

## **Information Paper**

### **Response to Coalition claims on cost of the NBN**

When the Coalition released their broadband policy on 9 April 2013 they devoted 12 pages to an analysis of the cost of Labor's NBN and only two to their alternative. The Coalition plan does not explicitly state a number of assumptions used in it, including the expected take-up rate for their network. Despite this imbalance the Coalition trumpets their plan as being incredibly detailed.

It is, of course, unrealistic to expect the opposition plan to have been subject to the level of scrutiny and assessment that the NBN Co plan has been. However, it is fanciful to assert that 12 pages based on four assumptions is a better estimate of the cost of Labor's NBN than the detail included in the NBN Co Corporate Plan, which is based on finalised contracts, real costs, and has been independently verified by KPMG.

The Coalition has asserted that the four assumptions the Coalition used to get their inflated cost figure have not been refuted. NBN Co comprehensively refuted these claims at a meeting of the Joint Committee on the National Broadband Network on 19 April 2013.

The four assumptions made in the Background Paper<sup>1</sup> released with the Coalition plan are:

- That revenue will grow more slowly than forecast;
- That fibre to the premises costs are higher than forecast;
- That more households will go wireless only than forecast; and
- That the network will take 50% longer to complete.

While each of these were posed in the background papers as "what if" questions, the four were combined into a forecast for both Capex (\$71 billion) and Peak Funding (\$94 billion). The Coalition has promoted the latter figure, claiming it is the "true cost" of the NBN.

There are two bases on which the conclusion reached by the Coalition can be challenged, either that the premise of the assumption is false or that the conclusion reached from the assumption is incorrect, or both. In relation to all four scenarios one or both is the case.

#### **That fibre to the premises costs are higher than forecast**

NBN Co presented detailed financial and rollout data to the Parliamentary Joint Committee on the National Broadband Network (JCNBN) on 19 April 2013.<sup>2</sup> The report provided a complete breakdown of the costs of the NBN, including the breakup of the total capital expenditure between the individual platforms, and components of platforms. This included the fact that the capex forecast of \$37.4 billion includes a 10 per cent contingency.

The report also provided detail of the actual costs<sup>3</sup> incurred in building the access network to date compared to the forecasts in the corporate plan. This demonstrated that the fibre access network is being built for the \$2,100 per premise forecast in the Corporate Plan.

There is no basis therefore for the Coalition claim that the cost of completing the fibre network would be 40% higher than forecast.<sup>4</sup>

The Coalition Background Paper states:

*The only certainty is that if FTTP rollout was on budget, NBN Co would be saying so.*

NBN Co said exactly that just ten days after the release of the Coalition policy.

The overall NBN project, and in particular the Corporate Plan, has been subject to detailed analysis. This is detailed in Appendix 1.

*The network will take 50% longer to complete*

The Background Paper provides no justification for the assumption that the network will take longer to complete. NBN Co has continued to state that it is committed to the 2021 completion date, including in March 2013 when they announced revised forecasts for network construction to 30 June.<sup>5</sup> It was also repeated at the JCNBN in April. When asked if he still stood by the targeted completion date of 2021, NBN Co CEO Mike Quigley replied:

*Yes. We looked at that very carefully. In gross terms, when we reprofiled in absorbing the delay we had at the front end we made sure we did not exceed the peak rate that we had before. That meant that what we had before was a profile that came up. It peaked a little bit and then came off for a period of time. When we came up to that peak we held the peak for longer before coming down. So we are not going above the peak.<sup>6</sup>*

However, apart from the fact that the assumption of a roll-out delay is false, even were there to be a delay the consequence would not be an increase in costs.

This fact was also provided to the JCNBN in April. When asked what the impact on extending the completion date would be on cost and funding, NBN Co CFO Robin Payne replied:

*The biggest impact of a one- or two-year delay will not have much impact on the internal rate of return. With a two-year delay we would probably still expect to see an internal rate of return of around seven per cent. Where it does have a big impact is on the peak funding requirement. Under the existing plan, we have a peak funding requirement of just over \$44 billion. If we extended the rollout, it would reduce that peak funding requirement because we are spending capex after a time when we have gone to cash flow positive. That would come down by \$2 billion or \$3 billion.<sup>7</sup>*

So not only is there no basis for a claim for a roll-out delay over the whole project, but even were there to be such a delay it has the opposite effect to that claimed by the Coalition. A delayed completion date would decrease funding requirements, not increase them.

