ALLEN & OVERY

VENTURE Consulting

NBN options for a Coalition Government

March 2013

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1.1_Policy objectives for a new NBN

If the Coalition wins the next Federal Election, set for 14 September 2013, the National Broadband Network (**NBN**), Australia's largest infrastructure project, will be subject to detailed scrutiny and a fundamental change of strategy.

The Coalition has confirmed that its policy is to deliver an alternative to Labor's NBN vision of a wholesale-only, open access, predominantly fibre to the premise (**FTTP**) network that is built and managed by NBN Co, a wholly Government owned and funded government business enterprise (**GBE**).

The Coalition's stated objectives are to build a faster and cheaper NBN using a more efficient mix of technologies, in a manner that delivers a competitive market structure with greater involvement from the private sector.

So far the debate about an alternative NBN has taken place by press release, in the traditional and online media and through intermittent speeches. Much of the debate has been the result of the polemic of the day. As this paper is published, the Coalition is expected to release its NBN policy in coming weeks and this will mark a further step towards detailed engagement on this critical policy issue.

This paper is intended to inform and invigorate this policy debate. We do not propose to support or criticise either the Labor or Coalition policies as they currently stand, but to evaluate their elements and test if the right questions have been asked and answered. This paper focuses on the Coalition's options as Labor's direction is well understood and the critical issue is, *if* there is a change of government, where do we go from there?

Accordingly, this paper considers and evaluates the broad options that will be open to an incoming Coalition Government against two clear criteria:

1_Policy fit: Will the option deliver against the Coalition's stated policy goals?

2_Practicality: How complex will the option be to implement and how constructive or obstructive are the key stakeholders likely to be?

In our view, a successful NBN option must adhere to some clear principles if it is to meet these criteria:

A solution to mass-market demand – It must be responsive to a *realistic forecast* of mass-market consumer demand over the long term for services that have a *value to society*.

A clear cost/benefit analysis – *Each* of the major elements of the NBN must be subject to a *clear cost/benefit analysis*, not just the total project.

A national solution – The public now expects the Federal Government to oversee *a national solution* achieved through both the private sector and public sector that demonstrates a balanced approach to addressing the digital divide and that is delivered against a clear timetable.

Transparency – Any *implicit cross subsidies* in these policies must be clear. The system for calculating and paying them must be transparent and efficient. However, to the extent that this makes explicit the fact that parts of the NBN are not going to earn economic returns, the Coalition will need to resolve the off-budget/on-budget debate.

Structural separation – After 20 years, both major political parties agree that *structural separation is an important outcome* and therefore it should be retained as part of any solution. Telstra's structural separation undertaking is important for the transition to the NBN, but it is the NBN itself that creates true structural separation.

Competitive market structure – the Coalition and the key industry stakeholders have all made it clear that they value competitive market outcomes. Therefore, *ensuring that the solution delivers a competitive market will be an important Coalition objective.*

Optimal use of existing assets – There are a range of *existing assets that can be efficiently* deployed and the Government should be making available these assets for the least cost, not paying to shut them down to eliminate competition with a GBE.

Maintaining the value of the Telstra and Optus agreements – Both carriers consider their agreements with the Federal Government to be hard fought victories that are for the benefit of their shareholders. *Telstra and Optus will strongly oppose any policy that appears to reduce the value that their shareholders receive.* This implies that the deals under a successful NBN option will involve negotiation within a fixed financial envelope.

Carriers are part of the solution – The major carriers need to contribute assets and skills, but they must be able to justify this to their shareholders, as the Government must be able to justify the associated cost to taxpayers, *in each case against reasonable alternative scenarios.*

Resolving the relationship between the NBN and the mobile operators – As wireless access technologies continue to develop (witness the raft of announcements at the recent World Mobile Congress in Barcelona)[1,2] there is a real risk that fixed wireless solutions will become redundant and that wireless infrastructure will compete with and substitute for fixed fibre based access solutions. However, these wireless access points will need fibre backhaul that a fibre based NBN is well based to provide. *The Coalition will need to decide what role the NBN will play in the fast developing wireless environment.*

1. Huawei's LampSite solution: http://www.huawei.com/en/about-huawei/newsroom/press-release/hw-204863-mwc.htm
2. Nokia Siemens TD-LTE breakthroughs: http://www.nokiasiemensnetworks.com/news-events/press-room/press-releases/nokia-siemens-networks-showcases-td-lte-breakthroughs-mwc13

Solving for market failure – *The Coalition will see its role as addressing the market's failure* to meet reasonable policy outcomes, not to create a monopoly GBE that might squeeze out private sector activity. There will be some tension between free market philosophies and the need to achieve the results the public demands.

Outcomes not technologies – The Commonwealth should be *mandating outcomes (e.g. minimum bandwidth) not specific technologies*. Licensed operators should determine the most efficient means of delivering those outcomes.

Role of NBN Co – Currently NBN Co is responsible for the design, build and management of the network as well as the provision of wholesale services to Retail Services Providers (RSPs). Arguably this has not led to the most cost efficient solutions. *The Coalition will want to review the role of NBN Co* and explore whether it can act more as a coordinating agency, driving efficiencies by contracting out design, build, management and maintenance responsibilities to third parties.

Maintaining the benefits of NBN Co - But there will need to be a transition from the current NBN Co to a different model that will take time, and *the project should maintain momentum*. This involves maintaining not just the assets but the intellectual and human capital of NBN Co.

Private sector capital – To reduce Commonwealth funding and increase efficiency, *private sector capital will be required* and the project therefore needs to be structured from the outset to allow for the introduction of private sector debt and equity. However, there will need to be a clear model for investors to assess and a timetable for their involvement which will probably extend beyond the 2016 Federal Election.

Solving the 'off budget' position of the NBN – Currently the entire NBN sits 'off-budget' as an investment by the Government. However, the Coalition believes that the long-term economics of the current NBN are flawed and that the off-budget treatment of the NBN has driven inefficient behaviour by all parties. *Even if it is successful in reducing build costs dramatically, the Coalition will still need to determine whether some or all of the NBN comes back on-budget.*

This may all seem self-evident, but there are more than a few competing tensions amongst these principles. However, we believe that there are solutions for the technology mix and for the ownership and financing structures for the NBN that can meet all of these requirements. These options are summarised below and addressed in more detail in this paper.

1.2_Summary of options

From a technology perspective, the Coalition has been relatively clear. It would expect operators to expand the use of fibre to the node (**FTTN**), upgrade the existing HFC networks and broaden the regional fixed wireless network in lieu of a national FTTP network. However, the precise technology mix will be complex, as will the overall cost/benefit analysis that must determine that mix. The Coalition will oversee the technology mix debate but it is very unlikely to mandate a technology mix as Labor has done.

There remains significant optionality around the future structure of the NBN and the role of the private sector, including both strategic industry and financial sponsor investors. We believe that there are three broad macro-options open to the Coalition that may be pursued at various times:

1_Renewed NBN Co: The existing Commonwealth owned NBN Co model is largely retained *initially*. NBN Co is redirected to deploy a 'technology efficient' outcome employing a mix of FTTx, HFC, wireless and satellite based solutions by renegotiating the existing agreements with Telstra and Optus to include long-term access to the existing copper sub-loop and HFC networks. Critically, the Coalition would move from a technology-specific to an outcome-specific/technology-agnostic approach. Telstra and/or Optus could hold equity in NBN Co to the extent they contribute their copper and HFC assets, although an equity position is not essential (and we expect the operators to require cash rather than equity compensation). This option is available immediately and may be used as a means of preserving the best aspects of the current NBN Co while policy and direction are reset.

2_Metro and Regional NBN Cos: NBN Co is split into a Metro Co and a Regional Co. This recognises that the metropolitan and regional NBN solutions will operate under fundamentally different economics and technologies. The intention would be for the metropolitan based business to be attractive to private investors at an earlier stage, while the regional business would require Government investment or a subsidy for a longer period. The metropolitan networks may attract pre-IPO investments from infrastructure investors or carriers. Alternatively the fixed wireless and/or satellite networks may present investment or management and operation opportunities for specific domestic or international carriers at an earlier date. This option could be pursued after the Coalition's review and confirmation of the regulatory environment.

3_Listed New Net Co (including a potential Telstra demerger): Create a new national wholesale access entity (**Net Co**) that is listed on the ASX. This could be implemented on a standalone basis or through the demerger of the Telstra customer access network assets and pooling them with NBN Co assets in a newly ASX listed entity in which Telstra shareholders and the Commonwealth hold shares. Private capital (debt or equity) could also be sought (including through a public capital raising or institutional placement). At this stage we would consider that a listing of NBN entities without a Telstra demerger is a more likely option. If a Telstra demerger were to be

pursued, further time is required for Telstra shareholders to become comfortable with it and to prepare the Net Co for a listing. This is unlikely to be a model that would be considered until shortly before or after a 2016 Federal Election.

Option 1 is a good transition model, but makes it more difficult for the Government to transition to private sector funding and participation. We believe that Option 2 probably best meets the criteria in the mid term. Option 3 needs to wait until the relevant NBN entity has a business that is sufficiently stable to list.

These options are not mutually exclusive. In fact, they are logically sequential and hence could be pursued in turn. Option 1 allows the momentum of the existing NBN project to be retained while it redirects and restructures. Option 2 could be implemented after that period of restructure as the base model for the new NBN policy and initial private sector participation. Option 3 may be attractive in the future when the capital market conditions are right and the NBN business model is stable. A Telstra demerger alternative would require Telstra to conclude that the retention of its customer access network assets has low strategic and commercial benefits and swapping those assets for equity in a newly listed NBN Co is advantageous.

Each option seeks to pool, rationalise and optimally use existing and new assets in one or more wholesale only, structurally separate entities based on a rational business case that can ultimately

Exhibit 1: Macro-option 1 – Renewed NBN Co

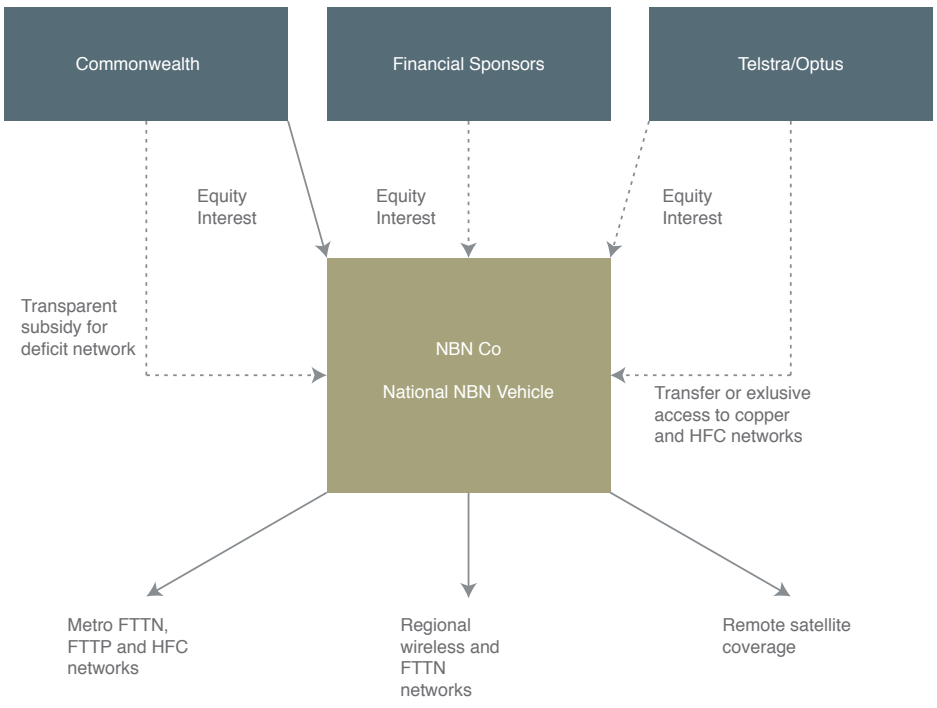


Exhibit 2: Macro-option 2 – Metro and Regional NBN Co

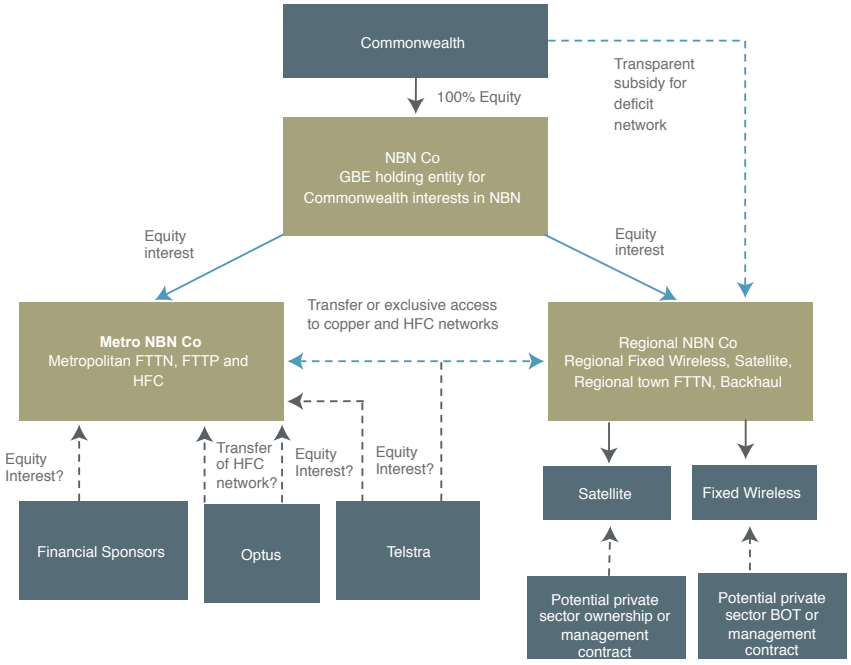
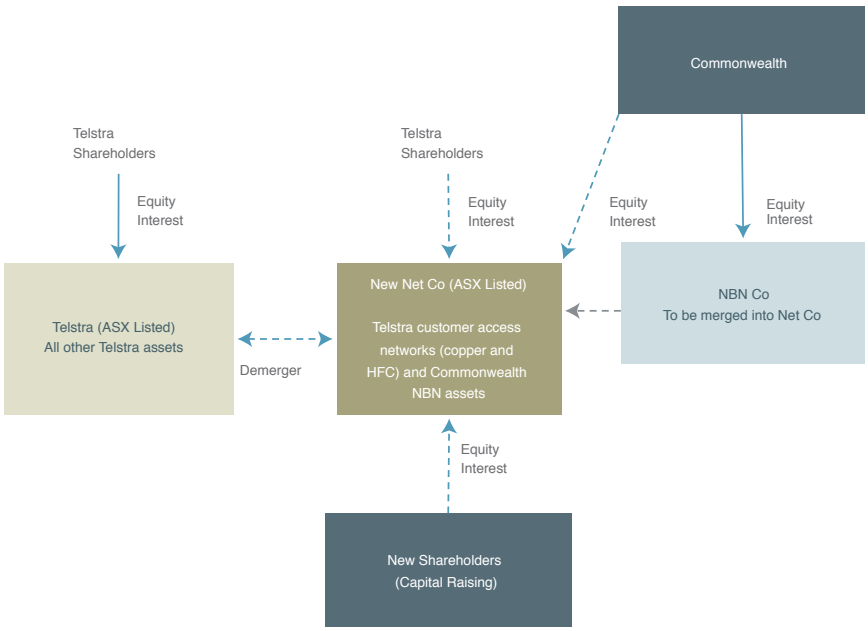


Exhibit 3: Macro-option 3 – New Net Co through Telstra Demerger



attract private sector investment. As the Coalition has always maintained that it would undertake a detailed review first, we do not expect it to advocate a specific model before the election. However, we believe it is useful to use these options as a base model to encourage further discussion.

