it in different areas. Until we can flush this thing out we are left in this quandary of, 'Is it misguided? Is it accurate? Is it somebody who has left the company who is disgruntled and who wants to be able to push for a fibre to the premises because they don't like the MTM model? Are there political motivations behind all this?' We do not know until we can actually go through this process.⁸⁶

2.65 At a Senate Estimates hearing on 20 November 2014, NBN Co advised that the peer review process on the Melton trial had been completed, and had confirmed much of the information in the Melton results, although certain matters were revised by the peer review, including the stated commencement date of the rollout, which was amended to 9 February 2014.⁸⁷ NBN Co acknowledged before the Estimates hearing, and in its 2014-17 corporate plan released the same month, that it was making changes to its construction delivery model and the design of the FTTP rollout to reflect the improvements demonstrated in Melton and elsewhere.⁸⁸ These changes to the construction delivery model were overwhelmingly those identified in the corporate plan (and accompanying board papers) delivered to the board in September 2013, and attested to by NBN Co personnel as being implemented.⁸⁹

83 *Committee Hansard*, 26 September 2014, p. 12.

84 NBN Co later advised that by the time of the Melton trial small-diameter cable had been used in 64 FSAM designs, and small-form multiports in 85 FSAMs. Mr Greg Adcock, Senate Standing Committee on Environment and Communications, *Committee Hansard*, Supplementary Budget Estimates, 20 November 2014, p. 32.

85 *Committee Hansard*, 26 September 2014, pp 23-25, 26, 63.

86 Mr Bill Morrow, *Committee Hansard*, 26 September 2014, p. 25.

87 Senate Standing Committee on Environment and Communications, *Committee Hansard*, Supplementary Budget Estimates, 20 November 2014, p. 29.

88 Senate Environment and Communications Legislation Committee, *Committee Hansard*, Supplementary Budget Estimates, 20 November 2014, p. 29.

89 See Senate Select Committee on the National Broadband Network, *Interim Report*, March 2014, pp 29-34.

2.66 NBN Co provided a copy of the Melton presentation to the Senate Environment and Communications Committee, at the committee's request, in December 2014. The copy provided by NBN Co was dated October 2014 and appeared to represent the post-peer review, approved version of the Melton trial outcomes. It redacted the figures relating to average per premises costs, which NBN Co stated was necessary to avoid commercial harm to the company.⁹⁰

2.67 It is not clear why NBN Co denied the existence of the Melton 10 trial so vehemently. NBN Co CEO Mr Morrow is on the record as saying 'we must find efficiencies across the company and across all technologies'.⁹¹ The committee notes that the results of the Melton 10 trial demonstrate that the cost of rolling out FTTP is going down, not up, as alleged in the Strategic Review.

The NBN Co 2014-17 corporate plan

2.68 The committee's first interim report discussed in some detail the draft 2013-16 NBN Co corporate plan, which projected significant savings in the FTTP rollout, but which was never adopted by the NBN Co board, apparently due to the change of government and the ensuing replacement of the board.⁹² The committee expressed concern that the information available to NBN Co in the draft revised corporate plan (known as 'Version 13') was not used as the base case for the key financial comparisons of the Strategic Review, despite being the most up-to-date projections and indicating the latest rollout and cost figures for FTTP.

2.69 The Strategic Review indicated that NBN Co would produce a new corporate plan for 2014-17 in the first half of 2014.⁹³ NBN Co subsequently stated that it would release a 2014-15 'financial plan' within that timeframe, with a full 3-year corporate plan to follow later in 2014, drawing upon the cost-benefit analysis and other reports being prepared.⁹⁴

2.70 NBN Co submitted the draft 2014-17 corporate plan to the government on 19 May 2014.⁹⁵ The 2014-17 corporate plan NBN Co submitted to government included forecasts for financial year (FY)2015, FY2016 and FY2017, as is appropriate for

90 Letter from Mr Greg Adcock, Chief Operating Officer NBN Co Limited, to the Secretary of the Senate Standing Committee on Environment and Communications, 'Post-Implementation Review – Melton Deployment Trial', 12 December 2014, at: http://www.aph.gov.au/~media/Committees/ec_ctte/estimates/supp_1415/communications/NBNCo_Melton_PIR_October_2014.pdf

91 Mr Bill Morrow, *Committee Hansard*, 26 September 2014, p. 2.

92 Senate Select Committee on the National Broadband Network, *Interim Report*, March 2014, pp 25-29.

93 NBN Co Limited, *Strategic Review*, December 2013, p. 9.

94 Dr Ziggy Switkowski, Executive Chairman, NBN Co Half-Yearly Results Briefing, 21 February 2014, at <http://www.nbnco.com.au/content/dam/nbnco/images/media-images/Transcript-Half-Year-Results.pdf>, p. 3.

95 Department of Communications, answer to question on notice No. 557 from Senate Standing Committee on Environment and Communications Budget Estimates, May 2014.

corporate plans submitted by government business enterprises (GBEs). This was confirmed by the Department of Communications at the 12 March 2015 hearing:

Senator CONROY: What I'm trying to understand from your earlier answer is whether or not NBN Co provided the Government with numbers in...[20]16 to [20]17.

Mr Robinson: They did, Senator, yes.

Senator CONROY: So they provided the Government with a set of forecasts, but when they provide it to the public—this committee—they say they are too uncertain to make any forecasts.

Mr Robinson: That's right, Senator, but that's because—

Senator CONROY: I'm trying to understand whether they have complied with the GBE guidelines which state unambiguously that they have to present a three year plan.

Mr Robinson: And they did, Senator.⁹⁶

2.71 At the committee's 26 September 2014 hearing, CEO Bill Morrow confirmed that the document remained 'on the minister's desk'.⁹⁷

2.72 By October 2014, the corporate plan had still not been publicly released or tabled in parliament. On 29 October 2014, the Senate passed an 'order for the production of documents' requiring the Minister for Finance and the Minister for Communications to table a copy of the 2014-17 NBN Co corporate plan in the Senate by 24 November.⁹⁸ In response to this order the NBN Co *Corporate Plan 2014-2017*, dated 11 November 2014, was tabled in the Senate, and released publicly, on 17 November 2014.

2.73 In July 2014, discussing the lack of information available on NBN Co's detailed implementation and rollout targets, Mr Morrow assured the committee that '[w]e will have ample information within the corporate plan that we will submit to the board and to the department'.⁹⁹

2.74 The information in the corporate plan as finally released in November, however, can not be described as 'ample'. Lacking the forecasts for FY2016 and FY2017 submitted to Government under the GBE guidelines, and details of NBN Co's business case out to 2040, it is clear that the public version of NBN Co's 2014-17 corporate plan is a 'glossy'—a document with most of the pertinent information and relevant assumptions excised.

2.75 NBN Co cited the 'significant amount of change at NBN Co' since August 2012 (the date of the previous official corporate plan), saying implementation of these

96 *Committee Hansard*, 12 March 2015, p. 4.

97 Mr Bill Morrow, *Committee Hansard*, 26 September 2014, p. 46.

98 *Journals of the Senate* No.62, 29 October 2014, p. 1675.

99 *Committee Hansard*, 11 July 2014, p. 80.

required 'making assumptions about future outcomes that carry high levels of uncertainty at the time of publishing the 2014-17 corporate plan'. These included:

- the 'recommendations, subsequent policy decisions, and industry reaction' to the Vertigan Panel's Cost-Benefit Analysis and the 'Scales review' of the NBN policy process;
- finalisation of the revised Definitive Agreements between NBN Co and Telstra, and the revised Optus agreement, and related regulatory approvals, 'which will be relevant to the timing of the rollout';
- NBN Co's 'ability to quickly ramp up' the rollout of FTTP and fixed wireless, and to deploy FTTN and HFC, dependent *inter alia* on NBN Co's negotiations with delivery partners and suppliers, and workforce availability; and
- internal challenges to NBN Co in 'operations, staff/culture, IT systems, processes, planning tools and delivery models' impacting on its ability to complete the many tasks necessary to transition to, and rapidly deploy, the MTM model.

2.76 Given these uncertainties, NBN Co advised that the corporate plan 'should be viewed as a transition plan for NBN Co'.¹⁰⁰

2.77 The plan provided rollout estimates and financial projections for FY2014-15, including \$160 million in revenue and \$5.5 billion in expenditure.¹⁰¹ These projections, covering a forward period of less than eight months from the release of the corporate plan, were nonetheless heavily qualified:

While the FY2015 Estimates are based on NBN Co's best considered professional assessment, NBN Co's officers... do not give any guarantee or assurance to any third party that the results, performance or achievements expressed or implied by the FY2015 Estimates will actually occur, and such FY2015 Estimates should not be relied on or considered to be a representation of what will happen...¹⁰²

2.78 Beyond FY2015, no new forecasts were offered. The 2014-17 corporate plan provided no deployment metrics beyond June 2015, and only a few broad financial assumptions for 2020, drawn from the Strategic Review. No details were provided about executed contracts and values.

2.79 The corporate plan stated that:

NBN Co is not in a position to generate forecasts with a reasonable level of confidence for FY2016 and FY2017. Therefore any operational and financial data for FY2016 and FY2017 are long range assumed, possible outcomes, not a forecast (or FY2016-2017 assumptions).¹⁰³

100 NBN Co Limited, *Corporate Plan 2014-17*, 11 November 2014, pp 5-6.

101 NBN Co Limited, *Corporate Plan 2014-17*, 11 November 2014, p. 44.

102 NBN Co Limited, *Corporate Plan 2014-17*, 11 November 2014, p. 4.

103 NBN Co Limited, *Corporate Plan 2014-17*, 11 November 2014, p. 6.

2.80 Despite having prepared a detailed plan by late 2014 for the NBN rollout up to June 2016, NBN Co maintained that it was unable to detail any cost and revenue forecasts beyond June 2015, advising the committee again in December 2014 that 'we are still working through that'.¹⁰⁴

2.81 Mr Morrow told the committee that:

the release of our 2014 to 2017 corporate plan represented another important milestone. We were very open about its content, and I think that the various media commentators accepted that it was, by necessity, a transition plan and largely focused on an FY 2015 forecast. I know you may ask why. The reason is that we still do not have absolute certainty on all the inputs that you need to finalise a detailed financial and operational model that underpins such a forward-looking strategy. Our shareholders accept this and we prefer to be up-front with our other stakeholders as well.

We are currently in the process of working through the operating and financial plan that will be completed once we have all of the inputs finalised. I can assure you that the result of this work will form the basis of a more relevant three-year corporate plan extending out to June 2018. It is this plan that will be the crucial guide as we move into the key period of the rollout.¹⁰⁵

2.82 Giving evidence to the committee on 4 December 2014, Chief Financial Officer Mr Stephen Rue insisted that the company had completed no revised forecasting of costs and revenues beyond June 2015, in the 12 months since the publication of the Strategic Review:

Mr Rue: What we have is the 2015 budget, which is what you see in the corporate plan. What we also have is the strategic review. We are, as I said in my opening statement to the Senate estimates committee, currently working on a longer range plan which will expand on the strategic review and will also be possible to do once the final deals are done with a certain large telecommunications company. What I think Mr Morrow was referring to is that, when one looks at a rollout plan, one considers many things, including potential revenues in certain areas and certain costs.

Senator CONROY: Yes, they are usually referred to as forecasts.

Mr Rue: Forecast of costs and revenues, correct, but that is different from doing a long-term plan.

Senator CONROY: So you have no idea what the forecasts are for your revenue over the next four years?

Mr Rue: We are currently working on a long-range operating and financial plan, which will form part of the 2015 to 2018 corporate plan.

104 Mr Bill Morrow, *Committee Hansard*, 2 December 2014, p. 24.

105 Mr Bill Morrow, *Committee Hansard*, 2 December 2014, p. 2.

Senator CONROY: So I repeat: you are the chief financial officer of a company that is looking to spend \$40 billion and you have no idea of your forecasted revenue or forecasted costs past 2015?

Mr Rue: To say we have no idea is not correct. We have the strategic review that was done in November-December last year. On top of that we need to do obviously a detailed long-term plan, which is what we are working on.¹⁰⁶

...

Senator CONROY: Let us be very clear. You are now saying the most up-to-date revenue and costs for your company were prepared in December 2013. That is your evidence to this committee.

Mr Rue: At this moment in time, that is the best set of numbers we have.¹⁰⁷

External oversight of the corporate plan

2.83 Under the previous government and former management of NBN Co, NBN Co corporate plans were subject to independent external review. The 2011-13 Corporate Plan was reviewed by Greenhill Caliburn, the 2012-15 corporate plan by KPMG, and the 2013-16 corporate plan by both KPMG and Ernst & Young. This process has been cancelled under the current government.

2.84 The Department of Communications advised that NBN Co's 2014-17 corporate plan was reviewed by shareholder minister departments (Communications and Finance) under the 'ownership' of NBN Co's shareholder ministers, with 'expert input' from two consultants engaged by the department.¹⁰⁸ Secretary Mr Drew Clarke advised the committee that:

The difference between models is that previously the department, on behalf of stakeholder ministers, engaged a consulting firm to undertake a review. In the model we have applied this year, departmental officers, supported by those two advisers, undertook the analysis themselves, including extensive consultation and engagement with the company.¹⁰⁹

2.85 Mr Clarke noted that the consultants engaged were Mr Chris Martin from 333 management and Mr Robert James from iMediate Consulting. Mr Clarke also acknowledged that one of the two external experts engaged by the department—Mr Chris Martin—had also worked on the Strategic Review, and was engaged on that basis. Mr Clarke rejected the suggestion that there was any conflict of interest in these arrangements for review of the corporate plan.¹¹⁰

106 *Committee Hansard*, 4 December 2014, p. 2.

107 *Committee Hansard*, 4 December 2014, p. 3.

108 Senate Standing Committee on Environment and Communications, *Committee Hansard*, Supplementary Budget Estimates, 25 November 2014, p. 23.

109 Mr Drew Clarke, *Committee Hansard*, 3 October 2014, pp 28–29.

110 *Committee Hansard*, 3 October 2014, pp 31, 34–35.

The revised Definitive Agreements

2.86 Uncertainty regarding the finalisation of revised agreements between NBN Co and Telstra for the acquisition of its copper and HFC networks was an ongoing preoccupation in 2014.

2.87 In April 2013, Minister Turnbull signalled that the Revised Agreements would be done 'speedily'.¹¹¹ He subsequently indicated that they would 'certainly' be complete by mid-2014.¹¹² The government's predictions of completion by mid-year failed to be realised. It is now clear that this target was missed by a considerable margin.

2.88 On 14 December 2014 the government finally announced the revised Definitive Agreements between the government, NBN Co and Telstra Corporation. Ministers Turnbull and Cormann stated that:

Under the agreements NBN Co will progressively take ownership of many parts of Telstra's copper and HFC cable networks and use this infrastructure in the NBN, at no additional cost to taxpayers.¹¹³

2.89 NBN Co, in its media release announcing the agreements, was less definitive on the cost to taxpayers, saying: 'the progressive transfer of the copper and HFC assets to NBN Co involves no overall additional cost to the taxpayer.'¹¹⁴

2.90 Implementation of the revised agreements remains subject to several conditions precedent, including approval by the Australian Competition and Consumer Commission (ACCC) of a revised Migration Plan. Telstra's Tony Warren indicated on 14 December 2014 that 'we hope to have the conditions precedent satisfied in the first half of next year [2015]'.¹¹⁵

2.91 Meanwhile, negotiations with Telstra would continue for the provision of 'planning, design, construction and maintenance services' which would be subject to separate payment, on commercial terms, and regulatory oversight.¹¹⁶ Telstra CEO Mr

111 'Tony Abbott and Malcolm Turnbull – Coalition NBN Policy Launch', 9 April 2013, video at <https://www.youtube.com/watch?v=bKbANwmJyWc>

112 Ben Grubb, 'Malcolm Turnbull expects new Telstra NBN deal in a "few months"', *The Age*, 21 February 2014, at: <http://www.theage.com.au/it-pro/government-it/malcolm-turnbull-expects-new-telstra-nbn-deal-in-a-few-months-20140220-hvdaw.html>

113 The Hon Malcolm Turnbull MP and Senator The Hon Mathias Cormann Minister for Finance, 'NBN Co and Telstra sign revised Definitive Agreements', Media Release, 14 December 2014.

114 NBN Co Limited, 'Landmark deal paves way for faster NBN rollout', Media Release, 14 December 2014, at: <http://www.nbnco.com.au/corporate-information/media-centre/media-releases/landmark-deal-paves-way-for-faster-nbn-rollout.html>

115 Telstra, Analyst Briefing, 14 December 2014, p. 5, at: <http://www.asx.com.au/asxpdf/20141216/pdf/42vhl1z1qb711z.pdf>

116 The Hon Malcolm Turnbull MP, Minister for Communications & Senator the Hon Mathias Cormann, Minister for Finance, 'NBN Co and Telstra sign revised Definitive Agreements' Joint Media Release, 14 December 2014, at http://www.minister.communications.gov.au/malcolm_turnbull/news/nbn_co_and_telstra_sign_revised_definitive_agreements.

David Thodey indicated that if Telstra took on this contract it would be at Telstra's gross margin of '20, to the mid 25, margin level'.¹¹⁷

2.92 Telstra disclosed the detail of the agreements to the Australian stock exchange on 14 December 2014. This included a media release, a comprehensive background document setting out the changes to the original agreements, a presentation, and a recording and transcript of an analyst briefing to investors. By contrast, NBN Co, on behalf of the taxpayer, issued a single press release and no detail.¹¹⁸

HFC

2.93 At the public hearing on 12 March 2015, NBN Co indicated that—unlike the copper network—they cannot choose which parts of Telstra's HFC network they take for the NBN. Under the Revised Agreements, once the first HFC line is taken by NBN Co, NBN Co is committed to take Telstra's entire HFC network:

Senator CONROY: Do you have to take all of [the HFC]? Is there a minimum you have got to take off Telstra? I will start with Telstra. How does it work? You mentioned it in your opening statement but it was a little unclear to me from that, so I want to draw from you what the arrangement for the HFC is.

Mr Rousselot: The HFC network is a network as a whole, so we have the option to use that network where we want to. There are areas where we will use that HFC network to roll out the NBN high-speed network. There are areas where we won't. However, the network that we take over is a network in its entirety. So once we start including the HFC network in our rollout...once we start rolling out HFC, yes, we are taking the entirety of the network.¹¹⁹

2.94 NBN Co appeared unclear on the trigger point—the point of no return after which NBN Co is committed to taking Telstra's entire HFC network:

Senator CONROY: what is the trigger point where you take full control of both networks—or is it just the Telstra one at this stage?

Mr Rousselot: The Telstra one. First of all, we do not take control of the entire Telstra HFC network the moment we start. The ownership transfer is progressive and therefore happens—

Senator CONROY: But you do not know where your responsibility is? You can't cherry pick, though, can you?

Mr Rousselot: No. However, once we have started in one region—and so to answer your question—the trigger point is when we would end up being committed to doing the HFC network and to take it over would be

117 Telstra, Analyst Briefing, 14 December 2014, p. 13, at: <http://www.asx.com.au/asxpdf/20141216/pdf/42vhl1z1qb711z.pdf>

118 NBN Co Limited, 'Landmark deal paves way for faster NBN rollout', Media Release, 14 December 2014, at: <http://www.nbnco.com.au/corporate-information/media-centre/media-releases/landmark-deal-paves-way-for-faster-nbn-rollout.html>

119 *Committee Hansard*, 12 March 2015, p. 45.

when we confirm to Telstra that we are indeed rolling out, using HFC in a particular region.

Senator CONROY: So you do not actually have to start the physical construction? You just say: 'Right, we're doing the design. We're definitely using it in this area.' That is the point. So it is not like when someone knocks on your door and says, 'I've come to install your lead-in?'

Mr Rousselot: I will have to check the exact trigger. It might be that it is actually on the first ready-for-service declaration of an HFC area. I do not know whether it is on the first ready-for-service or whether it is on the confirmation of the design of that area. I will have to check that point in time for you, if you want.¹²⁰

2.95 It was also revealed at this hearing that under the new HFC 'Continuity Deed', NBN Co has an open-ended obligation to maintain the HFC network for as long as Telstra wishes to use it for pay TV services:

Senator CONROY: NBN have to maintain the HFC—keep it operational—for as long as Telstra want to provide, or Foxtel-Telstra want to provide, pay TV services?

Mr Rousselot: Yes we do....We will be using and maintaining it and upgrading it for the purpose of providing the broadband, therefore the small increment of providing the maintenance for the ability to continue to provide the pay TV services through that part of the spectrum that it licenced to Foxtel will be a small portion and Telstra—

Senator CONROY: Are you billing Foxtel for it?

Mr Rousselot: Yes, well not Foxtel but Telstra will be contributing to that cost of maintenances as part of the continuity arrangement with them.

Senator CONROY: So, there will be no subsidy from NBN in any way shape or form, an effective subsidy by maintaining Foxtel's ability to keep using the HFC?

Mr Rousselot: We will continue to charge Foxtel, sorry Telstra indirectly, probably Foxtel, but we will continue ourselves to charge Telstra for their contribution of the maintenance and operation of the HFC network as long as they keep using part of the spectrum to provide pay TV on it.¹²¹

2.96 Costs for maintaining legacy networks (like the HFC) are expected to increase over time. However, Mr Rousselot indicated that the amount Telstra pays NBN Co to access to HFC for PayTV is only indexed to CPI:

Senator CONROY: The rent is fixed?

120 *Committee Hansard*, 12 March 2015, p. 46.

121 *Committee Hansard*, 12 March 2015, pp 46–7.

Mr Rousselot: We have an agreed formula for how much we will be charging Telstra for their licence to use part of the HFC network.

Senator CONROY: You cannot vary that at all? It was signed up beforehand?

Mr Rousselot: That formula is agreed and will therefore continue....

...

Senator CONROY: Now, the rental fee we are charging Telstra to maintain the cable...Obviously costs increase over time. Is that an increasing cost?

Mr Rousselot: It is a formula that includes a CPI indexation, yes.¹²²

2.97 The committee notes that the political rhetoric around the HFC post-election was that it provided NBN Co with 'flexibility' and 'optionality'. For example, at the signing of the Revised Agreements, Minister Turnbull said:

What this deal does is give NBN Co the flexibility, the optionality that it would have were it the incumbent telco. So it has the options of going FTTP, using the copper in FTTN, FTTB, FTTdp; all of those hybrid fibre-copper technologies are now available, where they weren't before. And of course you've got the ability to use the HFC, which is capable – particularly when you upgrade to DOCSIS 3.1 – of 400Mbps, really an absolutely super-fast fibre-like network.¹²³

2.98 This statement is not accurate in the case of Telstra's HFC network. NBN Co has no real flexibility in this footprint—once it takes the first HFC line, it has a liability to take all the Telstra HFC and keep it operational for PayTV. There are also restrictions on its sale, 'particularly to large RSPs'.¹²⁴ There is no scenario where NBN Co would take ownership of an entire asset, pay to maintain the entire asset, and then only select parts of the asset to use for broadband. In other words, in the vast majority of Telstra's HFC footprint, NBN Co has no 'optionality or flexibility' at all.

Copper

2.99 Telstra indicated to the ASX upon the deals being signed that there would be no guarantees on copper acquired by NBN Co—it would be handed over on an 'as is, where is' basis.¹²⁵ This was confirmed by Mr Rousselot at the 12 March 2015 public hearing:

Senator CONROY: Now, have NBN managed to secure any fitness guarantees or any minimum standards on the copper?

122 *Committee Hansard*, 12 March 2015, p. 46.

123 Petroc Wilton, 'NBN Co and gov't sign off new Telstra, Optus deals', *CommsDay*, 15 December 2014.

124 Telstra, Overview of changes to Telstra's NBN Definitive Agreements, 14 December 2014.

125 Telstra, Analyst briefing presentation, 14 December 2014, at: <http://www.asx.com.au/asxpdf/20141215/pdf/42vgkf12mxbyvb.pdf>

Mr Rousselot: No, we are acquiring the copper where we decided we want it, but when we do acquire it, it is on a as is where is basis.

Senator CONROY: As is?

Mr Rousselot: Where is basis.

Senator CONROY: Okay, it is whatever is in the ground.

Mr Rousselot: Yes.

Senator CONROY: And Telstra do not have to remediate it?

Mr Rousselot: No, no copper remediation.¹²⁶

2.100 At the 24 February 2015 estimates hearing, it was revealed that NBN Co did not obtain data from Telstra on the operational costs associated with the copper network:

Senator CONROY: So Telstra did not tell you what their maintenance cost was before you bought the copper off them. I am not asking you to reveal it. I am just saying that you bought the network and Telstra did not bother to tell you what their maintenance cost was.

Mr Morrow: We made some assumptions based on what we think the cost would be.

Senator CONROY: So Telstra did not tell you what the cost would be?

Mr Morrow: I am not aware of that with the deal team, so at this point I would say no.¹²⁷

2.101 However, during the 12 March 2015 public hearing, Mr Rousselot noted that Telstra had supplied 'aggregate' data on the operations and maintenance costs of the copper network:

Senator CONROY: You are taking on board the operations and maintenance liability from the moment ownership is transferred—that is correct?

Mr Rousselot: Yes. Of the copper network—

Senator CONROY: Yes, the copper network. So, what detailed costing did they give you before you bought this dog?

Mr Rousselot: They are provided us aggregate numbers in terms of maintenance, operating and maintenance cost at a split by different categories, which enabled us to ascertain what the portion of the network that we would take over was and the minutes that were associated with it.¹²⁸

126 *Committee Hansard*, 12 March 2015, p. 52.

127 Environment and Communications Legislation Committee, *Estimates Hansard*, 24 February 2015, pp 130–131.

128 *Committee Hansard*, 12 March 2015, p. 55.

2.102 Mr Rousselot confirmed on 14 December 2014 that NBN Co would take responsibility for the costs of remediating the pits and ducts, although he claimed that this would be a 'dramatically' reduced liability under MTM, because there would be no need to re-use the HFC and copper pipes for fibre. This issue was discussed at Telstra's 14 December 2014 analyst briefing to investors. (Then) Telstra CFO Mr Andy Penn noted that:

We've negotiated reduced duct remediation obligations under this change as well. And NBN Co will now be responsible for remediation of ducts and pits in the fibre-to-the-node and HFC regions. And, further, we have also capped our remediation obligations within the FTTP regions.

In other words, we have transferred the majority of the responsibility for remediation to NBN Co. And in return for that we have also provided a credit relevant to the proportion of remediation responsibility we've passed over from the original budget that we set for remediation back in the original deal in 2010, when we did that math back then.¹²⁹

2.103 In terms of the quantum of remediation costs and the credit remitted to NBN Co, Mr Penn said:

On the second point around the cash cost of the remediation, we made a budget for what we thought the remediation would be back in 2010. I don't think we disclosed separately what that was or is, so I'm not in a position to share that with you today, but essentially the agreement that we've got—or the deal that we're doing is that we're, as Tony said, basically passing over the majority of the remediation obligations and responsibility to NBN Co, so we eliminate all of the risk—the cost that we incur. It is greater than what we originally budgeted and we—for that, we basically provide them a pro-rata of the original budget that we had as a credit. So they sort of simply take that as a credit, because then they have all of the ongoing liability and obligation to do the remediation, but we haven't disclosed those numbers, but I think it's an important protection for us; it gives us risk mitigation and financial security on that point.¹³⁰

2.104 It is clear from this testimony that Telstra has fixed its remediation exposure at its 2010 estimate, even though the costs to date have been higher. The risk of remediation cost increases in the future—particularly when upgrades are required—have been transferred directly to the taxpayer.

2.105 Under the revised agreements, NBN Co has taken on full responsibility for remediation in HFC and FTTN areas, and in FTTP areas where NBN Co decides to roll out FTTP beyond Telstra's remediation cap. It is unclear whether these arrangements have resulted in the transfer of a potential asbestos liability to the Commonwealth. This issue was raised with the Department of Communications at the

129 Mr Andy Penn, Telstra Analyst Briefing, 14 December 2014, p. 3, at: <http://www.asx.com.au/asxpdf/20141216/pdf/42vhl1z1qb711z.pdf>

130 Mr Andy Penn, Telstra Analyst Briefing, 14 December 2014, p.12, at: <http://www.asx.com.au/asxpdf/20141216/pdf/42vhl1z1qb711z.pdf>

12 March 2015 public hearing, but the Department did not divulge the nature of the advice it provided Government on the issue, instead deferring to NBN Co:

Senator CONROY: I am trying to understand whether you are aware of the size of the liability that has been transferred to the Commonwealth, particularly given the issues to do with asbestos, which are well documented and which both you and I worked on.

Mr Robinson: I am aware of all the issues involved and, as I said, we provided advice to the government. NBN Co will be here later today for a considerable period, and I know that they are prepared to answer questions on this issue.¹³¹

2.106 NBN Co was no more forthcoming on this issue when asked:

Senator CONROY: My concern is, and you possibly heard me having this discussion with Mr Robinson earlier, asbestos is not just in the pits to the home, it is also in other parts of Telstra's network like in exchanges, like in and around pillars. Are you aware of that?

Mr Rousselot: Yes I am.

Senator CONROY: Did you have a discussion with Telstra about that?

Mr Rousselot: Not in the details of it but, yes, I am aware of it.

...

Senator CONROY: If you have to open up a pit and it has asbestos in it, what? You are calling in Telstra?

Mr Rousselot: No, that will be our responsibility.¹³²

2.107 Under the Revised Agreements, when NBN Co takes ownership of the copper and HFC assets, Telstra will transfer the data pertinent to the operations and maintenance of those assets. Telstra noted on 14 December 2014:

Telstra has agreed to provide network data to NBN Co which NBN Co requires to enable it to undertake the MTM rollout. The parties have also agreed to either modify or create new IT interactions for the exchange of data between them, to support the undertaking by NBN Co of the MTM rollout.¹³³

2.108 At the 12 March hearing, NBN Co confirmed that it was not taking ownership of Telstra's legacy IT systems, indicating instead that NBN Co will be building new IT systems to accommodate Telstra's network data:

131 *Committee Hansard*, 12 March 2015, p. 8.

132 *Committee Hansard*, 12 March 2015, p. 56.

133 Telstra Corporation Limited, 'Overview of the changes to Telstra's NBN Definitive Agreements', 14 December 2014, p. 12, at: <http://www.telstra.com.au/abouttelstra/download/document/asx-announcement.pdf?ssSourceSiteId=aboutus>

Senator CONROY: So, you are building an entire—I am trying to understand whether you are augmenting the existing OSS PSS, you know the IT network or you are building one next to it, for running the HFC and the copper.

Mr Rousselot: I think at the aggregate level I would describe it as a mix of both and it is again a part of the details of that—of part of that plan that was put together.

Senator CONROY: Okay. So, you are not actually, as we agreed, taking on Telstra's IT network.

Mr Rousselot: That is correct.

Senator CONROY: They will just give you the data and you have enter it into your new system once you have built it.

Mr Rousselot: That is correct.¹³⁴

2.109 In its 2014-17 corporate plan, NBN Co acknowledged the challenge for the organisation of adapting its operational and business support systems (OSS/BSS) to deal with multiple technologies:

In preparing for the MTM approach, it will be necessary to upgrade or replace some of NBN Co's foundation IT capabilities and systems. For OSS/BSS, the new operating model will necessitate a more effective governance and planning process to align construction, IT and business change and modifying existing OSS/BSS systems and associated operational processes to support FTTx, Copper, HFC, Fixed Wireless and Satellite services. For example, this might include provision of data from Telstra and Optus for HFC Cable Networks to address master data, adding modules to configure and enable layer 2 integration, modifying systems to handle change, fault and order management integration with Telstra and/or Optus and finally in-sourcing HFC inventory, activations, design, network management and assurance services onto NBN Co OSS/BSS (over time).¹³⁵

2.110 When questioned about the IT costs expected from the MTM rollout, NBN Co personnel indicated that the IT costs would be significant:

Mr Rue: Obviously a significant piece of what we have to do is new IT systems, you are quite correct, and the data transfers are a key part of that.

Senator CONROY: It is the most massive part—it is labour intensive.

Mr Rousselot: It will be.

Mr Rue: It will be, yes.¹³⁶

134 *Committee Hansard*, 12 March 2015, p. 60.

135 NBN Co Limited, *Corporate Plan 2014-17*, 11 November 2014, p. 24.

136 *Committee Hansard*, 12 March 2015, p. 61.

2.111 However, NBN Co was not forthcoming on the quantum of these costs, or the companies which would be engaged:

Senator CONROY:...The operational costs of running four networks is greater—or three networks—is greater than running one network. Right?

Mr Rousselot: At an aggregate level those are correct assumptions.

Senator CONROY: Your IT systems costing more?

Mr Rousselot: Yes they are.

Senator CONROY: What is it costing?

Mr Rousselot: This will be a part of the—

Senator CONROY: Another hidden cost.

Mr Rousselot: —corporate plan we are putting together.

Senator CONROY: Another, I refuse to answer the question, cost?

Mr Rousselot: No. I am not refusing the question. I am saying that there is a corporate plan that is under preparation and when it is ready we will be more than happy to share—

Senator CONROY: There was a corporate plan delivered in December ...you must have had some estimate back then of what your IT network was going to cost.

Mr Rousselot: The corporate plan that was delivered for the period FY 14 to FY 17 included detailed information for the year FY 14, so 14 and 15, and included only limited information for 16 and 17 given that—¹³⁷

2.112 Under the Revised Agreements, Telstra will also be reimbursed its costs from shifting from the FTTP to the MTM policy model.¹³⁸ Mr Rousselot stated that Telstra may receive further compensation from NBN Co for the provision of data on network topology, maintenance history and other issues: 'We'll be reimbursing them the fair costs, and there is a margin in there'.¹³⁹

2.113 Telstra indicated on 14 December 2014 that the revised agreements incorporated the 'removal of the Take or Pay (TOP)/Provide or Pay (POP) regime for ducts and [lead in conduits]'.¹⁴⁰ Under the original agreements, NBN Co negotiated fitness guarantees for the lead-ins NBN Co was purchasing. It is clear that these fitness guarantees have been conceded in the revised agreements.