*Revenue will grow more slowly than forecast*

This claim is based on an error in calculation.

The claim as stated in the Coalition Plan is:

*A feature of the Corporate Plan is extremely rapid growth in Average Revenue per User (ARPU) between FY2012 and FY2021. Wholesale ARPU starts at \$22.46 per month (slightly below the wholesale prices for NBN Co's products) but rises to \$62.11 by 2020-21 and the end of the build (assuming construction is completed on schedule)..<sup>8</sup>*

Mr. Quigley exposed the error during the 19 April Committee hearing:

*Mr Quigley: ... I want to address the observation [Mr. Turnbull has] made that our average revenue per user is trebling. I think that was on the basis of the number that would have been in the corporate plan at the very beginning, which was \$22. I think that is what you probably used, Mr Turnbull—is that correct?*

*Mr TURNBULL: I will take you to the precise page. Keep going, but it is a page—*

*Mr Quigley: I am pretty sure it is \$22, and what you will have seen, if you look at the graph of average revenue per user, is that in those very early days there was a kink down. That kink down is an artefact of the fact that we had a very small base of subscribers in those early years and you are growing almost exponentially in [the] number of [sub]scribers. So when you do the ARPU calculation, you end up with an ARPU that is misleading. You may observe, in fact, the lowest possible price we have for an AVC for the access portioning, even ignoring CVC, is \$24. So if you start, you cannot really start with an ARPU of \$22; it does not make any sense. You cannot take the number from \$22 to \$68 and say it has trebled when you are starting from an ARPU that is actually below what the lowest AVC cost is. Our real ARPU today is \$38.*

*There was another issue there with the \$22—that is, it was based on us assuming that people would take up very small amounts of CVC—the RSPs. They are in fact taking up a higher rate. We also have seen that people are taking up higher speed tiers more often. So our ARPU, our starting point, should not be \$22, it should be \$38. If you do the calculation again, based on actuals, it is a very different picture.*

Mr Quigley highlighted a very real issue with the Coalition assertion, and this was that Average Revenue Per User could never possibly be as low as \$22 when the lowest access price was \$24. This simple fact was actually noted by the Coalition in their background paper but not interrogated further.

When the calculations are done to reflect the profile of a growing business it is clear that NBN Co is forecasting a 6% p.a, nominal increase in ARPU. The calculations for this are outlined in appendix 2.

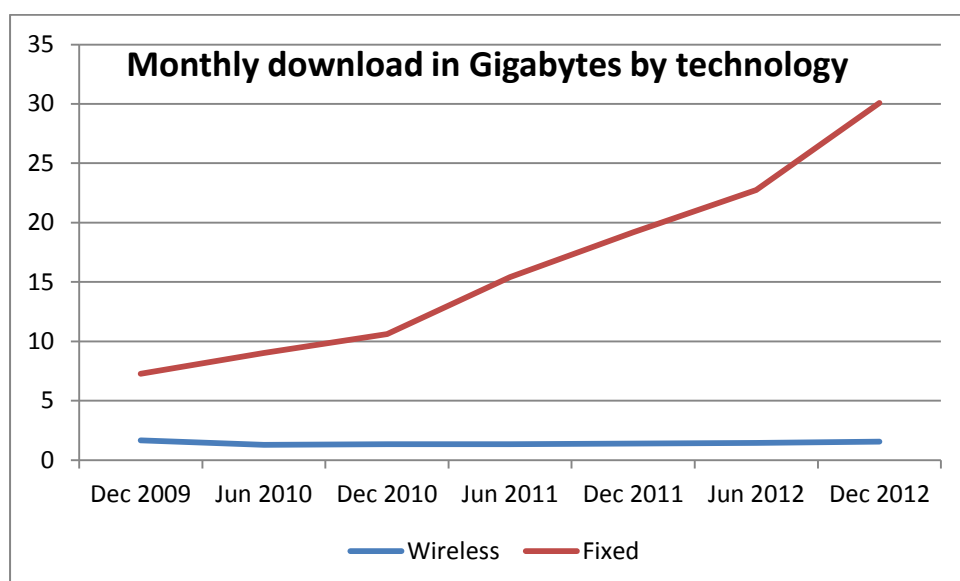
Mr Turnbull also regularly restates the claim about Average Revenue per User as an assertion that prices will increase. NBN Co provided evidence to the committee that wholesale prices, including the AVC and CVC component, for offerings at specified speeds with specified download allowances will *decline* over time.