The first 12 months after the election are likely to be spent undertaking a cost/benefit review, reaching conclusions and re-negotiating the Telstra and Optus deals, while NBN Co keeps deploying under new directives. Over the next 12 months the newly determined structure could be implemented within NBN Co while it continues its redirected deployment. In the final 12 months before the 2016 Federal Election tenders could be held for private sector participation, although Option 2 may not be fully achieved until after the 2016 Federal Election. Option 3 would be unlikely to occur before a Coalition second term.

Of course, each of these macro-options could vary significantly. For example, there is scope to bring private sector investment and involvement into both the wireless and satellite components of the NBN as early as 12 months after the election.

"Each option seeks to pool, rationalise and optimally use existing and new assets in one or more wholesale only, structurally separate entities based on a rational business case that can ultimately attract private sector investment."

The table below sets out the most significant of the technology micro-options.

Exhibit 4: Deployment options by technology

	Current Plan	Capital Cost[3]	The Coalition's stated position	Potential options (not mutually exclusive)
Fibre (Brown-fields)	FTTP will be deployed to 93% of Australian premises	$25.9bn for fibre and transit	– FTTN will be the dominant technology rolled out, though FTTP may still be extended where economic to do so (e.g. CBD areas), and HFC will potentially also be used in existing areas – Some fibre deployment may be opened up to the private sector where economically viable	– Complete contracted FTTP build, depending on contract terms – Employ upgraded metropolitan HFC networks based on renegotiated Telstra and Optus deals – Shift the rest of the fibre network to FTTN based on a renegotiated Telstra deal – Reset the 'line' between fibre and wireless based on robust economic analysis
Fibre (Green-fields)	Greenfield premises to be FTTP	As above	– Greenfields to receive FTTP as they have no existing copper lines	– Allow/encourage private contractors to deploy at greenfield sites
Fixed Wireless	4% of premises are to be covered by fixed-wireless	$3.1bn for fixed-wireless and satellite	– The boundary between the fixed-wireless and fibre footprints will be re-evaluated, with some areas potentially opened up to the private sector (possibly through a subsidy)	– Make small changes in downstream/upstream Mbps to reduce sites required – Sale of assets or long term management contract on a regional or national basis – Could allow open access mobile broadband and/or tie to backhaul
Satellite	3% of premises are to be covered by 2 new satellites	As per fixed wireless	– The necessity of two new satellites will be questioned, and the possibility of using existing capacity on commercial satellites instead will be explored	– Introduce private sector management and operation – Sell one or both satellites with a long term transponder lease and management contract

The rest of this paper provides a detailed analysis of the issues underlying each of these options.

3. The total Capital Expenditure for the NBN is $37.4 billion, of which roughly $8.4 billion is not directly attributable to either the fibre, or the satellite and fixed wireless deployment.

2_Policy and political context

2.1_An inflexion point for Australia's communications policy

The capital cost alone for Australia's NBN is currently estimated at $37.4 billion[4] and the Government does not expect the network to be completed until 2021.[5] It is the largest single government infrastructure project in Australia.

The Coalition, in opposition, has objected to both the significant cost and time involved in the project and has expressed its intent to reshape the NBN to be more efficient and cost-effective, should it be elected to government at the 2013 Federal Election.[6]

Based on current polls, it is quite possible that the NBN will be fundamentally changing direction on Monday 16 September, following the Federal Election on Saturday 14 September.

The burning question for the communications sector as Australia enters the longest formal Federal Election campaign in its history, is *what could the NBN look like under a Coalition Federal Government?*

"The burning question for the communications sector as Australia enters the longest formal Federal Election campaign in its history, is what could the NBN look like under a Coalition Federal Government?"

4. NBN Co Corporate Plan 2012 – 2015 (August 2012) p. 37

5. NBN Co Corporate Plan 2012 – 2015 (August 2012) p. 37

6. 'Why the Coalition's NBN plan is superior – and why it will be better for the bush too.' Malcolm Turnbull, http://www.malcolmturnbull.com.au/blogs/malcolms-blog/why-the-coalitions-nbn-plan-is-superior-and-why-it-will-be-better-for-the-bush-too/ (23 July 2012)

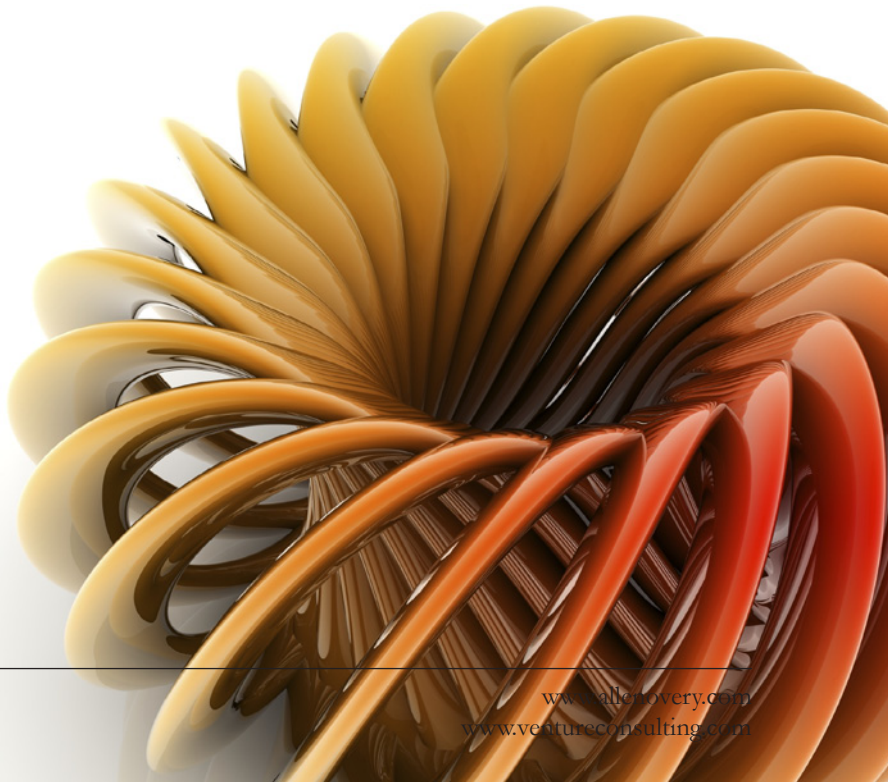
2.2_The arrival of "Scenario B"

In March 2011, we published our paper "*The Impact of the Australian National Broadband Network on the Communications Sector*" in response to a perceived lack of public debate regarding the long-term strategic regulatory and competitive implications of the NBN across the telecommunications, content and online network and service sectors.

After the release of that paper, we held discussions with a wide variety of stakeholders including industry participants, regulators, investment banks and financiers. At that point, surprisingly few had undertaken a long-range strategic review and begun to implement their strategic plans for the NBN. That has now changed as the NBN has become an immediate business issue for the telecommunications sector and a mid-term issue for the content and online sectors.

During our stakeholder discussions everyone was concerned to understand "Scenario B" – the impact of a Coalition Federal Government following the 2013 or 2016 Federal Elections. An associated concern was the timing for the deployment of the NBN, when active NBN connections would establish a true commercial mass-market and the relationship between that timing and a possible change of government. In short, when did the momentum of the NBN project prevent or curtail a change of policy?

In private, most stakeholders we spoke to were doubtful that the simple but profoundly far reaching policy proposition established by Labor in opposition in late 2007, could survive the realities of implementation in 2013 and beyond, regardless of the outcome of that election.



2.3_The changing electoral appeal of the NBN

In early 2011, our thesis was that the NBN had been a very attractive policy platform for Labor in the 2010 Federal Election. Labor's messages regarding the NBN could be put clearly and the negative messages were complex. However, we expected that by the time of:

– the 2013 Federal Election, there would be material delays in deployment, increased costs, and a greater appreciation of those elements of the NBN that would cost the most (fibre in regional areas) and which would need to be cross subsidised by the more profitable elements (i.e. metropolitan consumers would pay more); and

– the 2016 Federal Election, the NBN would be arriving at its peak funding point, the inevitable delays in deployment and in retail connections would have accumulated and the NBN would be under significant economic pressure and would have become a serious negative electoral issue.

With the passage of time and further information, we expected that voters would develop a more detailed understanding of the costs and benefits of an FTTP NBN. We anticipated that most voters would still support some form of NBN, but there would be an increasing willingness to see a change to its form.

2.4_A brief history of the NBN

An Australian NBN has had many forms and false starts over the last 10 years that we can no longer afford:

– In 2003, the Howard Government's Broadband Advisory Group recommended a 'national broadband network',[7] and a subsequent Senate Committee also recommended that the government update the ageing copper network with FTTN technology.[8]

– In 2005, Telstra, which was then still fifty per cent owned by the Commonwealth, announced a plan to upgrade its copper network, including an FTTN rollout.[9] However these plans were dropped after reaching an impasse in negotiations with the ACCC.[10] That network would have been completed by now, although it would have resulted in a very different industry without structural separation.

– In 2006, the Howard Government announced the Broadband Connect policy, which aimed to provide better broadband access for rural and remote Australia and awarded the relevant contract to an Optus and Elders joint venture (**Opel**).[11] The Opel commercial arrangements were terminated in 2008 by the Labor Federal Government on the basis that certain pre-conditions had not been met.[12] If that network had proceeded it would have been completed by now and would have established backbone connections for a fixed wireless solution that was broadly comparable to the fixed wireless component of the current NBN.

– The NBN was conceived in opposition and was announced as part of Kevin Rudd's 2007 Federal Election campaign.[13] Following its victory in the 2007 Federal Election, the Labor Government issued a request for proposals to the private sector to build the NBN. However, this was during the depths of the global financial crisis, the "Telstra issue" and the regulatory environment had not been resolved and the project had a preference for bundling the entire country into a single investment proposition. The timing and conditions for significant private sector involvement could not have been worse. After disqualifying Telstra for failing to meet the tender rules and deeming the other proposals unsatisfactory, this process was terminated in 2008.[14]

– In early 2009, the Rudd Federal Government pronounced that the market had failed to deliver a solution and announced it would construct a new national network that bypassed the existing copper network, providing broadband to all Australians through a combination of FTTP, fixed wireless, and satellite technologies.[15] The Rudd Federal Government then established NBN Co in April 2009 and commissioned an implementation study for the NBN.

7. The Broadband Advisory Group's report to Government (Jan 2003)

8. The Australian Telecommunications Network (August 2004)

9. 'Telstra dives as $10bn plans unveiled' *The Age* (16 November 2005)

10. 'Telstra broadband plan an 'illusion', ACCC' *The Age* (15 June 2011)

11. 'New look broadband policy unveiled' *The Sydney Morning Herald* (15 May 2006)

12. 'OPEL Networks Funding Agreement not to proceed' Minister for Broadband, Communications and the Digital Economy (2 April 2008)

13. 'My blueprint for prosperity' Kim Beazley (15 December 2006)

14. 'New National Broadband Network' – joint media release from Prime Minister, Treasurer, Minister for Finance, Minister for Finance, Minister for Broadband (April 7 2009)

15. Rudd, Kevin 'Press Conference about the National Broadband Network' (7 April 2009)

– In July 2009 a trial rollout in Tasmania was announced, with the first customers connected a year later.[16] The mainland rollout then commenced in the second half of 2010, with five first release sites selected to trial network design and construction methods.[17]

– In 2009 the Federal Government allocated its Regional Black Spots Program (**RBSP**) tender to Nextgen to deploy fibre to certain underserved areas. This program had certain elements common to the earlier Opel tender, but was more limited. This expenditure on backbone capacity will remain relevant regardless of any new form of the NBN.

– In June 2010, NBN Co and Telstra signed a Heads of Agreement that proposed to give NBN Co access to Telstra infrastructure and laid the foundation for further negotiations. It covered the decommissioning of Telstra's network and the migration of Telstra customers onto the NBN.[18] The Heads of Agreement was signed only days before Julia Gillard replaced Kevin Rudd as Prime Minister. The "Telstra" solution and the mineral resources rent tax were two issues that Kevin Rudd had been seeking to defuse ahead of the 2010 Federal Election.

– The NBN became a significant point of distinction between the major parties during the 2010 Federal Election and was a justification given by key independents for supporting a Labor Federal Government. A reason that Labor's policy was successful was the failure of the Coalition to articulate its policy clearly to voters. The NBN became a binary political debate in which Australia would have an NBN with Labor and no NBN under a Coalition Federal Government.

– After extended negotiations, NBN Co and Telstra signed definitive agreements in June 2011 (**Telstra Definitive Agreements**) that gave NBN Co access to Telstra infrastructure for a minimum 35-year period and established terms for the migration of Telstra customers to the NBN and associated payments.[19] That transaction was subsequently approved by Telstra shareholders. During this period Optus signed an agreement with NBN Co in relation to its HFC network (**Optus HFC Agreement**).

– In February 2012, the ACCC accepted Telstra's Structural Separation Undertaking (**SSU**), which had the dual function of committing Telstra to structural separation by July 2018 as the NBN rolls out, and establishing the measures to be used by Telstra in ensuring equivalency and transparency of its network services in the transition to the NBN.[20]

– Over the last 18 months NBN Co has submitted various versions of its Special Access Undertaking (**SAU**), the terms for its long-term wholesale supply of capacity to retail service providers (**RSPs**) that must be approved by the ACCC. The document is still under review, but the time and complexity of the process so far confirms our predictions that once NBN Co becomes a monopoly provider of broadband access, it will replace Telstra as the focus of access regulation, as all RSPs (including Telstra) will seek to drive down NBN Co's wholesale prices.

16. 'Internode connects first customer to NBN' *ZDnet* (2 July 2010)
17. http://www.broadband.nsw.gov.au/national-broadband-network/nbn-rollout
18. http://www.NBN Cocom.au/assets/media-releases/2010/NBN Co-media-release-telstra-heads-of-agreement-20-jun-10.pdf
19. http://www.NBN Cocom.au/news-and-events/news/nbn-co-and-telstra-sign-binding-definitive-agreements.html
20. http://www.telstrawholesale.com.au/about/structural-separation-undertaking/index.htm

The NBN has always been a political football, stalled between competing policies and lacking bipartisan support. This is a difficult proposition for Australia's largest infrastructure project, given that it has a projected economic life of more than 30 years. Australia cannot afford further changes of direction following the implementation of a new Coalition policy. This is the last chance to get it right.

The policy landscape has shifted substantially since the 2010 Federal Election. Malcolm Turnbull in his capacity as Shadow Minister for Communications and Broadband has clearly established that the Coalition would support an NBN. However, he has indicated that under the Coalition, the NBN will have a different mix of public and private sector involvement, different financing and a different technology mix.

"The NBN has always been a political football, stalled between competing policies and lacking bipartisan support. This is a difficult proposition for Australia's largest infrastructure project, given that it has a projected economic life of more than 30 years."

2.5_Labor's current policy settings for the NBN

The primary principles of Labor's NBN policy have remained broadly similar since they were developed in opposition before the 2007 Federal Election and seek to ensure:[21]

– All Australians have access to fast broadband in the contemporary digital economy.

– National uniformity of broadband prices across Australia.

– Broadband infrastructure for the long term.

– Structural separation of Telstra from the broadband customer access network.

– A technology selection to connect premises through 93% FTTP, 4% fixed wireless and 3% satellite.

Arguably the first four of these principles are no longer at issue between Labor and the Coalition. The fifth principle most certainly is.