137 *Committee Hansard*, 12 March 2015, pp 59–60.

138 Telstra Corporation Limited, 'Overview of the changes to Telstra's NBN Definitive Agreements', 14 December 2014, p. 15, at: <http://www.telstra.com.au/abouttelstra/download/document/asx-announcement.pdf?ssSourceSiteId=aboutus>.

139 Josh Taylor, 'NBN Co to take over Telstra, Optus networks in new deals', *ZDNet*, 14 December 2014, at <http://www.zdnet.com/article/nbn-co-and-telstra-sign-amended-11-billion-deal/>

140 Telstra, Overview of Changes to Telstra's NBN Definitive Agreements.

2.114 At the December 2013 public hearing, it was revealed that two NBN Co executives—Mr Adcock and Mr Rousselot—held Telstra shares.¹⁴¹ Dr Switkowski indicated that an NBN Co board member also held Telstra shares but had 'undertaken to divest himself of those shares'. At the 12 March 2015 public hearing, Mr Rousselot—who headed up the negotiations with Telstra on behalf of the taxpayer—told the committee that he still holds Telstra shares:

I own a number of Telstra shares that have been disclosed on the first day I joined the company...all I can say is throughout the conduct of the negotiation I have on numerous occasion reminded the board and my colleagues of the limited shareholding of Telstra shares.¹⁴²

The cost per premises review

2.115 On 24 February 2015, NBN Co released another review—this one on the cost per premises of FTTP brownfields, FTTP greenfields and fixed wireless. NBN Co CEO Mr Bill Morrow said of this review:

This is an essential piece of work with the experience we have to date to determine the true and full cost of building the network in FTTP brownfields, FTTP greenfields and the fixed wireless areas. The analysis is that our CPP for brownfields life to date is \$4,316; for greenfields it is \$2,780 and for fixed wireless it is \$3,637. These are fully allocated costs, and represent the cost of building a connection from the transit network to the customer or RSP equipment. Accordingly, the costs include items of CAPEX which has long-term duct lease cost in brownfields, temporary transit fibre network in greenfields and long-term ground and tower leases in the fixed wireless footprint. We think it essential that these costs and their definitions are fully explained to assist us in our own future planning, as well as to be transparent with the Australian public on the full cost per premises.¹⁴³

2.116 In April 2013, NBN Co tabled a full breakdown of the cost per premises at a public hearing of the Joint Parliamentary Committee into the National Broadband Network. This document set out clearly how capital costs were allocated under previous management. See figure 3.

2.117 It also made clear that lease costs to Telstra for ducts and other infrastructure were accounted for as operational expenditure. See figure 4.

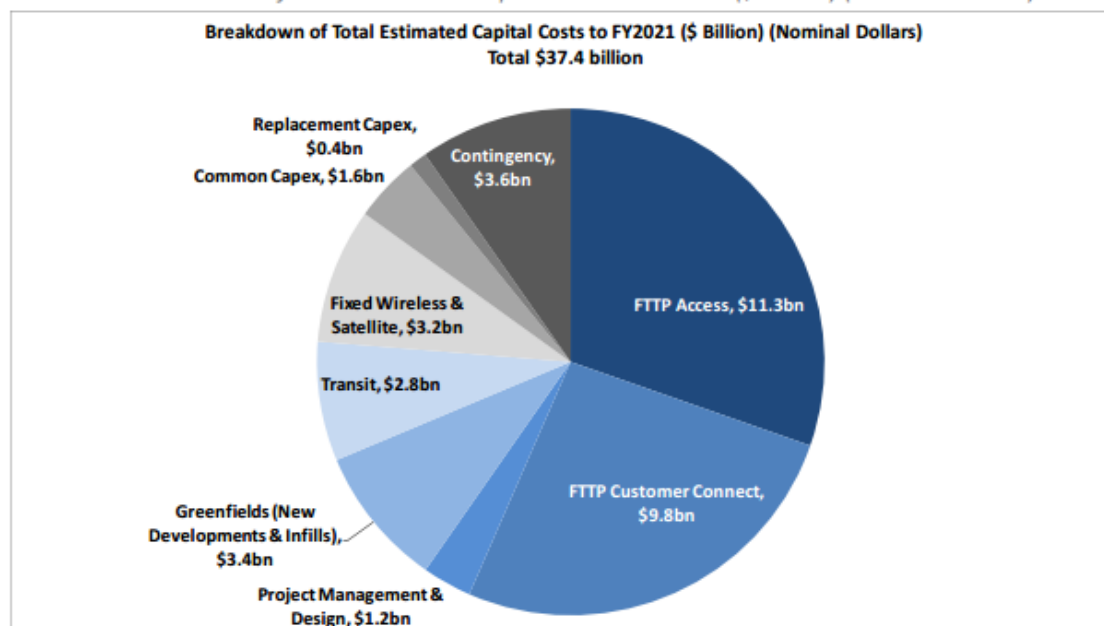
141 *Committee Hansard*, 17 December 2013, p. 64.

142 *Committee Hansard*, 12 March 2015, p. 63.

143 Environment and Communications Legislation Committee, *Proof Estimates Hansard*, 24 February 2015, p. 104.

1 Capital Expenditure

Exhibit 1-1: Breakdown of Total Estimated Capital Costs to FY2021 (\$ Billion) (Nominal Dollars)

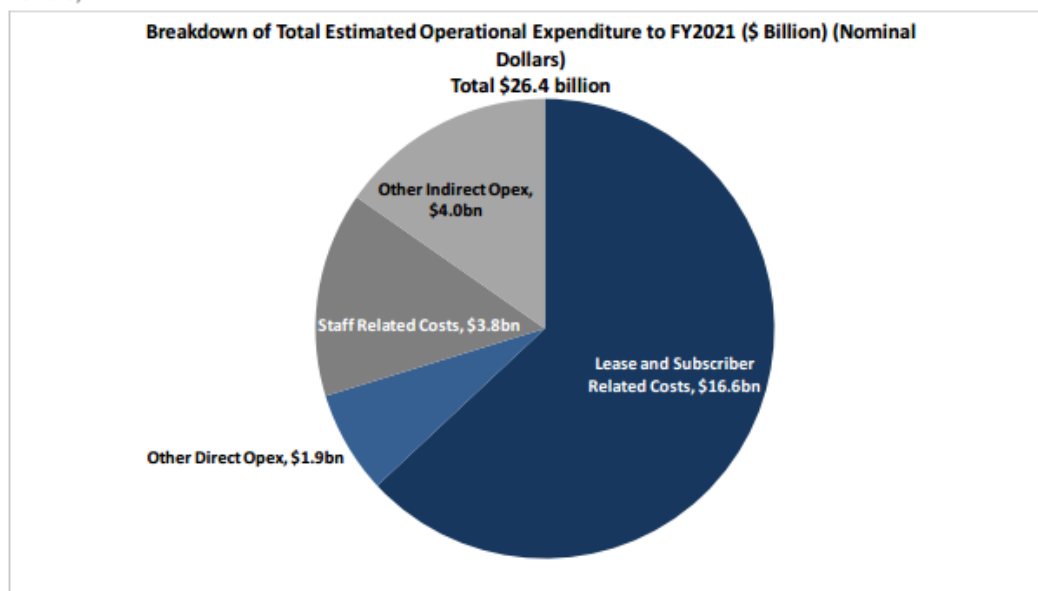


Source: NBN Co, 2012-15 Corporate Plan

Figure 3: Breakdown of Capital Expenditure (April 2013)¹⁴⁴

2 Operating Expenditure

Exhibit 2-1: Breakdown of Total Estimated Operating Expenditure to FY2021 (\$ Billion) (Nominal Dollars)



Source: NBN Co, 2012-15 Corporate Plan

Figure 4: Breakdown of Operating Expenditure (April 2013)¹⁴⁵

144 NBN Co Limited, *Report to Parliamentary Joint Committee on the National Broadband Network*, 19 April 2013, p. 4, at: <http://www.nbnco.com.au/content/dam/nbnco/media-releases/2013/report-to-parliamentary-joint-committee.pdf>

2.118 To arrive at its new cost per premises numbers, NBN Co made some accounting changes to include elements that had not to date been included in the cost per premises. These changes included reclassifying as capital expenditure Telstra duct lease costs and internal labour, which were previously accounted for (for internal management purposes) as operating expenditure. On the duct leases, Chief Financial Officer Mr Rue told a Senate Estimates hearing in February 2015 that:

Turning to duct leases, our arrangements with Telstra mean that we have a 35-year right to use a arrangements for ducts used in LNDN. You can see that I have subtotaled the first two items, and this is below the subtotal. For management or internally reported purposes, we treat these as operating expenses. It is easier for our team to track payments in this way. I can only assume for that reason that they were previously not considered part of capital cost. They were, of course, included as an operating cost.¹⁴⁶

2.119 Mr Rue also explained that \$131 of the cost increase was due to the capitalisation of internal labour:

I am talking about people who are directly involved in building either the infrastructure or maybe an IT build, which is separate from this discussion. The costs of that should be recognised as a capital item. When we had a look at the amount to which we were capitalising labour, it was felt that it was understated. I said in my remarks that the variance from previous practice added \$131 per premise over the FTTP brownfield landscape. So the \$131 increase is not year-on-year. This is just from what was previously done.¹⁴⁷

2.120 Mr Rue confirmed this during the public hearing of 12 March 2015:

To be clear, what I tried to do last time was to explain. Again, to use your terminology, the reason I told the 131 was I wanted you to know where there was a different accounting treatment.¹⁴⁸

2.121 Mr Rue also confirmed that \$39 of internal labour had been reclassified in customer connect costs:

Mr Rue: The \$39 is labour capitalised—additional people we have internally working on this, because the activations process has obviously accelerated.

Senator CONROY: Sorry, \$39 is—

Mr Rue: Internal labour.

145 NBN Co Limited, *Report to Parliamentary Joint Committee on the National Broadband Network*, 19 April 2013, p. 12, at: <http://www.nbnco.com.au/content/dam/nbnco/media-releases/2013/report-to-parliamentary-joint-committee.pdf>

146 Environment and Communications Legislation Committee, *Estimates Hansard*, 24 February 2015, p. 106.

147 Environment and Communications Legislation Committee, *Estimates Hansard*, 24 February 2015, p. 115.

148 *Committee Hansard*, 12 March 2015, p. 41.

Senator CONROY: So that is also a new number that has been added in, that probably was not in the other numbers before.

Mr Rue: Correct.¹⁴⁹

2.122 At the public hearing on 12 March 2015, NBN Co noted that it is not the practice internationally to capitalise duct costs as part of the cost per premises:

Senator CONROY: On page 13 of the strategic review it says ‘Internationally, the cost of rolling out a new FTTP network in countries most comparable to Australia ranges from \$1,100 - 1,300 per premises.’ Mr Rousselot, I assume you are very familiar with this document. Are you familiar with this page?

Mr Rousselot: Yes, I am.

Senator CONROY: Can you confirm for us whether this figure includes a capitalised duct lease component?

Mr Rousselot: I do not know the answer to that question. I will have to take that on notice. I would say that from an international comparison perspective it will be hard to find a situation similar to ours.

....

Senator CONROY: I am just asking if the 1,100 to 1,300 that Mr Rousselot put in his report would include a capitalised figure of the build of the ducts.

Mr Rue: I do not believe it would. That is why I think it is important that we define our cost-per-premise the way we do; to recognise the fact that we do have to do that. I am just trying to make sure that Mr Rousselot's report, your new configuration, is comparing apples with apples. That is what I am trying to establish about the figure that Mr Rousselot and company published, as its comparison points would have included those things. I think you are right. It would not have.¹⁵⁰

2.123 It was also made clear that the reclassification of certain costs—previously accounted for as operating expenditure for internal purposes, and now classified as capital expenditure—had no effect on any of the headline financial metrics of the project:

Senator CONROY: I presume we are also agreed that both treatments of the duct lease costs—either the way you have chosen to do it or the way that NBN Co previously chose to do it—makes absolutely no difference to the IRR. I think I asked you that last time.

Mr Rue: It makes no difference to the IRR. Nor does it make a difference to the cash.

Senator CONROY: So no different to the IRR, no difference to cash flow, no difference to peak debt or other key financials, as these items

149 Environment and Communications Legislation Committee, *Estimates Hansard*, 24 February 2015, p. 113.

150 *Committee Hansard*, 12 March 2015, pp 18–19.

were already accurately captured by previous management, but simply shown in a different place.

Mr Rue: Assuming it was accurately captured, yes.

Senator CONROY: No; I am not disputing the quantum. We will get to the quantum movements. I am just talking about the IRR, cash flow, peak debt and other key financials. There was no change.

Mr Rue: There is no change.¹⁵¹

2.124 In sum, according to the cost per premises review, a significant chunk of the cost increase in FTTP brownfields is due to the reclassification of costs previously accounted for as operating expenditure, changes which have no effect on the headline financials of the project. This includes the capitalisation of Telstra duct leases, adding \$737 to the cost per premises, and the capitalisation of internal labour, adding another \$131 (LNDN) and \$39 (customer connect). With reclassifications excised from the cost per premises for brownfields, the cost is \$3,409 according to the review.

2.125 This cost is significantly lower than the cost per premises for brownfields FTTP assumed in the 'revised outlook' in the Strategic Review (which did not include these costs in the cost per premises for brownfields FTTP). The revised outlook assumed that the cost per premises for brownfields FTTP would be closer to \$4,100—and that the cost would remain about this high for the entire length of the FTTP build out to the reforecast end date of 2024, with provision for 'efficiencies' of 2.5 per cent in FY2017 and FY2018 only.¹⁵²

2.126 A number of the other cost increases included in the cost per premises review may be attributed to rate increases and claims settled under current NBN Co management. This was made clear during the 24 February 2015 hearing of the Senate Estimates committee. On the settlement of claims for the LNDN:

Mr Morrow: Mr Rue, with the dispute category of the \$4,300 we are talking about on FTTP brownfield, how much of that do you think is in there? It is not fair to call them legal disputes or settlements.

Senator CONROY: Call them ambit claims, just for simplicity.

Mr Rue: I think it is about \$120 of the \$4,316—related to that.

Senator CONROY: I see. We are going back to the end. The ambit claims that were settled are about \$120 worth of the \$4,300. So if I ignore the entertainment of the duct leases, it is \$120 as against—was this LNDN or customer connect or both?

Mr Rue: It is LNDN.¹⁵³

2.127 This was confirmed at the 12 March 2015 hearing of this committee:

151 *Committee Hansard*, 12 March 2015, p. 18.

152 NBN Co, Strategic Review, p. 63.

153 Environment and Communications Legislation Committee, *Estimates Hansard*, 24 February 2015, p. 110.

Senator CONROY: You said claims settlements per premise was \$120—that is on page 110 of estimates. So of your \$4,300, and as I said, I am disaggregating a bit, but the \$120 was for claims settlements per premise. Does that sound familiar?

Mr Rue: Yes, it does.¹⁵⁴

2.128 On the rate increases for customer connect:

Mr Rue: In terms of the customer connect...the remaining \$52 relates to additional rates, offset of course by any efficiencies.¹⁵⁵

2.129 On the change in the aerial to underground mix in customer connect:

Mr Rue: In 13 April the aerial mix was 46 per cent. Today, the average aerial across all build is only 13 per cent. So this mix changes the impact of the cost per premises by \$236.¹⁵⁶

2.130 Thirteen per cent aerial seems low—the average aerial component was assumed to be approximately 25 per cent (for the LNDN) in the 2012-15 corporate plan.¹⁵⁷ More information is needed to analyse this issue—an FSAM by FSAM breakdown that includes the distribution of single dwelling units (SDUs) and multi-dwelling units (MDUs). This issue was raised at the 12 March 2015 public hearing, with NBN Co undertaking to provide detailed information on the aerial mix on notice.

2.131 These cost increases—compared to the cost per premises assumed in the 2012-15 corporate plan—are set out in figure 5 below. At the Senate Estimates hearing on 24 February 2015, Mr Rue undertook to provide at the 12 March 2015 hearing of the select committee the quantum of the cost per premises increase (for FTTP brownfields) attributable to rate increases for the LNDN.¹⁵⁸ This information was not forthcoming at the 12 March hearing, so cannot be included in the table below as of the date of publication of this report. NBN Co also took on notice the cost per premises component of project management and design.

154 *Committee Hansard*, 12 March 2015, p. 38.

155 Environment and Communications Legislation Committee, *Estimates Hansard*, 24 February 2015, p. 112.

156 Environment and Communications Legislation Committee, *Estimates Hansard*, 24 February 2015, p. 105.

157 NBN Co, *Corporate Plan 2012-15*, p. 71.

158 Environment and Communications Legislation Committee, *Estimates Hansard*, 24 February 2015, p. 112.

Line item	\$Additional
(2012-15 Corporate Plan CPP = ~\$2,521)	
Telstra duct leases (capitalisation of costs previously accounted for as operating expenditure)	+ \$737
Internal labour (capitalisation of costs previously accounted for as operating expenditure—LNDN)	+ \$131
Internal labour (capitalisation of costs previously accounted for as operating expenditure—customer connect)	+ \$39
SUBTOTAL: CPP addition from capitalisation	+ \$907
Claim settlements (delivery partner claims settled by current management—LNDN)	+ \$120
Claim settlements (delivery partner claims settled by current management—customer connect)	+ \$?
Rate increases (higher rates negotiated by current management for customer connect)	+ \$52
Rate increases (higher rates negotiated by current management for the local and distribution network (LNDN))	+ \$?
SUBTOTAL: CPP addition from capitalisations and rate increases/claims negotiated by current management (not including LNDN rate increases or any claim settlements for customer connect)	+ \$1,079
Aerial mix (difference in the mix of aerial vs underground deployment between April 2013 and February 2015, from 46 to 13 per cent)	+ \$236
Project Management & Design (inclusion of project management and design costs in cost per premises)	+ ?
SUBTOTAL: CPP additions since April 2013 (not including LNDN rate increases, any reclassification of project management & design, and any claim settlements for customer connect)	+ \$1,315

Figure 5: Breakdown of CPP increase in brownfields FTTP

Committee view

2.132 The Coalition went to the 2013 election with promises of a 'cheaper, faster and more affordable' multi-technology NBN. In opposition, Malcolm Turnbull assured Australians that the Coalition's NBN would dramatically speed up the rollout and

reduce costs.¹⁵⁹ The Coalition promised that the NBN would deliver 25mbps to all Australians by 2016, and cost \$29.5 billion in peak funding.¹⁶⁰ The Strategic Review, released in December 2013, demonstrated that these forecasts were nothing short of heroic—the MTM would in fact cost ~\$41 billion and take until 2020 to complete.

2.133 The Melton 10 trial, which NBN Co seemed eager to conceal, provided more evidence of the architecture savings contained in NBN Co's 2013-16 corporate plan and the accompanying Board papers, submitted to the NBN Co Board in September 2013. New and improved equipment and processes are bringing down the costs of the FTTP rollout—that is, the costs of FTTP are coming down, not going up as suggested in the Strategic Review.¹⁶¹ The committee also notes that these architecture and cost savings were included by current NBN Co management in Scenario 2 (the so-called 'Radically-Redesigned FTTP scenario) of the Strategic Review, not the main FTTP scenario, which—according to the Government's own cost per premises review—inflated the cost of FTTP by a significant margin. The committee notes that the Strategic Review underpinned Shareholder Ministers' decision to direct NBN Co to implement the MTM in April 2014.

2.134 Most of the cost increases for FTTP (from the 2012-15 corporate plan) evident in the CPP review may be attributed to higher rates negotiated by current NBN Co management since September 2013, delivery partner claims settled since the same date, and different accounting practices (such as capitalising operational expenditure for Telstra duct leases and internal labour). Moreover, \$4.5 billion in FTTP architecture savings signed off by previous management—attested to by NBN Co personnel as implemented, and borne out by the Melton 10 trial—are not evident in these numbers.

2.135 The committee notes that NBN Co CEO Mr Morrow said of the cost per premises review that a key reason for its release was 'to be transparent with the Australian public on the full cost per premises'.¹⁶² However, as part of this review NBN Co released no cost per premises on the FTTN/B or HFC builds—despite the fact that these technologies are expected to make up the vast majority of the fixed line MTM rollout (approximately 75 per cent according to the Strategic Review and the 2014-17 corporate plan). This gives the cost per premises review the appearance of a political exercise.

2.136 The cost of the MTM remains unknown. NBN Co has offered little more than a restatement of the Strategic Review assumptions in 2014 and 2015, which now appear hopelessly dated. The targets in the Strategic Review are also redacted. The

159 *The Coalition's Plan for fast broadband and an affordable NBN: Background papers*, April 2013, at http://www.malcolmturnbull.com.au/assets/Coalition_NBN_policy_-_Background_Paper.pdf.

160 *The Coalition's Plan for fast broadband and an affordable NBN*, 9 April 2013.

161 Senate Select Committee on the National Broadband Network, *Interim Report*, March 2014, pp 44-51.

162 Environment and Communications Legislation Committee, *Estimates Hansard*, 24 February 2015, p. 104.

committee is deeply concerned about the government's inability to publish a corporate plan with more than seven months' meaningful forecasts—particularly when NBN Co has provided these forecasts to government. This calls into question the veracity of the assumptions for the MTM in the Strategic Review (as previously identified by this committee) and the stated commitments of NBN Co and the government to transparency.

2.137 The public version of the 2014-17 corporate plan contains no forecasts for FY2016 and FY2017, no details of NBN Co's financial model out to 2040 (as per previous corporate plans), and the FY2015 forecasts which are included have been 'lowballed' to such an extent that NBN Co is meeting some of them half way into the reporting period. It is clear that the public version of the 2014-17 corporate plan has had most of the pertinent information and assumptions excised, and the FY2015 forecasts have been manipulated politically.

2.138 In this regard, the committee notes that the independent external review process of NBN Co's corporate plan has been cancelled by this government. NBN Co's corporate plan is now being 'reviewed' by shareholder ministers' own departments and personnel who advised on the original assumptions in the Strategic Review.

2.139 NBN Co refuses to divulge the value of the contracts it has entered into on behalf of the taxpayer on the basis that it would harm its commercial prospects, despite the fact that the value of these contracts was released by previous management without harm. Yet NBN Co is content to release detailed information on the cost per premises of FTTP and fixed wireless in the CPP review—down to the last line item—despite the fact that NBN Co, under the current policy, will continue to roll out FTTP in greenfields and fixed wireless to 2020 and beyond.

2.140 The Revised Agreements, announced by NBN Co and Telstra in December 2014, contain numerous concessions, including *inter alia*:

- the risk of cost increases in remediation has been transferred directly to the Commonwealth. The new remediation arrangements may also result in the transfer of an asbestos risk to the Commonwealth;
- the fitness guarantees for lead in conduits have been conceded, which may lead to extra costs to NBN Co in the future when the MTM needs to be upgraded;
- during the negotiations NBN Co sought no information from Telstra about the cost of maintaining the legacy copper network, despite ample evidence and testimony that these costs are expected to be high; and
- NBN Co has taken on an indefinite liability to maintain Telstra's HFC network, and at the same time agreed to restrictions on its sale. It is unclear whether these arrangements will result in an effective taxpayer subsidy of pay TV services.

2.141 The committee notes that, contrary to the approach used in 2009 and 2010, NBN Co was provided no overt leverage in these negotiations. It appears that the taxpayer has lost value as a result. The committee further notes that key personnel at

NBN Co—including the NBN Co officer heading up the negotiations on behalf of the taxpayer—still own Telstra shares.

2.142 NBN Co will have to build its IT systems to accommodate the MTM from the ground up—Telstra is only transferring the data, not the legacy systems. NBN Co will also face significant complexity from having to manage five fixed line networks (FTTP, FTTN, two HFC networks and FTTB) rather than one (FTTP). This means that much of the capex NBN Co spent on its IT systems for the original network design—hundreds of millions of dollars—has effectively been wasted. Further, NBN Co has not divulged information about its expected IT costs under the MTM, or the vendors with which it has signed IT contracts, despite indicating to the committee that 'several vendor engagements with external IT providers are in place.'¹⁶³ It is the committee's view that this degree of secrecy is unacceptable for a government business enterprise accountable to the parliament and the people.

2.143 The committee remains concerned about this government's move toward a two-tiered system for NBN access. According to NBN Co's 'technology choice' policy, Australians living in FTTN areas who want to access a faster and more reliable service than the copper will have to pay 'from a few thousand dollars to tens of thousands of dollars'. New charges of \$900 have also been imposed on new developments, which the committee expects to be passed on to new home owners in full. These developments are unfair and at odds with the fundamental principle underlying the NBN: universal and equitable access to broadband for all Australians.

163 See in particular answer to question on notice (Question 6) from the committee's public hearings, 2 and 4 December 2014.

Chapter 3

Fixed wireless and satellite

3.1 The Fixed Wireless and Satellite Review (the FWS Review) was undertaken by NBN Co between February and April 2014. A redacted version of the final report was released publicly on 7 May 2014.¹

3.2 NBN Co advised that the total cost of the FWS Review, as at 30 June 2014, was \$1.576 million.² This included payments to consultants Boston Consulting Group (BCG), who assisted NBN Co in the preparation of the report.

3.3 Like the Strategic Review, the FWS Review used NBN Co's 2012-15 corporate plan as the basis for its financial and operational comparisons.

Key findings of the Fixed Wireless and Satellite Review

3.4 NBN Co's previous corporate plans took a conservative estimate of NBN take-up in non-fixed line areas to allow for the potential of competition from fixed line broadband provided over Telstra's copper network in the fixed wireless and satellite footprint.³

3.5 However, the FWS Review's demand projections were more bullish. The review estimated that by 2021 there would be approximately 1.02 million premises outside the NBN fixed line footprint, approximately 8 per cent of the total rollout, an increase on the one million estimated in the 2012 Corporate Plan.⁴ The Review assessed that take-up of fixed wireless and satellite services by 2021 would be two to three times higher than the 22 to 25 per cent, or 230,000 premises estimated in the Corporate Plan, and that NBN Co should prepare to connect between 440,000 and 620,000 premises in the non-fixed line footprint.⁵ The FWS Review estimated that while the planned fixed wireless rollout could accommodate some of this higher demand, some 200,000 premises could not be served with the currently-forecast infrastructure.

3.6 In relation to satellite, the FWS Review assessed that 'all technology choices have been made and the technical system is generally well designed' to meet the NBN's originally specified needs, and that the Long Term Satellite Service (LTSS) would offer an advanced satellite service by global standards, while remaining subject

1 NBN Co Limited, *Fixed Wireless and Satellite Review*, Final Report, May 2014, p. 1.

2 NBN Co Limited, answer to question on notice (Question 7) following the 11 July 2014 public hearing.

3 For example, NBN Co Limited, *Corporate Plan 2013-16* (Version 13), p. 100.

4 NBN Co Limited, *Fixed Wireless and Satellite Review*, Final Report, May 2014, p. 9.

5 NBN Co Limited, *Fixed Wireless and Satellite Review*, Final Report, May 2014, p. 9

to constraints of latency and capacity common to all satellite services, that needed to be carefully managed.⁶

3.7 The FWS Review identified, however, eight risks of delay in the launch of the LTSS beyond the project's contingency planning, cumulatively creating a likelihood that its launch would slip from the planned 2015 timing to sometime in 2016. The Review recommended 14 specific actions and two timeline changes to mitigate these risks,⁷ but even with mitigation, believed it most likely that the LTSS would commence in early 2016.

3.8 The FWS Review explored four possible scenarios for the fixed wireless and satellite rollout to address the coverage and capacity deficiencies identified:

- Scenario 1: an increase in fixed wireless base stations to the number necessary to provide a wireless service to all premises not covered by the present fixed line footprint or the two planned satellites;
- Scenario 2: extending the FTTN footprint where practically and economically feasible, to reduce the extra demand on the satellite and fixed wireless rollout;
- Scenario 3: the construction by NBN Co of a third satellite for launch in 2020. Not all of the capacity of a third satellite would be needed for the NBN; NBN Co could then seek to commercialise the spare capacity to offset costs; or
- Scenario 4: NBN enters a partnership to access the capacity it needs on a third satellite through arrangements with a commercial partner, rather than building and owning the third satellite itself.⁸

3.9 Weighing the costs and benefits of each, the FWS Review concluded that Scenario 2 was likely to be the best option, considering both financial and broadband quality issues.⁹

3.10 Implementing scenario 2 would involve an extension of the FTTN footprint to cover three per cent of the premises presently in the non-fixed line footprint. Of the

6 NBN Co Limited, *Fixed Wireless and Satellite Review*, Final Report, May 2014, pp 34, 43. In particular, the FWS Review noted that the capacity and coverage of each of the satellites' 101 beams had been fixed during the design process, and could not later be altered or redirected between beams. This meant that if usage patterns varied significantly from those anticipated once the service was live, some beams may experience congestion while others would have spare capacity. In addition, where take-up on the satellite service was high, it would not be possible to upgrade the service or the throughput per user on this technology: p.39.

7 NBN Co Limited, *Fixed Wireless and Satellite Review*, Final Report, May 2014, pp 39–40. The timeline recommendations included that the second satellite be launched 12, rather than six, months after the first.

8 NBN Co Limited, *Fixed Wireless and Satellite Review*, Final Report, May 2014, p. 11. The Review noted that in relation to Scenario 4, there was very limited capacity on existing satellites operating over Australia to support a residential broadband service, so this would likely require the construction and launch of a new satellite in partnership with a commercial entity.

9 NBN Co Limited, *Fixed Wireless and Satellite Review*, Final Report, May 2014, pp 14–15.

remaining premises, fixed wireless would service 57 per cent, necessitating an increase in the number of fixed wireless base stations from 1400 to 2700. Satellite broadband would cover 40 per cent.

3.11 The FWS Review estimated that with the assumed increase in take-up, revenue would increase to around \$1 billion by 2021, but the fixed wireless and satellite programs would inevitably continue to be loss-making, with implementation of Scenario 2 costing \$5.2 billion by 2021 (\$1.2 billion more than envisaged in the 2012 corporate plan). The Review advised that these cost estimates were consistent with those reached for non-fixed line services in the Strategic Review, and as such, an increase in NBN Co's peak funding requirements was not anticipated to be required under this approach.¹⁰

3.12 Scenario 4 was the FWS Review's second-preference option, requiring \$200 to \$300 million less capital expenditure than Scenario 2, but placing some 70,000 more premises on the satellite service, with trade-offs for broadband quality given the latency and capacity constraints of satellite. Under this scenario, satellite would cover 47 per cent of the current non-fixed line footprint. The Review also estimated that Scenario 4 would take two years longer to complete than Scenario 2.¹¹

3.13 The FWS Review recommended that NBN Co make a decision within six months about whether to proceed with Scenario 2 or 4. At the time of the report's public release, NBN Co's Chief Executive Officer, Mr Bill Morrow, indicated that the company would extend the FTTN rollout, rather than pursuing a third satellite.¹²

3.14 The FWS Review further observed that the interim satellite service (ISS) was oversubscribed due to high demand. This was degrading services to end-users and creating issues for NBN Co in managing satellite capacity.

3.15 The FWS Review recommended six changes to NBN Co's wholesale product offerings for the LTSS to address this issue.¹³ These included specific capacity allocations and tools to monitor and control usage. The Review proposed that a standard product be issued based upon current performance efforts and speed and capacity assessments, possibly offering a standard 20 gigabytes per month at speeds of 12/1 megabits per second (Mbps), at a universal national wholesale price comparable with fixed line services, and with potential upgrade options offered within the fixed capacity of the satellite beams.¹⁴ The Review also recommended that a specific

10 NBN Co Limited, 'Broadband connections in the bush to triple, says NBN report', Media Release, 7 May 2014, p. 2.

11 NBN Co Limited, *Fixed Wireless and Satellite Review*, Final Report, May 2014, p. 90.

12 'NBN Co rules out third rural satellite', news.com.au, 7 May 2014, at <http://www.news.com.au/national/breaking-news/nbn-co-rules-out-third-rural-satellite/story-e6frku9-1226909264082>

13 NBN Co Limited, *Fixed Wireless and Satellite Review*, Final Report, May 2014, Chapter 5. The Review also recommended analogous product changes for fixed wireless, as it is also a capacity constrained technology: see Chapter 10.