The fact that Average Revenue per User will increase (at 6% p.a. nominal) is consistent with declining retail prices due to the fact that consumers will elect to buy services at higher speeds and will choose to download more.

*More premises than forecast will be wireless only*

The NBN Co Corporate Plan forecasts connections on the basis of the proportion of premises passed that are vacant and the proportion of premises passed that elect to be wireless only. The Coalition “assumption” is entirely based on speculation, and no evidence is presented.

Against the assertions is the fact that despite the increase in mobile devices, the fixed line network does the heavy lifting on broadband. The chart below shows the data from the Australian Bureau of Statistics on monthly data downloads per subscriber for fixed and wireless networks.



Source: Australian Bureau of Statistics 8153.0 Internet Activity - Australia<sup>9</sup>

Over 3 years the amount of data downloaded per month on fixed lines by service has more than trebled, while it is virtually unchanged for wireless.

Surveys of households that have chosen to go “wireless only” also tend to be asking questions about voice services and under-report the households that have a fixed broadband connection but no fixed voice connection. Additionally, the existing business model for fixed broadband typically requires a minimum commitment of 24 months. The move to ubiquitous open access fibre reduces this impediment to take-up for the NBN, especially for people in rental accommodation.

This item wasn't directly addressed at the JCNBN, but the speed of take-up was. As Mr Quigley noted:

*It is quite interesting to note that, in Aldinga and Kiama, we are now getting pretty close to 60 per cent—in fact, if we add the orders that are pending, that we are about to activate, the take-up rates would be at 60 per cent. That is really quite an astonishing take-up rate for a new network, surpassing the take-up of any other technology we have seen.*

And:

*These are the types of take-up rates that, when we talk to operators around the world, they find a little hard to believe because they are so high.*

This data supports the assumptions in the Corporate Plan about penetration.

There is also an issue for the Coalition's own plan here, that they do not in their two pages declare what the number of premises passed and the number of connections are assumed to be in their analysis. On the data provided by the Coalition it is not possible to determine what assumption of wireless only premises they have used in their own plan.

It should also be noted that this assumption has the least impact of all on the Coalition's claims. It has no impact on CapEx and it is estimated by the Coalition to have only a \$2 billion impact on Peak Funding.

### Scrutiny of the NBN Co Business Case and Corporate Plan

The Labor Government first went to the private sector and sought proposals for a co-investment with Government to provide a high speed network. The Government appointed an expert panel to evaluate proposals.<sup>10</sup>

The criteria for evaluation included the ability for the network to be upgraded in the future, and the extent to which the new network would be open access and ensure equivalence of terms for retail providers.<sup>11</sup>

In April 2009 Prime Minister Rudd, together with Ministers Swan, Conroy and Tanner, announced the Government's decision to abandon the tender process and proceed to build the NBN entirely as a Government Business Enterprise.<sup>12</sup>

The Government also published an extract from the expert panel report.<sup>13</sup> Critically the Expert Panel concluded:

*The Proposals have also demonstrated that rolling out a single fibre-to-the-node (FTTN) network is unlikely to provide an efficient upgrade path to fibre-to-the-premises (FTTP), because of the high costs of equipment associated with rolling out a FTTN network that would not be required for a FTTP network (i.e. FTTN is not a pre-requisite for the provision of FTTP)....*

*The Panel can see a way forward to achieve the outcomes sought by the Government and has provided that advice in confidence to the Government because of the commercial sensitivities arising.*

In May 2009 Minister Conroy provided further information about the evaluation process for the NBN in a speech to the Fibre-to-the-Home Council, Asia-Pacific.<sup>14</sup> He noted that costing of the FTTP plan had been done "by central agencies based on advice from their technical advisors." He also noted that the Government has received advice on the technical suitability of FTTP from a range of high-level sources including the CSIRO, NICTA and DSTO, and that the overwhelmingly strong view of this advice was that FTTP is the technically superior broadband solution.