The NBN is an infrastructure project in which the underlying business case has been formulated around a mandated technology choice. It is not a set of policies developed from an underlying business case based on an assessment of demand, costs and alternatives. The Government's Statement of Expectations is a directive to NBN Co to implement these policy objectives.[22]

'The Government's central NBN objectives are to deliver significant improvement in broadband service quality to all Australians, address the lack of high speed broadband in Australia, particularly outside of metropolitan areas, and reshape the telecommunications sector'

The Statement of Expectations confirms how NBN Co is to achieve these objectives.[23]

'The Government expects that NBN Co will design, build and operate a new NBN to provide access to high speed broadband to all Australian premises. The Government's objective for NBN Co is to connect 93 per cent of Australian homes, schools and businesses with fibre-to-the-premises technology providing broadband speeds of up to 100 megabits per second, with a minimum fibre coverage obligation of 90 per cent of Australian premises. All remaining premises will be served by a combination of next-generation fixed wireless and satellite technologies providing peak speeds of at least 12 megabits per second.'

The NBN was conceived with technology choice hard wired into its remit. As Harrison Young, the NBN Co Chairman, has stated:

"The Government instructed us to build a fibre to the premise network to achieve speeds up to 100 megabytes per second on fibre, with target coverage of 93% of premises and a minimum of 90%. The remaining premises are to get fixed wireless or satellite coverage for speeds up to 12 megabytes per second. Our task is to find the least-cost engineering solution for that brief."

21. Venture Consulting analysis

22. http://www.dbcde.gov.au/__data/assets/pdf_file/0003/132069/Statement_of_Expectations.pdf

23. http://www.dbcde.gov.au/__data/assets/pdf_file/0003/132069/Statement_of_Expectations.pdf

NBN Co has not been asked to assess and build an NBN that achieves an optimal cost/benefit outcome. Rather, it is required to efficiently deliver an NBN within the technology parameters given to it (regardless of whether those parameters are optimal).

It is not our intention nor is it appropriate to criticise NBN Co in relation to the mission statement that has been set for it by the Federal Government. NBN Co is responsible for delivering on that policy, which is a sufficient challenge for any organisation. NBN Co cannot be challenged in relation to the type of network it is building, that is solely a policy debate.

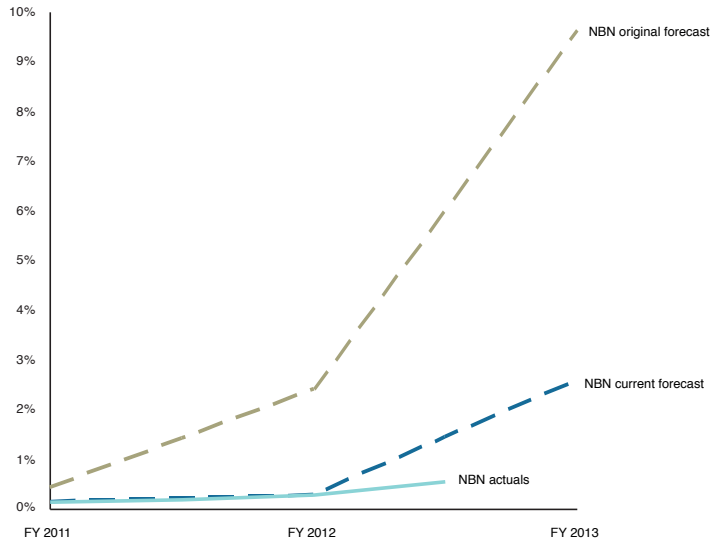
"NBN Co has not been asked to assess and build an NBN that achieves an optimal cost/benefit outcome. Rather, it is required to efficiently deliver an NBN within the technology parameters given to it (regardless of whether those parameters are optimal)."

2.6_NBN deployment performance to date

NBN Co is of course responsible for the deployment of the network. Deploying a network of the scale of the NBN is a massive proposition. When a network operator engages physically at the level of communities and homes, by connecting directly to premises, delays are inevitable. Not surprisingly, most commentators originally predicted that NBN Co would struggle to meet its deployment targets.

This has proven to be the case. The original 2010 NBN Co Corporate Plan stated that the NBN would pass 259,000 premises with fibre by June 2012; the actual figure was 39,000. While NBN Co has pointed to the delays in the execution and regulatory approval of the Telstra Definitive Agreements as being the cause of much of this delay, it is clearly not the only cause.

Exhibit 5: NBN premises passed by fibre – forecast shift (000s)



Source: NBN Co Media Release, '34,500 Australian homes and businesses now using the NBN' (29 January 2013)

In 2012 NBN Co released a new Corporate Plan, which included forecasts for NBN deployment to 2016. In this revised plan, deployment estimates were scaled back, the completion date of the project was extended another six months to June 2021, and the capital cost was increased by $1.5 billion.[24] As of December 2012, only 72,400 premises had been passed, raising questions relating to NBN Co's ability to meet its 2013 target for 341,000 premises passed by fibre.[25]

As of June 2012, only 3000 premises were connected to the NBN fibre network, which represented a much slower take-up rate than NBN Co had expected.[26] As of December 2012, 6,600 premises had been activated, but this leaves the need for acceleration if the NBN is to hit its June 2013 target of 44,000 activated premises.[27] Besides being behind target, NBN Co has struggled with deploying fibre to greenfields estates in a timely fashion, with many new estates being left without any phone or Internet connection for up to six months.[28]

NBN Co maintains that, with the major preconditions to deployment now behind it, and the increasing process improvement it generates through the experience with the initial deployment, its deployment rate will accelerate. It has compared its speed and costs with Chorus in New Zealand, although Chorus has recently identified that it is behind schedule and its costs per premise are higher than forecast.

24. NBN Co Corporate Plan 2012 – 2015 (August 2012) p. 9 – 10
25. NBN Co Media Release, '34,500 Australian homes and businesses now using the NBN' (29 January 2013)
26. NBN Co Corporate Plan 2012 – 2015 (August 2012) p. 17
27. NBN Co Media Release, '34,500 Australian homes and businesses now using the NBN' (29 January 2013)
28. ABC 7 30 report 24/10/2012 http://www.abc.net.au/7.30/content/2012/s3618047.htm

3_The current Coalition policy and the next 18 months

3.1_Stated Coalition policy objectives

While to date no single document sets out the Coalition's alternative policy for the NBN, the Shadow Minister for Communications and Broadband, Malcolm Turnbull, has set out the Coalition's objectives through a variety of media interviews, media releases and his website.

In his address to the National Press Club in January this year, Tony Abbott asserted that *'We [the Coalition] are committed to super high speed broadband that's affordable for everyone and built sooner rather than later… Our fibre-to-the-node plan will deliver superfast broadband for a fraction of the price and in a fraction of the time required to deliver fibre to the front door'*.[29]

The Coalition is expected to shortly announce its formal policy for the NBN, although, it maintains that it cannot release a fully-costed NBN plan as it does not have access to information regarding all the contracts and commitments of the current NBN.

"Technology mix is critical to cost. Within the overall NBN project there are elements of the network that will be profit generating, some that will break even and others that will be significantly loss making."

29. Tony Abbott address to the National Press Club (31 January 2013)

The central tenets of the Coalition's views on NBN policy from opposition may be summarised as:[30]

– Undertaking a cost benefit analysis of each of the main elements of the NBN project.

– Re-evaluating whether the HFC network might be used to provide broadband in metropolitan suburbs.

– Rolling out FTTN to the majority of urban Australia not served by HFC networks, in lieu of FTTP.

– Re-evaluating the boundary between the fixed-wireless and the fibre footprint through using FTTN in some small towns.

– Re-evaluating the need for the building of two new satellites.

– Seeking to remove barriers to competition with the NBN.

– Clearly defining the subsidy granted to provide broadband access to regional Australia.

While the Coalition has been drawn into the technology selection debate as a necessary aspect of politics, its policy is not to make a technology selection. It has identified a range of options to be reviewed, but has been clear that the review needs to be independent and the Federal Government should not be mandating the outcome.

Technology mix is critical to cost. Within the overall NBN project there are elements of the network that will be profit generating, some that will break even and others that will be significantly loss making. For example, FTTP connections in the 80% to 93% range of the population are likely to become prohibitively expensive. These loss-making elements will be subsidised by the profit making elements (if an overall ROI is to be achieved). So inevitably, metropolitan Australia is paying for broadband availability in regional Australia. Put simply, we are taxing the city to pay for the bush.

The policy justification for these internal cross subsidies is universal access to broadband. However, the scale of these cross subsidies has never been made public. It would be useful to be able to compare the per premises cost of connectivity in regional Australia by fibre, wireless and satellite and compare that to metropolitan FTTP. We also do not know the actual demand for FTTP broadband connectivity in regional Australia (as opposed to alternate broadband technologies). If the actual demand for FTTP in regional Australia is limited and the cost prohibitive in comparison with fixed wireless, then a choice should be made.

From the Coalition's perspective, it is not a question of whether broadband connectivity in regional Australia should be significantly improved, it should be, but universal access through fixed wireless and satellite may provide a significant improvement very quickly and far less expensively and it may be sufficient for the mass-market in regional Australia for many years. NBN Co is already committed to such a network with a smaller footprint, it may simply need to be scaled up.

To date the Coalition has been united in its policy pronouncements. It should be noted though that there is the potential for divergence between the views of the National Party and the Liberal Party, with the former being extremely focused on policy outcomes for regional and remote Australians.

30. Venture Consulting analysis

3.2_Before the Federal Election

As the election approaches, the Coalition should be engaging the electorate, wherever possible, to determine the perceived issues associated with the NBN and the preferred response by the Coalition, should it win the election. One of the most difficult aspects of changing NBN policy will be reassuring the electorate that they will not lose what was promised under Labor's NBN policy. The needs and sensitivities of metropolitan and regional Australia will be different.

In trying to establish how to best transform the NBN stakeholder involvement is also pivotal, as the scope for change could be severely limited by willingness of Telstra and Optus to renegotiate their existing deals with the Government and NBN Co. Again, reassuring these stakeholders that they will not be made worse off under the Coalition's NBN plan is central to ensuring their support.

As NBN Co moves through 2013, a year when it would otherwise be accelerating its FTTP rollout activity, it faces the prospect of a change of government that will fundamentally alter its corporate mission. Its staff will notionally leave the office on Friday 13 September with the objective of deploying fibre to 93% of Australian premises, but arrive back at the office on Monday 16 September with a different mission and objectives yet to be clearly defined.

Throughout 2013, the potential for a change of government may cause NBN Co to question many decisions. Actions taken now could substantially affect cost and strategic flexibility under a Coalition Government. It is a conundrum for the board and senior executives of NBN Co that is relatively unique. Australia's major infrastructure project is in a critical phase with the strong prospect of a fundamental change in strategy from a date six months in the future.

NBN will not regard itself as strictly subject to any "caretaker period". However, the concept of a caretaker period is certainly accepted in politics and arguably the Commonwealth should be taking that into account in the directions it gives NBN Co. It has already been reported that the Coalition is using a dissenting report in the Joint Parliamentary Committee on the NBN to seek to ensure that NBN Co is taking into account the potential for a Labor loss in September, including allowing for "change of government" termination and variation provisions in new contracts.[31] Malcolm Turnbull has also called on NBN Co to exercise restraint until the election.

However, NBN Co is required to serve the government and its mission of the day. If the Commonwealth does not change its directives NBN Co will continue with its plans and, in political terms, there is no prospect of Labor changing the NBN's direction. *The Australian* reported on 3 March 2013 that NBN Co had paid $140 million in mobilisation payments to speed up the FTTP deployment to meet its targets.[32] This is an expected effort to meet existing objectives, but these measures will increasingly put the board of directors and executives of NBN Co in an awkward position.

31. See the Australian Financial Review 26 February 2013.

32. See the page 1 article in the Australian March 3-4 edition "Firms paid $140 million to speed up NBN"

In an unexpected turn of events, Mike Quigley, the NBN Co CEO, recently welcomed the private sector becoming involved in the NBN technology mix debate and he indicated that the Communications Alliance could sponsor this exercise.[33] Quigley has since confirmed that he remains an advocate of the current FTTP network but the industry is welcome to assess the cost of alternatives. While such a debate should be welcomed, the fact that he even countenanced a changed technology mix caused a storm of media commentary. However, it simply reiterates the fact that NBN Co has no power over this decision. Yet it remains open to the Federal Government to consider alternatives.

While an industry debate may be a positive outcome, it is not an independent review. All market participants will have a preferred strategic outcome. It is natural for RSPs and application service providers (**ASPs**) to strongly support a government sponsored NBN. Why would a reseller or service provider not want the best network platform that Commonwealth funding can buy? Technology commentators also have a natural inclination towards high end solutions and a personal preference for an FTTP network. This goes part of the way to explaining the often intense online debates between Malcolm Turnbull and technology publications such as *Delimiter*.

The authors of this paper will also confess that they would like an FTTP connection to their homes. However we recognise that we are not a valid mass-market sample and our personal preferences do not necessarily equate to optimal consumer welfare. We accept that if we want more than the appropriate mass-market solution we should pay for it ourselves.

"As NBN Co moves through 2013, a year when it would otherwise be accelerating its FTTP rollout activity, it faces the prospect of a change of government that will fundamentally alter its corporate mission. Its staff will notionally leave the office on Friday 13 September with the objective of deploying fibre to 93% of Australian premises, but arrive back at the office on Monday 16 September with a different mission and objectives yet to be clearly defined."

33. See reportage of Mike Quigley's speech to the American Chamber of Commerce on 23 February 2013.

3.3_The first 100 days of a new Federal Government

Ultimately, a private sector debate is very helpful, but a truly independent review is required to assess all of the evidence and report to the Federal Government. This is a function of the first 100 days after the election. Malcolm Turnbull stated in a 2GB radio interview on 5 March 2013 that within a few months of a change of government in September he would publish "*a full analysis of what it is going to cost in dollars and time to complete the network on Labor's plan*".[34] So the Coalition firmly has its sights set on a response within the first 100 days of government.

While an incoming Coalition Government will theoretically have the ability to switch off all funding to NBN Co the reality would be more complex. The Coalition would not want to move so fast that it foreclosed any options immediately and it will need to observe the existing contracts. It is also critical to preserve not just the assets but the important human capital of NBN Co. NBN Co and its staff are central to the solution and they should be engaged and encouraged to continue with a changed direction. However, the Coalition is also likely to defer any significant new FTTP spending while it reviews the situation and decides what to do.

It may treat the three existing network technologies quite differently. For example, slowing FTTP build, whilst continuing with the fixed wireless build and being required to see through satellite contractual commitments. The inevitable outcome will be an initial period in which there is an orderly slowing of existing FTTP activities while the Coalition considers the level of existing commitments and an optimal forward looking strategy.

The Coalition will be unable to devise a fully costed model for the NBN until it takes office and is privy to all the available financial information regarding NBN Co and its contractual commitments. Once it can access this information, it will be better placed to undertake a technology mix review, understand where the cost curves intersect to signify the economic value of various technologies in various regions, and then establish its own footprints for the deployment of FTTP, FTTN, fixed wireless and satellite.

A major Coalition criticism of Labor's policy has been the lack of independent review or any involvement of the Productivity Commission. It follows that an inevitable first step in the process will be establishing an independent review to undertake this analysis, whether through the Productivity Commission or otherwise. To the extent it is practicable, this process should be kept transparent to help persuade the electorate (and commentators) of the need and scope for change.

34. See the report in Communications Day 6 March 2013.

3.4_The five critical issues that the Coalition will need to address

Although discussion and debate surrounding the NBN tends to focus on the technology being deployed, this is only one of five key aspects of the NBN that the Coalition will need to address:

– **The market for broadband services** – The starting point for the Coalition's policy must be an understanding of the scope of the market need that its policy is trying to address.

– **Major regulatory settings** – The key policy goals that must be retained to ensure the correct competitive and market structure is established for the long term.

– **Scale and technology** – The scale at which it intends to proceed with the NBN and the optimal mix of technologies and the areas in which to deploy them.