14 NBN Co Limited, *Fixed Wireless and Satellite Review*, Final Report, May 2014, pp 45–46.

product be created to ensure an appropriate level of service for public interest premises in the satellite footprint, such as schools.¹⁵

3.16 The FWS Review also offered some critique and recommendations relating to NBN Co's corporate management, noting a need to improve decision-making processes, and communication both internally and with industry partners. Some suggestions arising from discussions with industry partners were also canvassed, such as more active pursuit of arrangements between NBN Co and other providers for sharing wireless towers, to support improved mobile coverage in rural and regional Australia.¹⁶

Issues arising from the Review

Wireless and satellite take-up

3.17 The FWS Review explained that there were three factors behind the 200,000 premises shortfall it identified in the non-fixed line footprint:

- the 'spectrum gap' presently preventing fixed wireless service to approximately 80,000 premises;
- experience to date (including in the ISS rollout) indicating levels of demand likely two to three times higher than projected in the 2012 Corporate Plan; and
- the existing fixed line footprint having reduced since the satellite service was designed.¹⁷

3.18 In relation to expected demand, the FWS Review's forecast was a dramatic increase on the more conservative estimate of 24 per cent take up (230,000 of 974,000 premises) in the 2012 NBN Co corporate plan,¹⁸ and a similar projection of 24 per cent of one million premises in the draft 'Version 13' corporate plan prepared in 2013 but not adopted by the NBN Co Board.¹⁹

3.19 The FWS Review acknowledged that the premises data it used for its projections were more up to date than those available for earlier projections, and showed a steady growth in the number of relevant premises in the non-fixed line area. However, population growth was not the primary driver of increased demand:

the number of premises in the non-fixed line footprint is also driven by potential variations in the boundary of the fixed line footprint. Since the commencement of the rollout of the fixed line network, more detailed planning has been completed on an area-by-area basis and more

15 NBN Co Limited, *Fixed Wireless and Satellite Review*, Final Report, May 2014, p. 93.

16 See NBN Co Limited, *Fixed Wireless and Satellite Review*, Final Report, May 2014, Chapter 12.

17 NBN Co Limited, *Fixed Wireless and Satellite Review*, Final Report, May 2014, p. 84.

18 NBN Co Limited, *Corporate Plan 2012-15*, 6 August 2012, p. 75.

19 NBN Co Limited, *Corporate Plan 2013-16 - Working Draft*, at <http://www.docdroid.net/lfy9/nbn-co-corporate-plan-2013-2016-v13.pdf.html>, pp 100, 108.

information about the local conditions is gradually discovered. As a result the geographic boundaries that define which specific premises receive a fixed line service as opposed to a non-fixed service (fixed wireless or satellite), may change due to technical, practical or economic reasons. NBN Co has historically varied these boundaries substantially, and the net effect of this thus far has been to add a substantial number of premises into the non-fixed line footprint. As the detailed planning and construction of the fixed line proceeds, there is a risk that more premises may be moved into non-fixed line areas without careful consideration of the consequences, especially on satellite capacity by beam.²⁰

3.20 NBN Co advised the committee that:

During the two years since the release of Corporate Plan 2012–15, NBN Co has acquired sufficient data on actual take-up rates for the Fixed Wireless network and the Interim Satellite Service to provide support for much higher take-up expectations for both Fixed Wireless and Satellite networks including real world data from the ISS and the availability of fixed wireless in many areas. The take-up rates estimated by the Fixed Wireless and Satellite Review are based on the latest available broadband usage and service take-up data, including recent information on the decline in numbers of voice-only premises and on the usage of competing mobile broadband services in regional and rural areas.²¹

3.21 As noted, NBN Co's previous Corporate Plans took a conservative estimate of NBN take-up in non-fixed line areas to allow for the potential of competition from fixed line broadband provided by over Telstra's copper network in the fixed wireless and satellite footprint.²²

3.22 Acknowledging the difficulty and fluidity of satellite demand estimates, the FWS Review proposed that, in the event take-up did turn out to be lower than predicted, NBN could use the two satellites to cover a higher number of premises and reduce rollout costs accordingly by deferring building the least-economic fixed wireless base stations.²³

Fixed wireless towers

3.23 In September 2014 Mr Morrow described the NBN fixed wireless rollout as 'a standout performer', with construction on schedule and 'high end-user satisfaction'.²⁴

3.24 Implementation of the FWS Review would require a significant increase in the fixed wireless rollout, including in the number of towers to be constructed. NBN needs more towers than mobile networks do, because fixed wireless broadband

20 NBN Co Limited, *Fixed Wireless and Satellite Review*, Final Report, May 2014, p. 25.

21 NBN Co Limited, answer to question on notice (Question 61) following the committee's public hearing on 11 July 2014.

22 NBN Co Limited, *Corporate Plan 2013-16 - Working Draft*, p. 100

23 NBN Co Limited, *Fixed Wireless and Satellite Review*, Final Report, May 2014, p. 91.

24 Mr Bill Morrow, *Committee Hansard*, 26 September 2014, p. 2.

requires line of sight, and on average each tower can only cover 20 per cent of the area within its 14km radius. For this reason, placement is also critical and small changes in location can make a significant difference to coverage.²⁵

3.25 Mr Greg Adcock, Chief Operating Officer of NBN Co, advised the committee that tower placement was a complex issue and could be a challenge:

We look at a number of physical locations because each of them has its pluses and minuses...with some you can get easy access to power but you do not get line of sight to your customer base; with others you get line of sight to your customer base but there is a huge issue in getting power.²⁶

3.26 The committee has been made aware of concerns within some communities about the placement of NBN fixed wireless towers. The committee received several submissions from residents of the shire of Bridgetown-Greenbushes in south west Western Australia,²⁷ and has also been contacted by telephone and e-mail by residents in other areas, expressing aesthetic, environmental or health concerns about the placement of towers in their communities, and criticising NBN Co and its subcontractors for inadequate community consultation.

3.27 In relation to tower placement, NBN Co advised the committee that:

Every situation is a case-by-case basis. Clearly we uphold the law and the regulation, and then if there are issues we sit down and try and consult and engage—try and find solutions. I have been in the industry for a long time and not everybody is always happy...

We do our very best to make sure that the industry consultation is appropriate and fulsome and to take on board complaints and look at alternatives.²⁸

3.28 Nevertheless, in general NBN Co's advice to the committee was that fixed wireless was 'being extremely well received as we roll it out',²⁹ and that community complaints about tower placement had declined to a very small number.³⁰ The FWS Review also noted that around 35 per cent of the fixed wireless rollout involved the co-location of NBN equipment on pre-existing towers built by third parties such as mobile telephone companies.³¹

25 NBN Co Limited, *Fixed Wireless and Satellite Review*, Final Report, May 2014, pp 9, 27–28.

26 Mr Greg Adcock, *Committee Hansard*, 26 September 2014, p. 19.

27 Mr Nick Maxfield, *Submission 72*, Ms Carolyn Armstrong, *Submission 73*, Mr Dagmar Dixon, *Submission 74*, Mr Michael Lansley, *Submission 75*, Ms Jacqueline Brody, *Submission 76*, Ms Virginia Bidwell, *Submission 85*.

28 Mr Greg Adcock, *Committee Hansard*, 26 September 2014, pp 19–20.

29 Mr Greg Adcock, *Committee Hansard*, 26 September 2014, p. 18.

30 *Committee Hansard*, 26 September 2014, p. 20.

31 NBN Co Limited, *Fixed Wireless and Satellite Review*, Final Report, May 2014, p. 75.

The fixed wireless spectrum gap

3.29 On 26 September 2014, Mr Adcock advised the committee that:

I believe the issue we had...around the spectrum in the outer metro areas is being addressed. We are currently working with the ACMA on getting a solution to that problem, which will drive the program even harder.³²

3.30 Following a one-month public consultation process in August-September 2014, in October the Minister for Communications issued a Ministerial Direction to the Australian Communications and Media Authority (ACMA), the *Australian Communications and Media Authority (3.5 GHz frequency band) Direction 2014*. The government stated that the Direction would enable the NBN to be provided with the spectrum needed to remedy the 'spectrum gap' in areas surrounding major cities, and therefore to provide fixed wireless services to the 80,000 premises in those areas. NBN would pay a market rate for the spectrum.³³

3.31 The Direction requires ACMA to complete all steps necessary by 30 April 2015 to enable the issuance of the relevant spectrum licences to NBN Co.³⁴

Satellite rollout and fair use

3.32 NBN Co has consistently advised the committee and the Senate Environment and Communications Committee that the satellite rollout is in good shape. NBN Co advised the committee in mid-2014 that an initiative was underway to implement the review's recommendations on the LTSS deployment.³⁵ On 9 February 2015 NBN Co announced the completion of work on its ten satellite ground stations.

3.33 By late 2014, NBN Co maintained that it was on track to launch the LTSS in 'late 2015 or early 2016', and that the project remained within its budget.³⁶ NBN Co's Integrated Product Roadmap released in January 2015 indicated that the launch of commercial services over the LTSS would commence in the final quarter of 2015, with migration of ISS services to the LTSS to proceed during 2016.³⁷

3.34 In February 2015 it was reported that the launch of the first NBN satellite had been delayed by five months to October or November 2015 due to issues beyond NBN

32 Mr Greg Adcock, *Committee Hansard*, 26 September 2014, p. 18.

33 http://www.communications.gov.au/radio/radiofrequency_spectrum/national_broadband_network_spectrum

34 The Hon Malcolm Turnbull MP, Minister for Communications, 'NBN spectrum gap – Consultation on draft Direction', Media Release, 21 August 2014.

35 NBN Co Limited, answer to question on notice (Question 9) following the committee's public hearing on 11 July 2014, p. 2.

36 Mr Matt Dawson, Program Director NBN Co Limited, 'Enabling the digital economy and closing the digital divide', presentation to *The NBN Re-Booted* conference, Sydney, 18 November 2014, at <http://www.slideshare.net/CommsDay/nbn-rebooted-nbn-cos-matt-dawson>

37 NBN Co Limited, Integrated Product Roadmap, January 2015, at: <http://www.nbnco.com.au/content/dam/nbnco/documents/Integrated-Product-Roadmap.pdf>

Co's control, relating to a co-passenger on the proposed commercial launch flight. NBN Co was reportedly investigating 'a range of options' to avoid or minimise the delay.³⁸ The release of commercial services over the LTSS was postponed to 2016 in NBN Co's 26 February half-yearly results announcement.³⁹

3.35 Speaking to a Senate Estimates hearing on 24 February 2015, Mr Morrow said:

You will have heard about the launch delay of our first satellite. While all elements that the NBN team are responsible for are on track, the company that launches our satellites has informed us that our co-passenger satellite will not be ready in time. It is very common to share the cost of the launch with other satellites, and these risks are just a par for the course in the satellite industry. Fortunately, we built in a buffer to absorb most of the impact to our business plans. We now expect to launch the first satellite in the fourth quarter of this year, and we still expect to start offering services in the first half of 2016.⁴⁰

3.36 In addition to preparation for the LTSS launch, NBN Co also advised the committee in 2014 that it had released additional capacity to the 40,000 current users of the ISS.⁴¹

3.37 In November 2014 a senior NBN Co representative advised that new fair use rules had been agreed with RSPs for the ISS, along with new mechanisms to monitor and enforce them.⁴² It was reported in early 2015 that NBN had released a paper to RSPs, dated 30 January 2015, requiring RSPs that sold ISS access to restrict individuals' usage to no more than 50 gigabytes of download per four week rolling aggregate, and limiting average weekly download to 9.7 gigabytes. NBN Co warned that it would exercise its rights under the Wholesale Broadband Agreement to limit the service of users exceeding the policy, if necessary.⁴³

38 Mitchell Bingemann, 'A case of watch this space as NBN satellite launch hit by delay', *The Australian Business Review*, 2 February 2015, at <http://www.theaustralian.com.au/business/technology/a-case-of-watch-this-space-as-nbn-satellite-launch-hit-by-delay/story-e6frgaxx-1227204294279>

39 NBN Co Limited, *Half Year Results Presentation*, 26 February 2015, at <http://www.nbnco.com.au/corporate-information/media-centre/media-releases/nbn-co-tracks-towards-full-year-targets-as-network-transitions-to-new-rollout-model.html>

40 Mr Bill Morrow, Senate Environment and Communications Legislation Committee, *Committee Hansard*, Additional Budget Estimates hearings, 24 February 2015, p. 104.

41 See for example Mr Bill Morrow, Senate Environment and Communications Committee *Committee Hansard*, 20 November 2014, p. 8.

42 Mr Matt Dawson, Program Director NBN Co Limited, 'Enabling the digital economy and closing the digital divide', presentation to *The NBN Re-Booted* conference, Sydney, 18 November 2014, at <http://www.slideshare.net/CommsDay/nbn-rebooted-nbn-cos-matt-dawson>

43 Rohan Pearce, 'NBN Co clamps down on satellite usage', *Computerworld*, 9 February 2015, <http://www.computerworld.com.au/article/565806/nbn-co-clamps-down-satellite-usage/>; Josh Taylor, 'NBN Co clamps down on interim satellite service usage', *ZDNet*, 9 February 2015, <http://www.zdnet.com/article/nbn-co-clamps-down-on-interim-satellite-service/>.

Committee view

3.38 The committee notes that in February 2012, the former Labor Government announced that it would build two state of the art broadband satellites to provide high speed broadband to regional and remote Australia by 2015. The committee notes that the Liberal National Party opposed these satellites. In 2012, then shadow Communications Minister, the Hon Malcolm Turnbull MP, condemned the satellite program as a 'Rolls Royce' solution, saying:

There is enough capacity on private satellites already in orbit or scheduled for launch for the NBN to deliver broadband to the 200,000 or so premises in remote Australia without building its own.⁴⁴

3.39 The committee notes the ongoing demand for high quality broadband in rural and regional Australia, which led to the very high demand for the ISS. The committee also notes that there is clearly not enough existing private satellite capacity to serve regional and rural Australia, which explains why the government has directed NBN Co to introduce data caps on the ISS.

3.40 The committee notes that former management took a conservative view of demand in the fixed wireless and satellite footprints due to potential fixed line broadband competition over the copper network in the last seven per cent. Once again, the committee notes the ongoing demand for high quality broadband in rural and regional Australia, but notes that the demand projections in the fixed wireless and satellite footprints are more bullish. The committee acknowledges that NBN Co had more data on take up in the last seven per cent than NBN Co had when the initial demand projections were included in NBN Co's 2011-13 and 2012-15 corporate plans.

3.41 The committee notes that the launch of the first NBN satellite had been delayed by five months to October or November 2015 due to issues with the co-passenger on the proposed commercial launch flight with Arianespace. The committee encourages NBN Co to monitor this issue closely to minimise this delay.

3.42 The committee's first interim report drew attention to the inclusion of plans for a third satellite in the government's Strategic Review, without any explanation for this initiative or the proposed 2021 timing. The committee recognised the reality of the need for additional bandwidth outside the fixed line footprint while querying the distortion of the Strategic Review's capital expenditure assumptions by the arbitrary addition of the costs of a third satellite.⁴⁵

44 <http://www.malcolmturnbull.com.au/homepage-issues/satellite-deal-%E2%80%93-more-wasteful-nbn-spending>

45 Senate Select Committee on the National Broadband Network, *Interim Report*, March 2014, pp 51–53.

3.43 The committee observed with concern the comments of the Vertigan Panel in its market and regulatory review, discussed further in chapter 4, suggesting that the provision of fixed wireless and satellite broadband in remote and regional Australia should be reconsidered and universal wholesale pricing should be axed. The committee considers that the NBN should be available to all Australians at the same wholesale price, no matter where they live or do business.

Chapter 4

The Cost-Benefit Analysis and Review of Regulation

4.1 The terms of reference and panel of experts for the 'independent cost-benefit analysis and review of regulation' were announced by the government on 12 December 2013. The cost-benefit analysis was to 'analyse the economic and social costs and benefits...arising directly from the availability of broadband of differing properties via various technologies, and to make recommendations on the role of government support and a number of other long-term industry matters'.¹

4.2 The Panel of Experts appointed to conduct the analysis was chaired by Dr Michael Vertigan AC, with Ms Alison Deans, Professor Henry Ergas and Mr Tony Shaw PSM as the other members. The Centre for International Economics (CIE) was engaged as an additional consultant providing advice to the project, and several other consultants were used for specialist advice, editing and peer review. The Department of Communications advised the committee in October 2014 that the total cost of the cost-benefit analysis and regulatory review was \$1,454,989.²

4.3 The Panel's report to the Minister was dated 14 August 2014. Volume II, *The costs and benefits of high speed broadband*, was publicly released, with some redactions, on 27 August 2014. Volume I, the *Market and regulatory report*, was released on 1 October 2014. A number of supplementary papers related to the main report were also issued by the Panel between July and October 2014.³

4.4 This chapter considers the two parts of the report in their order of release, commencing with Volume II, which was the document widely referred to as the 'Cost-Benefit Analysis'; followed by Volume I, known as the 'Review of Regulation'.

Key findings of Volume II: the Cost-Benefit Analysis

4.5 The Cost-Benefit Analysis (CBA) assessed four main scenarios for the period 2015-2040:

- no further rollout from what exists today. This was not considered a realistic scenario, but assessed as a base case for comparison;

1 The Hon Malcolm Turnbull MP, Minister for Communications, 'Panel of Experts to conduct cost-benefit analysis of broadband & review NBN regulation', Media Release, 12 December 2013.

2 Letter from Mr Drew Clarke, Secretary, Department of Communications to the Committee Chair dated 16 October 2014, document no. 21, at http://www.aph.gov.au/Parliamentary_Business/Committees/Senate/National_Broadband_Network/NBN/Additional_Documents

3 The Volume I Regulatory Review drew in particular on a third paper, *Statutory review under section 152EOA of the Competition and Consumer Act 2010*, issued by the Panel of Experts in July 2014. All of the Panel of Experts' reports and related papers are at: http://www.communications.gov.au/broadband/national_broadband_network/cost-benefit_analysis_and_review_of_regulation

- an unsubsidised rollout on commercial terms by the private sector, using fibre to the node (FTTN) and hybrid fibre coaxial (HFC) services, in areas where these are commercially viable;
- a multi-technology mix (MTM) rollout across all premises, as proposed in the 2013 NBN Strategic Review; and
- a fibre to the premises (FTTP) rollout in the fixed line footprint, supplemented by fixed wireless and satellite for universal coverage, based upon the 'radically redesigned' scenario in the Strategic Review.⁴

4.6 The cost assumptions used for the MTM and FTTP scenarios were based upon those used in the Strategic Review, although subject to some 'refinements' by the Panel of Experts.

4.7 The overall finding of the CBA was that the deployment of high-speed broadband to 93 per cent of Australian premises (the fixed-line footprint) on an unsubsidised, commercial basis would yield the greatest economic benefit to Australia, to the tune of \$24 billion in net present value terms, or \$2430 per household.⁵ 'To that extent, ensuring widespread availability of broadband is in the national interest'.⁶

4.8 By contrast, the CBA assessed that deployment of high-speed broadband over fixed wireless and satellite to the remaining 7 per cent of premises would involve a significant net cost:

Providing fixed wireless and satellite services costs nearly \$5 billion but the benefits are only just above 10 per cent of that. The result is a substantial net cost to the community.⁷

4.9 The Panel therefore queried whether the provision of fixed wireless and satellite services to regional and remote areas was justified, given its high cost and limited (\$0.6 billion) benefit, compared to offering a lower level of speed at a reduced cost to the taxpayer.⁸

4 Panel of Experts, *Independent cost-benefit analysis of broadband and review of regulation: Volume II – The costs and benefits of high-speed broadband*, August 2014, p. 9.

5 Panel of Experts, *Independent cost-benefit analysis of broadband and review of regulation: Volume II – The costs and benefits of high-speed broadband*, August 2014, p. 10.

6 Panel of Experts, *Independent cost-benefit analysis of broadband and review of regulation: Volume I – National Broadband Network Market and Regulatory Report*, August 2014, p. 13.

7 Panel of Experts, *Independent cost-benefit analysis of broadband and review of regulation: Volume II – The costs and benefits of high-speed broadband*, August 2014, p. 11.

8 Panel of Experts, *Independent cost-benefit analysis of broadband and review of regulation: Volume I – National Broadband Network Market and Regulatory Report*, August 2014, p. 59.

4.10 The CBA found that deployment of an MTM NBN which included the non-economic fixed wireless and satellite rollout would remain net positive, but \$6.1 billion less so than an unsubsidised rollout, with a net benefit of \$17.9 billion.⁹

4.11 The Panel employed three methods to measure the value placed by consumers on the higher broadband speeds offered by FTTP:

- estimation of future demand from the take-up to date of NBN Co's higher-speed offerings;
- a technological study of the speeds needed to utilise current and possible future internet applications, and the costs of being unable to do so; and
- a survey of consumers' willingness to pay for different access speeds.

4.12 While acknowledging 'the many uncertainties involved in any analysis of this kind', the Panel described this finding as 'remarkably robust', stating that in 98 per cent of the scenarios tested, MTM had greater net benefit than FTTP.¹⁰

The FTTP scenario only outperforms the MTM scenario in cases where the following tend to occur together; FTTP costs are low, the discount rate is low, FTTN under-delivers on expected speeds, there is very rapid growth in the demand for high speeds and no upgrades are allowed in the MTM scenario.¹¹

4.13 In concluding, the CBA was critical of the taxpayer funds expended on the NBN to date, stating that the private sector 'could have secured virtually all of the benefits of delivering high-speed broadband' to the 93 per cent of premises within the NBN fixed line footprint, and probably managed the rollout more effectively and efficiently.¹²

Issues arising from the Cost-Benefit Analysis

Selection of personnel to conduct the CBA

4.14 At the launch of the coalition's NBN policy on 9 April 2013, then opposition leader Tony Abbott stated that the coalition would conduct a cost-benefit analysis of the NBN that:

9 Panel of Experts, *Independent cost-benefit analysis of broadband and review of regulation: Volume II – The costs and benefits of high-speed broadband*, August 2014, p. 11.

10 Panel of Experts, *Independent cost-benefit analysis of broadband and review of regulation: Volume I – National Broadband Network Market and Regulatory Report*, August 2014, pp 13–14.

11 Panel of Experts, *Independent cost-benefit analysis of broadband and review of regulation: Volume II – The costs and benefits of high-speed broadband*, August 2014, p. 13.

12 Panel of Experts, *Independent cost-benefit analysis of broadband and review of regulation: Volume I – National Broadband Network Market and Regulatory Report*, August 2014, pp 59–60.

will be a fully independent review. It may be the Productivity Commission, although we're conscious of the fact that the Productivity Commission has a very heavy workload. It may be Infrastructure Australia.¹³

4.15 In August 2013, then opposition communications spokesman Malcolm Turnbull reiterated that:

We are going to do a rigorous analysis, we will get Infrastructure Australia to do an independent cost benefit analysis. That's all set out in our policy.¹⁴

4.16 The government did not, however, engage Infrastructure Australia or the Productivity Commission to conduct the cost-benefit analysis, opting instead for a panel of individuals chosen by Minister Turnbull.

4.17 There was widespread criticism of the composition of the Panel of Experts. In particular, Professor Henry Ergas was well known as a strong critic of the NBN. In 2009 Professor Ergas published a paper on the NBN which included wildly inflated predictions of its future costs to consumers, suggesting that prices would reach between \$133 and \$380 per month for consumers.¹⁵

4.18 Disputing the independent NBN implementation study prepared for the former government in 2010, Professor Ergas offered that he could produce a cost-benefit analysis of the NBN using his own model, 'within a matter of days'.¹⁶

4.19 At the Coalition's NBN policy launch in 2013, Mr Abbott cited support of the Coalition's policy on the NBN from 'shrewd observers like Henry Ergas' who had described the NBN under Labor as 'currently on the point of collapse'.¹⁷ It was drawn to the committee's attention that Professor Ergas had assisted the election campaign of a Liberal Party Senator—and former member of this committee—at the 2013 election, although Professor Ergas declined to confirm that.¹⁸

4.20 In a 2004 matter the Australian Competition Tribunal formally recorded the following observations in relation to expert testimony provided by Professor Ergas:

13 'Tony Abbott and Malcolm Turnbull – Coalition NBN Policy Launch', 9 April 2013, video at <https://www.youtube.com/watch?v=bKbANwmJyWc>, at 31.03.

14 Allie Coyne, 'Turnbull's NBN policy 'detailed enough' to escape costing', *IT News*, 16 August 2013, at <http://www.itnews.com.au/News/353616.turnbulls-nbn-policy-detailed-enough-to-escape-costing.aspx#ixzz3QkAqWw9>

15 Henry Ergas and Alex RW Robson, 'The Social Losses from Inefficient Infrastructure Projects: Recent Australian Experience', in Productivity Commission Roundtable, *Strengthening Evidence-Based Policy in the Australian Federation*, 17-18 August 2009, at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1465226

16 Professor Henry Ergas, *Committee Hansard*, Senate Select Committee on the National Broadband Network (42nd parliament), 4 June 2010, p. 4.

17 'Tony Abbott and Malcolm Turnbull – Coalition NBN Policy Launch', 9 April 2013, video at <https://www.youtube.com/watch?v=bKbANwmJyWc>, at 23.05.

18 *Committee Hansard*, 5 May 2014, p. 77; 3 October 2014, p. 55.

[U]seful considerations in determining at what point an expert witness ceases to be impartial and has moved beyond the bounds of legitimacy into advocating for a party...[include] the willingness of an expert to respond to questions whose answers may provide support for a view which is contrary to the interests of the party calling them.

With regard to the latter, we note that on many occasions in the present proceeding two experts in particular, [one of these] being Mr Ergas... appeared reluctant to respond to questions whose answers might have been adverse to the case put by the party calling them. Instead, they provided non responsive answers and deviated to discussions of other issues which supported the case of the applicants...On some occasions, the presiding member asked the experts whether they could answer the question put to them and asked them not to give a long explanation, but to no avail. Such an attitude and conduct of an expert witness leads to a conclusion of partiality and an inability to express an objective expert opinion upon which reliance can be placed.¹⁹

4.21 Doubts were also cast over the impartiality and independence of several other consultants engaged as part of the CBA process. Mr Kevin Morgan, another well-known critic of the NBN,²⁰ was engaged as an expert adviser to the Panel. Its peer review team included Professor Jonathan Pincus, also on the public record as a critic of the NBN²¹ and a research collaborator of Professor Ergas.²² Consultants Communications Chambers prepared a study on technical broadband demand in Australia, but were already known as critics of FTTP in the UK. Their work is discussed further below.

4.22 Other previous employees and associates of Professor Ergas engaged on the CBA included Dr Alex Robson, Ms Emma Lanigan, Ms Alexis Hardin and Mr Nigel Pugh. In addition, both Dr Robson and another consultant, Mr David Kennedy, were former staffers of present and former Coalition Communications Ministers Turnbull and Alston, respectively.

4.23 The Department of Communications insisted that the use of this team, in contrast to the public undertakings of the Prime Minister and Minister for Communications, was preferable to using an independent body:

19 Australian Competition Tribunal, *Re Qantas Airways Limited* [2004] ACompT 9, 12 October 2004, pp 59–60.

20 See, for example, Kevin Morgan: 'Consultants, lawyers, contractors: All aboard the NBN gravy train', *The Australian*, 13 October 2011; Interview with Alan Jones, 2GB radio, 8 November 2012, at <http://www.2gb.com/article/kevin-morgan-nbn>; 'Labor's NBN technology is superior, but at what cost?', ABC Online *The Drum*, 12 April 2013.

21 Jonathan Pincus, 'NBN largesse pushes nation building off the rails', *The Australian*, 20 August 2010.

22 Henry Ergas, 'PM in another fine gold-plated mess', *The Australian* blog, 13 August 2012, at http://blogs.theaustralian.news.com.au/henryergas/index.php/theaustralian/comments/pm_in_another_fine_gold_plated_mess/.

Governments have a range of options in terms of commissioning advice on policy issues. In this case the Government considered an independent expert panel that brought significant relevant background, expertise and experience provided the most independent, robust and transparent process.²³

4.24 Nevertheless, the inclusion in the CBA team of a long list of known critics of the NBN, associates of Professor Ergas and supporters of the Coalition, casts doubt on the credibility and impartiality of the report. Media analysts and independent experts pointed out the apparent bias in the composition of the Panel of Experts and its team of advisers.

4.25 Telecommunications analyst Chris Coughlan observed that:

It is clear that in commissioning the National Broadband Network reviews the government has carefully selected consultants, analysts and economists that have previously expressed views that support their position.²⁴

4.26 IBRS analyst Guy Cranswick described the CBA as 'politically stacked' and the Panel of Experts as 'full of acolytes and sympathisers' with the coalition government.²⁵

4.27 Professor Fiona Haines, a specialist in risk and regulation from the University of Melbourne, observed that cost-benefit analyses are only as credible as the values and assumptions upon which they are based:

A small change in assumption can make a big difference to the outcome. A strategic use of a cost benefit analysis can contribute to the problem of policy driving evidence or 'policy-based evidence' as opposed to its more respected cousin, evidence-based policy...

...we are adept at building our rationality around our values, selecting numbers consistent with those values. Under polarised political conditions, expecting a cost benefit analysis to generate a rational basis to bridge disparate values and so enhance our collective future may be a tall order indeed.

Ultimately, the role that can be assigned to a cost benefit analysis is limited. Done well, it can enhance public debate as well as inform political decisions. Done poorly, it merely masks a pre-determined political position.²⁶

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- 23 Department of Communications, answers to questions on notice (Questions 543 & 544) following Senate Environment and Communications Legislation Committee, Budget Estimates hearings, May 2014.
- 24 Chris Coughlan, 'Analysing the NBN: Ethics and broadband politics', *Business Spectator*, 10 September 2014.
- 25 Rohan Pearce, 'NBN: Labor condemns 'flawed' Vertigan panel report', *Computerworld*, 27 August 2014.
- 26 Professor Fiona Haines, 'Cost benefit analysis can help or hinder good policy', *The Conversation*, 6 August 2014, at: <http://theconversation.com/cost-benefit-analysis-can-help-or-hinder-good-policy-30147>

4.28 Professor Graeme Samuel AC, former head of the Australian Competition and Consumer Commission (ACCC), observed that:

Multiple reviews, at vast cost, have been completed, primarily focused on demonstrating that the Labor government's NBN concept was flawed or at least was less economically viable than that of the Coalition. Unfortunately, much of the review analysis has had a political tarnish which diminishes its value in forward planning for this important infrastructure project.²⁷

Cost assumptions: the Panel's revision of the Strategic Review

4.29 The sources of the cost data used for the CBA were NBN Co's 2013 Strategic Review and the 2014 Fixed Wireless and Satellite Review.²⁸ The CBA indicated, however, that it had made some 'corrections' to the formulas used to calculate costs in the Strategic Review, although it stated these had a 'relatively minor impact' on the overall results.²⁹

4.30 The CBA's final estimates costed an FTTP rollout at \$35.3 billion, as opposed to \$30.6 billion costed by NBN Co in the Strategic Review, a 15.4 per cent increase in net present value. In comparison, the MTM cost was revised upward by only four per cent, from \$23.9 billion to \$24.9 billion. The CBA's calculation of the cost of FTTP relative to MTM rose from \$6.8 billion in the Strategic Review to \$10.4 billion, a 53 per cent increase in the cost of the FTTP scenario relative to MTM. Incredibly, the Panel inflated NBN Co's OpEx assumptions by 180 per cent compared to only 12 per cent for the MTM, despite the low OpEx costs of fibre compared to legacy technologies (see figure 5).

27 Professor Graeme Samuel AC, 'The National Broadband Network – the prognosis for competition in telecommunications', TelSoc Charles Todd Oration, 5 November 2014, Melbourne, p. 1. Transcript at http://telsoc.org/sites/default/files/events/pdf/telsoc_graeme_samuel_speech_01.pdf

28 Panel of Experts, *Independent cost-benefit analysis of broadband and review of regulation: Volume I – National Broadband Network Market and Regulatory Report*, August 2014, p. 12.

29 Panel of Experts, *Independent cost-benefit analysis of broadband and review of regulation: Volume II – The costs and benefits of high-speed broadband*, August 2014, p. 139.

Vertigan Panel Review of NBN Co Cost Models: Outcome (MTM vs FTTP)*

Costs	Multi-Technology Mix				FTTP Scenario				Cost of FTTP (Relative to MTM)			
	NBN Co (\$b, PV)	Panel (\$b, PV)	Change (\$PV)	Change (%)	NBN Co (\$b, PV)	Panel (\$b, PV)	Change (\$PV)	Change (%)	NBN Co (\$b, PV)	Panel (\$b, PV)	Change (\$PV)	Change (%)
Fixed-line opex	1.7	1.9	+ 0.2	+ 12%	0.5	1.4	+ 0.9	+ 180%	+6.8	+10.4	+ 3.6	+ 53%
Fixed-line capex**	7.5	8.4	+ 0.9	+ 12%	16	19.8	+ 3.8	+ 24%	+6.8	+10.4	+ 3.6	+ 53%
TOTAL COSTS***	23.9	24.9	+ 1	+ 4%	30.6	35.3	+ 4.7	+ 15%	+6.8	+10.4	+ 3.6	+ 53%

* All costs in Tables 5.4 and 5.5 not included here are held constant by Panel

** To end build period

*** "Total resource costs relative to no investment"

Figure 5: Slide tabled by Senator the Hon Stephen Conroy at the committee's public hearing, 3 October 2014, at: <http://www.aph.gov.au/DocumentStore.ashx?id=06b8d407-4361-4a72-ad59-e4e81ed8b888>. Figures drawn from the Cost-Benefit Analysis, Volume II, pp 56-57.

4.31 In evidence to the committee, Professor Henry Ergas stated that:

The essence of it was that what we did, together with the CIE and advisers, was to go through the calculations that had been made as systematically as possible. In part because circumstances had moved on since those calculations were made but also, perhaps, because of the fact that some of the calculations were made for the NBN strategic review, which was undertaken within a very tight time frame, we did find some anomalies and we corrected those anomalies.³⁰

4.32 The CBA identified several areas in which the Panel made 'refinements' to the Strategic Review's cost modelling, including in relation to productivity factors. The Panel of Experts assessed that the productivity gains estimated by the Strategic Review in its 'radically redesigned' FTTP scenario had been substantially overestimated, although the details of such analysis were not publicly released:

the Strategic Review assumed very substantial productivity gains during the NBN construction phase for all technologies. These were particularly high for FTTP, incorporating large productivity gains that were in addition to the efficiencies achievable from the Radically Redesigned FTTP network. The panel considered that the productivity gains for all technologies were very ambitious and as a result, conducted an analysis using an alternative set of productivity factors that are more consistent with international estimates of nation-wide network deployment.³¹

4.33 Panel member Mr Tony Shaw stated that:

...essentially our work was involved in examining the productivity gains that were assumed in the strategic review against what information was available to us from overseas experience and international benchmarking. The conclusion we reached was that they could, potentially, be very substantial but perhaps not quite as substantial as had been assumed. There were some adjustments done to reflect that view.³²

4.34 Despite this, the Panel acknowledged that its international comparisons were of very limited value:

[t]here is very little on an international scale that looks like the approach that was previously adopted. Indeed, there is not terribly much on the international scale that looks exactly like what we are trying to do at the moment either...what was being attempted was really without international parallel.³³

4.35 In addition to productivity factors, other costs modified related to indirect operating costs, project management and design costs, operational expenditure (OpEx)

30 Professor Henry Ergas, *Committee Hansard*, 3 October 2014, p. 39.

31 Panel of Experts, *Independent cost-benefit analysis of broadband and review of regulation: Volume II – The costs and benefits of high-speed broadband*, August 2014, p. 138.