He concluded,

*We have listened to the experts and will deliver a National Broadband Network that exceeds our election commitment and establishes Australia's broadband sector for the future.*

The Government immediately proceeded to establish NBN Co and commissioned McKinsey & Company and KPMG to undertake an Implementation Study. That study was published in May 2010.<sup>15</sup> The key conclusion of the study was that the NBN could be implemented within

the \$43 billion estimate of capital expenditure, and that fibre should be deployed to 93% of premises.

The NBN Co Limited Statement of Expectations published on 20 December 2010 established the principles for financing the National Broadband Network.<sup>16</sup> It stated:

*The Government will enter into an equity agreement with NBN Co for the rollout period with equity funding based on the expected \$27.5 billion funding requirement advised by NBN Co. This agreement will be reviewed annually.*

That is, the Government clearly did specify a “budget” for NBN Co. Consistent with all other financial projections and forecasts it is reviewed annually.

On 20 December the Government also released the NBN Co Corporate Plan 2011-13. This first Corporate Plan outlined NBN Co’s long-term business case and set rollout targets for the period from June 2011 to June 2013. The Plan made it clear that a critical date for the roll-out was the Completion of the Definitive Agreements with Telstra in June 2011.

The Government commissioned Greenhill Caliburn to provide a commercial assessment of the NBN Co Corporate plan, analysing its key assumptions and potential risks. Greenhill Caliburn advised that the Corporate Plan had been completed to “high professional standards, providing the level of detail and analytical framework that would be expected from a large listed public entity evaluating an investment opportunity of scale.” They also advised that the Corporate Plan for the development of the NBN is reasonable.<sup>17</sup>

The report also stated that the execution and performance of the agreement with Telstra was an important assumption that if not realised would require the Corporate Plan to be revised.

As it transpired the Definitive Agreements with Telstra were not executed until March 2012. This effectively shifted the commencement date of the full rollout of the NBN by nine months.

The NBN Co Corporate Plan 2012-15 was released by the Minister with NBN Co Limited on 8 August 2012. This plan, described as the first operational plan, was informed by the conclusion of the agreements with Telstra as well as major procurement and construction contracts. The Corporate Plan was verified by KPMG for the shareholder Ministers..

It detailed a re-profiling of the rollout to reflect the nine month shift in the start, however the completion date was only moved six months. It also included the full financial consequences of the certainty provided by the agreements entered into. This resulted in the Government agreeing to an NBN Co request to increase the Government equity commitment to \$30.5 billion dollars. This figure, as well as the actual schedule of equity payments over the forward estimates, was included in the 2013-14 Budget Papers.

It is very clear that the NBN has been subject to rigorous analysis that is entirely consistent with the analysis that would be applied by a public listed company.



### Rapid take-up and the calculation of ARPU

Industry analysts typically use an approach to measure Average Revenue Per User (stated as a per month figure) which attempts to account for the fact that the number of subscribers to a network increases over a year. This assumes that the average from the year start and year end connections is a good proxy for the divisor number of customers.

The Coalition has derived ARPU figures using this approach. The table below shows the revenue and connection figures included in the NBN Co Corporate Plan together with a calculation of the ARPU using the Coalition methodology, and the values that the Coalition uses in its background paper.