– **Ownership and funding** – The best structure and ownership model for the NBN, whether it should remain as a GBE or have private sector involvement and what form that private sector involvement should take.

– **Industry stakeholders** – The benefits and trade-offs associated with renegotiating the deals with Telstra and Optus.

These issues can be better understood by answering a series of critical questions for NBN policy.

"The Coalition would not want to move so fast that it foreclosed any options immediately and it will need to observe the existing contracts."

3.5_Questions that the Coalition has to answer

The NBN has never been assessed in the manner that a private sector project or a public private partnership would be analysed. There has been a variety of analyses commissioned by the Government that have been wholly or partly released to the public, but they have been directed at verification of the existing policy, not an independent assessment based on first principles.

The Coalition's stated policy position has been that there is a need for a thorough "ground-up" cost/benefit analysis to be carried out by an independent body. In our view the questions that would need clearer answers and the structure for any such analysis must include the following:

Market demand – The most important starting principle must be what do customers demand, will they pay for it, when will they need it and are there any broader productivity or societal benefits associated with that demand:

– What are the high bandwidth applications with mass market demand from residential premises and SMEs that cannot be served by existing broadband networks (i.e. the applications that require an incrementally better network)? How is demand likely to grow over time?

– When will this mass market demand develop and what is the threshold at which demand exceeds the capacity of:

  – Existing HFC and ADSL broadband networks, where they are available and following suitable upgrades?

  – An FTTN network deployed nationally or in underserved areas together with a fixed wireless network?

– Is this level of demand evenly spread around Australia or will the relevant threshold be reached in different geographic areas or regions at different times under existing technologies, upgraded versions of those technologies or an FTTN network augmented by a fixed wireless network in more remote areas?

– What will customers be prepared to pay to use the NBN? What is the empirical evidence of market demand, connection, usage, and average revenue per user (**ARPU**) observed in other countries. Does it support the current FTTP policy and are the market conditions in these countries relevantly comparable to Australia?

– Which applications enhance the productivity of the nation or provide societal benefits and which are simply alternative means of consuming existing entertainment services using higher bandwidth (e.g. remote working versus super high definition television)? What are the broader consumer welfare benefits of these types of applications relative to their costs?

Policy goals – What are the outcomes we are seeking for the economy, are they realistic and what do they really require:

– Are we seeking to improve productivity within the economy or satisfy consumer demand for bandwidth (even if that demand is driven by entertainment applications)?

– What is the scale of the contribution of the NBN to the productivity of large business, government and SME's and what is the level of bandwidth required to deliver this contribution over various timescales?

– What is the optimal market structure in which the NBN will operate and what is the balance between facilities based competition and deployment goals?

– What level of national uniformity of pricing and service is logical between areas with different population densities and therefore network costs?

– From a public policy perspective, how do we justify the different technologies and bandwidth available in different regions that are a function of deployment before and after the 2013 Federal Election?

Technology choice – Armed with a better understanding of the scale and timing of mass-market demand and policy goals, the next issue to be considered is the technology solution that is best placed to meet the market's needs over a reasonable period:

– What is the realistic estimate of the bandwidth available in the future on upgraded existing networks (e.g. HFC networks) and new FTTN and FTTP networks?

– What are alternative fixed wireless networks that could be deployed that may compete with the NBN at a lower pricing point and detract from NBN uptake?

– If Australia is to use a combination of existing broadband networks and FTTN, when would mass-market demand reasonably exceed the capacity of those networks?

Costs and benefits – Based on this assessment of the alternative technologies, it would be possible to compare the costs and benefits of different solutions to solve a defined bandwidth and application problem:

– What are the time and cost differences between alternative approaches and network technologies?

– What is the difference in the per premises capital and operating costs between different population centres (i.e. urban, regional and remote areas), which geographic areas need to be subsidised under existing policy and what is the amount of the implicit cross subsidy from urban to regional/ remote Australia?

– Is there a cost effective upgrade path from FTTN to FTTP and what would be the capital cost and time required to retrofit an FTTN network to become an FTTP network in the long term, if and when demand requires it?

The cost of switching government policy – Because Australia is changing an existing project, the associated costs and barriers need to be considered:

– What are the time, costs and market structure impacts of a re-negotiation with Telstra? In particular how and at what price can the copper sub loop be accessed from the node to the premises, can the existing HFC networks become part of the solution, how can the benefits of structural separation be retained, what legal challenges may Telstra pursue and how will Telstra view its assessment of shareholder value under different 'new deal' scenarios?

– To what extent do the existing arrangements between NBN Co and its equipment suppliers and civil construction contractors commit NBN Co to a particular course of action and what are the implicit costs of changing this baseline position (i.e. varying contractual commitments)?

– What are the sunk costs of the existing Labor policy and to what extent may the networks already deployed or committed to be deployed be efficiently used under a new Coalition policy?

– Is there an additional cost to operating different network technologies across different geographic regions (e.g. as a result of more complex underlying operating systems and loss of some scale economies)?

Economic constraints – On the basis of this analysis, it should be possible to make policy recommendations regarding alternative courses of action:

– What would be the net consumer welfare of alternative network choices in net present value terms so they may be compared against the same baseline?

– Are consumers prepared to pay the necessary price for bandwidth hungry applications, given that those prices will inevitably be determined by the prices of the NBN (which is expected to provide a 7% return on investment) and the additional costs of the RSP and ASP, inclusive of a reasonable return on investment for both?

– Will NBN Co be self-funding or loss making and/or is it only self-funding by setting prices higher than in a competitive market?

– What does the above imply about the profitability of NBN Co? Should NBN Co be expected to derive a given rate of return, as a whole, or should we recognise that urban areas are providing a greater rate of return and other areas are loss making and should all or part of the project be on or off the Federal Budget?

– If there is a significant economic cost to the NBN in comparison with viable alternatives, what are the alternative uses of the relevant funding, at a time when there are many competing projects (e.g. would roads, dams, education and/or water projects deliver greater benefits, to the extent that they are competing for the same pool of consolidated revenue)?[35]

35. In recognition of the more difficult economic environment in Europe, the European Union has recently cut Euro 7 billion from its Euro 9.2 billion Connecting Europe Facility (CEF) for the years 2014 to 2020. The CEF comprises central European funding for broadband projects. Clearly this funding was regarded as lower priority in comparison with other European Union projects, as the available funding has been reduced to a level that is insufficient for its original purpose

Alternative investment structures – Once the relevant economic constraints are better understood, it will be possible to analyse alternatives for involving the private sector in an efficient manner and lowering public sector/tax payer investment and risk:

– What are the alternative ownership structures that could be adopted to encourage greater private sector capital investment and efficiency across the NBN?

– Could Australia's broader NBN policy be pursued through a variety of different entities with different public and private sector involvement?

– Should any wholly Federal Government owned component of the wider NBN focus on deficit generating areas?

– To the extent that existing carriers are involved in these structures, what does this mean for market structure, competition and policy?

– How should the regulatory environment be set so that private sector investors have a reasonable expectation of recovering their capital and a reasonable return (i.e. achieving a risk adjusted cost of capital)?

A discussion of these issues forms the bulk of this paper. If this analysis had been carried out following the 2007 election then by early 2009 we may have had an NBN policy that had stronger bipartisan support, or at least was not as susceptible to criticism. However, Labor was committed to its technology choice. The Coalition needs to be equally mindful of not letting its views in opposition influence its decisions in government. It may find that continuing the FTTP rollout makes economic sense and is superior to FTTN and HFC in particular regions. If this is the case then that deployment should continue.

At this stage the Coalition will also need to be conscious of the constraints it faces in reshaping NBN policy. These constraints include the following:

– The extent of the NBN that has already been built and the number of premises that have already been connected.

– The number of contracts that NBN Co has already entered into, the majority of which do not expire until at least 2014, and some of which will have a base level of volume commitments, or at least pricing sensitive to volume.

– The sheer magnitude of the project that renders any changes to the current plan both costly and time consuming, and therefore politically unappealing.

4_The market for broadband services

4.1_Economic issues raised by the NBN business plan

Regardless of which party wins the next Federal Election, we believe that broadband policy will need to be reset. That is because we remain sceptical of the projections contained in the NBN business plan for two main reasons:

1_There is no fibre premium – The NBN Co plan implies that, over time, as customers use more and more data they will pay more and hence the amount that RSPs will pay NBN Co will also increase. Global benchmarking suggests that this is unlikely. Market demand predictions and economics provide some clues as to why this would be the case.

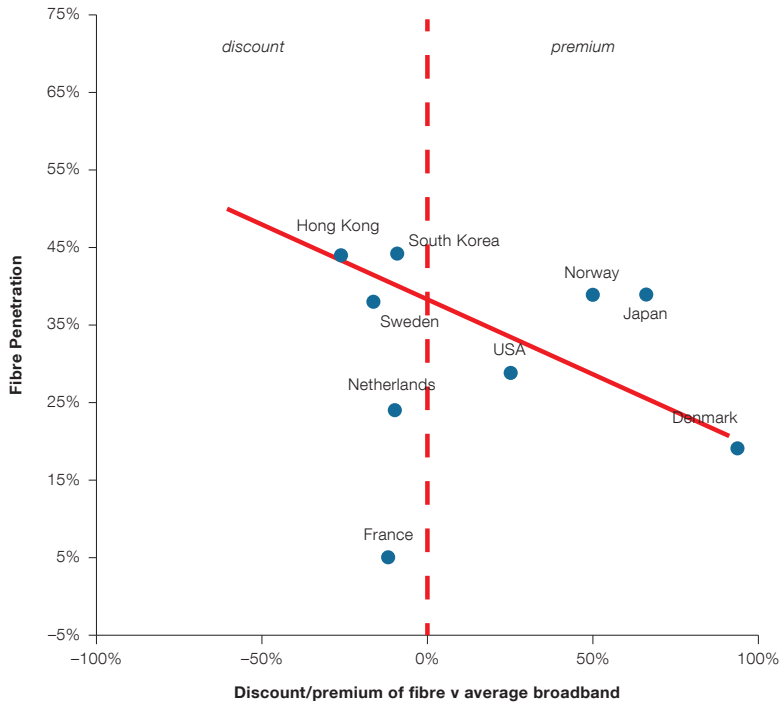
2_The ROI is not sustainable – The plan implies that NBN Co's profit margins and return on investment (**ROI**) will rise over time. These 'outer-year' margins and ROI look unsustainable from a regulatory or political perspective.

"The NBN Co plan implies that, over time, as customers use more and more data they will pay more and hence the amount that RSPs will pay NBN Co will also increase. Global benchmarking suggests that this is unlikely."

4.2_The lack of a fibre premium

Our 2011 analysis of the NBN business case reached the conclusion that the predicted revenues of the NBN are likely to be unachievable, as the NBN Co business plan is premised on high premiums and high take up rates. In markets where fibre take up has been high, it has been priced to compete with copper and HFC based broadband products, as illustrated in the exhibit below.

Exhibit 6: Fibre penetration vs. discount/premium over average broadband ARPU[36]



Source: Venture Consulting Research 2011

36. Venture Consulting Research

In March 2011 we indicated that there was very little evidence internationally of any willingness to pay a 'fibre premium' as lessons from similar international fast broadband schemes suggested that the take up of broadband services is quite sensitive to price and charging a large premium on the new service will generate lower take up rates than charging a smaller premium. At that time there were already a number of studies that had reached this conclusion.

The Australian Financial Review has recently pointed to a European Commission Study that 82% of Europeans that have broadband internet access are unwilling to pay more for a faster connection, with 45% them citing price as the major consideration and only 13% citing speed as the major consideration.[37] Moreover only 3% of respondents were willing to pay a premium of 15% or more. The same article also cites a range of positive private sector outcomes in the US market from HFC and FTTN technologies.[38] Moreover Analysys Mason has found that

"*the price premium for high-speed fibre services is significantly lower than that charged by cable operators: on average, single-play fibre services with speeds of 100Mbps or over are only 7% more expensive than 30Mbps services – and in some cases they are even the same price as standard broadband services*".[39]

NBN Co's Corporate Plan assumes falling wholesale broadband prices. However, those wholesale broadband prices also assume a fibre premium. NBN Co's business case and 7% ROI have continued to be anchored on an assumption that consumers will pay a higher price for faster speeds.

While paying more for a greater quantity may seem logical for some products and services, this has not been the dynamic in telecommunications. Consumers have generally enjoyed a combination of reducing prices for higher bandwidth, or at least increasing bandwidth for the same price. Over time, as bandwidth increases, the price for high bandwidth services often falls in order to stimulate mass-market demand.[40] ARPU may be flat or falling, notwithstanding that users are migrating from lower to higher bandwidth services. Telecommunications carriers often have to run very fast in bandwidth terms to stand still in profit terms.

We believe that there are a number of reasons for this outcome:

– It is a natural result of the relationship between price, demand and externalities for telecommunications networks.

– Consumers do not demand high bandwidth, they demand retail applications that require high bandwidth. Until consumers perceive a "must have" high bandwidth application they remain price sensitive (and even when one appears it is a question of whether the ASP, the RSP or the NBN captures the premium).

37. http://ec.europa.eu/public_opinion/archives/ebs/ebs_381_sumen.pdf

38. See "American experts query fibre-to-home decision" Australian Financial Review March 2-3 at p 5.

39. See the comments of Analysys Mason at http://www.analysysmason.com/About-Us/News/Insight/Insight-NGA-price-premiums-Apr2012/

40. See http://commsthought.blogspot.co.uk/2012/11/nbn-cos-bold-assumptions-on-australians.html

4.3_The relationship between price, demand and externalities

The Federal Government needs as many users as possible to acquire and use high bandwidth services. NBN "connection rates" are not the issue, as a consumer can be connected to the NBN and simply maintain the same usage profile. Shutting down competing networks to ensure high NBN "connection rates" will increase NBN Co's revenue but create no new consumer benefits if consumers are only using the new network for services available on the old network. Consumers must be acquiring and using levels of bandwidth not available to them in the current market for the NBN to deliver any incremental benefits.

The conundrum is that for the NBN to be declared self-funding, and accounted for outside the Federal Budget, it is necessary to maintain the position that it will earn a rate of return. If the NBN is a high cost alternative, that rate of return must be derived against a high cost base. This investment can only be recouped through higher wholesale prices. Those higher wholesale prices must feed through to higher retail prices. Those higher retail prices will then constrain demand (the degree of demand constraint being determined by price elasticity).

This relationship between price and demand has a greater impact on the NBN project than simply the profitability of NBN Co. Telecommunications networks benefit from "network externalities", that is the value of the network to all users increases with each additional new user because the more connections a network has the greater the utility it delivers. Put another way, would a consumer have a greater demand for a 25 Mbps network connection when 90% of households are using one (and 10% are on 5Mbps) or a 100 Mbps connection, if only 10% of households are using one (and 90% are on 5Mbps)?

Consumer demand for bandwidth will move towards the bandwidth for highly demanded applications. However, this is a finite trend as no mass market demanded applications will approach 100Mbps for the foreseeable future. Higher prices, lower demand and lower usage will limit the benefits of available network externalities and this in turn reduces the attractiveness of the NBN to new users.

If a high cost FTTP network feeds those costs through to retail prices, and this constrains demand for the same very high bandwidth retail services that an FTTP network is designed to deliver, then an FTTP network choice would not be economically rational. Ironically, in such circumstances, the economics of the egalitarian NBN could become elitist in practice. Consumers with high disposable incomes and low price elasticity would acquire the highest bandwidth packages but those with low disposable incomes and high price elasticity would not. This dynamic would be aggravated by poor technology choice. For example, if an FTTP network in low population density areas operates at a significant loss, this feeds into higher retail prices nationally, if a principle of nationally uniform prices is upheld.