32 Mr Anthony Shaw, *Committee Hansard*, 3 October 2014, p. 41.

33 Professor Henry Ergas, *Committee Hansard*, 3 October 2014, p. 47.

assumptions and other minor audit matters. While members of the Panel confirmed that several of these adjustments resulted in higher cost assumptions for FTTP,³⁴ the specific details of the panel's review of NBN Co's cost assumptions were all redacted in the published CBA.³⁵

4.36 Within its overall cost assumptions, the CBA adjusted the Strategic Review's assumptions of OpEx cost in the fixed line footprint for an FTTP scenario upward by 180 per cent, from \$0.5b net present value to \$1.4 billion, compared to a 12 per cent increase in OpEx for MTM, from \$1.7b to \$1.9b.³⁶ The broad descriptors provided in the published CBA in relation to the panel's assumptions of OpEx suggested that power and truckroll issues were the only revisions made to the Strategic Review calculations. However, the detailed calculations behind these OpEx estimates were redacted from the published CBA.³⁷

4.37 In its first interim report, the committee was critical of the assumption in the Strategic Review that the operational cost of rolling out the MTM would be similar to that of a fibre network. In particular, the committee noted caretaker advice provided to the government by NBN Co itself, and evidence given to the committee by various other witnesses, pointing out potentially enormous costs associated with remediation and maintenance of the Telstra copper network for FTTN, as well as the additional costs to NBN Co of managing multiple fixed line networks under MTM.³⁸ The Strategic Review nonetheless estimated operational costs without access to detailed data on the state of Telstra's copper network, and its specific assumptions about the extent and cost of remediation required to ready the network for FTTN were redacted.

4.38 In respect of the CBA, Professor Ergas advised the committee that:

The issue of the state of the copper network was examined in the strategic review, and the strategic review came to what it thought was a plausible assessment of the state of the copper network...their assessment I think was a reasonable assessment, and was consistent with all the information that is available about the state of the copper network, including a very substantial investment that has been made in rehabilitating the copper network...³⁹

4.39 In a 2012 study BIS Shrapnel calculated maintenance costs of the copper telecommunications network in Australia at up to \$1 billion of a total \$2 billion

34 *Committee Hansard*, 3 October 2014, pp 50–51.

35 Panel of Experts, *Independent cost-benefit analysis of broadband and review of regulation: Volume II – The costs and benefits of high-speed broadband*, August 2014, Appendix F, pp 137–154.

36 Panel of Experts, *Independent cost-benefit analysis of broadband and review of regulation: Volume II – The costs and benefits of high-speed broadband*, August 2014, pp 56–57.

37 Panel of Experts, *Independent cost-benefit analysis of broadband and review of regulation: Volume II – The costs and benefits of high-speed broadband*, August 2014, pp 142–143.

38 Senate Select Committee on the National Broadband Network, *Interim Report*, March 2014, pp 76–86.

39 Professor Henry Ergas, *Committee Hansard*, 3 October 2014, p. 51.

telecommunications infrastructure maintenance cost per year, over the fifteen years to 2027. BIS Shrapnel's study, based on direct surveying of contractors as well as its own analysis of information available from Telstra, concluded that a fibre NBN rollout could save \$600-700 million of those costs annually, once rolled out. Costs of maintaining copper arose from its vulnerability to issues such as wet weather and natural disasters, as well as the ageing status of the network, which meant maintenance cost was likely to rise over time. While a fibre network must also be maintained, BIS Shrapnel estimated such costs to be in the vicinity of \$200-300 million per year.⁴⁰

4.40 In the United States, Verizon explained its abandonment of copper in favour of fibre as a move to improve profit margins for the company, because of the significance of copper repair and maintenance expenses:

Verizon says the reliability of fiber makes maintaining older copper wire networks pointless.

'The bigger benefit is we are transforming the cost structure of our copper business because the copper fails two to three times more than fiber, which means we have two to three more times we have a tech and a truck rolling out to that copper connection. So we are eliminating that'...⁴¹

4.41 The CBA acknowledged that FTTN would have higher operational costs than FTTP over the longer term.⁴² Nevertheless, in its 'sensitivity testing' of OpEx, the Panel upwardly revised the Strategic Review's assumptions about the costs of rectifying faults on a brand-new fibre network, while revising downward the costs of maintaining fibre, copper and HFC networks under the MTM model.⁴³

4.42 The committee's first interim report pointed out the failure of the Strategic Review to account for the cost implications of increased complexity arising from operating multiple technologies in an MTM rollout, a matter which had been flagged by NBN Co in caretaker advice given to the government in 2013. The Strategic Review simply relied on the assumption that the costs of complexity would be offset

40 BIS Shrapnel, *Maintenance in Australia 2012-2027*, as cited in Stephanie McDonald, 'FTTP could save \$700m a year in maintenance', *Computerworld*, 20 August 2012, at <http://www.computerworld.com.au/article/433877/fttp-could-save-700m-year-maintenance/>; and Spandas Lui, 'NBN to save up to AU\$700m in copper maintenance costs', *ZDNet*, 20 August 2012, at <http://www.zdnet.com/article/nbn-to-save-up-to-au700m-in-copper-maintenance-costs/>.

41 Phillip Dampier, 'Verizon Declares Copper Dead: Quietly Moving Copper Customers to FiOS Network', *Stop the Cap*, 20 August 2012, at <http://stopthecap.com/2012/08/20/verizon-declares-copper-dead-quietly-moving-copper-customers-to-fios-network/>

42 Panel of Experts, *Independent cost-benefit analysis of broadband and review of regulation: Volume II – The costs and benefits of high-speed broadband*, August 2014, pp 58, 112.

43 *Committee Hansard*, 3 October 2014, p. 52.

by other cost reductions in MTM, without making public any detailed analysis in support of that assumption.⁴⁴

4.43 The Panel of Experts lowered even further the Strategic Review's estimate of corporate overheads for MTM:

All we are doing is seeing how sensitive results are if you make some variations to these parameter values. That is simply all we are doing. The person reading the report can make their own decision on what they think is appropriate.⁴⁵

4.44 In its 2014-17 corporate plan, NBN Co acknowledged the challenge for the organisation of adapting its operational and business support systems (OSS/BSS) to deal with multiple technologies:

In preparing for the MTM approach, it will be necessary to upgrade or replace some of NBN Co's foundation IT capabilities and systems. For OSS/BSS, the new operating model will necessitate a more effective governance and planning process to align construction, IT and business change and modifying existing OSS/BSS systems and associated operational processes to support FTTx, Copper, HFC, Fixed Wireless and Satellite services. For example, this might include provision of data from Telstra and Optus for HFC Cable Networks to address master data, adding modules to configure and enable layer 2 integration, modifying systems to handle change, fault and order management integration with Telstra and/or Optus and finally in-sourcing HFC inventory, activations, design, network management and assurance services onto NBN Co OSS/BSS (over time).⁴⁶

4.45 In December 2014 the Chief Executive Officer of NBN Co, Mr Bill Morrow, confirmed to the committee that the increased complexity of managing multiple networks was a factor in the company's ongoing financial considerations, particularly in relation to OSS/BSS costs. Mr Morrow declined to quantify the additional IT and other costs involved, indicating that this was ongoing work which would be reflected in future three-year corporate plans, but he maintained that they were 'within the overarching cost structure to make [MTM] a more economical approach'.⁴⁷

Cost assumptions: rollout timeframe for FTTP vs MTM

4.46 In May 2014, Dr Vertigan told the committee that the Panel of Experts would explore 'scenarios about how fast each of these rollouts occur...there are different speeds of rollout, it is not just a single scenario'.⁴⁸

44 Senate Select Committee on the National Broadband Network, *Interim Report*, March 2014, pp 91–93.

45 Mr Tony Shaw, *Committee Hansard*, 3 October 2014, p. 52.

46 NBN Co Limited, *Corporate Plan 2014-17*, 11 November 2014, p. 24.

47 Mr Bill Morrow, *Committee Hansard*, 2 December 2014, pp 50–51.

48 *Committee Hansard*, 5 May 2014, p. 68.

4.47 In later discussion with the committee, however, the Panel indicated that it did not factor in efficiency gains to its assumptions of rollout time for FTTP:

Senator CONROY:...Do efficiency and productivity gains result in a cheaper network that is quicker to deploy? Do these efficiency gains affect the build speed as well as the cost?

Mr Pearce: I think in the models, as we used them, the efficiency improvements did not affect the timing.

Senator CONROY: So even if they made the roll-out faster you did not think that that affected the timing.

Mr Pearce: No. If we reduced efficiencies, for example, we did not make the timing slower compared with what it was as set out in the strategic review. We used the same timing.

Senator CONROY: I am a bit confused here, so please bear with me. If you came to the conclusion that efficiency and productivity gains resulted in a cheaper network, you then did not factor that into the deployment schedule timing end date.

Mr Pearce: No, we used the same deployment schedule as in the strategic review.

Senator CONROY: How can you separate them out? If they introduced better digging equipment and if they introduced smaller cable sizes that made it easier to shove them down pipes, those are cost savings but also, on the most reasonable assessments, suggest that you have a faster build, as well.⁴⁹

4.48 The CBA's conclusion, noted above, that the productivity gains identified in the Strategic Review had been overestimated, meant that it did not accept any case for re-assessing the rollout timeframes set out in that document. This was despite the controversial decision of the Strategic Review to translate the significant efficiencies of a 'radically redesigned' FTTP over its baseline FTTP scenario (described by the CBA Panel of Experts as 'very substantial' productivity and efficiency gains) into only a six-month reduction in rollout time.⁵⁰

4.49 Professor Ergas advised the committee that the Panel had undertaken sensitivity tests modelling a faster rollout schedule, but that this did not alter the comparative conclusions of the CBA.⁵¹ The CBA stated that 'accelerating the deployment of FTTP to match that in the MTM would likely entail substantial cost increases'.⁵² However, the analysis did not take account of recent developments in improving the speed (and lowering the cost) of FTTP rollout, such as those demonstrated in NBN Co's Melton trial, discussed above in chapter 2. The Expert

49 *Committee Hansard*, 3 October 2014, pp 40–41.

50 See *Committee Hansard*, 3 October 2014, p. 42.

51 Professor Henry Ergas, *Committee Hansard*, 3 October 2014, p. 41

52 Panel of Experts, *Independent cost-benefit analysis of broadband and review of regulation: Volume II – The costs and benefits of high-speed broadband*, August 2014, p. 9.

Panel's Professor Henry Ergas described the Melton results as 'anecdotal' and not worthy of the same consideration as the findings of the Strategic Review.⁵³

4.50 Instead, the CBA uncritically accepted the Strategic Review's timeframe of 2023 for completion of a (radically redesigned) FTTP rollout. The CBA appeared to indicate in places that the FTTP rollout was assumed to complete even later, in 2024.⁵⁴ Under questioning by the committee, the Panel of Experts stated that it had not adjusted the Strategic Review's projected timings, but that the CBA had adjusted calendar years in the Strategic Review (CY2023) into financial years for the CBA (FY2023/24).⁵⁵ This was a curious anomaly given that the Strategic Review had indeed used financial year projections for its scenarios including FTTP, and that there was no similar issue in the CBA with respect to MTM rollout timing. The basis and impact of this discrepancy in the CBA remains unclear.⁵⁶

4.51 Meanwhile, the CBA assumed a 'perfect' MTM rollout completed by 2020, based on the Strategic Review scenarios, which had redacted all the detailed information about NBN Co's implementation schedule for the MTM. The Panel of Experts pointed out that it commenced its work soon after the completion of the Strategic Review, relied upon NBN Co's rollout predictions at that time and did not make use of evidence apparent in 2014 impacting upon the rollout speed and timing of the MTM rollout.⁵⁷

4.52 As Mr Shaw told the committee:

...to the extent that there has been information that has come to light since the cost estimates on which we built this cost-benefit analysis, then clearly that can have an effect. But, in undertaking any such analysis, you have to essentially freeze time and take a snapshot of the costs and benefits at that point of time. In undertaking this work, we have essentially taken what the NBN Co's strategic plan produced; and, to the extent that there are changes in a year or two years...then the model could be re-run and be adjusted to reflect those values.⁵⁸

4.53 A number of issues affecting the progress of NBN's MTM rollout were discussed above in chapter 2. These included delay in the completion of NBN Co's negotiations with Telstra and Optus to facilitate access to the copper and HFC networks; delays in the completion of FTTN and fibre to the building (FTTB) pilots

53 Professor Henry Ergas, *Committee Hansard*, 3 October 2014, p. 46.

54 Panel of Experts, *Independent cost-benefit analysis of broadband and review of regulation: Volume II – The costs and benefits of high-speed broadband*, August 2014, pp 44–45.

55 Panel of Experts, answer to question on notice (Question 8) following the committee's public hearing on 3 October 2014.

56 Department of Communications answer to question on notice (Question 214) from Senate Environment and Communications Legislation Committee Supplementary Budget Estimates, November 2014.

57 Professor Henry Ergas, *Committee Hansard*, 3 October 2014, p. 44.

58 Mr Tony Shaw, *Committee Hansard*, 3 October 2014, p. 45.

and product offerings; and the ongoing uncertainties demonstrated in the deficiencies of the 2014-17 NBN Co corporate plan. Notably, the CBA also appeared to mirror the Strategic Review's compound error in failing to take into account the potential time (as well as cost) implications of the need to remediate the Telstra copper network, a question to which no clear answers had been made available to the committee or the public at the time of this report.

Benefit assumptions: a narrow approach

4.54 The present Parliamentary Secretary to the Minister for Communications, Mr Paul Fletcher MP, told parliament in 2010 that a credible cost-benefit analysis must quantify the benefits of a FTTP NBN:

Let us see the systematic and careful quantification of those benefits. How many hospitals? How many scans? How many students will be educated? What will be the cost savings? Let us see those details...⁵⁹

4.55 During the preparation of the CBA, Dr Vertigan advised the committee that potentially significant benefits to business and society available through high-speed, high-quality broadband had emerged strongly in the Panel's consultations with stakeholders. These included cloud computing, end-to-end connectivity and the 'internet of things', as well as public-interest applications such as e-health and education.⁶⁰ Dr Vertigan said that beyond willingness to pay:

The other side of the benefits of broadband are really the intangibles, the externalities, that relate. We have spent quite a bit of time and we have the Centre for International Economics spending a great deal of time trying to establish where the other benefits are, from broadband. So we are far from ignoring it. This is an area such as commerce and the economy—information access, reduced rural exclusion and those sorts of things, public safety in terms of disaster response, culture, remote connections and education. There are a whole range of externalities where there are positive benefits of faster broadband: employment, equality and exclusion, wellbeing, the benefits of VoIP, HD video et cetera, online government services and a great many benefits in health and care. We are trying to model all of these things to try to understand where those benefits are. Whilst it is slightly off to the side, the highest bandwidth example that has been provided to us is where a young music student in the country has got past the point of the music teacher that is available in the country area. Do they have to move to the city? Do they have to travel to the city? No; in fact, very high bandwidth provides the opportunity for music tuition from an expert teacher in the city to deal with a student in the country.

We have been trying to explore all sorts of places where these other benefits exist that are not the ones that come from your normal willingness to pay

59 Mr Paul Fletcher MP, *House of Representatives Hansard*, 26 October 2010, p. 1565.

60 *Committee Hansard*, 5 May 2014, p. 76.

and because you are doing your daily downloads and uploads on your home computer. There is a much wider set of benefits.⁶¹

4.56 When released, however, the CBA revealed that no study had been undertaken to determine business willingness to pay, nor broader public benefit. Instead, the CBA took a narrow approach to its assessment of the NBN's benefits, considering them almost exclusively within a framework of 'willingness to pay' at the household level.

4.57 The Panel observed that '[t]here is very little information available on demand for high-speed broadband by Australian businesses'. The CBA nonetheless chose not to commission any research or modelling in this regard, instead relying on an assumption that '[b]usiness' benefits from high-speed broadband are likely to move in line with consumers' WTP' to posit a flat 50 per cent premium on its calculations of household WTP as a measure of benefit to business.⁶²

4.58 With regard to public benefit, the CBA determined that public sector benefits and externalities accounted for only 5 per cent and one per cent, respectively, of the total benefits of high-speed broadband.⁶³ In an appendix to its main report, the CBA noted public and external benefits (externalities) that 'may be realised through the use of broadband applications':

- improved education: improvements in education lead to increased productivity, only part of this is captured privately through higher wages;
- general environmental benefits;
- health benefits;
- public safety;
- reduced pollution;
- reduced traffic and associated costs: costs include those associated with infrastructure, congestion, accidents, noise and air pollution; and
- social inclusion benefits.⁶⁴

4.59 The CBA concluded that 'most of those benefits listed do not warrant separate consideration in this CBA'. The CBA further claimed that most of those benefits which did warrant consideration, were not relevant to a comparison between MTM and FTTP.⁶⁵

61 *Committee Hansard*, 5 May 2014, p. 78.

62 Panel of Experts, *Independent cost-benefit analysis of broadband and review of regulation: Volume II – The costs and benefits of high-speed broadband*, August 2014, p. 78.

63 Panel of Experts, *Independent cost-benefit analysis of broadband and review of regulation: Volume II – The costs and benefits of high-speed broadband*, August 2014, p. 80.

64 Panel of Experts, *Independent cost-benefit analysis of broadband and review of regulation: Volume II – The costs and benefits of high-speed broadband*, August 2014, p. 121.

65 Panel of Experts, *Independent cost-benefit analysis of broadband and review of regulation: Volume II – The costs and benefits of high-speed broadband*, August 2014, p. 122.

4.60 The CBA concluded that 'non-private benefits from high-speed broadband, particularly extremely high-speed broadband, are likely to be limited', and catered for these by applying a flat premium of five per cent on to its estimates of private willingness to pay. The Panel stated that it:

takes the view implicitly that ubiquity does not bring additional public benefits. For example, it may be argued that if rollout covers 100 per cent of households then the government may be able to shift delivery of services to a more efficient method. In our view this is unlikely to occur in practice.⁶⁶

4.61 In its submission to the committee, iiNet observed that '[t]he cost benefit analysis has no specific benefits to analyze, only costs... discussions are still mired in the operational issues of costs, timetables and technology, rather than national benefits'.⁶⁷ iiNet argued strongly for a more holistic consideration of the national objectives of high-speed broadband, including national productivity, job creation, export opportunities, regional and industry development, improved competition, and improved social outcomes.

4.62 As the committee's first interim report pointed out, numerous other witnesses and submitters to the committee have also emphasised the need to look beyond limited measures of household payment and television downloads, to the larger national economic and social benefits of a properly future-proof national broadband network.⁶⁸ The evidence given by witnesses on the NSW Central Coast in March 2014, cited in the first interim report and elsewhere in this report, provided the committee with striking real-world examples of small businesses and regional communities identifying significant economic and social benefits that could only be unlocked through access to world-class broadband.⁶⁹

4.63 Submissions have continuously been made to this committee since its inception from local and regional communities emphasising the economic and social value that a quality NBN infrastructure could unlock. Among many examples, the Northern Melbourne Regional Australia Development Committee, representing government, business and community groups in seven municipalities, highlighted 'the critical nature of high speed broadband to the future of our region', with the shift to a knowledge economy essential to an area with a shrinking manufacturing employment base, and the 'huge' potential benefits of growing a regional digital economy and opportunities for improved education and health through IT.⁷⁰ The Wagga Wagga City Council identified a universal FTTP rollout as not only a generator of much-

66 Panel of Experts, *Independent cost-benefit analysis of broadband and review of regulation: Volume II – The costs and benefits of high-speed broadband*, August 2014, pp 80–81.

67 iiNet, *Submission 11*, p. 1.

68 Senate Select Committee on the National Broadband Network, *Interim Report*, March 2014, pp 63–65.

69 See *Committee Hansard*, 11 March 2014.

70 Northern Melbourne Regional Development Australia, *Submission 90*.

needed productivity benefit, but as 'a means of narrowing the social inequity' between regional and metropolitan Australia.⁷¹ The ACT government emphasised that 'a world-class digital economy requires a world-class high speed broadband', elaborating on Canberra's digital strategy to realise significant and tangible benefits for business and the community.⁷²

4.64 The Warren Blackwood Alliance of Councils, representing the shires of Manjimup, Bridgetown-Greenbushes and Nannup in Western Australia, recommended that decision-making on the NBN 'assess the long term implications of focusing primarily on the initial cost as opposed to the long term benefit of providing the best service possible'.⁷³

4.65 Aside from the publicly-available evidence from media reports, community statements and parliamentary testimony, the CBA dismissed other compelling evidence in this regard, such as the widely-acclaimed *Building the Benefits of Broadband* study undertaken by Alcatel-Lucent in New Zealand in 2012, which determined that investment in FTTP would add more than \$5 billion to that country's GDP over a 20-year rollout period. The study identified known applications across health, education, business and the dairy sector which would increase efficiency and productivity through teleworking, high-definition video conferencing, on-line training, online doctors' visits, remote patient monitoring, remote classes, online herd management, cloud computing and others. Alcatel-Lucent reported that the combined consumer surplus of the applications considered in the study would reach nearly \$33 billion in New Zealand's economy over the 20-year period, and would continue to grow year-on-year.⁷⁴

4.66 The CBA briefly noted the Alcatel-Lucent study but dismissed its relevance, as it was based on methodology different from the Communications Chambers work and, in the Panel's (un-elaborated) view, was 'likely to overestimate the benefits of the NBN to businesses'.⁷⁵

Benefit assumptions: willingness to pay

4.67 As noted above, the CBA stated that its future household willingness to pay metric was calculated based on three factors: take-up rates of NBN products to date, a technological study of future broadband need prepared by Communications Chambers, and a 'choice modelling survey' of broadband demand conducted by the Institute for Choice.

71 Wagga Wagga City Council, *Submission* 83.

72 ACT Government, *Submission* 93.

73 The Warren Blackwood Alliance of Councils Inc, *Submission* 77.

74 Alcatel-Lucent, 'Building the benefits of high-speed broadband for New Zealanders', Media release, 21 February 2012, at <http://www.alcatel-lucent.com/press/2012/002592>

75 Panel of Experts, *Independent cost-benefit analysis of broadband and review of regulation: Volume II – The costs and benefits of high-speed broadband*, August 2014, p. 78.

4.68 While actual take-up rates on the NBN to date would appear to be the most concrete of these factors, the CBA's narrative and outcomes indicated that real world NBN take-up data assumed little importance in its predictions of future demand. The CBA stated that it used NBN Co take-up data from December 2013, at which time less than 100,000 households were utilising NBN fibre, discounting this element of its modelling as representing a 'relatively small number of customers' and likely to be influenced by 'selection bias' in relation to potentially disproportionate take-up of higher speeds by early adopters.⁷⁶

4.69 By July 2014, when the CBA was concluded, more than 150,000 customers were connected to NBN fibre services, but this updated information was not considered by the CBA.⁷⁷ Rather, the CBA prioritised the results of a hypothetical choice survey of just over 3000 participants, and a controversial modelling of future 'need' built on a range of highly contested technical and demand assumptions.

4.70 From an industry perspective, Chief Executive Officer of iiNet, Mr David Buckingham, told the media in August 2014 that 70 per cent of iiNet's 40,000 NBN customers were already using speeds of more than 12Mbps, and 30 per cent had taken up offered speeds of 100Mbps.⁷⁸

4.71 In its 2014-17 corporate plan, NBN Co itself highlighted the continued growth in broadband data usage in Australia, observing that '[t]raffic volumes and demand for faster services continued to rise', average data usage per user on fixed line connections rose by 44 per cent between June 2013 and June 2014, and by 2013 38 per cent of Australian households owned four or more internet-connected devices.⁷⁹

4.72 In December 2014, NBN Co reported to the committee that as at the end of October approximately 38 per cent of NBN users were on the 12/1 speed tier, 39 per cent on the 25/10 speed, four per cent on the 50/20 tier; and 19 per cent on the 100/40.⁸⁰ In other words, already 62 per cent of NBN users are selecting speed tiers higher than the demand projected by the CBA—15mbps by 2023!

The household 'choice' modelled by CHOICE

4.73 In May 2014, Dr Vertigan advised the committee that the Institute of Choice study was 'providing 2½ thousand people with a set of plans about what might be available to them, what they would be willing to pay and what they would take up'.⁸¹

76 Panel of Experts, *Independent cost-benefit analysis of broadband and review of regulation: Volume II – The costs and benefits of high-speed broadband*, August 2014, p. 108

77 See answer to question on notice (Question 222) from Senate Environment and Communications Legislation Committee, Supplementary Budget Estimates hearing, 20 November 2014.

78 David Ramli & Paul Smith, 'NBN: the never-ending story', *The Australian Financial Review*, 28 August 2014.

79 NBN Co Limited, *Corporate Plan 2014-17*, 11 November 2014, p. 10.

80 Mr John Simon, *Committee Hansard*, 2 December 2014, p. 53.

81 Dr Michael Vertigan, *Committee Hansard*, 5 May 2014, p. 71.

4.74 The options provided to the 3,312 participants in the Choice study, as set out in the CBA, were not reflective of actual plans and costs available on the market.⁸² The Department of Communications maintained that this was normal for a choice modelling study, which would offer options 'outside the range of combinations available in the market' in order to generate a demand curve.⁸³

4.75 The 'informed' group of participants in the Choice study were 'informed' with information based on Communications Chambers' modelling of the bandwidth required for different types of internet activities.⁸⁴ This included information asserting, among other things, that 5 Mbps is all that is required for 'streaming HD TV, downloading HDTV, downloading 4K TV and streamed gaming.'⁸⁵ The Cost-Benefit Analysis stated that a result of the Choice study was that the 'informed' group—the group that was fed information from Communications Chambers prior to conducting the survey—was 'more likely to choose cheaper lower speed packages as the price of the top plan (100 Mbps down/40 up) increases'.⁸⁶

Benefit assumptions: future bandwidth speed and demand

4.76 The third, significant element of the CBA's 'willingness to pay' metric, the Communications Chambers modelling of future projected bandwidth speeds and demand for Australian users of the NBN,⁸⁷ proved one of the most controversial aspects of the CBA, and was widely questioned and criticised by experts in the field following the report's release.

4.77 In a detailed response to the CBA's conclusions Dr Mark Gregory, Senior Lecturer in the School of Electrical and Computer Engineering at RMIT, was scathing. He described the model relied upon by the CBA to predict demand, prepared by the UK-based Communications Chambers, as 'a reworking of material prepared some time ago for a UK audience' which did 'not adequately reflect current knowledge of how the internet will change and grow in the decades ahead'.⁸⁸

82 Panel of Experts, *Independent cost-benefit analysis of broadband and review of regulation: Volume II – The costs and benefits of high-speed broadband*, August 2014, p. 172.

83 Department of Communications, answer to question on notice (Question 223) following Senate Committee on Environment and Communications, Estimates hearings, November 2014.

84 Panel of Experts, *Independent cost-benefit analysis of broadband and review of regulation: Volume II – The costs and benefits of high-speed broadband*, August 2014, p. 166.

85 Panel of Experts, *Independent cost-benefit analysis of broadband and review of regulation: Volume II – The costs and benefits of high-speed broadband*, August 2014, Chart H.1, p. 167.

86 Panel of Experts, *Independent cost-benefit analysis of broadband and review of regulation: Volume II – The costs and benefits of high-speed broadband*, August 2014, p. 73.

87 Robert Kenny & Tom Broughton, *Domestic bandwidth requirements in Australia: A forecast for the period 2013-2023*, Communications Chambers, 26 May 2014, at <https://www.documentcloud.org/documents/1280165-forecasting-australian-per-household-bandwidth.html>

88 Mark Gregory, 'What the NBN cost-benefit review doesn't tell you', *Business Spectator*, 3 September 2014, p. 3.

The CBA is entirely based on the material provided in Section 2.2 and no alternative data sets are provided or used, which is unusual and places too high a reliance on data provided by an organisation that does not hide its scepticism of the need for fibre, ensconced in its belief that internet growth will be glacial over the next decade thanks to improved data compression techniques and that consumer expectations will be adequately met by existing applications.

Section 2.2 appears to be a snapshot in time, one that occurred about five years ago and the data refined to match the data set. The problem is that there is no qualitative and quantitative evidence that the data set is accurate, we are simply told to accept it as it is.⁸⁹

4.78 Emeritus Professor Rod Tucker of the University of Melbourne was also highly critical of the findings of the Communications Chambers study, notably that by 2023 the median Australian household would require a broadband download speed of just 15Mbps.⁹⁰ Professor Tucker found that the data projections in the CBA were 'completely at odds' with both the data on actual usage in Australia, and international trends. He noted that 'Kazakhstan currently enjoys higher average download speeds than Communications Chambers thinks Australia will need in 2023'.⁹¹ By way of comparison Professor Tucker outlined his own, conservative extrapolations of current data on actual usage, which resulted in an expectation that Australian average download demand in 2023 would be at least 34Mbps.

4.79 NBN expert Mr Malcolm Alder, author of the original NBN implementation study in 2010, pointed out that changing attitudes among the young, as the future consumers of broadband services, were an important factor ignored in the CBA's projections. 'I would be wary of thinking that the extreme price sensitivity that the cost-benefit analysis talks about today regarding spending on broadband will necessarily be the same in five and 10 years' time'.⁹²

4.80 It was also noted that Communications Chambers had a well-known history as a sceptic about FTTP in the UK,⁹³ and a critic of Labor's NBN model in Australia, whose reports had been relied upon by Minister Turnbull in support of the Coalition's

89 Mark Gregory, 'What the NBN cost-benefit review doesn't tell you', *Business Spectator*, 3 September 2014, p. 4.

90 Panel of Experts, *Independent cost-benefit analysis of broadband and review of regulation: Volume II – The costs and benefits of high-speed broadband*, August 2014, p. 34.

91 Emeritus Professor Rod Tucker, 'Broadband projections fail reality test', *The Conversation*, 8 September 2014, at <http://theconversation.com/broadband-projections-fail-reality-test-31341>.

92 Paul Smith & Joanna Heath, 'NBN cost-benefit analysis slammed', *Australian Financial Review*, 28 August 2014.

93 See, for example, Robert Kenny and Charles Kenny, 'Superfast Broadband: Is it really worth a subsidy?' November 2010, at http://charleskenny.blogs.com/files/overselling_fibre_1127.pdf; Robert Kenny, written evidence to UK House of Lords Select Committee on Communications, Inquiry into Superfast Broadband, 23 March 2012, pp 387–393.

NBN policy.⁹⁴ The Strategic Review also cited Communications Chambers' previous UK study, upon which its work for the CBA appears to be based, in support of its own findings with regard to future demand.⁹⁵ The Panel of Experts was aware of this history and advised the committee that it knowingly engaged Communications Chambers with a view to developing an Australian version of its UK model.⁹⁶

4.81 Mr Morrow himself described Communications Chambers' projections as 'curious', adding that he expected data to massively increase in coming years, and suspected that the Panel of Experts was 'looking at a snapshot in time versus the prediction of what is to come'.⁹⁷ iiNet CEO Mr David Buckingham observed that his customers were choosing the NBN for its speed offerings, and that 'I don't think 15 megabits per second in 2023 will be enough'.⁹⁸

4.82 Critics noted that Communications Chambers' narrow approach, and the CBA's reliance on its findings, ignored very different results reached in other studies done within Australia and globally on this subject. For example, in June 2014, the Eindhoven University of Technology and Dutch consultancy Dialogic forecast that in 2020, sufficient subscription speeds for the average user would be approximately 165Mbps downstream and 20Mbps upstream.⁹⁹ In 2006, Swinburne University researchers Warren Harrop and Grenville Armitage forecast that 'with a family of five, all consuming high quality HD content at the same time, our base bandwidth requirement ranges from 58Mbit/sec to 113Mbit/sec' and on alternate modelling could be as high as a gigabit per second.¹⁰⁰ Even CISCO, on the conservative side, forecast that by 2018 in the Asia Pacific, the average fixed broadband speed would grow 2.7-fold, from 18Mbps to 48Mbps.¹⁰¹

94 www.malcolmturnbull.com.au/blogs/some-of-the-questions-on-fibre-to-the-home-gillard-and-conroy-won't-address-but-a-cost-benefit-analysis-would

95 NBN Co Limited, *Strategic Review*, December 2013, pp 78–79.

96 Department of Communications, answer to question on notice (Question 221), Senate Environment and Communications Legislation Committee Supplementary Estimates, November 2014.