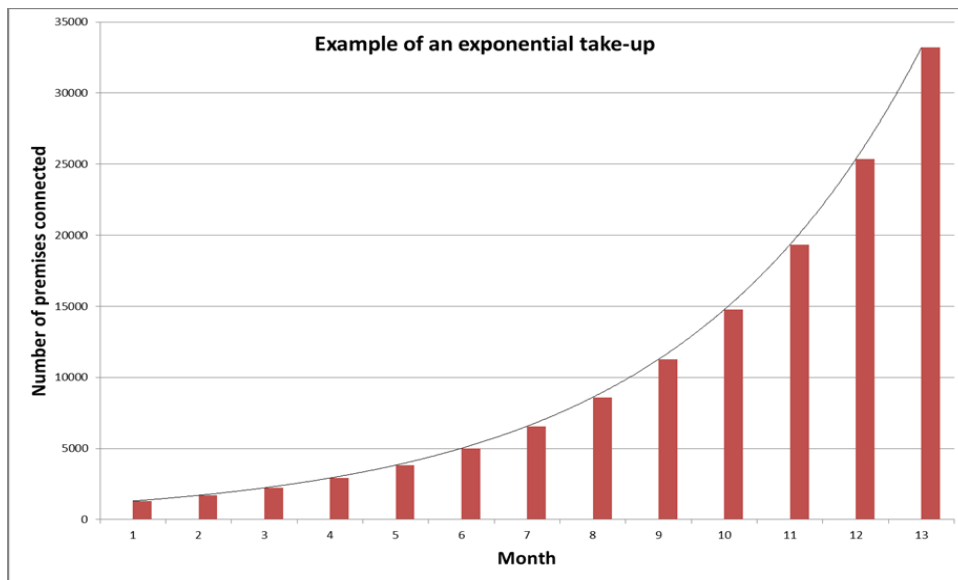
Financial Year	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
NBN Co Revenue (\$m)	\$0	\$2	\$18	\$120	\$529	\$1,346	\$2,281	\$3,221	\$4,200	\$5,167	\$6,175
Connections (000s)	1	14	92	551	1615	3181	4502	5785	6901	7826	8745
ARPU Calculated		\$22.22	\$28.30	\$31.10	\$40.70	\$46.78	\$49.48	\$52.19	\$55.18	\$58.48	\$62.11
Coalition ARPU		\$22.46	\$28.44	\$31.10	\$40.72	\$46.76	\$49.50	\$52.17	\$55.19	\$58.46	\$62.12

(There is a very slight difference between this calculation of ARPU using the Coalition methodology – second last line – and what the Coalition quotes in the paper as the ARPU using their method. The difference is not material).

The Coalition should have been able to realise that their ARPU claim was false because of the fact that the starting point of \$22 is lower than the lowest access price. This was due to not understanding the effect of a growing subscriber base on the ARPU calculation.

However, in the early stages of any product or service growth in subscribers is not linear. The familiar “S shaped” take up curves are well approximated by exponential growth in the early phases. The nature of the early subscriber growth was shown in the diagram in more detail at Exhibit 4.1 in the presentation to the JCNBN of 19 April.

The chart below is an example of an exponential take-up. Month 1 is the end of the first year; month 13 is the end of the second year.



The table below shows this month end data, what that is as a month average and what the monthly revenue would be assuming an ARPU of \$38.

It then adds that monthly revenue to provide the annual revenue that would be included in the Corporate Plan.

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	Total
Customers	1300	1703	2231	2922	3828	5015	6569	8605	11272	14767	19344	25339	33194	
Month Average		1502	1967	2577	3375	4422	5792	7587	9939	13020	17056	22342	29267	
Monthly Revenue (\$000)		57	75	98	128	168	220	288	378	495	648	849	1112	4516