It is entirely possible that a lower cost NBN would drive lower prices, higher adoption and a positive multiplier effect that would lead to greater improved consumer welfare than a high cost alternative. Is this likely? We clearly do not know yet as this analysis is yet to be completed. We must first conclude whether different forms of the NBN will be demonstrably less expensive relative to the performance that is demanded by the mass market. In parallel, there is a need for a serious qualitative and quantitative study of consumer behaviour and economics to determine the structure that will deliver the optimal consumer welfare.

"Ironically, in such circumstances, the economics of the egalitarian NBN could become elitist in practice."

4.4_A mass market fibre network assumes mass market demand

The current NBN is a mass-market fibre network of an unprecedented scale. The NBN's economics must be driven by the retail mass-market, not by users that are outliers. The relevant question is not whether we should have fibre connections to key sites, but whether we need them to 93% of residential and SME premises in Australia. It is also not a question of whether we need improved bandwidth and broadband connectivity across Australia, we clearly do. Rather it is whether 93% of Australian households need upwards of 100 Mbps on fibre connections in the foreseeable future.

In our original 2011 paper, we predicted that there would be a significant lag between the time that the NBN became operational and mass-market demand for the very high-speed broadband services that would justify the Federal Government's revenue projections.

Customers already have a demand for online services that cannot be supported by existing network speeds in many regions. For example, the convenience of instant access to standard definition video content viewable on a large screen (even if it is simply streaming in the background) is something consumers will pay for in the current market. Existing HFC and quality ADSL2+ connections already support this functionality, although a large number of premises do not have access to these high-speed connections.

That is, in the current market, capacity is lagging demand. However, the NBN will deliver very large increments of capacity well ahead of demand and we will most likely shift to a market in which demand significantly lags capacity.

The Labor Government has struggled since the inception of the NBN to explain the consumer applications that will drive NBN high bandwidth pricing plans. There have been many examples, but most are not a reason to connect 93% of homes to a fibre network.

A number of commentators claim that publicly funded or subsidised FTTP just does not stack up on a cost-benefit basis. For example, Robert Kenny argues that Governments frequently justify FTTP investment by crediting FTTP for applications that could be delivered over basic broadband; crediting FTTP for applications that do not require home bandwidth; and making the case on the basis of applications that do not deliver network externalities'.[41]

41. Presentation by Robert Kenny, Communication Chambers, to the FTTH Forum, Budapest, 9th November 2011

In his 2011 paper *Superfast Broadband: Is it Really Worth a Subsidy* Kenny tests common government justifications for NBN investments against the available economic and empirical evidence and confirms the significant gaps in policy logic. At the risk of oversimplification the following table summarises some of the conclusions:

Exhibit 7: Specific applications as drivers of publicly funded broadband

Application	Market	Societal benefit	Comments
Telemedicine	Niche	Yes	Targeted broadband connections to hospitals and clinics are sufficient. The applications requiring bandwidth are not used for in-home treatment.
Education	Niche (to schools)	Yes	Targeted broadband to schools is sufficient. There is limited evidence that it supports better education.
Remote metering	Broad	Yes	Does not need broadband.
Telecommuting	Broad	Yes	The extent of the telecommuting trend can be questioned. Most users do not require very high bandwidth for their tasks.
Content based SME's	Niche	Productivity	An outlier category that could be met through targeted investment.
Super HD TV	Broad	No	We are already downloading SD and HD programs on HFC and ADSL2+ networks. The benefits of super high definition video are questionable.

Users of all of the above services will benefit from an NBN. The only question is whether they need an FTTP NBN to meet their demand and, to the extent an FTTP NBN establishes truly incremental services, do their benefits exceed their associated costs.

In our original paper we indicated that it was not social utility applications that would support an NBN. Rather it was very high bandwidth audio-visual entertainment that would be the killer application. However, this would need to be led by device manufacturers and content producers. In 2012 3D television was claimed to be a drive-for the NBN. In early 2013 4K super high definition television is the new prospect. But it will take some time before there is 4K content to generate demand for the mass-market acquisition of network capacity.

Even then, how essential will the choice of 4K over existing HD services become and is the cost of providing super high definition television to regional Australia really worth the cost? Does this promote productivity? Will we look back in 10 years and find that the dominant use of a $43 billion network is simply better television?

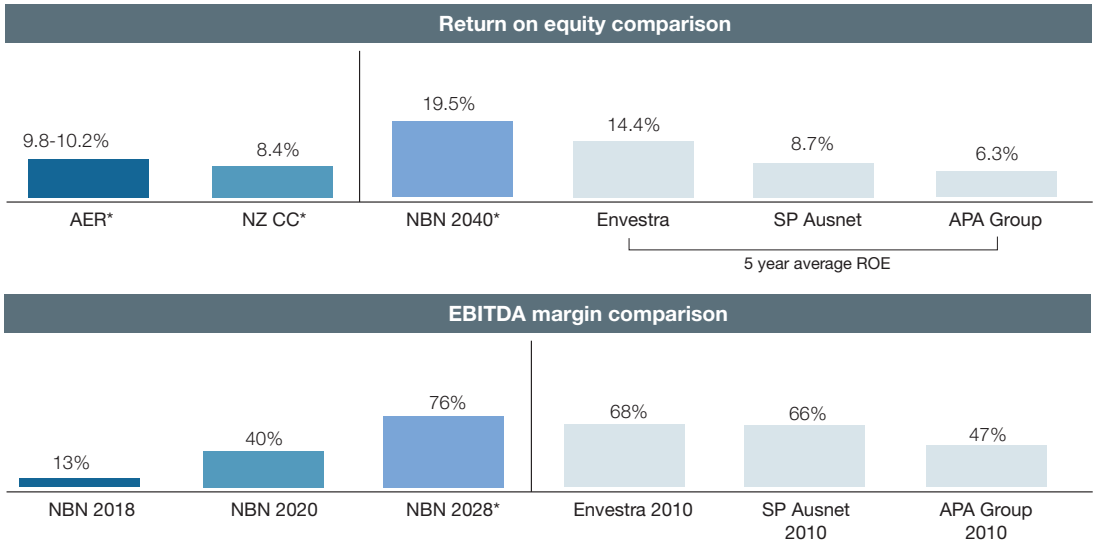
"The current NBN is a mass-market fibre network of an unprecedented scale. The NBN's economics must be driven by the retail mass-market, not by users that are outliers."

4.5_The inevitability of further price regulation

Additionally, in our view, there are potential issues regarding price regulation of the NBN:

'*The threat of future incremental price regulation is clear if you look closely at the financial analysis set out in NBN Co's recently published business case. These forecasts are arguably optimistic given the likely long-term regulatory reaction. They envisage a monopoly infrastructure provider that in later years will be allowed to operate at EBITDA margins of close to 80% and return on equity (ROE) of almost 20%. We believe that returns at this level will come under attack from the industry at that time and may not be sustainable for a regulated asset.*'

Exhibit 8: The long term ROE and EBITDA implications of NBN CO's business plan[42]

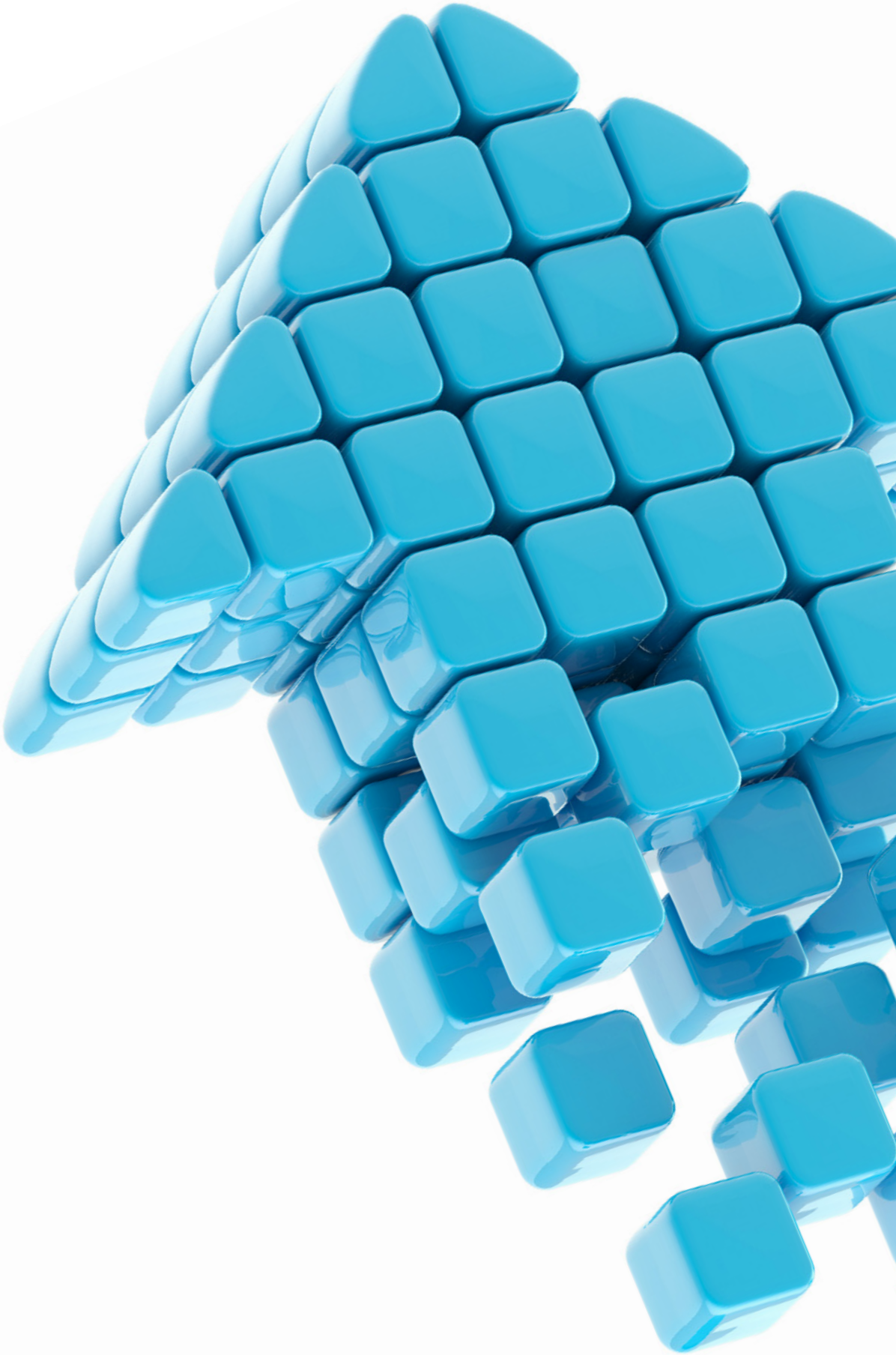


Note: *AER and NZ Commercial Commission = Nominal Post Tax Return on Equity. NBN ROE is calculated as Leverage Free Cash Flow/Shareholders Equity. NBN Shareholders Equity is estimated no debt at 2040 and a depreciation over 20 years.

Source: NBN Ltd Corporate Plan, company websites, Charles River Associates 'Regulated Returns for Australian and New Zealand Electricity Distributuin', Reuters, Venture Consulting.

Essentially, we are of the view that NBN pricing will, at least over the longer term, be lower than the NBN business plan suggests, both because of regulatory pressure, and pressure from RSPs who will be unable to profit from offering NBN services at higher prices, and thus the economics of the NBN will likely deviate from NBN Co's forecasts.

42. *The impact of the Australian National Broadband Network on the Communications Sector: A Forensic View'* Allen & Overy *and* Venture Consulting (March 2011)



5_The regulatory model for an NBN policy

5.1_The case for the NBN as a monopoly

Market structure must also be an output of the Coalition's policy and it has an inherent value conferred by improved levels of competition and consumer welfare. Therefore we must ask how a new policy formulation can achieve an optimal market structure.

A key area of debate regarding the NBN amongst politicians and commentators, has been the nature of NBN Co as a state owned monopoly with a significant geographic and service scope.

In our original 2010 paper we noted that Labor's NBN policy reversed Australia's long-standing policy of encouraging the private sector ownership of telecommunications networks, facilities based competition and the privatisation of Telstra:

For the last twenty years, Australian telecommunications policy has focused on promoting private sector network and service competition at every level and the Commonwealth has progressively sought to exit its remaining Telstra shareholding. The Australian Government is now re-entering the telecommunications sector through NBN Co.

In 2012 Harrison Young, the NBN Co Chairman, stated that:

"Telstra's fixed - line copper network is a natural monopoly. A natural monopoly exists when one supplier can serve the entire market at a lower total cost than two or more suppliers can. Having multiple suppliers of natural monopoly services is socially wasteful. They make inefficient use of an economy's resources."

Is the copper local loop or the NBN a natural monopoly? You could make the case that building two overlapping national FTTP networks is unnecessary. For example, the overbuilding of the Telstra and Optus Vision HFC network platforms in the mid 90s lost significant capital. But that does not mean that the NBN is a natural monopoly and the following issues need to be considered:

– **Geography** – Very low density regional NBNs may well be a natural fixed line monopoly, but high-density urban areas will not. Therefore any perspective on market structure must have a geographic dimension.

– **Wireless substitutes** – A wide variety of wireless networks are substitutable for the NBN to a greater or lesser degree. For example, fixed wireless, cellular mobile and broadcast networks are all capable of carrying services carried on the NBN (although not all of the NBN's services).

– **HFC and copper** – If the NBN is a natural fixed line monopoly why would the Commonwealth pay billions of dollars to require that existing HFC and copper networks be shut down when the more cost effective natural monopoly NBN should sweep them away?

– **Future technologies** – The economic life of an FTTP NBN is longer than the entire period of telecommunications network competition in Australia so far. Prior to that time not just the copper local loop but the entire public switched telecommunications network was regarded as a natural monopoly. A great deal has changed since then and it will change again.

The more pertinent question is whether the cost and scope of the current NBN is so great that for it to generate a 7% ROI it needs to be a *monopoly*. That is, we are not allowing a natural monopoly to

achieve the lowest cost. Rather, we are creating a regulated monopoly as a result of the need to recoup its high cost. This better explains the need for Telstra and Optus to be paid to shut down their copper and HFC networks.

In our original 2011 paper we also noted the potential for an FTTP NBN, in the long term, to subsume the role of terrestrial broadcast networks, HFC and satellite pay television and to affect the structure of cellular mobile networks. In short, once such an "all in one" network reached a tipping point it would subsume other network platforms that were partly substitutable. This would leave very little competition to the NBN.

The 2010 OECD Economic Survey of Australia highlights the benefits of Australia's NBN project, but asserts that:

'Multiple empirical studies have stressed the value of competition between technological platforms for the dissemination of broadband services… Moreover, such a monopolistic incumbent could forestall the development of as yet unknown, superior technological alternatives… [Government Intervention] should not trigger a weakening of competition in wholesale broadband services to protect the viability of the government project. An alternative to this picking-the-winner strategy would be to let the market guide choices between the various Internet service options on the basis of prices that reflect costs, factoring in externalities that ought first to be evaluated."[43]

Economists such as Joshua Gans and Jerry Hausman have argued that the agreements between Telstra and the Government '*are massively anti-competitive*' and that '*microeconomic reform has moved us away from this type of inefficient financing of government objectives… we can conceive of no greater anti-competitive action than the largest mobile service provider agreeing not to compete against the monopoly fixed line provider… The results will be less innovation, higher prices, and less choice for Australian consumers.*"[44]

A Coalition Government is much more likely to advocate a system based on facilities based competition. The only issue is whether, as a result of the need to develop an overall solution and timetable, it perceives a need to encourage the pooling of existing and new assets in operating entities that enjoy a period of exclusivity during which they must deliver on agreed outcomes.