97 Adam Bender, 'Vertigan broadband demand forecast leaves NBN co CEO 'curious'', *Computerworld*, 28 August 2014, at http://www.computerworld.com.au/article/553475/vertigan_broadband_demand_forecast_leave_s_nbn_co_ceo_curious/

98 David Ramli & Paul Smith, 'NBN: the never-ending story', *The Australian Financial Review*, 28 August 2014.

99 http://cable-europe.eu.apache11.hostbasket.com/content/uploads/2014/06/140624_Dialogic-Fast-Forward-How-the-speed-of-the-internet-will-develop-between-now-and-2020_FINAL.pdf

100 <http://caia.swin.edu.au/pubs/ATNAC06/Harropm.pdf>

101 http://www.cisco.com/web/solutions/sp/vni/vni_forecast_highlights/index.html

4.83 Telecommunications analyst Chris Coughlan saw it as 'clear that the approach and assumptions made skewed the data-speed requirements to the lower side'.¹⁰²

4.84 Mr Coughlan noted that in its estimate of assumption of only incremental increase, the Communications Chambers analysis (and consequently the CBA) relied heavily on an assumption of increased efficiency in video coding. However, he described this as a flawed assumption, as 'it would require a new more efficient video coding standard and this [is] not expected for at least another 10 years'.¹⁰³

4.85 Professor Haines has argued that cost-benefit analyses require difficult and complex calculations, particularly in the NBN context:

In terms of benefits, the problem of 'we don't know what we don't know' is highlighted. For the NBN, we do not know what technological innovation may arise during its lifetime. Whatever model ends up being implemented, we don't have the luxury of trying different models to see which yields a better outcome before we make a decision.¹⁰⁴

4.86 Associate Professor Kai Riemer of Sydney University went further, querying the usefulness of this kind of CBA modelling in an area of such significant and rapid technology change. He was quoted as observing that:

The cost-benefit analysis runs for around 25 years to 2040. If you go 25 years back to 1989, it's essentially pre-world wide web. So if you asked someone to imagine what this new internet thing could do and run a cost-benefit analysis of it you'd be in no position to possibly imagine the kinds of services and business models that the internet has changed in our society, businesses and lives.¹⁰⁵

4.87 Chris Coughlan ruminated along similar lines: ten years ago 'Facebook was only just getting started, Netflix had not yet begun streaming content and Apple had just opened its iTunes online store'. He argued that an unbiased CBA would have taken account of its very real limitations in predicting the applications that might be in use in the future, and used recent increases to extrapolate the growth of speed requirements into the future. 'However, this approach would not necessarily deliver the client's desired outcome'.¹⁰⁶

102 Chris Coughlan, 'Analysing the NBN: Ethics and broadband politics', *Business Spectator*, 10 September 2014.

103 Chris Coughlan, 'Analysing the NBN: Ethics and broadband politics', *Business Spectator*, 10 September 2014.

104 Professor Fiona Haines, 'Cost benefit analysis can help or hinder good policy', *The Conversation*, 6 August 2014, at: <http://theconversation.com/cost-benefit-analysis-can-help-or-hinder-good-policy-30147>

105 David Ramli & Paul Smith, 'NBN: the never-ending story', *The Australian Financial Review*, 28 August 2014.

106 Chris Coughlan, 'Analysing the NBN: Ethics and broadband politics', *Business Spectator*, 10 September 2014.

4.88 As a result of its uncritical reliance on the Communications Chambers study, Professor Tucker believed the Vertigan report's projections to have 'serious flaws', concluding that:

The Vertigan report includes a sensitivity analysis that shows an FTTP network can provide a better net cost-benefit outcome than a FTTN network if the growth in bandwidth demand is higher than used in their analysis. If they had used realistic data for growth in demand, their cost-benefit analysis may well have shown that a FTTP network will provide Australia with the best long-term value for money.¹⁰⁷

Future speed: performance matters

4.89 Dr Gregory also took issue with the CBA's technical analysis of future broadband speeds, arguing that it misled readers by suggesting that FTTP, FTTN and HFC all provided similar capabilities. The assumed speeds for each technology 'appear to come from an earlier report [that] was savaged by technologists at the time'.¹⁰⁸

4.90 Dr Gregory noted *inter alia* that:

FTTP connections provide the advertised speed while FTTN connections provide 'up to' the advertised speed and often less than 25 per cent of FTTN connections will achieve a speed between 75 and 100 per cent of the advertised speed.

4.91 Moreover, in Dr Gregory's view:

One significant concern is that a life cycle cost and performance analysis was not carried out by a team of engineering experts and the data from the analysis is used to provide information that is either missing, sketchy or incorrect.¹⁰⁹

4.92 Dr Gregory observed that the effects of congestion on performance and customer satisfaction were not adequately translated into the model:

The relationships between total network and link capacity, traffic class management, upload speeds and symmetric transmission requirements are not adequately covered in the CBA. Neither are the operational and maintenance costs, new applications and consumer expectations.

While it's natural for the CBA to be based on assumptions regarding how customers use the internet each day – how much data they consume and what applications they use – it's equally important to include the technical risk variables and assumptions.

107 Emeritus Professor Rod Tucker, 'Broadband projections fail reality test', *The Conversation*, 8 September 2014, at <http://theconversation.com/broadband-projections-fail-reality-test-31341>.

108 Mark Gregory, 'What the NBN cost-benefit review doesn't tell you', *Business Spectator*, 3 September 2014, p. 4.

109 Mark Gregory, 'What the NBN cost-benefit review doesn't tell you', *Business Spectator*, 3 September 2014, pp 2-3.

...The accuracy of these underlying assumptions is vital and more than one data set should be used to build and analyse the technical model prior to it being included in the CBA.¹¹⁰

4.93 Dr Gregory also drew attention to the assumption in the CBA that the speeds for FTTN, HFC and FTTP would remain constant between now and 2040, an 'audacious assumption that technologies should remain static for 26 years' which he described as 'nonsense'. Dr Gregory cited numerous studies providing very different projections of future bandwidth capability and demand, which were ignored by the CBA. He noted further that FTTP would provide infrastructure with a 50-80 year life to cope with future technology and speed upgrades, while VDSL2 and HFC would be fit for purpose for 5-10 years at most.¹¹¹

4.94 Reflecting upon the evident deficiencies of the CBA's speed and demand modelling, Dr Gregory was left to conclude that:

The CBA provides the outcome it was designed to deliver despite its failure to adopt a reasonable underlying technical model and data set. The failure to include a life cycle cost and performance analysis effectively negates the opportunity for informed debate around the merits or otherwise of the CBA's outcomes.

Participants in the NBN debate wanted to see a detailed and accurate analysis of the NBN that was based on credible and justifiable data and assumptions, but unfortunately this important opportunity has been lost.¹¹²

4.95 The CBA acknowledged that 'the FTTP scenario has the highest benefits once it is fully rolled out', even under the CBA's constrained 'willingness to pay' analysis.¹¹³ The CBA nonetheless declined to quantify that benefit and dismissed its significance based on its assessment of the longer rollout timeframe for FTTP compared to MTM.¹¹⁴

Failure to cost the upgrade path from MTM

4.96 One of the Panel's 'key findings' was that the MTM approach was more 'future-proof' than an FTTP rollout, because MTM 'can be upgraded should demand

110 Mark Gregory, 'What the NBN cost-benefit review doesn't tell you', *Business Spectator*, 3 September 2014, p. 3.

111 Mark Gregory, 'What the NBN cost-benefit review doesn't tell you', *Business Spectator*, 3 September 2014, p. 7.

112 Mark Gregory, 'What the NBN cost-benefit review doesn't tell you', *Business Spectator*, 3 September 2014, p. 7.

113 Panel of Experts, *Independent cost-benefit analysis of broadband and review of regulation: Volume II – The costs and benefits of high-speed broadband*, August 2014, p. 60.

114 Department of Communications, answer to question on notice (Question 215), Environment and Communications Legislation Committee, Supplementary Budget Estimates hearings, November 2014.

growth prove much greater than expected', while the costs of FTTP, once expended, are 'irreversibly sunk'.¹¹⁵

4.97 But despite its reliance on upgradeability as a key factor in the attractiveness of MTM, and despite an assurance to the committee from Dr Vertigan that the costs and consequential benefits of future upgrade would be included in the study,¹¹⁶ the CBA's assumption that Australians would not demand the high-speed broadband offered by FTTP meant that it did not factor in any costs at all for the future upgrading of MTM to FTTP over the timeframes of the study, to 2040.

4.98 The committee discussed the reasoning behind this with members of the Panel at its 3 October 2014 hearing:

Senator CONROY: Slide 1: perhaps I can just check, because this is one thing that has confused me. In your MTM model have you factored in any upgrade to FTTP in the future?

Prof. Ergas: We have a very significant component of FTTP in the MTM.

Senator CONROY: No, but to move beyond FTTN or even HFC—you have no costs in there for if someone suddenly decides that data growth is greater, then Robert Kenny thinks we need to upgrade—

Prof. Ergas: That is not quite right.

Senator CONROY: I am trying to understand it. Between now and 2040, have you put in upgrade costs to fibre to the premises?

Prof. Ergas: No. Essentially what happens is we deploy MTM, and MTM remains in place over the modelling period. We then look at a scenario in which you accelerate the transition to FTTP, and that is probably set out in our discussion of sensitivities as a sensitivity where willingness to pay rises more rapidly than we expect in the base case.

Senator CONROY: But in your main model it is not.

Prof. Ergas: Exactly.

Senator CONROY: It is in one of your sensitivity analyses, as it should be—

Prof. Ergas: Yes.

Senator CONROY: but in the main case there is no upgrade costs to FTTP.

Prof. Ergas: No.¹¹⁷

4.99 In short, the CBA did not envisage any upgrade requirement before 2025, and even then only in a case of unexpectedly high growth in demand. If and when upgrade

115 Panel of Experts, *Independent cost-benefit analysis of broadband and review of regulation: Volume I – National Broadband Network Market and Regulatory Report*, August 2014, pp 10, 14.

116 *Committee Hansard*, 5 May 2014, p. 69.

117 *Committee Hansard*, 3 October 2014, p. 53.

may be required, the CBA 'conservatively assumes that 20 per cent of the cost of FTTP can be avoided in an upgrade from FTTN to FTTP because of the investment already made in FTTN'.¹¹⁸

Key findings of Volume I: the Review of Regulation

4.100 The Panel's approach to regulation was driven by its critical analysis of the taxpayer funds spent to date on the NBN, as noted above. The CBA concluded that the government-led approach (whether delivering an FTTP or MTM rollout) was less efficient and effective than leaving high-speed broadband to the market, supported where necessary by direct subsidies. The Panel also stated that its approach to the regulatory issues was founded upon its finding in the CBA that 'there are substantial gains to maintaining an environment in which a range of technologies can contend'.¹¹⁹

4.101 In its Review of Regulation, the Panel focused on seeking an environment of maximum competition and contestability, in which regulation's only roles were to provide a foundation for that competitive environment, or to provide an alternative where market forces alone could not meet consumers' needs.

4.102 The Review of Regulation emphasised the risks of monopoly power in telecommunications networks, while recognising that practical constraints such as geography and existing regulatory structures may create the need for gradual transition. It concluded that:

Overall, the panel considers that an approach of delivering the NBN through a single entity (where NBN Co has comprehensive responsibility for planning, constructing, operating and commercialising high-speed broadband services across all platforms) will inevitably foreclose opportunities for diversity, innovation, competition and choice in the long term. Entrenching an infrastructure monopoly imposes too great a risk on consumers, government and taxpayers and is unlikely to meet the objective of timely and cost-effective deployment.

The panel believes these risks need to be mitigated through structural and regulatory changes that encourage competitive entry in the construction and ongoing delivery of broadband infrastructure.¹²⁰

4.103 Despite the overall conclusion of the Panel's earlier Statutory Review that there was a high level of satisfaction among stakeholders with the present legislative

118 Panel of Experts, *Independent cost-benefit analysis of broadband and review of regulation: Volume II – The costs and benefits of high-speed broadband*, August 2014, p. 13.

119 Panel of Experts, *Independent cost-benefit analysis of broadband and review of regulation: Volume I – National Broadband Network Market and Regulatory Report*, August 2014, p. 15.

120 Panel of Experts, *Independent cost-benefit analysis of broadband and review of regulation: Volume I – National Broadband Network Market and Regulatory Report*, August 2014, p. 16.

framework and its operation,¹²¹ the Review of Regulation was far-reaching in its 19 recommendations for change to the NBN's regulatory framework.

4.104 The Review recommended the removal of 'unnecessary constraints on competition' as a first step, including winding back the current protections for NBN Co as a monopoly provider of superfast carriage services in Parts 7 and 8 of the *Telecommunications Act*.

4.105 Significantly, the Review of Regulation also recommended that the government move toward disaggregating NBN Co itself into competing entities based on each of the constituent technologies of the broadband rollout:

Disaggregation would improve the prospects for infrastructure competition now and in the future, encourage private investment and bring specialist skills to bear in managing each of these networks. Rather than duplicate fixed costs, the approach the panel recommends would secure the maximum leverage from existing assets whose costs are sunk, using those assets as the basis for actual and potential competition. It would prevent assets consumers have paid for (including the copper in HFC areas) from being prematurely scrapped, instead harnessing those assets for the benefit of end-users. Over time, this approach should reduce financial risks to taxpayers, facilitate a transition to private funding and improve the chance of efficient and timely network deployment.¹²²

4.106 While the full privatisation of NBN Co was not recommended for immediate consideration, the Review recommended that the HFC network be privatised if possible, and stated that 'the objective of eventual [full] privatisation should inform, and be consistent with, implementation of the panel's recommendations'.¹²³

4.107 With regard to pricing, the Review of Regulation was critical of uniform wholesale pricing arrangements. The Review recommended instead, alongside the disaggregation of NBN Co, a gradual transition to 'cost-effective wholesale pricing', supplemented by direct subsidies to vulnerable consumers.¹²⁴ This could be funded either (preferably) from consolidated revenue, or from a broad-based industry levy

121 *Statutory review under section 152EOA of the Competition and Consumer Act 2010*, July 2014. at: http://www.communications.gov.au/broadband/national_broadband_network/cost-benefit_analysis_and_review_of_regulation/panel_reports_to_government, p. 6.

122 Panel of Experts, *Independent cost-benefit analysis of broadband and review of regulation: Volume I – National Broadband Network Market and Regulatory Report*, August 2014, pp 17–18.

123 Panel of Experts, *Independent cost-benefit analysis of broadband and review of regulation: Volume I – National Broadband Network Market and Regulatory Report*, August 2014, p. 23.

124 Panel of Experts, *Independent cost-benefit analysis of broadband and review of regulation: Volume I – National Broadband Network Market and Regulatory Report*, August 2014, p. 20. The Panel noted that a gradual transition to such a model would require working out how NBN Co and its wholesale price caps would function within a more competitive market. The Panel also stated (at p. 22) that if NBN Co were not disaggregated, such a mechanism should not be immediately pursued, but that cross-subsidies within NBN Co should be quantified and made transparent in annual reporting.

covering both voice and broadband services, similar to the current arrangements for the Universal Service Obligation.

4.108 Other key recommendations of the Review of Regulation included that:

- NBN Co's service objectives and obligations, currently expressed in the shareholder Ministers' Statement of Expectations (SoE) to the company, be specified in legislation;
- such legislation include an obligation as an 'infrastructure provider of last resort' on NBN Co (or potentially, in future, another entity) to provide certainty of service to end-users, once connected;
- legislative obligations be placed on developers of new real estate to make broadband services available to a requisite standard, whether through NBN Co or another entity, and to meet the costs of the necessary infrastructure; and
- there be a legislative requirement for review of the national broadband standard every six to 10 years, by an independent body such as the Productivity Commission.

4.109 Finally, the Review addressed the institutional arrangements for the sector, describing Australia as 'anomalous by international standards' in placing responsibility for infrastructure regulation in a competition and consumer authority (the ACCC). The Review recommended that these functions be removed from the ACCC and vested in a new specialist regulator.¹²⁵ This issue is discussed further in chapter 6.

Issues arising from the Review of Regulation

4.110 In evidence to the committee the Department of Communications advised that the industry reaction to the Vertigan panel's regulatory recommendations had been mixed, but that industry was on the record as 'largely supportive of the broader [existing] NBN model'.¹²⁶

4.111 The Competitive Carriers' Coalition (CCC) issued a statement critical of what it described as the Review's recommendations 'to emulate 1970s US telephone industry policy to promote investment in 21st century broadband networks', and rejected the recommendations for the disaggregation and privatisation of NBN Co. In a scathing analysis, the CCC stated that:

Most of the Vertigan recommendations represent nothing more than rehashed, discredited theoretical arguments promoted by opponents of regulatory reform and the NBN.

125 Panel of Experts, *Independent cost-benefit analysis of broadband and review of regulation: Volume I – National Broadband Network Market and Regulatory Report*, August 2014, pp 23–24..

126 Mr Drew Clarke, Secretary, Department of Communications, *Committee Hansard*, 3 October 2014, p. 32.

The inquiry has been an expensive distraction that has done little more than create uncertainty and disquiet across the industry during a crucial period of the transition to a new broadband network.

The time for historical revisionism and point scoring is long gone. The priority for the Government should be speeding up the structural separation of Telstra, the building of the NBN and the reduction of prices for basic services to all Australians, which remain disgracefully high – among the highest in the developed world.¹²⁷

4.112 The Department of Communications advised the committee that Telstra and Vodafone agreed that it would be too disruptive to introduce the regulatory changes proposed in the Review of Regulation in the short term, although Vodafone believed that the Review provided a useful framework to resolve longer term regulatory issues.¹²⁸

4.113 Optus, similarly, believed there was merit in longer-term reconsideration of key regulatory issues for the sector, but recognised that in the short-term, broader public policy objectives needed to be prioritised:

It would also be a bit of leap into the dark to embrace such fundamental policy objectives without being more certain of the NBN being delivered and more certain of what it will deliver within the current communications policy framework.

No matter what one thinks about how it will be delivered, it has to be recognised the NBN has cemented some bi-partisan consensus.

There is support for two very important instruments to deliver consumer choice and the potential for more effective service-level competition. These are structural separation and ubiquitous national broadband infrastructure that is not controlled by the dominant incumbent.¹²⁹

Competition policy and the TPG threat

4.114 The approach of the Review of Regulation to competition issues, and the government's response to it, was particularly relevant in light of the competitive 'cherry picking' challenge posed to NBN Co by TPG in metropolitan apartment blocks. Discussing that issue with the committee in September 2014, Mr Morrow said:

I think TPG by itself is manageable for us to stay within the model prescribed by the government and objectives prescribed by the board. However, if TPG are allowed to do this, it begs the question of whether there are other larger carriers that are allowed to do this and, if those larger

127 Competitive Carriers' Coalition Inc, 'Vertigan Recommendations Should Be Binned', Media Release, 2 October 2014, at <http://www.ccc.asn.au/vertigan-recommendations-should-be-binned/w1/i1001527/>.

128 Mr Drew Clarke, Secretary, Department of Communications, *Committee Hansard*, 3 October 2014, p. 32.

129 Mr David Epstein, Vice-President Corporate and Regulatory Affairs, Optus, speech to CommsDay Melbourne Congress, 7 October 2014, at <https://media.optus.com.au/wp-content/uploads/2014/10/Speech-Notes-CommsDay-Melbourne-07-October-2014-2.pdf>, p. 3.

carriers come in and this becomes a material deployment issue, then the model for NBN is clearly in jeopardy.¹³⁰

4.115 In April 2014 a complaint was made to the ACCC regarding TPG's marketing of these (FTTB) services, in light of the NBN 'level playing field' provisions of the *Telecommunications Act 1997*, as amended in 2011. The ACCC announced on 11 September 2014 that it had determined that TPG's activities were not in breach of the Act, due to a provision in the legislation that allowed broadband operators to extend their networks within one kilometre of their previously-existing network footprint. The ACCC stated that it would therefore take no action against TPG, but would conduct a declaration inquiry into whether such networks should be the subject of access regulation.¹³¹

Government response to the Cost-Benefit Analysis and Review of Regulation

4.116 In the government's initial response to the CBA, Minister Turnbull described it as a 'methodical, rigorous and comprehensive approach to answering the fundamental economic questions about high-speed broadband'. He welcomed the conclusions that 'strongly support' the Coalition government's MTM model.¹³²

4.117 The Minister nevertheless made clear that the government did not intend to act upon the CBA's finding that a completely unsubsidised NBN was the most cost-effective model. The minister stated that a private sector approach supplemented by a direct government subsidy, 'insofar as it was ever an option is long past', and reaffirmed the government's commitment to a subsidised network to provide universal coverage:

It's clear if you're going to have any sort of equity in terms of access to telecommunications in rural and regional Australia there will have to be some form of subsidy.¹³³

4.118 Responding to the Review of Regulation upon its release in October 2014, the minister said that:

The Government welcomes the work of the Vertigan panel and its reminder of the value of increased competition and greater private sector investment in infrastructure.

130 Mr Bill Morrow, *Committee Hansard*, 26 September 2015, p. 52.

131 Australian Competition and Consumer Commission, 'ACCC not to take action to block TPG's Fibre to the Basement network rollout', Media Release, 11 September 2014, at <https://www.accc.gov.au/media-release/accc-not-to-take-action-to-block-tpgs-fibre-to-the-basement-network-rollout>.

132 The Hon Malcolm Turnbull MP, Minister for Communications, 'Cost-Benefit Analysis: Multi-technology NBN delivers \$16 billion more', Media Release, 27 August 2014, at http://www.minister.communications.gov.au/malcolm_turnbull/news/cost-benefit-analysis-multi-technology-nbn-delivers-16-billion-more.

133 Joanna Heath and David Ramli, 'Dump rural NBN for extra \$6b benefits, analysis says', *Australian Financial Review*, 27 August 2014.

The panel's final report provides a roadmap that if carefully implemented over time will reduce risks currently borne by taxpayers and lead to a more efficient and sustainable structure of market regulation.¹³⁴

4.119 At the same time, the minister was mindful of risks to the NBN rollout, to the stability of the project and 'large losses for taxpayers and the Budget that would result from implementation of some of the panel's recommendations'. The government therefore announced that while disaggregation of NBN Co after completion of the network would not be ruled out, 'now is not the time'.¹³⁵

4.120 The minister stated that the government would, however, implement certain other measures in response to the Panel's recommendations, such as 'consulting industry on a carrier licence condition to ensure maintenance of the level playing field' for NBN, and examining reforms toward 'levelling the playing field' between NBN Co and the private sector in relation to broadband deployment in greenfields developments.¹³⁶ This has resulted in a \$600 developer charge (for SDUs) and a \$300 connection charge. The committee expects that this \$900 charge will be passed on to new home owners.

4.121 In relation to other issues, the Minister said the government would 'consider the panel's broader report in a rigorous and methodical manner' and consult with stakeholders prior to making a comprehensive response, before the end of 2014.¹³⁷

4.122 The government's formal response to the CBA and Review of Regulation was released on 11 December 2014, in the form of a report on telecommunications regulatory and structural reform.¹³⁸ Speaking to the report, Minister Turnbull and Finance Minister Cormann described it as 'a roadmap for reform in the telecommunications sector which will see several restrictive aspects of existing market

134 The Hon Malcolm Turnbull MP, 'Vertigan panel lays out path to less telecommunications regulation', 1 October 2014, at <http://www.malcolmturnbull.com.au/media/vertigan-panel-lays-out-path-to-less-telecommunications-regulation>

135 The Hon Malcolm Turnbull MP, 'Vertigan panel lays out path to less telecommunications regulation', 1 October 2014, at <http://www.malcolmturnbull.com.au/media/vertigan-panel-lays-out-path-to-less-telecommunications-regulation>

136 The Hon Malcolm Turnbull MP, 'Vertigan panel lays out path to less telecommunications regulation', 1 October 2014, at <http://www.malcolmturnbull.com.au/media/vertigan-panel-lays-out-path-to-less-telecommunications-regulation>

137 The Hon Malcolm Turnbull MP, 'Vertigan panel lays out path to less telecommunications regulation', 1 October 2014, at <http://www.malcolmturnbull.com.au/media/vertigan-panel-lays-out-path-to-less-telecommunications-regulation>

138 Australian Government, *Telecommunications Regulatory and Structural Reform*, December 2014, at http://www.communications.gov.au/_data/assets/pdf_file/0020/243902/-Telecommunications_Regulatory_and_Structural_Reform_Paper_-_11_December_...pdf

regulation gradually replaced with more competition-friendly settings...introduced in a way which does not delay or derail the NBN'.¹³⁹

4.123 The report flagged implementation of the following key reforms during an initial 'transition period' to the end of 2016:

- a new carrier licence condition from 1 January 2015 (for two years), requiring that networks competing with NBN Co for residential services provide wholesale access on a non-discriminatory, structurally separated basis, at a price of no more than \$27 per month for a 25/5mbps service;
- an up-front charge from NBN Co to developers of new housing developments, recouping part of the costs of broadband installation and allowing private contractors and operators to compete, to take effect from 1 March 2015;
- the development of additional rules for managing competing VDSL2 networks;
- a request to NBN Co that it move to replace its current uniform national wholesale prices with wholesale price caps;
- a review of the telecommunications-specific anticompetitive conduct regime in Part XIB of the *Competition and Consumer Act 2010*, during the second half of 2015;
- assessment of NBN Co's internal cross-subsidies by the Bureau of Communications Research, with a view to recommending a model for replacing them with a more transparent subsidy regime from 1 January 2017; and
- separation of the accounts and potentially also the IT (OSS/BSS) systems of NBN Co's business units for each different technology, by 1 July 2015, to 'keep options open' for future restructuring or disaggregation of NBN Co.¹⁴⁰

4.124 Subject to the success of these transitional steps, the government announced its intention that a new regulatory framework for the telecommunications sector would commence from 1 January 2017, providing for a more competitive environment with structural separation of all competing providers, competitively neutral arrangements for funding NBN Co's fixed wireless and satellite services, and legislation mandating NBN Co as the broadband infrastructure provider of last resort.¹⁴¹

139 The Hon Malcolm Turnbull MP, Minister for Communications, 'Reform of telecommunications regulation', Joint media release with Senator the Hon Mathias Cormann, Minister for Finance, 11 December 2014.

140 Australian Government, *Telecommunications Regulatory and Structural Reform*, December 2014, pp 5–7, at http://www.communications.gov.au/_data/assets/pdf_file/0020/243902/-Telecommunications_Regulatory_and_Structural_Reform_Paper_-_11_December_...pdf

141 Australian Government, *Telecommunications Regulatory and Structural Reform*, December 2014, p. 7, at http://www.communications.gov.au/_data/assets/pdf_file/0020/243902/-Telecommunications_Regulatory_and_Structural_Reform_Paper_-_11_December_...pdf

4.125 Finally, the government response noted the existing legislative requirement for a Productivity Commission review prior to the eventual privatisation of NBN Co and stated that 'the government considers that this review is the appropriate vehicle to revisit a number of the Vertigan panel's recommendations'.¹⁴²

4.126 On 11 December 2014, the same date as it released its broader response to the Review of Regulation, the government issued a policy paper on telecommunications infrastructure in new developments, with an invitation for comment by 15 January 2015.¹⁴³ The paper proposed that a deployment charge of \$600 for single-dwelling units and \$400 for multi-dwelling units would be levied on developers of new housing developments, plus a connection charge of \$300 be levied on RSPs, 'which it is anticipated [RSPs] will pass through to end-users'. Where NBN Co did not already have backhaul in place to connect a new development, additional charges would be levied on developers comprising \$500 of the first \$1000 required to install it, and 100 per cent of the cost beyond the first \$1000.¹⁴⁴ These charges were to commence in relation to new development applications received from 1 March 2015, although a few days before that date the government announced that implementation of the connection (and presumably backhaul) charge would be delayed to 1 July 2015.

4.127 The promised new carrier licence condition commenced on 1 January 2015, with the immediate effect of requiring TPG to revise its FTTB broadband service. TPG announced the temporary withdrawal of the service, saying it had had insufficient time to fulfil the licence conditions, but re-launched its FTTB product on 19 February 2015, with the required offering of wholesale access on a non-discriminatory basis (the condition allowed companies until 1 July 2015 to complete full structural separation).

4.128 Noting the speed of TPG's resumption of competition with the NBN, and a resulting \$10 per month increase in the cost of services to new customers, one commentator observed that the new arrangements 'achieved very little other than to add to the telecommunications industry chaos'.¹⁴⁵

4.129 Minister Turnbull announced later in January 2015 that the government would introduce an industry levy on companies which competed directly with the NBN, to contribute to the cross-subsidy for rural areas. The Minister said that this would not increase present NBN wholesale costs, but would be clearly identified within the

142 Australian Government, *Telecommunications Regulatory and Structural Reform*, December 2014, pp 5–6, at http://www.communications.gov.au/_data/assets/pdf_file/0020/243902/-Telecommunications_Regulatory_and_Structural_Reform_Paper_-_11_December_....pdf

143 http://www.communications.gov.au/broadband/telecommunications_regulatory_reform

144 Australian Government, *Telecommunications infrastructure in new developments: Policy update for comment*, December 2014, p. 5.

145 Mark Gregory, 'TPG back on its fibre horse', *Business Spectator*, 20 February 2015.

existing NBN wholesale charge (in which it had always been a hidden component), with an equivalent levy imposed upon competitors.¹⁴⁶

Committee view

4.130 The Cost-Benefit Analysis is a deeply flawed and overtly political document. It is not credible and is not a reliable basis upon which to make decisions about the NBN.

4.131 In opposition, Mr Turnbull promised an independent cost-benefit analysis. Three weeks before the 2013 election he promised that Infrastructure Australia would do this work:

We are going to do a rigorous analysis, we will get Infrastructure Australia to do an independent cost benefit analysis.¹⁴⁷

4.132 Instead, the CBA was prepared by a hand-picked team selected by the Communications Minister, comprising former Liberal Party staff and some of the most vociferous critics of the NBN, with predictable results.

4.133 It is an axiom of the telecommunications industry that FTTP networks are capital intensive but have low ongoing maintenance and operations costs compared to legacy networks. By contrast, legacy networks have lower capital costs, but much higher maintenance and operations costs. The committee considers that a genuine appraisal of these costs out to 2040 would not have delivered the outcome the Government wanted from the CBA. This is why the Vertigan Panel arbitrarily 'amended' NBN Co's operating expense assumptions for FTTP—increasing them by **180 per cent** compared to 12 per cent for other MTM technologies.

4.134 The Cost-Benefit Analysis:

- included an absurdly pessimistic quantification of technical household demand—15 mbps by 2023— that relied on a study conducted by a UK firm known for its (uniquely) pessimistic view of future broadband demand, rather than demand forecasts from reputable firms (e.g. CISCO);
- assumed that the current mix of technologies assumed for the MTM in the Strategic Review will be in place for the next 25 years—until 2040—and included no costs in the main scenario for future upgrades;
- relied on suspect projections by Communications Chambers, a small Choice modelling survey corrupted by Communications Chambers misinformation, and a limited sample of households on NBN fibre, instead of the substantial sample of households on the NBN (150,000+) demonstrating *actual* willingness to pay (62 per cent of whom are already ordering speed tiers of 25 mbps or above); and

146 Joanna Heath and David Ramli, 'Competing telcos must pay levy to bring broadband to the bush, says Malcolm Turnbull', *Australian Financial Review*, 21 January 2015.

147 Allie Coyne, 'Turnbull's NBN policy "detailed enough" to escape costing', *IT news*, 16 August 2013, at <http://www.itnews.com.au/News/353616,turnbulls-nbn-policy-detailed-enough-to-escape-costing.aspx>

- adopted a narrow, private 'willingness to pay' metric which underpinned 95 per cent of the analysis, which failed to account for business demand or the many, well documented benefits to business and the public from world-class future broadband.

4.135 On the Market and Regulatory Review, for the sake of brevity, the committee considers the comments of the Competitive Carriers Coalition (CCC) adequately convey the committee's view. The CCC noted at the publication of the Market and Regulatory Review that the Vertigan recommendations should be 'binned', saying:

Most of the Vertigan recommendations represent nothing more than rehashed, discredited theoretical arguments promoted by opponents of regulatory reform and the NBN.

The inquiry has been an expensive distraction that has done little more than create uncertainty and disquiet across the industry during a crucial period of the transition to a new broadband network.

The time for historical revisionism and point scoring is long gone.¹⁴⁸

148 Competitive Carriers' Coalition Inc, 'Vertigan Recommendations Should Be Binned', Media Release, 2 October 2014, at <http://www.ccc.asn.au/vertigan-recommendations-should-be-binned/w1/i1001527/>.

Chapter 5

Broadband Quality and Availability

5.1 In September 2013 the government asked the Department of Communications to prepare a report on broadband availability and quality. A national summary report on broadband infrastructure and performance was released by the Minister for Communications, the Hon Malcolm Turnbull MP, on 23 December 2013.¹ It was intended to be the first release of material providing a snapshot of broadband availability and quality. The department indicated that it would refine the detail of its analysis and compile maps which would be published along with the methodology used.

5.2 The final Broadband Availability and Quality Report (the report), which included maps to provide consumers with the opportunity to search the results for their local area, was released on 20 February 2014 along with the department's 'MyBroadband' website.² At the committee's public hearing on 12 March 2014, NBN Co confirmed that data from the MyBroadband website would inform the proposed rollout plan for underserved areas.³

5.3 The department later confirmed that the total cost incurred for the broadband quality project as at 23 October 2014 was \$302,460 (GST inclusive). Most of this cost went on website development (\$97,453), website hosting (\$130,607) and the Google Maps license (\$46,200).⁴

5.4 This chapter summarises the key findings of the report; discusses a number of concerns raised in evidence about the accuracy and reliability of information included in the report and on the department's MyBroadband website; and contains the committee's view.

Purpose and methodology of the report

5.5 In opposition, Malcolm Turnbull was often critical of the rollout schedule of the NBN (which was determined by a number of engineering factors, including the location of necessary infrastructure, and the agreement with the regional independents to prioritise regional areas). In its 2013 election policy, the Coalition said:

Within 90 days the Department of Broadband Communications and the Digital Economy, with the assistance of NBN Co and private carriers, will provide Parliament with a ranking of broadband quality and availability in

1 Department of Communications, Broadband Availability and Quality: *Summary Report*, 23 December 2013

2 Department of Communications, Broadband Availability and Quality Report, December 2013

3 *Committee Hansard*, 12 March 2014, p. 32.