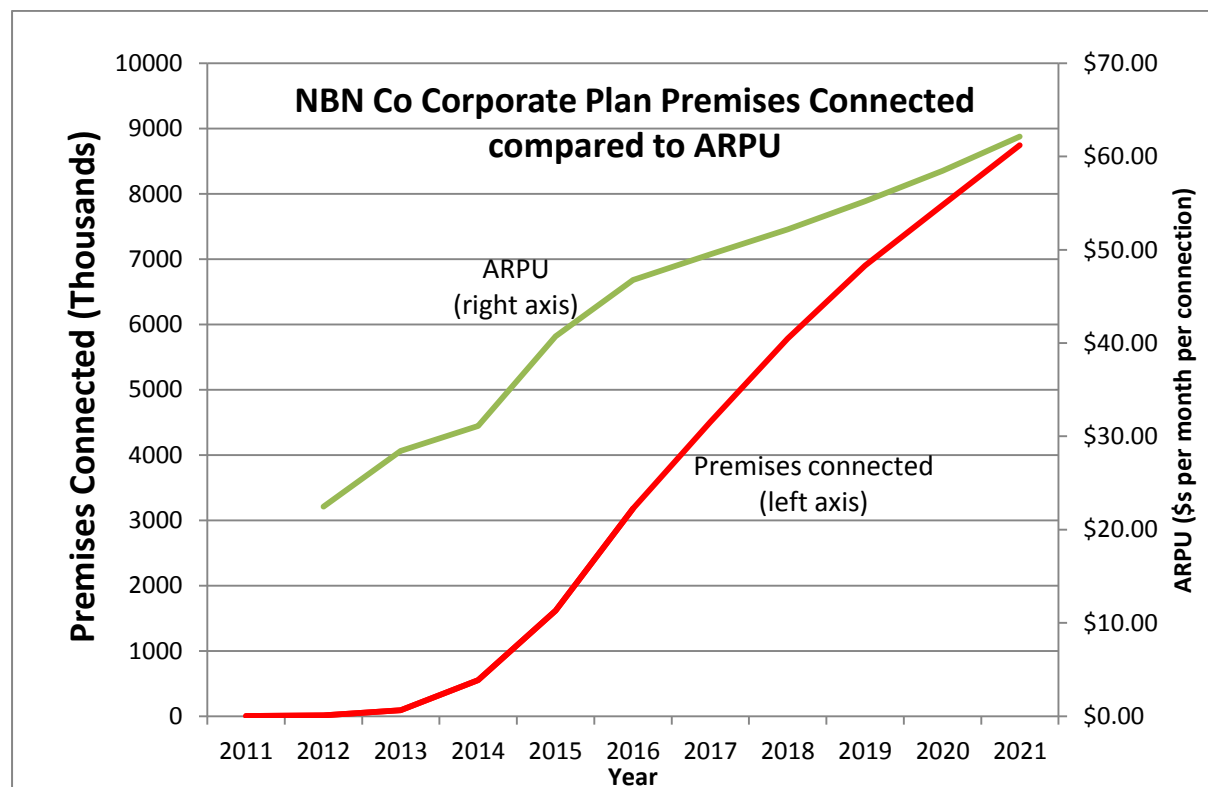
This data can then be used to calculate what the ARPU would be using the Coalition's averaging method.

#### ARPU using average customer method

Start	1,300
Finish	33,194
Average	17,247
Revenue	\$4,515,000
ARPU	\$22 $= (4,515,000 / 17,247) / 12$

This clearly demonstrates that the straight line method of calculating ARPU is wrong for the phase of a project where growth is approximately exponential.

The chart below shows how the higher annual ARPU growth relates to the ongoing effect of growth in connections. The rapid growth in connections slows to a more linear growth in 2015.



Source: NBN Co Corporate Plan and Coalition Background Paper.

The calculation of the rate of increase of ARPU once this levelling is achieved is 7.3% from 2015 to 2021 and 5.83% from 2016 to 2021. More relevantly the rate of increase in ARPU from the \$38 for 2013 declared by Mr Quigley at the JCNBN to \$62.12 in 2021 is 6.33%.

In brief, the NBN Co Corporate Plan assumes exactly the rate of growth in (nominal) ARPU – 6% - that the Coalition claims is appropriate.

## Endnotes

<sup>1</sup> The Coalition's Plan for Fast Broadband and an Affordable NBN: Background Papers. April 2013. Not apparently available on the Liberal Party website, but it is on Mr Turnbull's

[http://www.malcolmtturnbull.com.au/assets/Coalition\\_NBN\\_policy\\_-\\_Background\\_Paper.pdf](http://www.malcolmtturnbull.com.au/assets/Coalition_NBN_policy_-_Background_Paper.pdf)

<sup>2</sup> NBN Co Report to Parliamentary Joint Committee on the National Broadband Network: Financial and Rollout Data. 19 April 2013 <http://www.nbnco.com.au/content/dam/nbnco/media-releases/2013/report-to-parliamentary-joint-committee.pdf>

<sup>3</sup> Technically these costs were labelled "Estimates at Completion" because not all paperwork from the field had been received and reconciled. As NBN Co CFO Mr Payne told the Committee "Where we have 'estimate at completion' we have finished the work, got most of the costs in but we have not been able to draw a full line because there may be the last dribs and drabs.." Mr Quigley added, "I know we have been criticised for not coming forward with numbers, but whenever we put numbers forward we want to do so when we have some confidence in them, and they are not just wild guesses or off-the-top-of-our-heads estimates. So where we have 'estimates at completion' these are numbers which we have considerable confidence in, given where we are up to in that build. We would not put them forward if we did not have some confidence in them." Official Committee Hansard: Joint Committee on the National Broadband Network 19 April 2013.