The need to efficiently use existing assets means some competing platforms will become part of the broadband solution. For example, in areas where an HFC network or FTTN is the solution, those networks will not compete with the NBN. However, it remains a policy choice whether for example, in metropolitan areas where one HFC network is integrated in the NBN, the other HFC network and copper network may continue to operate in competition. In a similar manner where fixed wireless is the solution in regional Australia the copper network could be left in place. In economic terms the lower cost platforms pursued by the Coalition may not require that all other networks are shut down in order to achieve an ROI.

However, this will require a review of the new NBN economics, the level of Telstra customer transfer payments that may be avoided and the model for future investment.

43. http://www.keepeek.com/Digital-Asset-Management/oecd/economics/oecd-economic-surveys-australia-2010_eco_surveys-aus-2010-en

44. http://www.theaustralian.com.au/national-affairs/rudd-guru-slams-nbn-monopoly-as-deal-will-harm-consumers/story-fn-59niix-1226137347106

5.2_Structural separation and a wholesale only network

The retention of structural separation is a key element of both the current and any new NBN policy. A new agreement reached with Telstra would need to fulfil the Coalition's stated commitment to structural separation of Telstra. This would mean that Telstra's participation would need to be consistent with the open access model of the current NBN.

There is already an evident concern amongst some carriers that the use of FTTN and HFC networks, the need to reduce costs and the inevitability of a re-negotiation with Telstra, could result in Telstra exercising greater control over the NBN and achieving an advantageous position. This issue emerged in a recent exchange between the Competitive Carriers Coalition and Malcolm Turnbull over the use of HFC networks as part of the solution.

The new NBN should remain a structurally wholesale only provider of services. If it has a lower cost base, better economics and lower risk it should also not be as hard to conclude an acceptable SAU with the ACCC. We suspect that the difficulty NBN Co has had so far in finalising its SAU terms is because it is seeking to ensure its rate of return in the face of ACCC concerns regarding efficient costs. The need to reflect a 7% ROI against a high cost base clashes with an efficient pricing model. This issue should not be nearly as acute for an NBN based more firmly on a cost/benefit analysis.

The Labor Federal Government has decided to proceed with the investment regardless of the SAU outcome. The SAU exercise has been one of seeking to align the SAU with cost of the investment and as close to a guarantee as possible of achieving a 7% ROI. In short, it is seeking to preserve the validity of an already finalised business case. This dynamic will be reversed when private sector investment is involved. The SAU will be of critical importance to both debt and equity investors as the security of their investment will be anchored in the regulatory environment and the SAU is a critical part of that.

We therefore expect that it will be necessary to finalise a future SAU before private sector debt and/or equity opportunities are put to the market. This will include the ACCC seeking to ensure settings that prevent "gold plating" or which encourage inefficient investments, but which allow a fair return on capital for efficient investment. Detailed elements of the model, such as the weighted average cost of capital allowed, will have far reaching implications for the long-term profitability of the NBN.

Finally, the current SAU process was designed to address Telstra's bottleneck control of legacy assets. It has not always proved successful in achieving its objectives. However, it was not designed to consider new investment in long-term communications infrastructure. This also goes part of the way to explaining the lack of progress between NBN Co and the ACCC so far. The regime may require reconsideration for the future.

5.3_Universal broadband access and uniform pricing

These are societal goals and policy concerns. We do not propose to comment on them at length. We do believe that a national plan to deliver an appropriate level of broadband connectivity at an appropriate price is a positive policy. However, the level of broadband does not need to be uniform throughout the country, indeed it is not under the current NBN policy. It may be that a new policy results in further differentials, but they may not be meaningful in the context of price and market demand.

A nationally uniform price is a question for the Federal Government. However, it should ensure that the cross subsidy is transparent. We do not know the level of cross subsidy implicit in the current NBN. However, to the extent that a new NBN significantly reduces the cost base in regional Australia any remaining cross subsidy will be substantially lower. Regional Australia may not want to shine a spotlight on the cross subsidy. However, the alternate view is that the national electorate understands the need for equivalence and supports the concept, but it does demand oversight of efficiency.

Accordingly, any cross subsidy would be best managed through a transparent universal service scheme structure, rather than being embedded in national wholesale prices. The mechanism for calculating and paying that cross subsidy will be important to ensure it does not over-calculate the deficit. The universal service scheme becomes a cost to RSPs. Like the access charge regime, RSPs will spend a great deal of time interrogating the cost and trying to reduce it. It is another example of the regulatory spotlight shifting from Telstra to the NBN.

In political terms, equivalence between metropolitan and regional Australia on both price and service will be a political touchstone for the National Party and it will use its influence within the Coalition to preserve these elements. These are features of the overall policy that are important to the Coalition in an election year. We therefore expect equivalence to be a key feature of the Coalition's policy. However, that may mean some trade offs in terms of the levels of bandwidth for which there is no demand that justifies its cost.

The other issue that the Coalition will need to resolve around cross-subsidies is the extent to which they remain 'off-budget' or 'on-budget'. Given that the Coalition and Labor have been very focused on balancing the Federal Budget, it is unlikely that a new Coalition Prime Minister or Treasurer would allow significant NBN expenditure to come onto the budget. Coupled with the likely concerns of the National Party, this implies that the Coalition may wish to keep a degree of cross-subsidy in place within whatever NBN structure they adopt.

5.4_Conclusions for a new market structure

The Coalition has indicated that there will be a return to more facilities based competition. However, complete facilities based competition would require trade offs in other areas.

The following is one potential structure:

– The new NBN entity or entities would be the vehicles in which existing network assets are pooled by transfer or capacity allocation.

– This would remove the copper and at least one HFC network as competing platforms, but that is the price of applying these assets to a co-ordinated solution.

– The NBN entities would have an exclusive licence for a defined period to achieve tangible deployment goals (of a scope to be determined). After this period competing providers would operate freely.

– These entities would be wholesale only providers with regulated prices and ACCC oversight.

– Current and future fixed and mobile wireless (in metropolitan areas) and mobile wireless (in regional areas) would remain competitive platforms and there would be no restriction against marketing against the NBN.

– Current and future wireless broadcast networks would remain competitive platforms.

– Private sector operators would be able to compete in connecting new estates.

A critical issue for the Coalition will be how firmly it guides the outcome. While it will want the private sector to drive solutions, delivering timely outcomes is also critical and the NBN will be transitioning from a GBE model. This will require more Federal Government involvement than might otherwise have been necessary with plenty of time and a blank sheet of paper. Apart from Telstra, no other operator could drive a national solution, but the Coalition will not want to allow Telstra to avoid structural separation.

These factors suggest that the Coalition will need to apply a firm hand during its first term of government in order to deliver its desired outcomes.

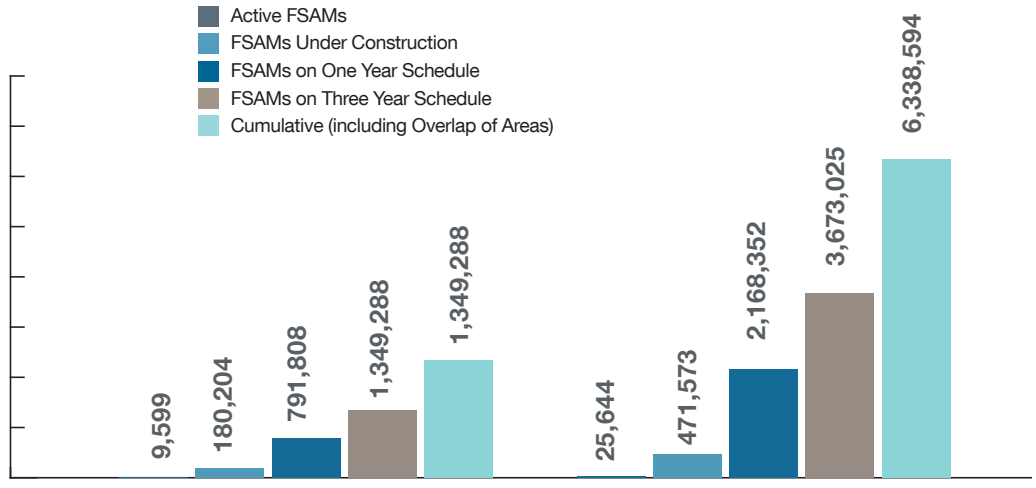
6_Network scale and technology mix

6.1_Scope to scale back

An incoming Coalition government will need to formulate a position on what elements of the NBN to push ahead with and what elements to scale back. From a policy formulation standpoint, the Coalition will need to be clear on its vision for the NBN. Establishing priority areas for NBN deployment is a necessary part of this process and would help inform the extent of the Coalition's restructuring of the NBN.

There has been some debate around whether the current programme will have progressed too far to be stopped or reversed. The Coalition has stated that it will not undo work that has already been contracted or completed. However, an overlay of Census 2011 data with NBN Co's own figures shows that, by the time of the 2013 Federal Election, approximately 13% of Australian households will be in fibre access areas where construction has either been completed or commenced.

Exhibit 9: Analysis of Households in areas where fibre build will be completed or commenced (August 2012)[45]



Source: NBN Co and 2011 Census, Analysis completed by Market Clarity based on NBN Co data as of 1 August 2012

This falls well short of the 20% threshold at which Telstra has been promised significant further payments should the FTTP network be wound back. There is time for the NBN policy ship to change course. If the Coalition is elected there will still be significant scope for it to scale back or modify the NBN FTTP programme.

The rest of this chapter assesses the options open to the Coalition in terms of network scale and mix of technology.

6.2_Cease the NBN project

Completely halting the NBN project is not a credible option for the Coalition. It would be unpopular with the electorate and would also likely be an expensive decision, given the number of contracts already entered into and the global reputational issues of cancelling such a major project. We need only look to the costs the NSW State Government incurred in cancelling the North West Rail project, a much smaller project cancelled at a very early stage of the tender process, to understand how this could be an expensive proposition.

Winding back parts of the deployment that have already been installed would be difficult to justify to the electorate, given that the Coalition's NBN policy is premised on being more cost effective than the existing scheme. Though the cessation of future broadband technology across Australia may elicit unpopular responses from some sections of the electorate, it would be much harder to justify removing existing infrastructure, particularly when that infrastructure may form part of future broadband policies.

The Coalition has made it clear that it will not remove infrastructure already installed by NBN Co. There will be an orderly transition to a new technology solution.

45. Figures in Market Clarity's diagram reflect:

- Active FSAMs – As of 1 August 2012
- FSAMs Under Construction – As of 1 August 2012 (excluding active FSAMs)
- FSAMs on One-Year Schedule – As per NBN Co's 1-year schedule on 1 August 2012 (excluding active FSAMs and Under Construction FSAMs)
- FSAMs on Three-Year Schedule – As per NBN Co's 3-year schedule on 1 August 2012 (excluding active FSAMs, Under Construction FSAMs, and FSAMs in 1-year rollout area)
- Cumulative – Including Overlap of Areas
- Overlap of NBN Co boundaries is not accounted for in the progressive e-figures
- Figures do not include business premises or unoccupied lots
- Comparison to NBN Corporate Plan August 2012: By June 2015, NBN says that 2.499m brownfields fibre premises or lots will be passed (Market Clarity analysis of households equals 2.33m premises. Note that business premises and empty lots are not included in Census data.)

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- Comparison to NBN Corporate Plan August 2012: By June 2015, NBN says that 2.499m brownfields fibre premises or lots will be passed (Market Clarity analysis of households equals 2.33m premises. Note that business premises and empty lots are not included in Census data.)

6.3_Focus government intervention on 'deficit' areas

The NBN was established to ensure all of Australia had access to high speed broadband but government intervention in urban areas is contentious. Arguably, over time, the private sector would deliver NBN-comparable services competitively, if this were allowed. For example, many metropolitan areas are ripe for private sector competition, there is very high demand for fast broadband and a high willingness and capacity to pay for it. Given this competitive landscape, telecommunications carriers would be (and already are) likely to deploy fibre or high-speed HFC services to these areas.

Advances in technology are expected to continue, delivering higher broadband speeds across all technologies. Large metropolitan cities will have the highest and most concentrated demand for increased broadband speeds. If the private sector is more closely engaged in delivering broadband solutions to these areas it could well gain access to these technological advances faster than NBN Co. Even in less densely populated areas, it may be optimal to allow the private sector to deploy fibre (or other technologies) and then for the NBN to focus on 'deficit areas' that are not being adequately served by the market.

However, the NBN debate is now too advanced for the Federal Government to wait to allow the private sector to deploy high speed broadband before it declares market failure and steps in. That debate was held with Telstra from 2005. One of the outcomes of Labor's NBN policy is a public expectation of a clear timetable. The Coalition's alternative needs to deliver on a timetable and outcomes faster than Labor's.

A likely solution would be for the Government to grant licence concessions or offer incentives to encourage the NBN entities with private sector investors to advance deployment significantly against clear licence conditions. The Government could retain the right to identify a material failure to meet these benchmarks and step-in to deploy the NBN in those areas that had not been served by the licensed NBN entities. However, to establish the settings and structures for private sector tenders will most likely take 12 months. We envisage that NBN Co will continue to deliver on a redirected rollout during this period.

Although broadband provision in regional and remote Australia is costly (the provision of satellite broadband under the current NBN scheme will cost upwards of $10,000 per household),[46] government intervention to remedy market failure has precedents. If the Coalition could ensure that fast broadband would be provided by the private sector in an extensive range of urban, regional and remote areas (through a combination of agreements and incentives), it could ultimately withdraw from these areas as an equity investor. Alternatively, it may retain limited equity or equity with special rights, to ensure policy goals are achieved and then withdraw as an equity financier over time.

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

6.4_Refocusing available resources

With limited progress having been made on the NBN network roll out, six years after the election at which it was first promised, the Coalition is now better placed to propose an alternative, less complex plan which it can promise will be delivered more quickly. A key aspect of the Coalition's broadband policy is to ensure a faster and cheaper NBN, the Coalition will be in a strong policy position if it can find a way of scaling back the cost of the NBN project without scaling back the level of broadband capacity that is meaningful for the electorate.

The current NBN network is planned to pass 93% of Australians with fibre, the next 4% with a terrestrial wireless network and the most remote 3% using satellite. However other developed nations, with population densities higher than Australia have pursued fibre deployment to much smaller fractions of their populations (see Appendix 1). An incoming Coalition Government could look to encourage the deployment of a more economic mix of NBN technologies across Australia, using cost-benefit analyses to ascertain what broadband speeds are necessary in which areas, and what the optimal trade-off is between higher speeds and lower costs.

This would inevitably involve the better use of the existing metropolitan HFC networks and FTTN in lieu of FTTP. The HFC networks are already deployed and need to be upgraded. This would allow a portion of the population to have access quickly to better bandwidth that more than meets their current demand. A faster FTTN rollout focused on areas that do not enjoy HFC connections or have no or poor ADSL2+ connections (e.g. because of distance from the exchange) could deliver better results. Consumers that have more than they currently need, are unlikely to react to not having what they may need many years in the future.

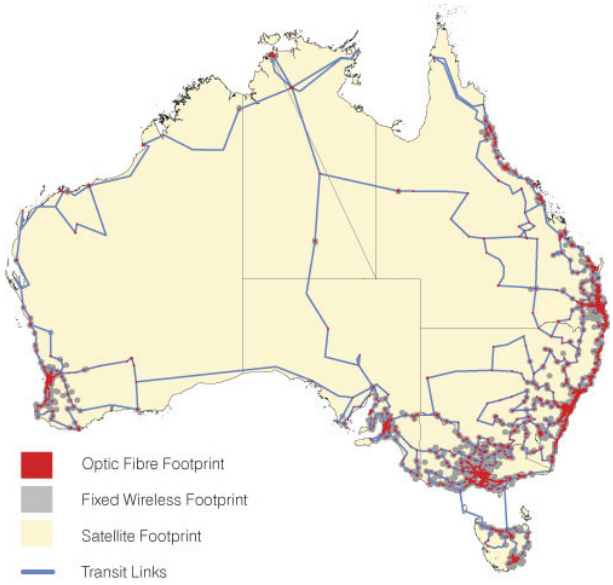
This would also inevitably involve parts of regional Australia no longer being served by fibre, but if a wireless broadband solution is delivered faster and the reduced cost allows other projects to be pursued, this could ensure the impact on regional electorates is minimal. If metropolitan Australia understands that this will reduce the cross subsidy it is paying this could present well to the electorate.