4 Department of Communications, Answer to Question on Notice No. 5, Public Hearing 3 October 2014

all areas of Australia. This ranking will be published for comment and review and will guide prioritisation of the rollout.⁵

5.6 The report is based on a spatial analysis of the coverage of broadband customer access networks, along with an estimate of their likely performance using known constraints. The analysis considered three categories of broadband delivery separately: fixed broadband (including FTTP, FTTN, ADSL, HFC and fixed wireless), mobile broadband (3G and 4G) and satellite broadband. The main purpose of the analysis was to describe broadband access across Australia and identify areas with poor broadband services. The analysis which informed the report represented a snapshot of broadband access as at December 2013. It consisted of extensive datasets which were provided by a range of telecommunications carriers. The report stated:

The Strategic Review included estimated costs to allow for areas with poorer current broadband service to be prioritised. It assumed prioritisation will take into account reasonable operational efficiency considerations, such as needing to rollout in contiguous work fronts and dealing with an area as a whole.⁶

5.7 In response to a question at an additional estimates hearing of the Environment and Communications Legislation Committee in February 2014, Mr Clarke, Secretary of the Department of Communications, told the committee that the purpose of the report:

...is to provide an assessment of broadband availability and quality at a level of granularity—spatial resolution, if you like—that is suitable to inform the company's prioritisation in the rollout. The website...supports that by providing a more accessible version for the public to also view what our assessment concluded in the areas in which they live.⁷

5.8 Mr Clarke further told the committee that the department was exploring a number of options to update the report and website as new broadband infrastructure was built:

The options that we are looking at closely now are, first, to add a capacity for people to measure their actual broadband experience—the speed test, if you will—and to send that information back through the website to the department so that we get data points on actual user experience...⁸

5.9 The analysis of broadband in the report was based on a spatial model incorporating the coverage of the fixed technologies that deliver broadband services,

5 *The Coalition's plan for fast broadband and an affordable NBN*, April 2013, at <http://lpaweb-static.s3.amazonaws.com/Policies/NBN.pdf>, p. 9.

6 Department of Communications, *Broadband Availability and Quality Report*, December 2013, p. 6.

7 *Committee Hansard*, additional estimates, Environment and Communications Legislation Committee, 25 February 2014, p. 33.

8 *Committee Hansard*, additional estimates, Environment and Communications Legislation Committee, 25 February 2014, p. 33.

in combination with factors that may constrain access to a service or affect the quality of a service. The report noted that the modelling approach was designed following a review of similar projects conducted in the United Kingdom, the United States, Canada, Germany and the European Union.⁹

Findings of the report

5.10 The report made a number of findings in relation to broadband availability and quality. The executive summary stated that the findings:

...are based on a detailed spatial analysis of the coverage of broadband customer access networks, along with estimates of their likely performance given known constraints. This analysis uses the available information to measure broadband availability in terms of the infrastructure currently in place. It uses the possible speeds achievable over that infrastructure to measure quality. This methodology was determined after references to international experience.

Overall the analysis found that there are areas of inadequate access to infrastructure across the country—approximately 1.4 million premises (13 per cent) are in areas where fewer than 40 per cent of premises can access a fixed broadband service. The premises in this category are typically located in regional or remote areas of Australia, or in small pockets of poor service in metropolitan and outer metropolitan areas.¹⁰

5.11 The executive summary went on to specify the key findings of the premises level analysis. For broadband availability the findings included:

- approximately 9.9 million premises (91 per cent) have access to fixed line broadband services delivered via asymmetric digital subscriber line (ADSL) technology;
- approximately 3.1 million premises (28 per cent) have access to a high speed broadband platform (defined as including fibre to the premises, fibre to the node, hybrid fibre coaxial and fixed wireless networks);
- approximately 8.8 million premises (81 per cent) have access to 3G mobile broadband services and about 6.4 million premises (59 per cent) have access to 4G services; and
- all Australian premises are covered by satellite broadband, although there is a ceiling to the capacity of these services and therefore not all premises can access a service.¹¹

5.12 For broadband quality the findings included:

9 Department of Communications, Broadband Availability and Quality Report, December 2013, p. 36.

10 Department of Communications, Broadband Availability and Quality Report, December 2013, p. 3.

11 Department of Communications, Broadband Availability and Quality Report, December 2013, p. 3.

- approximately 3.1 million premises (28 per cent) have access to peak download speeds of between 25 megabits per second (Mbps) and 100Mbps;
- approximately 7.1 million premises (65 per cent) are in areas that have access to peak median download speeds of less than 24Mbps over the copper network;
- about 0.7 million premises (6 per cent) are unable to access a fixed broadband service; and
- of premises with access to ADSL broadband services over copper, about 3.7 million are located in areas with an estimated peak median download speed of less than 9Mbps, and 920,000 in areas with an estimated peak median download speed of less than 4.8Mbps.¹²

Issues arising from the report

The #MyBroadbandvReality survey

5.13 As part of its ongoing inquiry, the committee received an important submission which provided a critical response to the MyBroadband website. The submission collated information contained in a large survey of people around Australia. Over 800 people participated in the survey in response to Twitter, Facebook and other social media avenues of promotion. The survey's main purpose was to gather information about whether the actual internet speeds people were receiving matched the estimates from the MyBroadband website. The survey also invited respondents to provide general comments about their internet service and quality.

5.14 Appearing before the committee on 19 May 2014, one of the submission's authors, Mr Grosvenor, explained how the survey came about:

A number of people were going to the MyBroadband website and getting an estimate from there which was saying that they should get such-and-such a speed or such-and-such a quality of internet service and then, when they did their own speed test, many of them found that what they actually got was significantly less than what [the MyBroadband] website was telling them.¹³

5.15 The submission raised a number of issues critical of the information contained on the MyBroadband website, including what it regarded to be significant omissions. It made nine recommendations for the committee to consider, some of which addressed a range of issues broader than the content of the MyBroadband website. These included that future discussion about broadband:

- include the impact of weather and region specific environmental factors;
- consider broadband as critical infrastructure like other essential services such as water and electricity;

12 Department of Communications, Broadband Availability and Quality Report, December 2013, p. 4.

13 *Committee Hansard*, 19 May 2014, p. 1.

-
- ensure the broadband network could grow in speed and bandwidth alongside Australia's broader economy;
 - include the productivity and security risks inherent in the existing copper network;
 - ensure the publication of an accurate map of existing broadband infrastructure including realistic equitable options to inform the electorate;
 - include a realistic cost of ongoing legacy network maintenance or replacement;
 - include a productivity impact of network congestion, in light of growing population and future home devices;
 - include consideration of equity of internet access; and
 - include regular community feedback.¹⁴

5.16 The submission's main conclusion was that information published on the MyBroadband website was inaccurate and misleading. The real-world broadband speeds experienced by people were significantly lower than the information on the website was telling them, taking into account ISP and geographical factors:

...for many Australians, the reality of their broadband does not match the information on the Government's MyBroadband website. Through a survey and graphing results, we have shown the frustration experienced by people around the country that they do not have access to reliable and affordable high-speed internet. We are also concerned that many of our survey respondents struggled to understand the technical issues related to matters.¹⁵

14 #MyBroadbandvReality, *Submission 52*, p. 1.

15 #MyBroadbandvReality, *Submission 52*, p. 1.

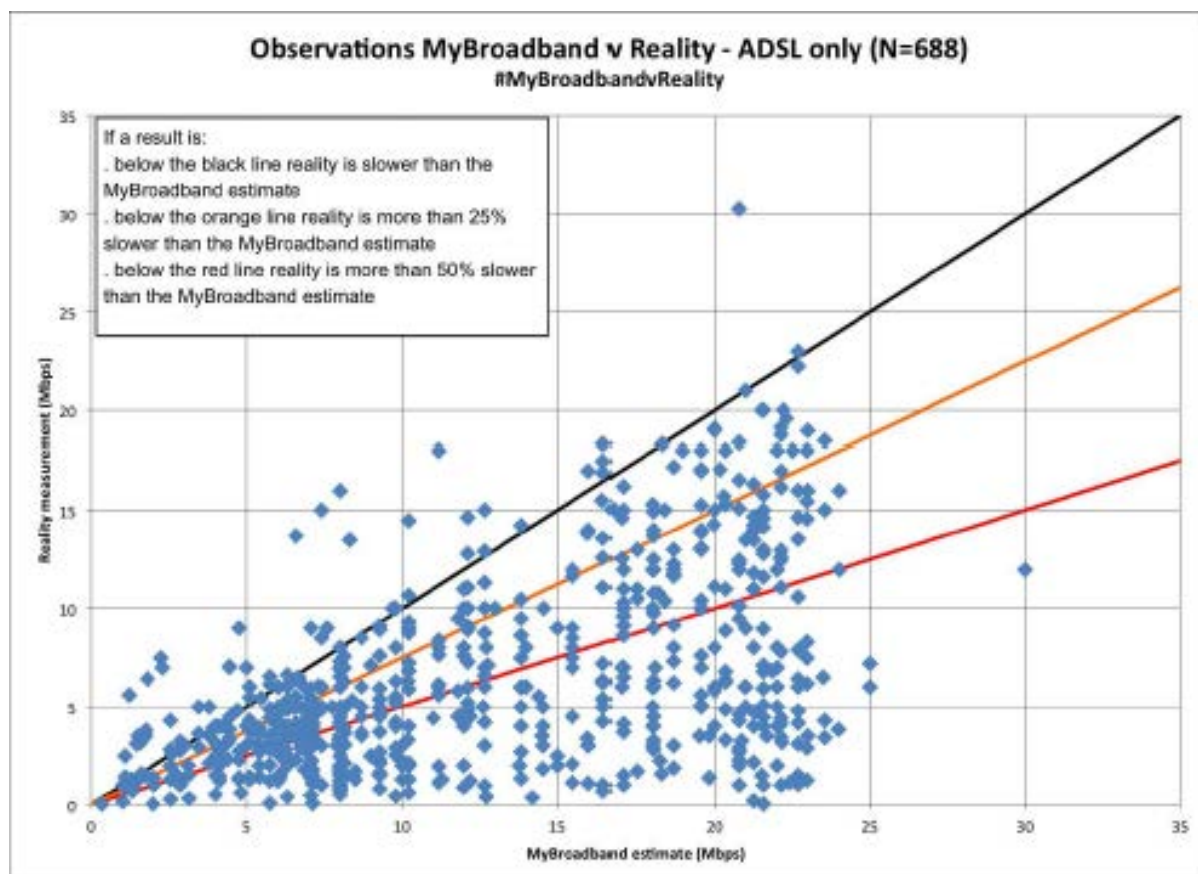


Figure 6: #MyBroadbandvReality, *Submission 52*, p. 3.

5.17 The submission included a graph which showed that most participants in the survey experienced speeds more than 25 per cent lower than the MyBroadband estimate (see figure 6). The survey results took into consideration two important qualifying factors:

- it is likely some lower speed observations are due to a person's selection of a cheaper internet provider plan, thus producing slower speeds; and
- a risk of survey selection bias whereby the results obtained are overly influenced by the audience selected.¹⁶

5.18 Mr Grosvenor explained at the hearing that:

...looking at [the graph] as a whole...the majority of respondents were tending to get only eight megabits per second as their highest possible speed. Then what you can sort of see visually is that there were very few people where their actual reality speed was greater than the estimate from the myBroadband website, and that is the few diamonds that are above that black diagonal line. Whereas the vast majority tend to be considerably below the black line and in a lot of cases below the red line even. That red

¹⁶ #MyBroadbandvReality, *Submission 52*, p. 4.

line represents where your actual speed is only 50 per cent of what the my Broadband estimate was.¹⁷

5.19 Mr Grosvenor informed the committee of a second follow-up survey involving 1000 people that addressed issues not covered by the first survey, such as asking what people actually used the internet for. Responses showed that most people were using the internet for banking and paying bills; news and weather; being socially connected with friends and family by Skype, social media and email; and watching games, videos and iView. Overall, the follow-up survey reinforced the main findings of the first survey:

Broadly speaking, it confirmed the same sorts of things that the first survey did: that actual speeds survey respondents were getting were significantly less than what the myBroadband website stated they should get.¹⁸

5.20 At the public hearing, Mr Grosvenor drew the committee's attention to the first, and most important, recommendation which was that the impact of weather and regional environmental factors should be considered during any significant discussion about broadband. Issues raised in evidence by the #MyBroadbandvReality submission relating to survey data on internet speeds and the effects of inclement weather on broadband availability and quality are addressed in more detail in the remaining sections of this chapter.

Conflicting evidence on rollout priorities

5.21 An issue the committee explored with NBN Co and the Department of Communications was contradictory policy announcements relating to where the broadband network would be rolled out first and on what basis a decision would be made to roll out the NBN to priority areas. In November 2013 the Minister for Communications made a very public commitment that underserved areas identified by the department would be prioritised to receive the rollout 'first'. During a speech to the CommsDay Conference in Sydney on 18 November 2013, the minister stated:

...up to two million households and businesses across Australia cannot get basic fixed-line broadband at present. Addressing these underserved areas first is a key objective of our NBN policy.

As a priority my Department, with the assistance of NBN Co and private carriers, will provide the Government and Parliament with a ranking of broadband quality and availability in all areas of Australia. This ranking will be published for comment and review and guide future prioritisation of the rollout.¹⁹

5.22 However, by December 2013 both NBN Co and the department had qualified the Minister's remarks by stating that areas of greatest need would receive the rollout

17 *Committee Hansard*, 19 May 2014, p. 5.

18 *Committee Hansard*, 19 May 2014, p. 2.

19 The Hon Malcolm Turnbull MP, 'Rebooting the NBN Project', Speech to *CommsDay* Conference, 18 November 2013, at <http://www.malcolmturnbull.com.au/media/rebooting-the-nbn-project-speech-to-commsday-conference>, p. 7.

first where it was 'logistically and commercially viable to do so.' In practice, this meant that not all underserved areas would be prioritised in line with the Minister's April 2013 and November 2013 pledges because—as you would expect—the many underserved areas in Australia are underserved precisely because it is not 'logistically and commercially viable' for the private sector to serve them.

5.23 In evidence to the committee's public hearing on 17 December 2013, NBN Co's Head of Strategy, Mr Rousselot, told the committee that NBN Co was relying on the department to advise which areas were underserved and, based on the information, those areas '...would be prioritised in the rollout and therefore would be completed about 2.5 years earlier than the rest of the population'.²⁰

5.24 However, NBN Co Executive Chairman and Chief Executive, Dr Switkowski, made it clear at the same hearing that an assessment of which areas would be rolled out 'first' and which areas were 'high priority' were not one and the same thing:

...we are going to bring [poorly served communities] forward in the rollout schedule. Does that mean they are the first areas that we will look at? No, it does not mean that.²¹

5.25 The department's broadband and availability quality report also made it clear that the scale and location of underserved premises mean that not all of these premises could be addressed first. NBN Co would need to consider a range of factors including cost, logistics and reasonable operational efficiency.²²

5.26 Release of NBN Co's new Statement of Expectations (SoE) by shareholder ministers in May 2014 and the Corporate Plan 2014–17 by NBN Co in November 2014 provided further evidence of an incremental watering-down of the Minister's November 2013 commitment to roll out the NBN to underserved areas first. The new SoE included a range of policy and commercial issues to guide the NBN rollout as it transitioned from a primarily fibre to the premises (FTTP) model to the multi-technology mix (MTM) model recommended by the 2013 Strategic Review. One such issue included that:

NBN Co will prioritise areas identified as poorly served by the 'Broadband Availability and Quality Report' published by the Department of Communications in February 2014 (including any subsequent refinements arising from additional data) to the extent commercially and operationally feasible.²³

20 *Committee Hansard*, 17 December 2013, p. 48.

21 *Committee Hansard*, 11 December 2013, p. 49.

22 Department of Communications, *Broadband Availability and Quality Report*, December 2013, p. 6.

23 The Hon Malcolm Turnbull MP and Senator the Hon Mathias Cormann, *Government Expectations*, 8 April 2014. In response to written Question on Notice No. 77 from the Committee's 11 July 2014 public hearing, NBN Co confirmed that the term 'poorly served', which does not appear in the Department's Availability and Quality report but which does appear in the Statement of Expectations, is understood to mean 'under-served'.

5.27 The SoE also directed NBN Co to include in its 2014–17 corporate plan details of the approach NBN Co would take to implement an MTM NBN. One of the policy issues identified was the rollout scheduling and prioritisation of poorly served areas.

5.28 In response to a written question on notice from an Additional Estimates hearing in May 2014, NBN Co attempted to put some parameters around the meaning of 'commercially and operationally feasible' as it related to poorly served or underserved areas:

Each area is analysed based on the technology available, delivery capability, and construction costs required to service that area. It is expected that after an iterative process of analysis and validation, a proposed set of feasibility rules can be determined.²⁴

5.29 The Corporate Plan 2014–17 included a section on 'Prioritisation of Underserved Areas' as part of its consideration of implementing the strategic direction of the MTM NBN. It referred to the department's finding that there were approximately 1.6 million premises in areas which could be categorised as not having access to adequate broadband services. Most of these areas were located in regional or remote areas or in small pockets of poor service in metropolitan and outer-metropolitan areas:

In accordance with the April 2014 Statement of Expectations, NBN Co's rollout of the MTM will prioritise underserved areas to the extent commercially and operationally feasible. It is estimated that, overall, the FTTP construction planned to commence in FY2015 will pass more than the proportionate amount of underserved Premises in these areas.²⁵

5.30 In evidence provided at a public hearing on 11 December 2013, the Department of Communications provided the first clarification of the intention of the broadband survey and what the analysis would provide. The Secretary, Mr Clarke, told the committee that while the data would include information about what speeds were being achieved at particular locations within an area, it would not be able to represent the approximately 10 million premises and draw a ranking of what they could do:

...this is not a house-by-house engineering analysis. This will not answer the specific question on a specific address. The intent of it is to indicate areas—not individual households but areas that are not served or are underserved...in order to inform prioritisation of completion of the rollout of the NBN...²⁶

5.31 At a hearing the following March, the department clarified that the information on the MyBroadband website in relation to speed was the estimated

24 Additional estimates, Environment and Communications Legislation Committee, Question on Notice No. 284, May 2014

25 NBN Co, *Corporate Plan 2014–17*, 11 November 2014, p. 18.

26 *Committee Hansard*, 11 December 2013, p. 75.

median peak speed for all premises in a given area: 'It is not the individual premises speed'. When someone put in their address the results were for the local area only; individual circumstances may vary to a significant degree.²⁷ The department further explained that a geographic area was the construct or boundary of the Telstra distribution area. For the purpose of its analysis, the department was able to distinguish which ADSL services within an area emanated from the cabinet (multiplexer) and which emanated from the exchange:

For every premise in a [distribution area] that had access to ADSL, we made a calculation of what we thought their peak speed was and then—say there are 200 premises in the DA—we found the median, the midpoint of all the results in that exchange and that is what we are reflecting.²⁸

5.32 The survey data from the #MyBroadbandvReality submission presented in figure 6 is a good illustration of how the MyBroadband website estimates represent almost the maximum rather than average speed, which is what the website (and the department) implies. Submission author, Mr Grosvenor, told the committee:

...the [MyBroadband] website talks about the 'median speed' that people should receive, which means it should be the middle speed. But we did not find it anywhere near the median.²⁹

Evidence from the New South Wales Central Coast

5.33 Evidence received from witnesses on the New South Wales Central Coast at the committee's hearing in Terrigal on 11 March 2014 provided an interesting snapshot of the wider picture presented by the #MyBroadbandvReality survey and submission. The Central Coast was one of the first rollout sites for the NBN and by the end of 2013 there was an expectation the region was on track for a three-year delivery of FTTP across the coast.

5.34 The committee heard evidence in relation to two surf clubs which were showing high download speeds on the MyBroadband website when the clubs in question in fact had no broadband infrastructure. Mr Abrahams, spokesperson for the Central Coast Broadband Alliance, drew the committee's attention to:

...the somewhat clumsy attempt on the MyBroadband website to represent our region as one that has ample broadband infrastructure via ADSL, wireless or otherwise. In our opinion...it should be taken down throughout the region. It is not accurate. I bring two tests: both McMasters surf club and Killcare surf club reportedly have 17 megabits per second potential speed for their download capacity over ADSL2. I can report from committees of both these clubs that there is no broadband infrastructure in those two surf clubs, zero, nothing. We once had ADSL1 but, because of the congestion, we have nothing.³⁰

27 *Committee Hansard*, 12 March 2014, p. 60.

28 *Committee Hansard*, 12 March 2014, p. 63.

29 *Committee Hansard*, 19 May 2014, p. 5.

30 *Committee Hansard*, 11 March 2014, pp 25–26.

5.35 Mr Abrahams speculated that the data used by the department came from: '...Telstra's theoretical ADSL map, which we all know is on a parallel universe because it has never existed or actually gelled with reality in this particular part of the world'.³¹

5.36 A similar scenario was presented to the committee by Mr Patrick Spedding, managing director of research and development for Rocket Software in Sydney. Speaking in his private capacity, Mr Spedding told the committee of his experience getting his new house connected to ADSL through AAPT at eight megabits per second in 2009, which he described as 'bearable'. However:

Now we are at two megabits per second, max. The myfraudband website—sorry, myBroadband!—states that we can get 21.56 megabits per second, median speed. Now, I am a mathematician, so I understand the difference between a max and a median. And basically that is not possible.³²

5.37 The committee heard from a number of other Central Coast witnesses who described how their personal experience did not match the information provided on the department's website in relation to internet speeds. The main concern was that the information being made available by the department through its website was overestimating average download speeds, sometimes by a significant margin. Inaccurate information was therefore being provided to NBN Co to determine the type of service that would be offered. People's confidence in the authenticity of the MyBroadband website data was being eroded because it was not authoritative at any given point in time.

5.38 Senator O'Neill expressed people's frustrations in the following way:

That is civic information. It is citizens seeking information about the society in which they live. I think they have a reasonable expectation, despite the complexity of this information management, that they are going to get something that is approximating the truth in terms of their experience.³³

5.39 Responding to the concerns raised at the hearing in Terrigal, the department at one point rejected the argument that the information on the website was inaccurate, but later qualified this response by rejecting claims that the website itself was 'totally inaccurate'. The Secretary, Mr Clarke, acknowledged that producing a modelled outcome that was a median for hundreds of premises was 'inherently frustrating' for people who could not match the speeds received at their home address with the information available on the department's website.

Estimated median peak broadband and upload speeds

5.40 The department confirmed that the website's use of the phrase 'limited availability' in certain circumstances to describe the number of available ports in a

31 *Committee Hansard*, 11 March 2014, p. 26.

32 *Committee Hansard*, 11 March 2014, p. 42.

33 *Committee Hansard*, 12 March 2014, p. 61.

multiplexer was misleading because there were occasions where the information provided should have read 'no availability'. In response to the department acknowledging that approximately 1.1 million premises across the country were in areas where there was 'limited port availability', the committee's chair, Senator Lundy, asked:

Wouldn't it be more honest and open to describe the situation, rather than being 'limited availability', that there is 'finite availability' in those areas? And wouldn't it be more honest and open to describe the myBroadband website as 'Your community's estimated average median broadband' website—for the sake of openness and honesty, because at the moment people look up myBroadband and they do not get their broadband; they get the community's estimated median peak broadband and then some obfuscation...The term 'limited availability' is a misleading euphemism for a finite capacity in their geographic area.³⁴

5.41 Further questioning of the department during Additional Estimates hearings in February 2014 and at the committee's public hearing in Sydney on 12 March 2014 addressed the issue of upload speeds:

Senator CONROY: Did you do a median upload speed?

Ms Grainger: No, we did not.

Senator CONROY: Why not?

Ms Grainger: Senator, we did not have data available to us in that respect.

Senator CONROY: What? Nobody knows what their upload speeds are?

Ms Grainger: No, we did not have the data available to us in that respect. We do set out in the report the download speeds and upload speeds in relation to each technology platform, but we specifically focused on download speeds with ADSL...

Senator CONROY: We are talking about broadband quality and you identify five-meg upload as defining broadband quality and you have made no effort to test even the 20,000 Telstra lines for their upload.

Ms Grainger: We had download speed real empirical data available to us but we did not have the upload speed data available to us.³⁵

5.42 At a later hearing, the department reiterated that it did not have data available in relation to upload speeds, but that it was the department's intention to include a speed test facility on the website:

Chair [Senator LUNDY]: Can you get that data?

Ms Grainger: In relation to the crowd source data, when we put the speed test on the site we are going to be capturing that. That is something we are

34 *Committee Hansard*, 12 March 2014, p. 64.

35 *Committee Hansard*, additional estimates, Environment and Communications Legislation Committee, 25 February 2014, pp. 38–39.

very much looking forward to getting. That will give us a real test of user experience.

Chair: This is critical because obviously upload speeds create genuine interactivity and make the internet work for people, as opposed to them being in large part a bunch of passive consumers. Will the new capability that you are building in to allow that input by the crowd have a specific category for upload speeds as well as download speeds?

Ms Grainger: Yes, that is our intent.³⁶

5.43 When asked why data on upload speeds was not available at the time the MyBroadband website was launched, the department later confirmed that it had:

...requested a range of detailed data from carriers, including measurements of copper line signal loss, and/or line sync speeds attributable to specific cable lengths in each Distribution Area where ADSL services were available.

The Department is capturing measurements of upload speed by implementing a data speed test facility on the MyBroadband website.³⁷

5.44 Mr Clarke informed the committee that several enhancements had been implemented, with more to follow, that would enable crowd-sourced data to be openly overlaid on the department's database:

One was to take new developments in actual build infrastructure into the model. The second was to publish the underlying data. The third will be adding our own speed tests...onto the site.³⁸

'It's raining outside; my network's not working'

5.45 One issue that has been raised with the committee and with parliamentary committees established in previous parliaments to examine broadband-related issues, is the effect of inclement weather on the reliability of Telstra's copper network. As previously noted, the #MyBroadbandvReality submission included at the top of its list of nine recommendations consideration of the impact of weather and region specific environmental factors on broadband availability and reliability:

Rain in particular was a recurring theme in many comments. For people with ADSL, 'rain' was mentioned 63 times. Extreme heat also caused people's connections to either drop out or cease totally, requiring a call to Telstra. Considering the amount of extreme weather this country experiences (in particular drought and flooding), this should be paramount to any decision-making in regard to what infrastructure would work best for which location, as well as ensuring what is currently in use has not already been irreparably damaged.³⁹

36 *Committee Hansard*, 12 March 2014, p. 65.

37 Answer to Question on Notice No. 13, 12 March 2014.

38 *Committee Hansard*, 12 March 2014, p. 65.

39 #MyBroadbandvReality, *Submission 52*, p. 5.

5.46 This end-user evidence—from everyday Australians using the internet from home or trying to run small business—is important because it corroborates previous evidence received by the committee about the effect of rain on Telstra's pits and the weather protection (or lack thereof) of the physical network. Yet the department's evidence to the committee confirmed that while some of the factors that affect broadband availability and quality were included in their report and on the MyBroadband website, inclement weather was not one of them. Assistant Secretary, Ms Grainger, told the committee at its 12 March public hearing:

Availability for ADSL technology can be impacted by a range of factors: pair gains, distance from the exchange and the type of technology that is actually available. We catalogue all of those in our report and we also set those out.⁴⁰

5.47 The report's introduction made it clear that the spatial analysis of the coverage of broadband customer access did not include local or temporary variations in broadband infrastructure, services available or service quality, network dimensioning or other operational factors that were the responsibility of individual network owners. It added:

Other factors that impact on an end user's experience and perception of quality such as reliability, retail pricing, competition, value-added components to the service, weather events and mobility were also excluded from the analysis.⁴¹

5.48 When asked if the well-known reality of the effects of inclement weather on the copper network was factored into the MyBroadband website data, Ms Grainger confirmed:

We recognise that weather and weather events can have an impact on infrastructure, particularly broadband. But, realistically, we did not have any data available until we set out. While we recognise that weather events have an impact on both availability and quality, we had no data available to us to include that in our modelling.⁴²

5.49 Mr Grosvenor was critical of the department's approach to providing practical advice to consumers about the effects of weather in its report and on its website. He argued that no real effort was made to make people aware that the network was unreliable in certain weather conditions such as rain and extreme heat. He noted that while mention of weather was hidden away on the MyBroadband website in a 'Frequently Asked Question' on the methodology '...[my] feeling is that the typical person is not going to follow that and read that far'.

5.50 Mr Grosvenor put to the committee that the department should have been more up-front with people, and that its website:

40 *Committee Hansard*, 12 March 2014, p. 60.

41 Department of Communications, *Broadband Availability and Quality Report*, December 2013, p. 5.

42 *Committee Hansard*, 12 March 2014, p. 66.

...should state very clearly, first off, what type of internet connection [people] will get—whether it is ADSL, satellite or fibre to the premises. And then, for example, if it states that it is ADSL and gives a speed estimate, almost straight away it should say in a big note, 'Weather can have a big impact on the speed or the quality'.⁴³

Committee view

5.51 The committee notes that, in opposition, the Coalition made unqualified claims about prioritising underserved areas. In April 2013 the Coalition promised that 'suburbs, regions, towns and business districts with the poorest services and greatest need for upgrades will receive first priority'.⁴⁴ This promise was repeated by the minister in November 2013, when he said: 'two million households and businesses across Australia cannot get basic fixed-line broadband at present. Addressing these underserved areas first is a key objective of our NBN policy'.⁴⁵

5.52 Since December 2013, this pledge has been incrementally watered down. Now areas of greatest need will only receive the rollout 'first' where it is 'logistically and commercially viable to do so'. In practice, this means that few underserved areas will be prioritised in line with the minister's April 2013 and November 2013 pledges because—as you would expect—the many underserved areas in Australia are underserved precisely because it is not 'commercially viable' for the private sector to serve them.

5.53 The committee considers that in many cases the MyBroadband data is unreliable and is not meeting community expectations. In many cases, the 'estimated average mean' speeds do not reflect the real speeds achieved by individuals. This was set out at length in the #MyBroadbandvReality submission and testimony provided to the committee.

5.54 The Broadband Availability and Quality Report also makes some interesting conclusions about broadband quality which reflect the political genesis of the review. For example, the report includes no detail of upload speeds in its assessment of broadband quality, and both HFC and FTTP are accorded the same 'quality' rank of 'A', despite the gulf in upload performance. Further, the report does not factor environmental conditions into its analysis, despite the susceptibility of copper-based broadband to weather conditions.

43 *Committee Hansard*, 19 May 2014, p. 4.

44 *The Coalition's plan for fast broadband and an affordable NBN*, April 2013, at <http://lpaweb-static.s3.amazonaws.com/Policies/NBN.pdf>, p. 2.

45 The Hon Malcolm Turnbull MP, 'Rebooting the NBN Project', Speech to *CommsDay* Conference, 18 November 2013, at <http://www.malcolmturnbull.com.au/media/rebooting-the-nbn-project-speech-to-commsday-conference>, p. 7.

5.55 The committee welcomes the timeliness of the #MyBroadbandvReality submission and the Australia-wide survey which underpinned it. The committee acknowledges that the survey was not scientific and that it relied on voluntary online contributions, but considers that the survey represents a community-sourced, real-world investigation of broadband availability and quality.

Chapter 6

Governance issues

6.1 Since the publication of the committee's first interim report, two reviews into NBN policy and governance have been published: the 'Independent audit of the NBN policy process' (the 'Scales Review') and the 'NBN Co Limited Corporate Governance Review' conducted by KordaMentha. 2014 was also a year of further change in the management of NBN Co, with the commencement of new CEO Bill Morrow, other senior management changes and internal reforms.

The 'Scales Review' of NBN policy

6.2 In March 2014 the Minister for Communications and the Minister for Finance appointed Mr Bill Scales AO to conduct an 'independent audit of the NBN policy process'. The audit was to examine the policy process from April 2008 to May 2010 that resulted in the establishment of NBN Co Limited, and provide recommendations on what future actions should be taken by the Australian government in relation to both the NBN public policy process, and other major projects or reforms.¹

6.3 Mr Scales presented his report (the 'Scales Review') to the Minister for Communications on 25 July 2014, and it was publicly released and tabled in parliament on 4 August.

6.4 The Department of Communications advised the committee that the cost of the Scales Review was \$375,475.²

Key findings of the Scales Review

6.5 The Scales Review assessed that the first stage of the Labor government's process to develop the NBN through a private sector tender process, which was referred to as 'NBN Mark I', was 'in general conducted appropriately from a public policy perspective'. The Review asserted that the request for proposal process exhibited a lack of pertinent information about the framework and criteria for the NBN project.³

6.6 The Scales Review's major criticism of the Mark I process was that the ACCC 'overstepped its authority' in providing 'unsolicited advice' to the panel of experts considering the proposals that FTTN was not a stepping stone to FTTP. The ACCC had advised that around 70 per cent of the costs of the FTTN proposals were 'node-related expenditure' that would be 'stranded costs' in any subsequent upgrade to

1 'Independent audit of the NBN public policy process: Terms of Reference', in Bill Scales AO, *Independent Audit: NBN Public Policy Process April 2008-May 2010*, 25 July 2014, Appendix 1.

2 Department of Communications, answer to question on notice (Question 6) following the committee's public hearing on 3 October 2014.

3 Bill Scales AO, *Independent Audit: NBN Public Policy Process April 2008-May 2010*, 25 July 2014, p. ix.

FTTP.⁴ The Review believed that this ACCC intervention had a particularly important influence on the subsequent decision by government to adopt a FTTP model, but that the ACCC lacked the expertise and mandate to offer such advice.⁵ The Scales Review also opined that it was inappropriate for the panel of experts to provide confidential 'observations' to the government following the failure of the tender process.⁶

6.7 The Scales Review's findings on this point were in conflict with the assessment of the Australian National Audit Office, which determined in a 2010 audit that the conclusions and observations of the panel of experts were supported by appropriate evidence.⁷

6.8 The Scales Review also examined the public policy process underpinning 'NBN Mark II.' The Scales Review asserted that the 11 weeks from the receipt by the government of the Panel of Experts' report in January 2009 to the announcement of NBN Mark II in April was an inadequate timeframe to do all the work necessary for such significant policymaking on one of Australia's largest ever public infrastructure projects, particularly at a time of 'frenetic' government activity across the board in response to the global financial crisis and other priorities.