<http://parlinfo.aph.gov.au/parlInfo/search/display/display.w3p;query=Id%3A%22committees%2Fcommjnt%2F800fed31-cf05-4f19-bd94-d79b4d261606%2F0000%22>

<sup>4</sup> The Coalition policy incorrectly asserts the Corporate Plan assumes \$2400 per premise, and uses \$3600 as its alternative for costing.

<sup>5</sup> 'NBN Co updates short-term fibre rollout timeline' 21 March 2013. <http://www.nbnco.com.au/about-us/media/news/nbn-co-updates-short-term-fibre-rollout-timeline.html>

<sup>6</sup> Committee Hansard.

<sup>7</sup> Committee Hansard.

<sup>8</sup> Coalition Background Paper.

<sup>9</sup> ABS Internet Activity – Australia

<http://www.abs.gov.au/AUSSTATS/abs@.nsf/productsbyCatalogue/6445F12663006B83CA256A150079564D?OpenDocument>

<sup>10</sup> On 11 March 2008, the Minister announced the Panel of Experts that will assess proposals to rollout and operate the National Broadband Network. The Panel was chaired by the Secretary of the Department of Broadband, Communications and the Digital Economy, Ms Patricia Scott.

The other members of the Panel were: Dr Ken Henry AC, Treasury Secretary; John Wylie AM, Lazard Carnegie Wylie CEO; Laureate Professor Rod Tucker, University of Melbourne.; Professor Emeritus of Communications, Reg Coutts, University of Adelaide; Tony Shaw, former Australian Communications Authority Chairman; Tony Mitchell, Allphones Chairman. [http://www.archive.dbcde.gov.au/2009/april/national\\_broadband\\_network](http://www.archive.dbcde.gov.au/2009/april/national_broadband_network)

<sup>11</sup> Specifically the request for proposals included in the Commonwealth's objectives for the NBN that the network;

- has sufficient capacity to meet current and foreseeable demand and has a specified upgrade path within clear timeframes, consistent with international trends;
- facilitates competition through open access arrangements that ensure equivalence of price and non-price terms and conditions, and provide scope for access seekers to differentiate their product offerings

[http://www.archive.dbcde.gov.au/2009/april/national\\_broadband\\_network/request\\_for\\_proposals](http://www.archive.dbcde.gov.au/2009/april/national_broadband_network/request_for_proposals)

<sup>12</sup> Joint Press Release 7 April 2009

[http://www.financeminister.gov.au/archive/media/2009/mr\\_202009\\_joint.html](http://www.financeminister.gov.au/archive/media/2009/mr_202009_joint.html) and

[http://www.minister.dbcde.gov.au/conroy/media/media\\_releases/2009/022](http://www.minister.dbcde.gov.au/conroy/media/media_releases/2009/022)

<sup>13</sup> Extract from NBN Expert Panel Report 20 Jan 2009

[http://www.dbcde.gov.au/funding\\_and\\_programs/national\\_broadband\\_network/extract\\_from\\_evaluation\\_report](http://www.dbcde.gov.au/funding_and_programs/national_broadband_network/extract_from_evaluation_report)

<sup>14</sup> Senator Conroy address to FttH Council Asia Pacific 19 May 2009

<http://www.minister.dbcde.gov.au/conroy/media/speeches/2009/017>

<sup>15</sup> National Broadband Network Implementation Study 6 May 2010.

[http://www.dbcde.gov.au/broadband/national\\_broadband\\_network/national\\_broadband\\_network\\_implementation\\_study](http://www.dbcde.gov.au/broadband/national_broadband_network/national_broadband_network_implementation_study)

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<sup>16</sup> Statement of Expectations 20 Dec 2010

[http://www.dbcde.gov.au/data/assets/pdf\\_file/0003/132069/Statement\\_of\\_Expectations.pdf](http://www.dbcde.gov.au/data/assets/pdf_file/0003/132069/Statement_of_Expectations.pdf)

<sup>17</sup> Review of NBN Co Limited's Corporate Plan Executive Summary

[http://www.dbcde.gov.au/data/assets/pdf\\_file/0015/132711/Review\\_of\\_NBN\\_Co\\_Limiteds\\_Corporate\\_Plan-Executive\\_Summary.pdf](http://www.dbcde.gov.au/data/assets/pdf_file/0015/132711/Review_of_NBN_Co_Limiteds_Corporate_Plan-Executive_Summary.pdf)