At a very practical level the sheer scale of the FTTP rollout has been an issue. NBN Co can only focus on so many deployments at one time. There have been labour shortages that have affected NBN Co's ability to move on multiple fronts. If HFC coverage, a broader fixed wireless network and the pull through of fibre from the node to premises is removed from the workforce equation then the available workforce can move more quickly to address areas with poor fixed network speeds through FTTN. As this paper is being published the Sydney Morning Herald has been running reports of levels of frustration in pockets of the community that have substandard broadband but which have not been prioritised in the NBN deployment.[47] A Coalition solution could seek to prioritise these areas.

47. See the Sydney Morning Herald edition 7 March 2013.

6.5_Scale back FTTP and scale up alternatives

Exhibit 10: NBN Technology Mix Planned Today[48]



An obvious step to take, based on the output of such a cost benefit analysis, would be to change the current 93%/4%/3% technology choice to (as an example only) 83%/10%/7% (the ultimate decision to be driven by a cost/benefit analysis). There would be a number of benefits to such a decision:

– **A fibre boundary based on empirical evidence** – There is a need to identify the point at which a per subscriber connection cost becomes prohibitive relative to the utility of the fibre connection.

– **Use of existing assets rather than a fibre overlay** – Rather than overbuilding existing HFC and copper sub loops, broadband is delivered over HFC in its coverage area and deployment resources are then focused on completing FTTN in the rest of the fixed line footprint.

– **An extended wireless footprint** – A wireless solution should be substantially less expensive and faster to deploy to a broader area in regional Australia.

– **More extensive use of satellite** – The satellite solution is even faster to deploy, once the satellites are operational. The satellite footprint will be far more substantial than the 3% of the population, the subject of the initial plan.

In summary, fibre deployment costs could be substantially reduced in regional and remote Australia, although at some cost to very high bandwidth performance, but against a carefully weighted cost/benefit analysis.

48. http://www.budget.gov.au/2011-12/content/glossy/regional/html/regional_overview_15.htm

6.6_Optimising the use of HFC in the technology mix

The existing HFC network can be upgraded to provide high speed broadband in suburban areas. These networks are already in place. Upgrades would be directed at software and hardware in the network, not the deployment of cabling. While these upgrades are not trivial, they are in a different order of cost and timeliness in comparison with cabling suburbs.

Australia has two major HFC networks, one owned by Telstra and one by Optus, though there is significant overlap between the two. As of 2008, HFC cabling passed roughly 2.6 million households in Sydney, Melbourne, Perth, Brisbane, Adelaide and the Gold Coast. Additionally, TransACT acquired Neighbourhood Cable's HFC network that covers Geelong, Mildura and Ballarat.[49]

Malcolm Turnbull has argued that the HFC networks have plenty of potential for future upgrades and that, as NBN Co's corporate plan acknowledges, HFC node splitting could be implemented as early as 2013 and would result in an increase in typical download speeds to 240Mbps and upload speeds to 12Mbps.[50] This is a reference to NBN Co's 2010 corporate plan that states:

"Telstra has upgraded its Melbourne HFC network to DOCSIS 3.0, announcing speeds of up to 100Mbps. The next possible upgrade would be node splitting, to reduce the number of End-Users who share the same segments of 750MHz coaxial network. Node splitting could be implemented as early as 2013-14, and would result in an increase in typical downstream speeds to 240Mbps, and upstream speeds to 12Mbps."[51]

HFC networks are contested (available bandwidth is shared), which could pose issues as broadband speeds become slower as there is an increase in users.[52] However, it is also possible to address this effect by pushing nodes closer to users. In the United Kingdom HFC has performed relatively well at delivering its promised speeds (or very close to it), even in the busy hour.[53] FTTN may be an optimal solution for some time to come. It is also a reasonable expectation that the performance of both HFC and copper connections will improve over the next 10 years. While they will never catch the performance of fibre, the question is whether they stay ahead of consumer demand and do so cost effectively.

However, the current Federal Government has concluded deals with Telstra and Optus that limit the use of the existing HFC networks to compete with an NBN FTTP network, they do not allow for the optimal use of the existing HFC networks. Therefore there would be a need to reformulate those arrangements to bring HFC technologies back into the mix (see section 8 below).

49. http://www.accc.gov.au/content/item.phtml?itemId=853269&nodeId=e2b35a25e23bb756dd00820390368b07&fn=Communications%20Infrastucture%20and%20Service%20Availability%20in%20Australia%202008.pdf
50. http://delimiter.com.au/2011/08/03/new-coalition-nbn-policy-splitting-telstra-using-hfc/
51. NBNCo Ltd, Corporate Plan 2011-13, 17 December 2010 (page 42)
52. http://www.accc.gov.au/content/item.phtml?itemId=853269&nodeId=e2b35a25e23bb756dd00820390368b07&fn=Communications%20Infrastucture%20and%20Service%20Availability%20in%20Australia%202008.pdf
53. See Fig 1.4 of the OFCOM paper at http://stakeholders.ofcom.org.uk/market-data-research/other/telecoms-research/broadband-speeds/broadband-speeds-may2012/

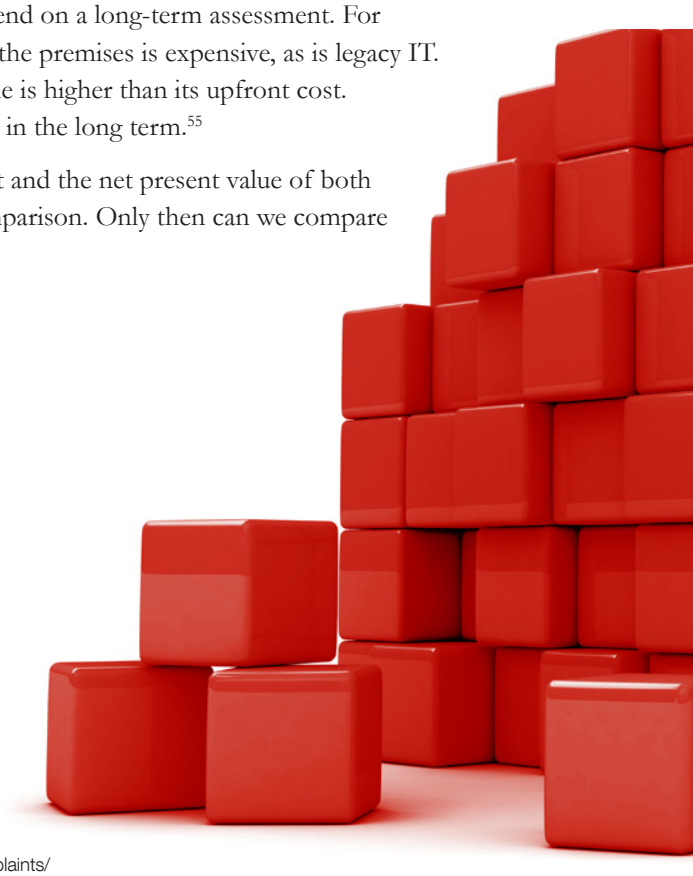
6.7_Introducing FTTN to the mix

If you graph the all-in cost per FTTP subscriber, a sharp inflexion in costs is likely to occur somewhere in the 80th to 85th percentile. The costs of deploying fibre to premises in the most remote percentiles of the planned FTTP deployment have never been made public, but presumably are available within NBN Co. This would be a very useful means of determining the fibre boundary, rather than the original 90% target developed in opposition and upgraded to 93% as a 2010 Labor election announcement.[54]

The Coalition believes that FTTN is a more cost effective option for the NBN in urban areas, and also has the benefit of laying the foundation for FTTP if greater bandwidth is needed in these areas in the future. Malcolm Turnbull has argued that FTTN would be between a third and a quarter cheaper to deploy than FTTP and would be able to be rolled out faster. We do know that other economies, generally with much better demographics for a fibre rollout are taking a much more cautious approach to fibre.

NBN Co claims the prospective cost savings of FTTN depend on a long-term assessment. For example, maintaining the copper that connects the node to the premises is expensive, as is legacy IT. By comparison, the total system cost of the fibre to the node is higher than its upfront cost. Therefore the cost advantage of fibre to the node decreases in the long term.[55]

Ultimately the Coalition will need to test vigorously the cost and the net present value of both solutions in the long term and make an evidence based comparison. Only then can we compare these alternatives on an informed basis.



54. http://delimiter.com.au/2012/07/27/conroy-savages-coalitions-rural-fibre-complaints/

55. Harrison Young, Chairman, NBN Co – speech given at CEDA Event in Sydney on 10 September 2012 P5

6.8_Future fixed line upgrade paths

We may not need a national FTTP network now or for the next 10 or more years. However, having one in the future may still be necessary in many areas. Labor's plan was to leapfrog interim solutions in favour of moving straight to the ultimate solution. While we may not need to do this, we should understand the adverse consequences of fragmentation and the potential for an economic upgrade paths.

Opponents of the emerging Coalition policy suggest that it will lead to an out of date and fragmented network and paint a picture of a variety of competing technologies and carriers in close geographic proximity. However, a more likely outcome is that a target will be set for the delivery of a minimum capacity connection at a rapid pace with the potential for greater capacity. As an example, a commitment of 30 to 100 Mbps for all locations other than those covered by satellite. This would be achieved through upgrading the HFC networks where they operate, delivering on fixed wireless and then focusing new build on filling in all remaining fixed line areas with FTTN.

FTTN is sometimes referred to as a potential step towards FTTP. There has also been discussion of adopting a "user pays" model for early adopters of FTTP. In New Zealand the entities conducting the fibre roll out in particular geographic regions have an obligation to build fibre out to the street and an agreement to provide fibre drops to the home, if the customer requests. While this increases the total cost of installing the drops to all homes (because they are not all installed at once), not all homes will want a fibre drop (and probably many will not want one for some years) so it reduces the total cost of the project and allows a better match of the demand and supply of fibre bandwidth.

This raises the question of the cost and convenience of provisioning an FTTN solution now that allows for early adopters to access FTTP connections as well as the ability to upgrade an FTTN serving area to FTTP at a later date. This requires closer analysis.

The United Kingdom has been quoted as a supportive example by both FTTN and FTTP proponents in Australia. The United Kingdom's policy has been to adopt a significant FTTP target by 2015. However, that target is significantly lower than in Australia; it is to be achieved in an environment of more attractive demographics and it is being achieved by the private sector (Openreach an operationally separate subsidiary of BT). The United Kingdom sees broad implementation of FTTP as the goal. But in moving towards this target it has encouraged the use of existing FTTN and HFC capabilities. Whether it achieves its FTTP goals by 2015 remains to be seen, and early experience with demand and unwillingness to pay a fibre premium suggest that it may not.

Australia should also have mid and long term targets based on its particular circumstances. We need to identify our ultimate objective and our plan to get there for the optimal cost/benefit outcome. In our view a sensible cost/benefit analysis should involve estimates of if and when mass-market FTTP connections will be necessary in the future. Certain areas may justify FTTP now, others will require an upgrade path for the future and some may never require FTTP.

6.9_Expanding fixed wireless

In those regional areas where FTTP is prohibitively expensive and FTTN is not an alternative, the obvious solution is to use the fixed wireless network. There is already a deployment model and technology selected for this network and a turnkey contract was awarded to Ericsson. This network model may simply need to be scaled up geographically (if it is working efficiently). It may not have any impact on the Telstra deal, provided that NBN Co is not committed to a definite fibre rollout in those areas where fixed wireless replaces FTTP.

It is likely that these areas will correlate with those where NBN Co holds the necessary spectrum following its purchase of spectrum from AUSTAR in 2011. In many cases, there will be existing wireless towers on the edge of the build that transmit into adjacent planned fibre serving areas. In addition, relatively small changes to upload and download bandwidth requirements could substantially reduce the number of new sites required, dramatically reducing the cost of the wireless deployment. The Coalition could instruct NBN Co to explore what cost savings, if any, might be achieved by such small changes.

An issue that will also require review is the deployment and technology path of the broadband LTE mobile networks in regional Australia. NBN Co has largely operated on the basis that its fixed wireless network is a substitute for fixed line networks. But increasingly LTE fixed wireless will be substitutable with, and physically integrated with LTE mobile networks. The two networks are already able to share towers and other high points for their transmitters, as well as backhaul to those transmitters. Future generations of equipment may share the transmitters themselves. This raises the question of whether an integrated wireless plan for regional Australia would be attractive.

The Coalition should consider allowing mobile carriers to participate in the fixed wireless network as their mobile networks and services have synergies with fixed wireless. One or more of the mobile carriers could participate in a joint venture seeking to develop an optimal integrated wireless solution for regional Australia. It would be open to the Federal Government to sell the relevant spectrum blocks to NBN entities with responsibility for the fixed wireless network.

Another option would be for NBN Co to source wireless services from existing network operators. In many areas, one, two or even three high speed broadband wireless networks already exist. Rather than build a new network it may make sense for NBN Co to utilise existing infrastructure.

Finally, in markets where only Telstra is present, NBN Co could negotiate with Telstra for it to open up its network to third parties, with a fall back of building a competing open access network itself.

6.10_Optimising the existing satellite investment

As can be seen in the contracts table in Appendix 2 to this paper, the cost of building two new satellites as well as a number of ground stations, is expected to reach $1.1 billion, which represents over $10,000 per premise supplied with this broadband. The Coalition has argued that this is a high price for broadband access.[56]

The current interim satellite service does not provide broadband to the entirety of remote Australia, as capacity is currently limited. However, an alternative approach would have been to use excess capacity on other commercial satellites to fill in the gaps left by the interim service, which would likely have been be a cheaper option. Additionally, if NBN Co had acquired transponder capacity on existing satellites instead of building its own, it would minimise the sunk costs involved in providing satellite broadband, making it easier to deploy a new technology if one were developed five or ten years down the track. Similarly, scaling back the plan such that only one new satellite was built, would have been an option in tandem with the current access enabled by the interim service, and would have reduced the build and operating costs of satellite broadband for remote Australia.

However, these alternatives are now largely theoretical as satellite construction is contracted well in advance. As this paper was being published NBN Co announced the signing of its contract with Arianespace to launch the satellites that NBN Co had already contracted Space Systems/Loral to manufacture and Stephen Conroy confirmed that this was the last piece of the NBN's long term satellite solution (orbital slots are still to be secured, but this will be resolved). Therefore any cost/benefit analysis must now consider the cost of terminating or varying contractual commitments (both unlikely from the suppliers' perspective).

Therefore, the incentive for an incoming Coalition Government will be to use the satellites in the most cost effective manner, possibly by expanding the percentage of customers using the satellite solution. There will inevitably need to be technical adjustments but it is likely that satellite could be used for a wider proportion of the population at a relatively small incremental cost (the fixed costs being embedded in the space segment). This could also be an interim solution until terrestrial deployment in certain regional areas.

The NBN satellites are also a discrete element of the overall NBN that may appeal to the private sector. The satellite tenders that NBN Co put to market appear to have been for an interim solution, and then satellite manufacture and launch for the ultimate solution. This model did not appeal to the domestic and global satellite operators that may well have been interested in an ownership and operating role. For example, Optus (as the primary domestic satellite provider), Asiasat (as a primary regional satellite operator) and Intelsat (as a global operator), amongst others. There may well still be private sector interest in ownership of the satellites. The Coalition could seek to sell the satellites and lease back transponder capacity on a long term contract.