6.9 The Scales Review also asserted that the completion of NBN's first preliminary business case in March 2010 was 'far too late'. Similarly, the Review criticised the timeframe for issuing NBN Co with a comprehensive Statement of Expectations in December 2010.⁸

6.10 The Scales Review recommended that commitments to new large infrastructure projects should be fully and independently costed by the Productivity Commission or Infrastructure Australia before they proceed, and the costs and project plans publicly disclosed before the project commenced.⁹ A related recommendation was that all public sector infrastructure projects with costs over \$1 billion should be subject to cost-benefit analysis, with the results made public prior to the commencement of the project.¹⁰

4 Bill Scales AO, *Independent Audit: NBN Public Policy Process April 2008-May 2010*, 25 July 2014, pp 36–37.

5 Bill Scales AO, *Independent Audit: NBN Public Policy Process April 2008-May 2010*, 25 July 2014, pp 73–76.

6 Bill Scales AO, *Independent Audit: NBN Public Policy Process April 2008-May 2010*, 25 July 2014, p. xxviii.

7 Australian National Audit Office, *The National Broadband Network Request for Proposal Process: Department of Broadband, Communications and the Digital Economy*, Audit Report No.20 2009-10, p. 21.

8 Bill Scales AO, *Independent Audit: NBN Public Policy Process April 2008-May 2010*, 25 July 2014, p. xxxiii.

9 Bill Scales AO, *Independent Audit: NBN Public Policy Process April 2008-May 2010*, 25 July 2014, p. x.

10 Bill Scales AO, *Independent Audit: NBN Public Policy Process April 2008-May 2010*, 25 July 2014, p. xi.

6.11 The Scales Review also offered a number of more general recommendations for future public policymaking, including in relation to Cabinet consideration, independent monitoring, and the public service role in the development of major projects.

Issues arising from the Scales Review

The reality of the NBN development process

6.12 The criticism of the public policy process for 'NBN Mark II' in the Scales Review was largely based on the assertion that it was conceived hastily and without proper consideration by Cabinet or officials.

6.13 The Scales Review emphasised that responsibility for the detailed development of NBN Mark II fell to the Strategic Priorities and Budget Committee of Cabinet (SPBC, with the additional participation of the Minister for Broadband, Communications and the Digital Economy) rather than the full Cabinet.¹¹ Advisers outside the government were not used, and details of the policy were closely guarded even within the government.¹²

6.14 Mr Scales expressed his opinion on the work done during that time:

I consider the policy development process could not have been properly undertaken in 11 weeks, no matter how hard SPBC and the group of public servants worked, and how devoted they were to developing the new NBN Mark II.¹³

6.15 It should be noted that the 11 week timeframe and process to launch the revised NBN policy and establish NBN Co Limited, as described in the Scales Review, was far from the claim repeatedly made by the Minister for Communications and others, that the present NBN was conceived by the then Prime Minister and Minister for Broadband, Communications and the Digital Economy 'on the back of a

11 Bill Scales AO, *Independent Audit: NBN Public Policy Process April 2008-May 2010*, 25 July 2014, p. xx. The members of the SPBC were the Prime Minister, Deputy Prime Minister, Treasurer and Minister for Finance and Deregulation.

12 Bill Scales AO, *Independent Audit: NBN Public Policy Process April 2008-May 2010*, 25 July 2014, p. xxi.

13 Bill Scales AO, *Independent Audit: NBN Public Policy Process April 2008-May 2010*, 25 July 2014, p. 83.

beer coaster' during a two-hour flight.¹⁴ That version of events was not mentioned in the Scales Review; rather, Mr Scales acknowledged that 'from the evidence provided to me it is clear that both [SPBC and officials] worked extremely hard to develop the proposals'.¹⁵

6.16 In addition, the Scales Review observed that the department had in fact begun working on options for an alternative network as early as August 2008, in response to advice that the request for proposal process was likely to fail. Formal papers were submitted in October and December 2008 canvassing options for the government to build its own network.¹⁶

6.17 Others involved at the time have gone on the record to state that the Scales Review did not present an accurate or fair description of the process undertaken in 2009-2010. This committee outlined the policy process behind the development of the NBN in its first interim report,¹⁷ noting in particular that in addition to reports from its panel of experts and the ACCC, '[t]he Government also received advice from other Government agencies and the external advisers engaged by the Department on costing alternative proposals'.¹⁸ The department formally advised parliament in 2009 that '[t]he Government considered a range of options before decisions were taken to terminate the National Broadband Network (NBN) Request for Proposals process and to adopt the NBN policy announced on 7 April 2009'.¹⁹

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- 14 See, for example, The Hon Malcolm Turnbull, *House of Representatives Hansard*, 18 November 2013, p. 440; The Hon Malcolm Turnbull, *House of Representatives Hansard, Questions without notice*, 4 June 2014, p. 5543; 'Turnbull stays mum on NBN alternative', *BRW*, 28 February 2012, http://www.brw.com.au/p/technology/turnbull_stays_mum_on_nbn_alternative_7hRMo3xvd1iCiGHoEP1qoN; 'Turnbull accuses Labor of "pork barrelling"', *Computerworld*, 6 June 2012; http://www.computerworld.com.au/article/426798/turnbull_accuses_labor_pork_barrelling/ (accessed 19 March 2015); The Hon Malcolm Turnbull, *House of Representatives Hansard, Questions without notice*, 16 June 2014, p. 5944; 'Govt set to unveil NBN report', *Lateline* (transcript), 4 May 2010, <http://www.abc.net.au/lateline/content/2010/s2890371.htm>; The Hon Mr Hartsuyker, *House of Representatives Hansard*, 19 September 2012, p. 11265; The Hon Mr Fletcher, *House of Representatives Hansard*, 26 October 2010, p. 1564
- 15 Bill Scales AO, *Independent Audit: NBN Public Policy Process April 2008-May 2010*, 25 July 2014, p. 83.
- 16 Bill Scales AO, *Independent Audit: NBN Public Policy Process April 2008-May 2010*, 25 July 2014, p. 35.
- 17 Senate Select Committee on the National Broadband Network, *Interim Report*, March 2014, pp 2–6.
- 18 Senate Select Committee on the National Broadband Network, *Interim Report*, March 2014, p. 4.
- 19 Department of Broadband, Communications and the Digital Economy, answer to question on notice (Question 4) following Senate Standing Committee on Environment, Communications and the Arts Budget Estimates hearings, May 2009.

6.18 Former ACCC Chair, Professor Graeme Samuel AC, described the Scales Review as 'probably the least valuable' of all the coalition government reviews of the NBN, stating that it was 'fundamentally flawed in its evidence base' and insulting and offensive in its dismissal of the expertise and advice of both the ACCC, and the panel of experts.²⁰

6.19 Professor Rod Tucker, who was a member of the panel of experts, explicitly rejected the assertions in the Scales Review that the panel relied unduly on the ACCC advice, and did not examine different technology options for the NBN:

In my view, all of these assertions are incorrect, and this taints the credibility of the audit.

In reality, the panel spent many hours discussing and analysing the technology options and the upgrade paths...The Panel also independently evaluated other models for upgrades.

The panel, which included telecommunications experts from both industry and academia, carefully scrutinised all advice it received, and drew heavily on its combined experience...

A fundamental flaw with the audit process was that Scales, by his own admission, did not have access to key information, with limited access to documents associated with the panel of experts' activities.

Members of the panel, constrained by strict confidentiality rules, were also unable to share any further information with Scales about the details of panel discussions and deliberations.²¹

6.20 Professor Reg Coutts, another member of the panel of experts, corroborated Professor Tucker's comments, reaffirming that:

we thoroughly considered the options for the NBN particularly FTTN and the possible scenarios to transition to a FTTP solution which is accepted worldwide as the 'final solution'...²²

6.21 Professor Coutts confirmed that the panel reached its own conclusions before it received the ACCC's advice. He also criticised the Scales Review for citing a single report on the relative costs of FTTN versus FTTP to discount the analysis of the ACCC and the panel, while ignoring several significant global reports which came to contrary conclusions. Professor Coutts expressed his hope that ultimately:

the history of NBN will be written from objective analysis of the evidence (both written and oral) and after reflection of outcomes for Australia.²³

20 Professor Graeme Samuel AC, 'The National Broadband Network – the prognosis for competition in telecommunications', TelSoc Charles Todd Oration, 5 November 2014, Melbourne, p. 1, at http://telsoc.org/sites/default/files/events/pdf/telsoc_graeme_samuel_speech_01.pdf

21 Professor Rod Tucker, 'In support of a fibre to the premises NBN', *The Conversation*, 20 August 2014, at <http://theconversation.com/in-support-of-a-fibre-to-the-premises-nbn-30618>

22 Professor Reg Coutts, letter to the editor, *Communications Day*, 22 August 2014, pp 5–6, at <http://www.couttscommunications.com/Published-Articles/cd140822.pdf>

Major projects and cost-benefit analyses

6.22 Describing the policy development process for NBN Mark II, the Scales Review stated that although it was proposed that the project be delivered through a public non-financial corporation, the process did not involve any cost-benefit analysis or business case. A preliminary cost estimate of \$43 billion for its implementation was developed by the relevant government agencies, but:

[w]hen the broad parameters of NBN Mark II were announced, the operating arrangements, detailed network design, ways to attract private sector investment, detailed costings and the appropriate regulatory regime all remained as works in progress, to be determined following the Implementation Study that would be undertaken by specialist external advisors over the coming months.²⁴

6.23 The Scales Review further stated that:

Notably missing from the requirements set out for the Implementation Study was any evaluation of the Government's policy objectives, its decision to implement the NBN through establishing NBN co and a cost benefit analysis. The study was to focus solely on detailed implementation issues with the merits of the policy remaining untested.²⁵

6.24 Professor Tucker observed that the Scales Review had 'missed the point' that 'consideration of upgradeability and its costs was one of a number of factors that fed into the 'value for money' criterion' for evaluating the NBN proposals.²⁶ That value for money assessment was required to consider the costs, benefits and risks of each proposal.²⁷

6.25 Consistent with the views of Associate Professor Kai Riemer discussed in chapter 4 above, Professor Samuel noted the inherent 'fragility' of cost-benefit analyses in the area of telecommunications technology, given their reliance on many assumptions that are hard to pin down, such as future broadband take-up rates, driven by technology that may not yet exist, and willingness to pay. Like Associate Professor Riemer, Professor Samuel suggested that in such cases it was reasonable to conclude that a business case or investment analysis may be more useful:

Those in the Commonwealth bureaucracy associated with the formulation of the Labor NBN policy, through to its legislative implementation, advise me that the fragility of a cost benefit analysis associated with the ability to

23 Professor Reg Coutts, letter to the editor, *Communications Day*, 22 August 2014, p. 6.

24 Bill Scales AO, *Independent Audit: NBN Public Policy Process April 2008-May 2010*, 25 July 2014, p. xxi.

25 Bill Scales AO, *Independent Audit: NBN Public Policy Process April 2008-May 2010*, 25 July 2014, p. xxiii.

26 Professor Rod Tucker, 'In support of a fibre to the premises NBN', *The Conversation*, 20 August 2014, at <http://theconversation.com/in-support-of-a-fibre-to-the-premises-nbn-30618>

27 Bill Scales AO, *Independent Audit: NBN Public Policy Process April 2008-May 2010*, 25 July 2014, p. 22.

produce desired outcomes by altering difficult to define assumptions, led the former government to focus on a detailed business case or investment analysis.²⁸

6.26 The business case undertaken as part of the former government's implementation study in 2010 determined that the \$43 billion rollout estimate during the NBN development process was conservative, and that the government could expect a return on its investment equity sufficient to fully recover its funding. These findings were not disputed by the current government in the Strategic Review.²⁹

6.27 The Scales Review recognised that the public policy process undertaken between January and April 2009:

involved considerable iteration of the basic proposition as assumptions around costs of delivery and associated revenue were estimated, challenged and settled.³⁰

Implementation of the Scales Review recommendations

6.28 Following the release of the Scales Review, the Minister for Communications endorsed its recommendations:

they're very sound recommendations and indeed they are consistent with commonsense and in fact in large part with our existing policy. He recommends for example that large public sector infrastructure projects which cost above \$1 billion should be subject to a cost benefit analysis. Our policy is that projects in excess of \$100 million should be subject to cost benefit analysis.³¹

6.29 Indeed, the Coalition's infrastructure policy promised that it would:

require all Commonwealth infrastructure expenditure exceeding \$100 million to be subject to analysis by Infrastructure Australia to test cost-effectiveness and financial viability. This will include dams, telecommunications, hospitals, educational institutions, energy projects and water networks but will not extend to defence projects.³²

28 Professor Graeme Samuel AC, 'The National Broadband Network – the prognosis for competition in telecommunications', TelSoc Charles Todd Oration, 5 November 2014, Melbourne, p. 2, at http://telsoc.org/sites/default/files/events/pdf/telsoc_graeme_samuel_speech_01.pdf

29 Senator the Hon Conroy, *Senate Hansard*, 26 August 2014, p. 5653.

30 Bill Scales AO, *Independent Audit: NBN Public Policy Process April 2008-May 2010*, 25 July 2014, p. 43.

31 Malcolm Turnbull MP, Minister for Communications, transcript of interview with David Lipson, Sky News *AM Agenda*, 5 August 2014, at <http://www.malcolmturnbull.com.au/-media/transcript-am-agenda-on-the-nbn-policy-audit-and-data-retention>

32 *The Coalition's Policy to Deliver the Infrastructure for the 21st Century*, September 2013, at <http://paweb-static.s3.amazonaws.com/13-09-05%20Coalition%202013%20Election%20Policy%20%E2%80%93%20Better%20Infrastructure%20Planning%20%E2%80%93%20policy%20document.pdf>, p. 2.

6.30 The Minister for Communications and the Minister for Finance issued a revised Statement of Expectations to NBN Co on 8 April 2014³³ mandating a new technology mix for the NBN rollout, months in advance of the completion of the cost-benefit analysis on the NBN commissioned by the government.

6.31 The minister's stated basis for the Statement of Expectations was the government's 2013 Strategic Review.³⁴ As the committee has previously reported, the Strategic Review itself was completed in just five weeks, and was subject to no independent external oversight.³⁵ As the committee's first interim report demonstrated, and ongoing evidence since that time continues to show, the assumptions and findings of that document were deeply flawed.

6.32 As discussed in chapter 2, the Coalition government has also moved away from the previous practice of commissioning independent review of NBN Co's Corporate Plans.

6.33 More broadly, beyond the telecommunications portfolio the government has also been notable for its failure to accept the recommendations of the Scales Review and indeed, to comply with its own election promise in regard to the preparation and publication of cost-benefit analyses in advance of the implementation of major infrastructure projects. For example:

- the 2014 federal budget allocated Commonwealth funding of \$1 billion for stage two of Melbourne's East West Link road project without the publication of a cost-benefit analysis;
- infrastructure and road upgrades around the proposed Badgery's Creek airport in Western Sydney were similarly announced without completed cost-benefit analyses being submitted to Infrastructure Australia; and
- Commonwealth funding of some \$2 billion for the WestConnex project in New South Wales was announced with no cost-benefit analysis in place.³⁶

The KordaMentha 'Governance Review'

6.34 The Coalition in opposition adopted an uncompromising and indiscriminate approach to their criticism of NBN Co personnel, with the NBN Co board and

33 The Hon Malcolm Turnbull MP, Minister for Communications and Senator the Hon Mathias Cormann, Minister for Finance, *Letter* to Dr Ziggy Switkowski, Executive Chairman, NBN Co Ltd, 8 April 2014, http://www.communications.gov.au/_data/assets/pdf_file/0014/221162/SOE-Shareholder_Minister_letter.pdf.

34 See The Hon Malcolm Turnbull MP, 'Rebooting the NBN Project', Speech to *CommsDay* Conference, 18 November 2013, at <http://www.malcolmturnbull.com.au/media/rebooting-the-nbn-project-speech-to-commsday-conference>

35 Senate Select Committee on the National Broadband Network, *Interim Report*, March 2014, p. 96.

36 See 'Promise check: All \$100m-plus infrastructure projects to have cost-benefit analysis', ABC Online *Fact Check*, 7 November 2014, at <http://www.abc.net.au/news/2014-11-07/cost-benefit-analysis-promise-check/5850038>

management subject to a series of sustained and personal attacks. These began with attacks on the integrity of former NBN Co CEO Mike Quigley with reference to his previous role(s) at AlcatelLucent.³⁷ Later, these attacks focussed on Mr Quigley's credentials and competence in his role as CEO of NBN Co.³⁸ These attacks soon broadened to encompass the credentials and competence of the entire NBN Co Board, culminating in the threat of a judicial inquiry.³⁹ In July 2013, the NBN Co Chairman Siobhan McKenna took the unusual step of writing to Mr Turnbull signalling that the Board had taken measures to protect itself from 'threats':

Non-executive Directors have been told directly and indirectly by members of the opposition that they can expect a Judicial Enquiry investigating their governance post-election. The Non-executive Directors naturally sought to engage independent legal counsel on this matter, which they have a right to do, and appointed Herbert Smith Freehills. It is not unusual for company directors faced with threats to exercise their right to appoint external advisers.⁴⁰

6.35 The Coalition indicated in its April 2013 election policy that it would conduct a review of the NBN Co board.⁴¹

6.36 Consultants KordaMentha were engaged by NBN Co in December 2013 to provide a 'limited review' of the company's 'governance, management and the accountability of its Board and officers', from its inception in April 2009 to the change of government in September 2013, and the provision of information by NBN Co to parliament and taxpayers.⁴² The Governance Review was tabled on 13 August 2014.

6.37 NBN Co advised the committee that between 1 October 2013 and 30 June 2014, \$350,000 was spent on the Governance Review, and during that period a total of \$2,620,000 was paid to KordaMentha for advisory and corporate services.⁴³

37 See, for example, Joint Committee on the National Broadband Network, *Committee Hansard*, May 2011. See also Renai LeMay, 'The Earl of Wentworth is debasing himself', *ITNews*, 29 April 2011, at: <http://www.itwire.com/virtualisation/46833-the-earl-of-wentworth-is-debasing-himself/46833-the-earl-of-wentworth-is-debasinghimself?start=2>

38 See, for example, James Hutchison, 'Turnbull attacks Quigley over NBN management', *ITNews*, 24 September 2012, at: <http://www.itnews.com.au/News/316706,turnbull-attacks-quigleyover-nbn-management.aspx>

39 For example, ABC *Lateline*, 'Turnbull Critical of NBN Co Board', 18 July 2013, at: <http://www.abc.net.au/lateline/content/2013/s3806353.htm> See also <http://www.malcolmtturnbull.com.au/media/transcript-arguments-in-favour-of-electronic-voting>

40 Renai LeMay, 'Poison words: Turnbull + NBN board go to war', *Delimiter*, 18 July 2013, at: <http://delimiter.com.au/2013/07/18/poison-words-turnbull-nbn-board-go-to-war/>

41 *The Coalition's plan for fast broadband and an affordable NBN*, April 2013, at <http://lpaweb-static.s3.amazonaws.com/Policies/NBN.pdf>, p. 13.

42 KordaMentha, *NBN Co Limited Corporate Governance Review*, 8 August 2014, p. 4.

43 NBN Co Limited, answer to question on notice (question 8) following the committee's public hearing on 11 July 2014.

Key findings of the Governance Review

6.38 The Governance Review stated that it assessed NBN Co primarily against the Commonwealth government business enterprise (GBE) guidelines.⁴⁴ Like all other NBN reviews, its key findings mirrored the Coalition's position pre-election, in particular that NBN Co directors during the period were 'skilled and experienced individuals' but their mix of skills and experience 'was not appropriate for a company of the nature, scale and complexity of NBN Co'. The Governance Review identified five 'relatively minor' issues in relation to which the GBE guidelines 'were not fully complied with'.⁴⁵

6.39 The Governance Review also made a number of findings in relation to NBN Co's 'carriage of information'. The Review described a 'sense of frustration' within NBN Co about being 'under the political microscope', and about ensuring appropriate communication between the board, department and shareholder ministers.

6.40 A key finding in the report related to the handling of corporate plans by NBN Co. The Governance Review cited the Strategic Review's conclusion that the 2012 corporate plan was too optimistic and unlikely to be achieved, while it did not mention the 2013 corporate plan prepared by NBN Co at all. The Governance Review further drew attention to the provision in the GBE guidelines that corporate plans were confidential to shareholder ministers, implying that the 2012 corporate plan should not have been publicly released, as this 'reduced the usefulness of the document' in communicating with shareholder ministers and the department.⁴⁶

6.41 The Governance Review drew attention to communication problems in two other areas of NBN Co's activities:

- the inclusion of 'Service Class 0' in reporting to shareholder ministers on premises passed; and
- inconsistency in the reporting on 'premises passed' by satellite.

6.42 On two further issues considered, NBN Co's characterisation of the value of the Telstra Definitive Agreements and its contract procurement processes, the Governance Review found no fault in the practices of NBN Co during the period.

Issues arising from the Governance Review

Treatment of board members' feedback

6.43 During its process KordaMentha sought interviews with 25 current and former board members and staff of NBN Co. Fifteen of the 25 declined to be interviewed.

44 KordaMentha, *NBN Co Limited Corporate Governance Review*, 8 August 2014, p. 6.

45 KordaMentha, *NBN Co Limited Corporate Governance Review*, 8 August 2014, p. 8.

46 KordaMentha, *NBN Co Limited Corporate Governance Review*, 8 August 2014, p. 9.

The *Australian Financial Review* quoted one director who declined to participate in the process describing it as a 'witch hunt'.⁴⁷

6.44 A draft of the Governance Review was provided to the current and former board members for comment. In response, a group of nine current and former directors wrote a joint letter dated 4 August 2014. The nine advised that they 'generally disagree with the findings in the Draft Report and consider them to be unsupported by the facts'. Noting the heavy workload placed on the board, the former members emphasised that they were, as acknowledged in the report, skilled and experienced individuals, and had 'each acted with care and diligence'. The letter outlined the accountability and governance measures undertaken by the board, including that it had 'devoted significant time to strategic risks' in a timely and comprehensive way, and had maintained effective relationships and appropriate disclosure with shareholder ministers and departmental officials.⁴⁸

6.45 The Governance Review appended the nine directors' letter to its report, but stated that 'none of their comments resulted in a modification to our report as we considered they were either of a general nature, reiterated or confirmed comments made in the Draft Report, difference of opinion and/or were not relevant'.⁴⁹

6.46 Also on 4 August 2014, former NBN Co CEO Mike Quigley provided a detailed response to the draft report. Mr Quigley took issue with a number of its findings and analyses including its reliance on the Strategic Review's flawed projections, its failure to acknowledge the 2013 draft corporate plan prepared by the NBN Co board and management team, and its lack of consideration of the progress made by NBN Co in resolving early problems and accelerating the rollout. Mr Quigley said that it 'was of considerable surprise to NBN Co's Technical, Operational and Financial senior management' in September 2013 that the cost and timeframe reductions identified in the 2013 corporate plan were discounted in the Strategic Review.⁵⁰

6.47 Mr Quigley also disagreed with the report's description of a 'sense of frustration within NBN Co' about public scrutiny of the company, saying '[t]here was, however, a sense of frustration among the senior management regarding the deliberate distortion of facts'.⁵¹

47 Anne Hyland, 'KordaMentha review of NBN Co slams top directors', 13 August 2014, at http://www.afr.com/p/technology/kordamentha_review_of_nbn_co_slams_3FoV57UN95eQ2r6Q6qqqNP.

48 KordaMentha, *NBN Co Limited Corporate Governance Review*, 8 August 2014, p. 76.

49 KordaMentha, *NBN Co Limited Corporate Governance Review*, 8 August 2014, p. 74.

50 KordaMentha, *NBN Co Limited Corporate Governance Review*, 8 August 2014, pp 78–79.

51 KordaMentha, *NBN Co Limited Corporate Governance Review*, 8 August 2014, p. 79.

6.48 The Governance Review also published Mr Quigley's letter, but stated that aside from one paragraph of his six-page response, 'we considered the remaining comments were either unnecessary details, difference of opinion and/or not relevant'.⁵²

NBN Co management and governance

6.49 The committee's first interim report noted the Strategic Review's assessment of governance problems at NBN Co, based on a study also conducted by KordaMentha, observing that the intense politicisation of the NBN had adversely impacted the performance of NBN Co and the efficient deployment of the network.⁵³

6.50 The first interim report also discussed issues relating to transparency and accountability, including the provision of public information on the rollout, and NBN Co's cooperation with parliament. The committee recommended that concrete measures should be put in place by shareholder ministers and NBN Co to improve transparency and accountability.⁵⁴

6.51 As noted above, the government's revised SoE issued to NBN Co in April 2014 emphasised that NBN Co should pursue a high degree of transparency in its communications with the public and parliament. The government's response to the interim report 'noted' the committee's recommendation in this regard.⁵⁵

6.52 Since the committee's first interim report there have been significant changes in the management of NBN Co. Mr Bill Morrow, appointed Chief Executive Officer in December 2013, began his tenure on 2 April 2014.

6.53 At the committee's 11 July hearing, Mr Morrow described morale within the organisation at his arrival:

Many of the employees love what they are doing for the country. That keeps them there. But they, quite frankly, even used words such as 'hated', 'upset with' and 'disgusted with the way in which we were operated'. Those are not my words; those came out of many of the reviews that we had done. When you look further, as to why that is, again you had some leaders that were well respected and appropriately followed; you had others that were not. The kinds of cultural things about distrust, and the kinds of cultural things about not promoting doing the right thing for the company, even at the expense of someone's performance elements—those were absent within the company. So that was a bit of the state of affairs when we arrived.

52 KordaMentha, *NBN Co Limited Corporate Governance Review*, 8 August 2014, p. 74.

53 Senate Select Committee on the National Broadband Network, *Interim Report*, March 2014, pp 108–115.

54 Senate Select Committee on the National Broadband Network, *Interim Report*, March 2014, pp 117–133.

55 Australian Government, *Australian Government response to the Senate Select Committee on the National Broadband Network Interim Report*, July 2014, p. 4.

I will point out: we have much work to do, but there is hope, I believe, amongst the employees and the contractors that we are taking this seriously and moving through the changes necessary.⁵⁶

6.54 Following Mr Morrow's arrival, NBN Co undertook a restructuring of its senior management team and the replacement of several senior executives. Mr Bradley Whitcomb was appointed Chief Culture and Business Transformation Officer and Ms Karina Keisler as head of corporate affairs in May 2014, both moving as Mr Morrow had from Vodafone Australia. On 6 June Mr Morrow announced that Mr Stephen Rue would replace Mr Robyn Payne as Chief Financial Officer, commencing on 1 July. Mr Dennis Steiger joined the organisation as Chief Technology Officer on 21 July, effectively replacing Mr Gary McLaren.

6.55 In NBN Co's annual report 2013-14, Mr Morrow wrote:

One of the goals in our new strategic direction is making NBN Co the best place to work. The Company conducted its first wide-ranging employee engagement survey during the fourth quarter [of F/Y 2013-14]. The participation rate of 80 per cent was encouraging, but the score was not. The survey produced an engagement score of 44 per cent which is lower than the average for the telecommunications sector (49 per cent). However, the results have provided the Executive Team with important information needed to develop a long-term change program focused on improving work practices, personal performance, career opportunities, leadership, organisational practices, HR policies, and how we recognise results. It will take some time, but it is a goal to which I am personally committed.⁵⁷

6.56 The committee notes that NBN Co's 2014-17 corporate plan sets out that the employee engagement survey conducted in May 2014 showed a drop in the 'measure of engagement behaviours at NBN Co' from 68 per cent to 44 per cent (the benchmark is 80 per cent). Mr Rue provided some comments on this at the 12 March 2015 public hearing:

Employee engagement is a very important piece of work that we as a management team look at. The more engaged that our employees are the more they have an affinity towards NBN Co and its brand, the better our company will be and the better the outcomes will be. It is something that we put a lot of time and effort into, into people's careers, into making sure that jobs are very clear—role clarity, et cetera. We actually spend a lot of time on this. It is very important. So, we are conscious of the low level. We are also conscious that that movement of that engagement over time does not happen quickly, and it is something that we are very focused on.⁵⁸

6.57 Speaking at a Senate Estimates hearing in May 2014, Mr Morrow noted that the importance of reforming NBN Co's governance and culture extended beyond the organisation, to relationships with external partners, and emphasised NBN Co's

56 Mr Bill Morrow, *Committee Hansard*, 11 July 2014, p. 21.

57 NBN Co Limited, *Annual Report 2013-14*, 30 June 2014, p. 15.

58 *Proof Committee Hansard*, 12 March 2015, p. 67.

commitment to improve its rollout forecasts and processes, and to eliminate internal 'silos'.⁵⁹

6.58 Addressing another Senate Estimates hearing on 24 February 2015, Mr Morrow highlighted changes made since the new management team had been in place including 'a series of important reviews to chart a new course', repositioning NBN Co as a customer-focused organisation, establishing 'new values and supporting leadership behaviours', and reforming key performance indicators and governance decision-making.⁶⁰

6.59 The committee notes that NBN Co's 2013-14 Annual Report indicates that the NBN Co board approved a \$60,000 contract to CicoMilne Pty Ltd, a company 100 per cent owned by one of its own board members, Mr Justin Milne.⁶¹ The Department of Communications also awarded a \$14,000 contract to CicoMilne Pty Ltd.⁶² According to media reports, Mr Milne was approached by the Coalition for an NBN Co position as early as June 2013.⁶³

NBN Co and the committee

6.60 The committee has continued to experience difficulties in obtaining meaningful information from NBN Co, including general or non-responsive answers to questions, and NBN Co's ongoing refusal to provide contract and other information frequently deemed by the company to be 'commercial in confidence' without appropriate justification. The committee will continue to pursue this matter through appropriate Senate processes.

Committee view

6.61 It is not appropriate for governments to conduct formal inquiries into the internal decision-making processes of predecessor governments, particularly when the inquiry in question is politically motivated. This government breached 113 years of Westminster convention in Australia by releasing to its agent, the Royal Commissioner into the Home Insulation Program, confidential Cabinet documents of

59 Senate Environment and Communications Legislation Committee, *Committee Hansard*, Budget Estimates hearings, 29 May 2014, pp 113–114.

60 Mr Bill Morrow, opening statement tabled at Environment and Communications Legislation Committee, Additional Budget Estimates hearing, 25 February 2014, p. 3.

61 NBN Co Limited, *Annual Report 2013–14*, 30 June 2014, p. 58.

62 Answer to Question on Notice No. 603, Supplementary Budget Estimates November 2013, at: http://www.aph.gov.au/~media/Committees/ec_ctte/estimates/bud_1415/Communications/answers/q603.pdf

63 On 12 June 2013, *Crikey* reported that Mr Milne and Mr Rousselot would be appointed at NBN Co if the Coalition won the election. At the time, Mr Turnbull rang *Crikey* and said this was 'untrue': 'Tips and Rumours', *Crikey*, 12 June 2013, at: http://www.crikey.com.au/2013/06/12/tips-and-rumours-898/?wpmw_switcher=mobile. See also David Ramli and Nabila Ahmed, 'Coalition wants ex-Telstra players for NBN Co board', *Australian Financial Review*, 13 May 2013, at: http://www.afr.com/p/technology/coalition_wants_ex_telstra_players_eTMq13dFgQnq0s5kQ6OFbL

the former Labor Government, a move that has been condemned by former Prime Ministers on both sides of politics. The nature of the Scales Review was similarly directed at the Cabinet deliberations of the former government.

6.62 The public policy decision-making process for the NBN has been well documented over the years. The first interim report of this committee contains a useful summary of the process. Considerable attention has been paid to the development of the NBN policy over recent years, and the publicly available information confirming the probity of the process. Despite this, in April 2013 as part of its pre-election broadband policy the Coalition announced that it would conduct an independent audit 'to examine the public policy process which led to the NBN'. The Scales Review is one of seven politically-motivated 'reviews' into the NBN that have been announced since the Coalition government was sworn in.

6.63 Before the election, the Coalition promised to undertake a cost-benefit analysis for any project worth more than \$100 million. Despite this, Minister Turnbull radically changed the rollout of the NBN—through a shareholder direction to NBN Co in the most recent Statement of Expectations—without first completing a cost-benefit analysis of the project, in direct contradiction to his pre-election promises and his many pious statements on the importance of such an analysis.

6.64 The government's record in relation to the recommendations of the Scales Review is illustrative. Despite describing the Review's recommendations as 'sound', the practice of the current government has been to ignore them. The Governance Review, for its part, made almost no recommendations, ignored feedback from NBN Co personnel, and does not appear to have warranted any response at all from the government.

6.65 In seeking to rewrite history on the NBN, the Scales Review and the KordaMentha Governance Review were partial and misleading. Their net result was to misrepresent and insult a wide range of eminent people and organisations, including the ACCC, ANAO and some of Australia's most senior corporate directors. These reviews have been central to what former ACCC Commissioner Mr Graeme Samuels has described as a 'political payback' process.

6.66 The committee remains concerned about the probity issues evident in the appointment of key personnel to NBN Co, identified in the committee's first interim report. Moreover, NBN Co's 2013-14 annual report indicates that NBN Co approved a \$60,000 contract to CicoMilne Pty Ltd, a company 100 per cent owned by one of its own board members, Mr Justin Milne. The Department of Communications also awarded a \$14,000 contract to CicoMilne Pty Ltd. According to media reports, Mr Milne was approached by the Coalition for an NBN Co position as early as June 2013.

Chapter 7

Conclusions and Recommendations

Strategic Review and cost per premises review

7.1 The committee found in April 2014 that NBN Co's Strategic Review was 'unreliable in the case of all examined scenarios'. Completed in just five weeks, with no external independent oversight, the committee found that it contained 'financial manipulations and other irregularities'. Over the past 12 months, these concerns have been largely borne out, with key NBN Co management distancing themselves from the report.

7.2 The cost per premises review (CPP Review) released by NBN Co in February 2015 demonstrates that the brownfields fibre to the premises (FTTP) costs contained in the Strategic Review for the 'revised outlook' were inflated by a significant margin. The committee has also found that the costs for the multi-technology mix (MTM) in the Strategic Review are based on a series of unverified assumptions, while Scenario 2 (the so-called 'radically redesigned' FTTP scenario) includes architecture and cost savings already implemented by NBN Co and reflected in previous management's September 2013 corporate plan. The committee notes that the Strategic Review underpinned shareholder ministers' decision to direct NBN Co to implement the MTM in April 2014.

7.3 The prevailing assumption at the time the Strategic Review was published was that the Revised Agreements with Telstra would be complete by June 2014. It is now clear that these agreements will not become unconditional until mid-2015 at the earliest. Despite this, 18 months into the current Government's term, NBN Co has not divulged updated forecasts on how much the MTM will cost or how long it will take to build.

7.4 The release by NBN Co of detailed costs for FTTP and fixed wireless—when the majority of the rollout under this Government will be made up of hybrid fibre coaxial (HFC) and fibre to the node/basement (FTTN/B), for which NBN Co has released no numbers—has the appearance of a political exercise. Further, most of the cost increases for FTTP evident in the CPP review may be attributed to higher rates negotiated by current NBN Co management since September 2013, delivery partner claims settled since the same date, and different accounting practices (such as capitalising operational expenditure for Telstra duct leases and internal labour). Moreover, \$4.5 billion in FTTP architecture savings signed off by previous management—attested to by NBN Co personnel as implemented, and borne out by the Melton 10 trial—are not evident in these numbers.

Recommendation 1

7.5 The committee recommends that NBN Co release an unredacted version of the Strategic Review to enable proper public scrutiny of the assumptions underpinning Scenarios 1 to 5. The committee considers that there are no commercial implications to releasing analysis and forecasts relating to abandoned scenarios.

NBN Co's 2014-17 corporate plan

7.6 The 2014-17 corporate plan NBN Co submitted to government included forecasts for financial year (FY)2015, FY2016 and FY2017, as is appropriate for corporate plans submitted by government business enterprises (GBEs).

7.7 However, the public 'glossy' version of the 2014-17 corporate plan contains forecasts to June 2015 only. It also contains no details of NBN Co's financial model out to 2040 (as per previous corporate plans). Further, forecasts contained in the 2014-17 corporate plan appear to have been manipulated for political purposes. For example, NBN Co's greenfields targets were 'lowballed' to such an extent that it met its 30 June 2015 activations forecast in January 2015, and at its current rate will meet its 'premises passed' target in mid-March 2015.

7.8 The committee notes in this respect that the independent external review process of NBN Co's corporate plan has been cancelled by this government. NBN Co's corporate plan is now being 'reviewed' by shareholder ministers' own departments and personnel who advised on the original assumptions in the Strategic Review.

Recommendation 2

7.9 The committee recommends that the government release the full version of NBN Co's 2014-17 corporate plan, as was the practice under the former government, to enable the proper public scrutiny of the project.

Recommendation 3

7.10 The committee recommends that the government release the full version of NBN Co's 2015-18 corporate plan, when finalised, to enable the proper public scrutiny of the project.

Recommendation 4

7.11 The committee recommends that the government reinstitute the external independent review process of NBN Co's corporate plan to restore the proper probity to the project.

Governance

7.12 NBN Co refuses to divulge the value of the contracts it has entered into on behalf of the taxpayer on the basis that it would harm its commercial prospects, despite the fact that the value of these contracts was released by previous management without harm. Yet NBN Co is content to release detailed information on the cost per premises of FTTP and fixed wireless in the CPP review—down to the last line item—

despite the fact that NBN Co, under the current policy, will continue to roll out FTTP in greenfields and fixed wireless to 2020 and beyond.

7.13 In some cases, NBN Co has become so secretive that it is refusing to divulge even the names of the companies with which NBN Co has signed contracts. It has also become clear that NBN Co has incurred substantial new costs that are not being divulged by the board or management of NBN Co. This includes substantial IT costs expected from the MTM. This level of secrecy is unacceptable to a GBE accountable to the parliament and the Australian people.

7.14 The Revised Agreements, announced by NBN Co and Telstra in December 2014, contain numerous concessions, including *inter alia*:

- the risk of cost increases in remediation has been transferred directly to the Commonwealth. The new remediation arrangements may also result in the transfer of an asbestos risk to the Commonwealth;
- the fitness guarantees for lead in conduits have been conceded, which may lead to extra costs to NBN Co in the future when the MTM needs to be upgraded;
- during the negotiations NBN Co sought no information from Telstra about the cost of maintaining the legacy copper network, despite ample evidence and testimony that these costs are expected to be high; and
- NBN Co has taken on an indefinite liability to maintain Telstra's HFC network, and at the same time agreed to restrictions on its sale. It is unclear whether these arrangements will result in an effective taxpayer subsidy of pay TV services.

7.15 The committee notes that, contrary to the approach used in 2009 and 2010, NBN Co was provided no overt leverage in these negotiations. It appears that the taxpayer has lost value as a result. The committee further notes that the NBN Co officer heading up the negotiations on behalf of the taxpayer still owns Telstra shares.

7.16 On 15 December 2014 Telstra divulged detailed information to the market on the Revised Agreements, including an analyst transcript and key background information. In contrast NBN Co, on behalf of the taxpayer, issued a two-page press release light on details and heavy with political spin.

7.17 The committee remains concerned about the probity issues evident in the appointment of key personnel to NBN Co, identified in the committee's first interim report. Moreover, NBN Co's 2013-14 annual report indicates that NBN Co approved a \$60,000 contract to CicoMilne Pty Ltd, a company 100 per cent owned by one of its own board members, Mr Justin Milne. The Department of Communications also awarded a \$14,000 contract to CicoMilne Pty Ltd. According to media reports, Mr Milne was approached by the Coalition for an NBN Co position as early as June 2013.

7.18 Under the applicable legislation and regulation, GBE personnel are obliged to be apolitical. GBE boards are also required to exercise high standards of fiduciary responsibility and transparency. It is the committee's view that, under the present minister, the board of NBN Co is failing in its responsibilities to the Australian taxpayer and should be held to account.

Recommendation 5

7.19 The committee recommends that the government investigate the governance and probity issues identified in this report and the first interim report. This should include consideration of NBN Co personnel shareholdings, the awarding of contracts to board members, the pervasive secrecy shrouding the project, and the potential liabilities that have been transferred to the Commonwealth as part of the Revised Agreements.

Cost-Benefit Analysis and Review of Regulation

7.20 The Cost-Benefit Analysis (CBA) conducted by the government is deeply flawed and overtly political. Compiled by hand-picked personnel made up of strident NBN critics and former Liberal Party staffers, the CBA is replete with absurd assumptions engineered to deliver predetermined outcomes (demand projections of 15Mbps by 2023) and dubious financial manipulations (operating expenditure for FTTP inflated by 180 per cent compared to 12 per cent for legacy technologies). Moreover, the CBA virtually ignored the public benefits that will flow from high-speed broadband, with 95 per cent of the study devoted to private willingness to pay and only 5 per cent to public benefits.

7.21 The Review of Regulation was conducted by the same personnel who conducted the CBA, with predictable results. Even key industry players have had enough of the incessant politicking and historical revisionism practiced by this government. For example, the Competitive Carriers Coalition noted upon the publication of the Review of Regulation that its recommendations should be 'binned', saying: 'most of the Vertigan recommendations represent nothing more than rehashed, discredited theoretical arguments promoted by opponents of regulatory reform and the NBN'.

Other reviews

7.22 Many of the remaining NBN reviews conducted by this government over the past 18 months exhibit the same shortcomings that characterise the Strategic Review and the Cost-Benefit Analysis. One former board member of NBN Co described the Governance Review as a 'witch hunt', with others noting that: 'we generally disagree with the findings in the [Report], and consider a number of them to be unsupported by the facts'. The Broadband Quality and Availability Report has also been widely lampooned for inaccuracy.

7.23 The 'Independent Audit of the NBN Policy Process' (the 'Scales Review') has been described by a former ACCC Commissioner as 'fundamentally flawed in its evidence base' and insulting and offensive in its dismissal of the evidence. Emeritus Professor Rod Tucker of the University of Melbourne also noted that the assertions contained in the review were 'incorrect, and this taints the credibility of the audit'.

7.24 It is the committee's view that the seven reviews conducted by this government into the NBN over the past 18 months—at a cost to the taxpayer of approximately \$12 million—have been conducted as part of what former ACCC Commissioner Graeme Samuels described as a 'political payback' process rather than a genuine effort to illuminate and reform the public policy framework behind the NBN.

Senator the Hon Kate Lundy
Chair

Senator Scott Ludlam
Greens Senator for WA

Coalition Senators' Dissenting Report

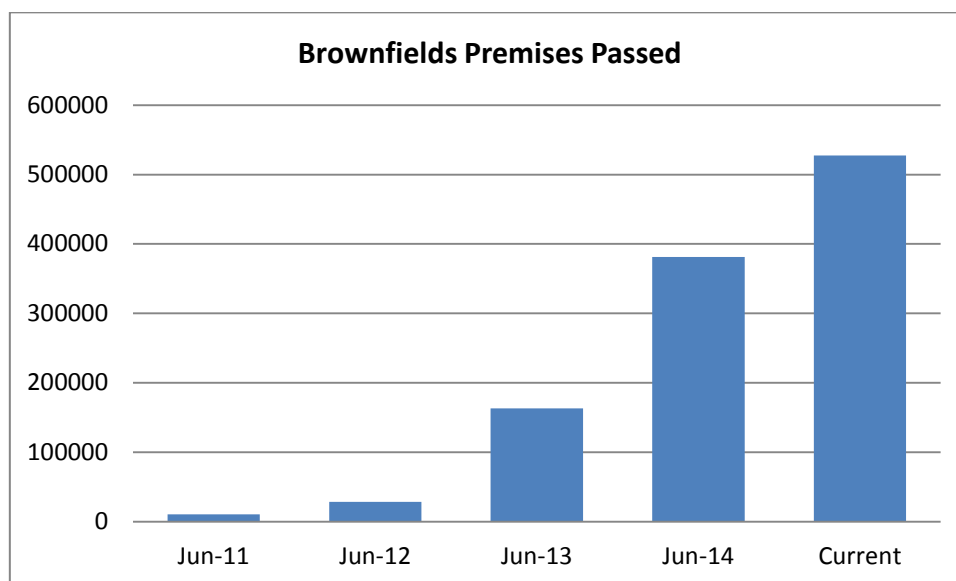
Coalition Senators are disappointed by the conduct of this committee and consider this interim report does not accurately reflect the current status of the NBN rollout.

The conduct of the committee has been an abuse of the Senate's power. The behaviour of some committee members has been calculated to bully and intimidate key NBN Co executives, and undermine the NBN's capacity to deliver on its operational targets.

Since November 2013, the committee has called 22 hearings. NBN executives have been demanded to appear before the committee for a total of 272 hours. By contrast, the Joint NBN Committee of the previous Parliament called NBN executives to appear for a combined total of 39 hours through eight hearings.

It is apparent the committee was established for the sole purpose of making rhetorical political points which have no basis in reality. Assertions that the NBN is missing operational targets, that the NBN has become more secretive rather than less, and that the multi-technology mix will not deliver the benefits to the digital economy are not based in fact. This has been demonstrated through key studies—chief of which was the Cost-Benefit Analysis—and international deployments.

Reforms made to the company have delivered obvious benefits, as demonstrated by the number of premises now passed by the NBN Co's fixed line and fixed wireless networks:



The Senate Select Committee's earlier interim report was devoid of objective findings, as was comprehensively demonstrated in a detailed point-by-point rebuttal issued by the Minister for Communications on 2 May 2014.

This latest committee interim report does not credibly respond to any of the detailed points in the Minister's rebuttal and is completely at odds with the evidence provided by NBN Co at the numerous hearings.

Coalition Committee members consider the work of this committee adds nothing to the Senate's understanding of communications policy, and effectively constitutes an abuse of the Senate committee system. Coalition Senators therefore conclude the committee should be wound up.

Recommendation 1

That the Senate Standing Committee on the National Broadband Network be dissolved and a new, properly constituted Joint Standing Committee on the National Broadband Network be formed as existed in the previous Parliament.

Senator the Hon Arthur Sinodinos AO
Deputy Chair
Liberal Senator for NSW

Senator Anne Ruston
Liberal Senator for SA

Senator Dean Smith
Liberal Senator for WA

Appendix 1

Public submissions

- 1 Competitive Carriers' Coalition
- 2 Central Coast Community Union Alliance
- 3 Gosford City Council
- 4 Mr Carl Sudholz, Fast Task Tools Pty Ltd
- 5 Mr Derek Bell, Lucid Web Design
- 6 Mr David Abrahams, Central Coast Broadband Alliance
- 7 Mr Grant Booth
- 8 Mr James Hodgson
- 9 Councillor Linda Scott, City of Sydney Council
- 10 Innovative Synergies
- 11 iiNet
- 12 Mr Kenneth Tsang
- 13 Queanbeyan City Council
- 14 Alexandrina Council
- 15 Ballarat ICT Limited
- 16 Name Withheld
- 17 Mr Chris Gibbs
- 18 NORTH Link
- 19 Mr Jamie Clingin
- 20 Ms Leah Lothringer
- 21 Mr David Saunders
- 22 Griffith City Council
- 23 Albury City Council
- 24 Aurora Gaming
- 25 Mr Nick Assiouras
- 26 RP & JA Anderson
- 27 Dr Craig Watkins
- 28 Mr James Chisholm

- 29 City of Darebin
- 30 Name Withheld
- 31 Mr Duncan Hames
- 32 Willoughby City Council
- 33 Yarra Ranges Council
- 34 Tasmanian State Government Department of Premier and Cabinet
- 35 City of Greater Geraldton
- 36 Mr Bryan Walpole
- 37 Mr Gavin Raper
- 38 Mr Paul Goossens
- 39 City of Melton Council
- 40 Future Party
- 41 Mr Robert Hill
- 42 Mr Andrew Thornton
- 43 Mr Paul Murphy
- 44 Bundaberg Regional Council
- 45 Mr Alister Walker
- 46 Mr Richard Ure
- 47 City of Bunbury
- 48 Mr Gavin Lynch
- 49 Mr Fred Andronikos
- 50 Mr Matt Wilkinson
- 51 Mr Mark Ryan
- 52 Mr Paul Davis
- 53 City of Victor Harbor
- 54 Ms Janet Scott
- 55 Mr Paul Maybon
- 56 Mr Steve Ulrich
- 57 Mr Benjamin Jarvinen
- 58 City of Sydney
- 59 Mr Dick Garner
- 60 City of Nedlands Council

- 61 Mr Robert Lindstrom
- 62 South West Development Commission, Regional Development Australia
- 63 Mr David Fuller
- 64 Mr Paul Aslin
- 65 City of Whittlesea
- 66 Ms Nicola Bussell
- 67 Evocities, NSW
- 68 Mr Conrad Fuller
- 69 Mr Paul Di Berardino, Proeye Communications and Security Systems
- 70 NBN Alliance
- 71 Mr Paul Budde
- 72 Mr Nick Maxfield
- 73 Ms Carolyn Armstrong
- 74 Mr Dagmar Dixon
- 75 Mr Michael Lansley
- 76 Ms Jacqueline Brody
- 77 The Warren Blackwood Alliance of Councils (Inc)
- 78 Ms Susan Hirst
- 79 Ms Annie L-Wells
- 80 Mr Mohammad Mawla,
- 81 Mr Mark Campbell, SA
- 82 Mr Joshua Tefay,
- 83 Mr Jacob Griffiths
- 84 Wagga Wagga City Council
- 85 Ms Virginia Bidwell, Bridgetown
- 86 Mr Cameron Watt
- 87 Name Withheld
- 88 Ms Shannon Wynter
- 89 Mr James Imray
- 90 Northern Melbourne Regional Development Australia Committee
- 91 Mr Rhys Pitman
- 92 Dr Peter Gerrand

- 93 ACT Government
- 94 Name Withheld
- 95 Mr Ronnie Morris
- 96 Mr Ray Barbero
- 97 Telstra Corporation Limited
- 98 Fastel
- 99 Name Withheld
- 101 Kym Drew

Appendix 2

All published additional information, answers to questions on notice and correspondence at the date of this report

Government Response

Government's response to Interim Report of the Senate Select Committee on the National Broadband Network received 13th August 2014

Additional information received

- 1 NBN Co Opening Statement - Public Hearing Wednesday 11 December 2013, Canberra
- 2 Letter from the Minister for Communications, the Hon Malcolm Turnbull MP, regarding release of unredacted copy of the NBN Strategic Review - Public Hearing Tuesday 17 December 2013, Sydney
- 3 Power point presentation, CEPU and ETUWA - Public Hearing Wednesday 29 January 2014, Perth
- 4 CEPU document tabled - Public Hearing Tuesday 4 February 2014, Hobart
- 5 CEPU photographs tabled - Public Hearing Tuesday 4 February 2014, Hobart
- 6 CEPU document tabled - Public Hearing Tuesday 4 February 2014, Hobart
- 7 Letter from Chair of Senate Select Committee on the National Broadband Network to Executive Chairman NBN Co regarding outstanding answers to Questions on Notice, 10 February 2014
- 8 Letter from the Chair of the Senate Select Committee on the National Broadband Network to Minister for Communications regarding outstanding answers to Questions on Notice, 28 February 2014
- 9 Letter from Executive Chairman NBN Co to Chair of the Senate Select Committee on the National Broadband regarding outstanding answers to Questions on Notice, 28 February 2014
- 10 Letter from Chair of Senate Select Committee on the National Broadband Network to Executive Chairman NBN Co regarding outstanding answers to Questions on Notice, 7 March 2014
- 11 Letter from Executive Chairman NBN Co to Chair of the Senate Select Committee on the National Broadband regarding outstanding answers to Questions on Notice, 28 February 2014

- 12 Letter from Chair of Senate Select Committee on the National Broadband Network to Executive Chairman NBN Co regarding outstanding answers to Questions on Notice, 7 March 2014
- 13 The NBN Update, tabled by Mr Kenneth Tsang at public hearing 5 May 2014, Sydney
- 14 PowerPoint presentation - NBN Co, tabled by Senator Conroy at public hearing 5 May 2014, Sydney
- 15 PowerPoint presentation - Cost-Benefit Analysis and Review of Regulation Panel of Experts, tabled by Senator Conroy at public hearing 5 May 2014, Sydney
- 16 Paper, "Getting Some Reality into Debates about NBN FTTP", tabled by Mr Robin Eckermann at public hearing 19 May 2014, Canberra
- 17 PowerPoint presentation shown by Senator Conroy at public hearing 11 July 2014, Canberra
- 18 PowerPoint Presentation - tabled by Senator Conroy at public hearing 26 September 2014, Canberra
- 19 Letter tabled by Senator Lundy at public hearing 26 September 2014, Canberra
- 20 Letter tabled by Senator Conroy at public hearing 3 October 2014, Canberra
- 21 PowerPoint Presentation - NBN Co, tabled by Senator Conroy at public hearing 3 October 2014, Canberra
- 22 Letter from Department of Communications, clarifying evidence given at public hearing on 3 October 2014, Canberra

Answers to Questions on Notice from public hearings

- 1 Index & Answers to Questions on Notice, 28 November 2013, Canberra
- 2 Index & Answers to Questions on Notice, 29 November 2013, Canberra
- 3 Index & Answers to Questions on Notice, 11 December 2013, Canberra
- 4 Index & Answers to Questions on Notice, 17 December 2013, Sydney
- 5 Index & Answers to Questions on Notice, 29 January 2014, Perth
- 6 Index & Answers to Questions on Notice, 4 February 2014, Hobart
- 7 Index & Answers to Questions on Notice, 11 March 2014, Terrigal

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- 8 Index & Answers to Questions on Notice, 12 March 2014, Sydney
 - 9 Index & Answers to Questions on Notice, 5 May 2014, Sydney
 - 10 Index & Answers to Questions on Notice, 19 May 2014, Canberra
 - 11 Index & Answers to Questions on Notice, 11 July 2014, Canberra
 - 13 Index & Answers to Questions on Notice, 26 September 2014, Canberra
 - 15 Index & Answers to Questions on Notice, 3 October 2014, Canberra
 - 17 Index & Answers to Questions on Notice, 2 and 4 December 2014, Canberra

Correspondence

- 1 Letter from Mr David Sullivan, Committee Secretary to Visionstream - invitation to public hearing in Hobart on 4 February 2014, 20 January 2014
- 2 Letter from Visionstream Australia to Mr David Sullivan - response to invitation to public hearing in Hobart on 4 February 2014, 24 January 2014
- 3 Letter from Chair to Visionstream Australia - regarding invitation to public hearing in Hobart on 4 February 2014, 31 January 2014
- 4 Letter from Visionstream Australia to Chair - regarding invitation to public hearing in Hobart on 4 February 2014, 3 February 2014
- 5 Letter from Chair to Chairman of NBN Co regarding outstanding answers to questions on notice, 23 June 2014
- 6 Letter from Chair to Secretary of Department of Communications regarding outstanding answers to questions on notice, 23 June 2014
- 7 Letter from Chairman of NBN Co to Chair - response on outstanding questions on notice, 26 June 2014
- 8 Letter from Drew Clarke, Secretary, Department of Communications, 8 July 2014
- 9 Letter from Chair to Mr Bill Hilzinger, Chairman, Southern Phone Company Limited, 18 July 2014
- 10 Letter from Chair to Mr David Buckingham, CEO, iiNet Ltd, 18 July 2014

- 11 Letter from Chair to Mr David Thodey, CEO, Telstra Corporation Limited, 18 July 2014
- 12 Letter from Chair to Mr Geoff Horth, CEO, M2 Telecommunications Group Limited, 18 July 2014
- 13 Letter from Chair to Mr Greg Provenzano, President, ACN Pacific Pty Ltd, 18 July 2014
- 14 Letter from Chair to Ms Kelly Mudford, Acting CEO, Telecommunications Universal Service Management Agency, 18 July 2014
- 15 Letter from Telstra Corporation Limited to Chair - response to in letter 18 July 2014

Appendix 3

Public hearings and witnesses

Thursday 28 November 2013—Canberra

Australian Communications and Media Authority

CAHILL, Ms Maureen, General Manager, Communications Infrastructure Division

TANNER, Mr Giles, General Manager, Digital Economy Division

WHITE, Mr Paul, Executive Manager, NBN and Industry Monitoring Branch

Communications, Electrical and Plumbing Union of Australia

MIER, Mr David, National Official, Electrical Division

MURPHY, Mr Shane, Assistant Secretary, New South Wales Branch

Department of Communications

HEAZLETT, Mr Mark, First Assistant Secretary,

ROBINSON, Mr Ian, Deputy Secretary

Department of Finance

RENEWICK, Mr Robin, Assistant Secretary, NBN and Moorebank Shareholder Branch

Friday 29 November 2013—Canberra

NBN Co.

SWITKOWSKI, Dr Ziggy, Executive Chairman

Department of Communications

ROBINSON, Mr Ian, Deputy Secretary

Department of Finance

MASON, Ms Jan, Deputy Secretary, Business, Procurement and Asset Management

Wednesday 11 December 2013—Canberra

Australian Competition and Consumer Commission

COSGRAVE, Mr Michael, Group General Manager, Communications Group

RIORDAN, Mr Sean, General Manager, Industry Structure and Compliance Branch

NBN Co.

ADCOCK, Mr Greg, Chief Operating Officer,.

BROWN, Mr Kevin, Head of Corporate and Commercial

COONEY, Mr Kieren, Chief Marketing Officer

MCLAREN, Mr Gary, Chief Technology Officer

Department of Communications

CLARKE, Mr Drew, Secretary

GRAINGER, Ms Joanna, Assistant Secretary

HEAZLETT, Mr Mark, First Assistant Secretary

Department of Finance

MASON, Ms Jan, Deputy Secretary, Business, Procurement and Asset Management

ROBINSON, Mr Ian, Deputy Secretary

Tuesday 17 December 2013—Sydney

Boston Consulting Group

FORTH, Dr Patrick, Partner

WILMS, Mr Maikel, Partner

Deloitte Touche Tohmatsu

DRUMM, Mr Jeremy, Partner

HARDING, Mrs Clare, Partner

KordaMentha

KORDA, Mr Mark, Partner

NBN Co.

ADCOCK, Mr Greg, Chief Operating Officer

MCLAREN, Mr Gary, Chief Technology Officer

ROUSSELOT, Mr Jean-Baptiste, Head of Strategy and Transformation

SWITKOWSKI, Dr Ziggy, Executive Chairman and Chief Executive,

Telstra Corporation

GALLAGHER, Mr William (Bill) David, General Counsel, Corporate Affairs

GOONAN, Mr Anthony Patrick, Executive Director, Engineering Planning

SHAW, Mr James, Director Government Relations

Wednesday 29 January 2014—Perth***iiNet***

BUCKINGHAM, Mr David, Acting Chief Executive Officer

DALBY, Mr Steve, Chief Regulatory Officer

McINTYRE, Mrs Rachael, NBN Product Manager

ETU

McLAUGHLAN, Mr Leslie, State Secretary

CEPU

McVEE, Mr Barry, Branch Secretary, Communications Division

O'DONNELL, Mr John, WA Branch President, Communications Division

City of Greater Geraldton

CARPENTER, Mr Ian, Mayor

Women in Technology WA (Inc.)

TOWLER, Ms Marjolein, Chair

Tuesday 4 February 2014—Hobart***Tasmanian State Government***

DALLA-FONTANA, Ms Maria, Manager, Digital Futures, Department of Economic Development, Tourism and the Arts

KNEVETT, Mr Mitchell, Director, Office of eGovernment, Department of Premier and Cabinet

STEVENS, Mr Michael, Deputy Secretary, Department of Premier and Cabinet

Local Government Association of Tasmania

GARCIA, Mr Allan, Chief Executive Officer

Tasmanian Chamber of Commerce and Industry

BAILEY, Mr Michael, Chief Executive Officer

TASICT

WINTER, Mr Dean, Executive Officer

Digital Tasmania

DALTON, Mr John, Spokesperson

Civil Contractors Federation (TAS)

COOK, Mr Anthony John (Tony), Chief Executive Officer

GRANGER, Mr Adrian John, State President

ETU and CEPU

MIER, Mr David, National Official

GILL, Miss Emma, Tasmanian State Organiser

Universal Communications Group

BRACKEN, Mr Brian, Site Manager

LUNA, Mr Rafael, Chief Executive Officer

McARTHUR, Mr Roger, Chief Technical Officer

MINNEKEER, Mrs Susan, General Manager Operations

Aurora Energy Pty Ltd

LARKIN, Mr Michael, General Manager, Service Delivery

TERRY, Mr Sean, Group Manager, Strategy and Government Relations

Tuesday 11 March 2014 – Terrigal

Gosford City Council

BEAL, Mr Jamie, IT Coordinator

MORRIS, Councillor Hillary

Central Coast Business Review

ADAMS, Mr Edgar George, Editor

Erina Chamber of Commerce

ALLEN, Ms Michelle, CEO, Webstuff.biz

ATKINSON, Mr Austen, Head of Studio, Planet55 Studios

DA COSTA, Dr Kate, Executive Officer

GLASS, Ms Sally, CEO, CHIK Services and eHealth Space

YEATS, Mr Samuel, CEO, Ultra Serve

Regional Development Australia Central Coast

MOULAND, Mr John, CEO

Central Coast Broadband Alliance

ABRAHAMS, Mr David, Spokesperson

The Central Coast Community Alliance

SUNDSTROM, Mr Jeffrey Ian, Spokesperson

Hunter Institute of TAFE

LEWIS, Ms Louise, Manager, Digital Learning

Central Coast Grammar School

SOEDE, Mr David, ICT Manager

Paul Budde Communication Pty Ltd

BUDDE, Mr Paul Gerard, Managing Director

CCTS Telecommunications

RICHTER, Mr Ian, Director

Private capacity

SPEDDING, Mr Patrick

BUCHANAN, Mr Trevor

Wednesday 12 March 2014 – Sydney

NBN Co

ADCOCK, Mr Greg, Chief Operating Officer

BROWN, Mr Kevin, Head of Corporate and Commercial

McLAREN, Mr Gary, Chief Technology Officer

MESMAN, Mr David, General Manager Legal—FOI & Knowledge Management

PAYNE, Mr Robin, Chief Financial Officer

ROUSSELOT, Mr JB, Head of Strategy and Transformation

SWITKOWSKI, Dr Ziggy, Executive Chairman

City of Sydney

SHIELDS, Mr Peter Richard, Technical Services Manager

Private capacity

SCOTT, Councillor Linda

Department of Communications

CLARKE, Mr Drew, Secretary

GRAINGER, Ms Joanna, Assistant Secretary

ROBINSON, Mr Ian, Deputy Secretary

Department of Finance

MASON, Ms Jan, Deputy Secretary, Business, Procurement and Asset Management

RENEWICK, Mr Robin, First Assistant Secretary, Commercial and Claims Division

Monday, 5 May 2014

NBN Co

ADCOCK, Mr Greg, Chief Operating Officer

BROWN, Mr Kevin, Head of Corporate and Commercial

McLAREN, Mr Gary, Chief Technology Officer

MORROW, Mr Bill, Chief Executive Officer

PAYNE, Mr Robin, Chief Financial Officer

ROUSSELOT, Mr Jean-Baptiste, Head of Strategy and Transformation

Private capacity

TSANG, Mr Kenneth

Monday, 19 May 2014

Private capacity

GROSVENOR, Mr Pascal

ECKERMANN, Mr Robin

NBN Co

ADCOCK, Mr Greg, Chief Operating Officer

Friday, 11 July 2014***NBN Co***

ADCOCK, Mr Greg, Chief Operating Officer

MORROW, Mr Bill, Chief Executive Officer

RUE, Mr Stephen, Chief Financial Officer

SIMON, Mr John, Chief Customer Officer

WHITCOMB, Mr Bradley Evan, Chief Culture and Business Transformation Officer

Friday, 26 September 2014***NBN Co***

ADCOCK, Mr Greg, Chief Operating Officer

MORROW, Mr Bill, Chief Executive Officer

RUE, Mr Stephen, Chief Financial Officer

Friday, 3 October 2014***Telecommunications Universal Service Management Agency***

MUDFORD, Ms Kelly, Director, Public Interest Contracts and Performance Group

WIEGOLD, Mr Elmer, Acting Chief Executive Officer

Australian Competition and Consumer Commission

COSGRAVE, Mr Michael, Executive General Manager, Infrastructure Regulation Division

MULLEN, Mr Baethan, Director, Regulatory Strategy, Digital Economy and Coordination, Infrastructure Regulation Division

Department of Communications

CLARKE, Mr Drew, Secretary

McINTYRE, Mr Duncan, Acting Deputy Secretary, Infrastructure

Cost Benefit Analysis and Regulation Review, Panel of Experts

ERGAS, Professor Henry, Member

SHAW, Mr Anthony John, Member

WHITE, Mr Damien, Former Assistant Secretary to the panel

PEARCE, Mr David, Executive Director, Centre for International Economics, principal subcontractor to the panel

Tuesday, 2 December 2014

NBN Co

ADCOCK, Mr Greg, Chief Operating Officer

KEISLER, Ms Karina, Executive General Manager, Corporate Affairs

MORROW, Mr Bill, Chief Executive Officer

SIMON, Mr John, Chief Customer Officer

STEIGER, Mr Dennis, Chief Technology Officer

Thursday, 4 December 2014

NBN Co

RUE, Mr Stephen, Chief Financial Officer

Thursday, 12 March 2015

Department of Communications

McINTYRE, Mr Duncan, Assistant Secretary, Broadband Implementation

ROBINSON, Mr Ian, Deputy Secretary, Infrastructure

NBN Co

ROUSSELOT, Mr Jean-Baptiste, Chief Strategy Officer

RUE, Mr Stephen, Chief Financial Officer

Appendix 4

Recommendations of the committee's first interim report

Recommendation 1

NBN Co should submit a revised Strategic Review that provides transparent assumptions and corrects deficiencies and distortions. The revised Strategic Review should provide details of only two scenarios:

- An optimised FTTP rollout that adopts the technology changes and other management initiatives outlined in Scenario 2, together with a plan to address identified industry capacity constraints; and
- A revised Multi-Technology Mix that is based on actual costs for FTTN and HFC derived from discussions with Telstra, Optus and vendors. This scenario should also include all costs to undertake the flagged upgrades to 100 Mbps by 2023, 250 Mbps by 2028 and 1000 Mbps by 2030.

The revised scenarios should include consideration of broadband quality beyond just download speeds, and the demand for attributes like upload speeds and reliability in the residential and small business market.

Prior to submission, the Strategic Review should be scrutinised and verified by an independent advisor engaged by the Department of Communications and the Department of Finance.

Recommendation 2

NBN Co should continue and accelerate the roll out of the FTTP network while further analysis is undertaken.

NBN Co should be allowed to proceed free from political interference.

Recommendation 3

Governance processes between NBN Co and the Minister should be investigated to determine how a document with the deficiencies evident in the Strategic Review was produced and signed off by the NBN Co Board and the Minister.

Recommendation 4

The Committee recommends that the Senate amend the Committee's Terms of Reference to enable ongoing and robust Parliamentary oversight of the National Broadband Network.

Recommendation 5

Shareholder Ministers and NBN Co should implement concrete measures to improve transparency and accountability. At a minimum, NBN Co should:

Immediately take steps to rectify community uncertainty about the rollout. NBN Co should inform communities where physical construction is taking place, and provide forecasting data on its website to advise local communities when services are expected to become available;

Attend all Parliamentary Committee hearings and answer questions on notice accurately and in a timely fashion, as is appropriate for a Government Business Enterprise accountable to the Australian people; and

Publish the full program summary report on its website, in accordance with the interim statement of expectations.