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

6.11_Metropolitan Areas

In the CBD areas of the major cities, a significant amount of fibre optic cabling has already been installed, removing the need to deploy FTTP rapidly in these areas. Many metropolitan suburbs also have access to HFC cabling, which can run broadband speeds of up to 100Mbps. This begs the question of why it is necessary to overbuild these areas with fibre, when meaningful consumer demand can be met using existing infrastructure.

The Coalition would undertake a review of the use of existing infrastructure in its NBN (such as HFC and FTTN via the copper network). It would be likely to review what HFC and fibre cabling already exists in the metropolitan regions of the NBN rollout to ensure the publicly funded NBN is not overbuilding privately owned facilities that can deliver sufficient bandwidth.

FTTP ultimately may still be the most suitable technology in some metropolitan areas, with a high density of population, high volume of traffic, and customers that are willing to pay its higher prices. The Coalition has also floated the concept of a user pays option in which individual users with a willingness to pay a higher price for fibre could elect to have a fibre connection installed. If this could be achieved both technically and cost effectively it would allow the NBN to address pockets of high bandwidth demand and low price sensitivity.

Importantly, there has always been private sector interest in investing in broadband networks in metropolitan areas. The only issues have been regulatory certainty and detaching this investment proposition from regional and remote Australia.

Ironically the current NBN plan is quite costly in metropolitan Australia, relative to its existing broadband connectivity.

– There are three fixed line solutions with a significant overlap – each of the Telstra and Optus HFC networks and the Telstra copper network (where ADSL2+ has been implemented). These areas also enjoy competing LTE mobile networks.

– Labor's plan is to pay the carriers to cease access to the HFC and copper networks (presumably this payment is customer rather than network based so it is not paying more than once for each customer) and then install FTTP (the most expensive solution).

– The Coalition's plan could be to largely utilise the HFC networks (the least expensive solution) and then FTTN for the remaining premises.

– If it used the Optus HFC network then it could decide not to transfer customers off the Telstra and HFC networks, leaving facilities based competition in place and reducing transfer payments to Telstra.

6.12_Greenfields areas

For greenfields areas, new housing developments that are typically within or on the edge of metropolitan urban centres, FTTP will often be the most sensible option, as no copper exists for FTTN, and building out new copper instead of fibre may not be faster or less expensive.

As these new estates would require an internet connection, and no alternative exists, there would likely be sufficient economic incentive in most greenfields areas to leave the private sector to undertake the task. Given that the NBN is already struggling to meet greenfields targets the risk that private sector deployment would elongate the process is minimal. For smaller new housing developments in the middle of existing housing with an existing serving technology other than fibre, the existing technology may be the logical choice.

Malcolm Turnbull has stated that the Coalition '*will certainly remove the obstacles to private sector fibre deployment companies operating in greenfields estates.*'[57] Turnbull's commitment to restoring competition in Greenfields estates is a response to his criticism of NBN Co's slow deployment of fibre to these estates, where Turnbull asserts that NBN Co had only rolled out fibre to less than 1000 greenfield premises between January 2011 and June 2012, and that there were 74,000 homes across Australia with no access to a fixed line connection of any description.[58] This indicates the importance of ensuring that greenfields estates are served with broadband access in a timely fashion, and adds weight to the prospect of allowing other companies to build out access in these areas.

57. http://www.malcolmturnbull.com.au/blogs/malcolms-blog/a-response-to-the-technology-spectator/
58. http://www.technologyspectator.com.au/turnbull-berates-nbn-co-greenfields-connections

6.13_Regional centres

The current NBN plan calls for the deployment of FTTP to regional centres. FTTP will offer these areas the highest possible speeds, although the cost of doing so and the time it will take to deploy FTTP to 93% of Australia is not the most efficient option. Certain larger regional centres will have similar characteristics to residential metropolitan areas. Some, but not all, will be served by existing HFC networks. Others will be better supported by an FTTN solution.

If the Coalition shifts to an FTTN-based solution, then it is likely that at least some of the current fixed wireless areas will be of a sufficient size to be suitable for FTTN. Indeed, many country towns are so small that the radius from the exchange would allow significant speeds to be delivered to many premises without the need to deploy any nodes.

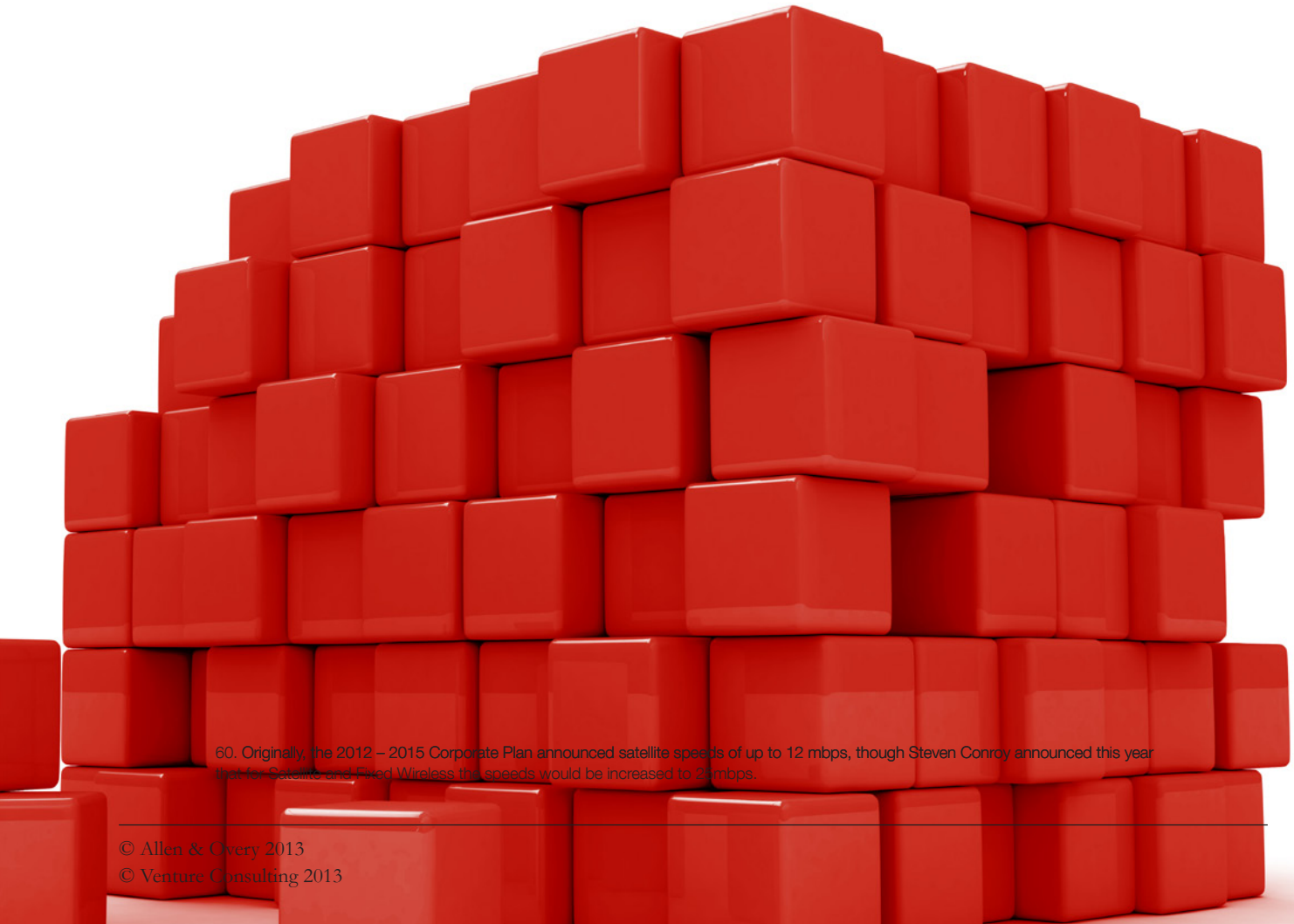
Wireless would still be the most cost-efficient technology for most areas, though this would best be determined on a case-by-case basis. FTTN is more future proof, but the average cost of deploying fibre in smaller towns can be quite high, and can easily come to outweigh the economic benefits that it may accrue. Fixed wireless networks can be perfectly sufficient in these towns, as low take up rates (owing to small populations) will preserve higher speeds.

For areas where fixed networks are the most cost effective option, Malcolm Turnbull has suggested that network deployment could still be undertaken by the private sector, and has stated that 'some of these areas will be commercially viable and the timing and nature of upgrades will depend on the terms and regulatory certainty provided to investors. Others will not be economic in purely market terms and regulatory certainty will require different levels of Government support, which could be in the form of co-investment, capital subsidy or in a few cases both capital and recurrent subsidies.[59]

59. http://delimiter.com.au/2011/08/03/new-coalition-nbn-policy-splitting-telstra-using-hfc/

6.14_Remote areas

In areas of remote Australia, satellite broadband is the only real delivery option, so this is unlikely to be changed by an incoming Coalition Government. Currently, the interim satellite service uses satellites owned by IP Star and Optus, and provides download speeds of 6Mbps. NBN Co has signed contracts to build two new Ka Band satellites. These are more susceptible to rainy conditions, but will increase the maximum speed available to 25Mbps.[60]



60. Originally, the 2012 – 2015 Corporate Plan announced satellite speeds of up to 12 mbps, though Steven Conroy announced this year that for Satellite and Fixed Wireless the speeds would be increased to 25mbps.

6.15_Conclusions for a new technology mix

One of the main questions a Coalition Federal Government would have to answer in proposing changes to the NBN is which technologies to deploy where. This would best be established by determining how much each technology would cost to deploy in these areas and then conducting an objective cost-benefit analysis to establish which technology is most suitable. Integral to this process would be trying to understand what, if any, productivity or other gains could be accrued in different areas. While we expect the Coalition to drive this debate, it will leave the actual decisions to NBN operating entities that have been set the right targets and incentives.

A simple assessment provides some sense of scope. NBN Co plans to pass 12.2 million fibre premises and 1 million fixed wireless and satellite customers by 2021.

– It is a reasonable assumption that by the time of the September election 17% of the target premises are either passed by the FTTP network or it is efficient to complete the passing (assuming a further 5% is required by existing contractual commitments).

– We know that 2.6 million households or approximately 20% are already covered by HFC networks (and are also a quick deployment win).

– It may be a reasonable assumption that an additional 10% of premises can be addressed through the fixed wireless and satellite networks and that the fixed line footprint reaches out to the 83rd percentile of the least remote premises (another quick deployment win).

– That leaves 47% of premises that will have a broadband solution quickly.

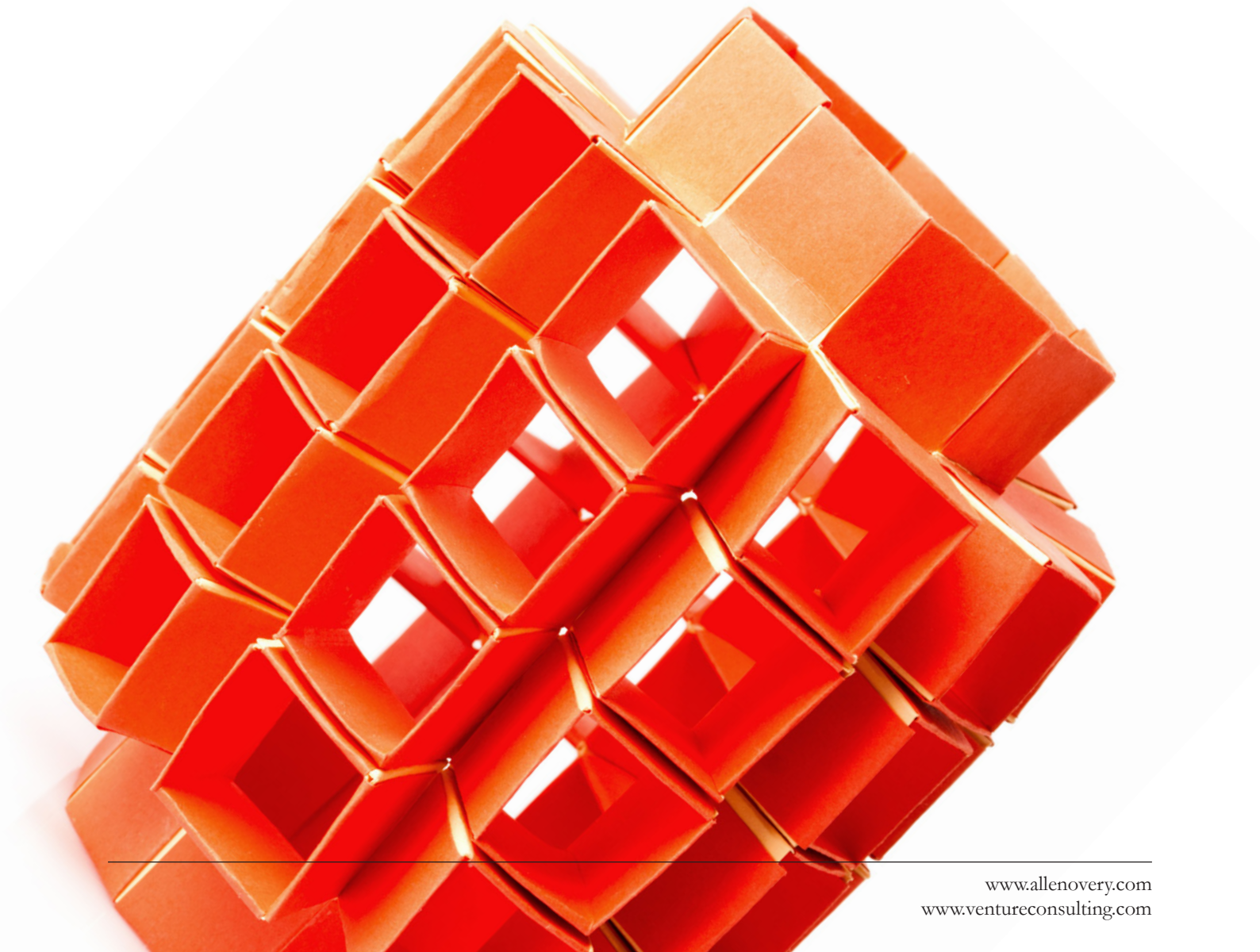
– Following the election NBN Co could then focus on deploying FTTN to the remaining 53% of premises using a network platform that is faster to deploy.

– If we assume that the FTTN deployment can reach a further 30% of the population by the end of 2016 then by the next Federal Election 75% of premises could be receiving high-speed connections with the remainder of the population looking at a near term solution.

Through such changes, the Coalition should also be able to lower the cost of the NBN project substantially. That would mean that going into the 2016 Federal Election both the consumer demand and cost issues associated with broadband connectivity will have been defused.

Obviously some very detailed analysis is required to confirm reasonable targets. The Coalition would not need to lead this analysis itself. For example, NBN Co's statement of expectations could be changed to require it to consider the most appropriate technology based on a cost/benefit analysis. More broadly, as part of an independent review, the Coalition could issue a statement of principles that must be met and seek expert advice on the most cost effective means of meeting them.

The Coalition is likely to ask that any independent review analyse technologies on an area-by-area basis, assessing technologies that best balance the speed requirements and the cost of deployment in each area with the aim of reducing the level of public investment required and improving the economics of the NBN. That is unlikely to be a highly fragmented approach as there will be diseconomies in overcomplicating the technology mix in a given region. It would be more sensible for a particular technology choice to consider the level of existing infrastructure that may be used and the need to generate scale economies.



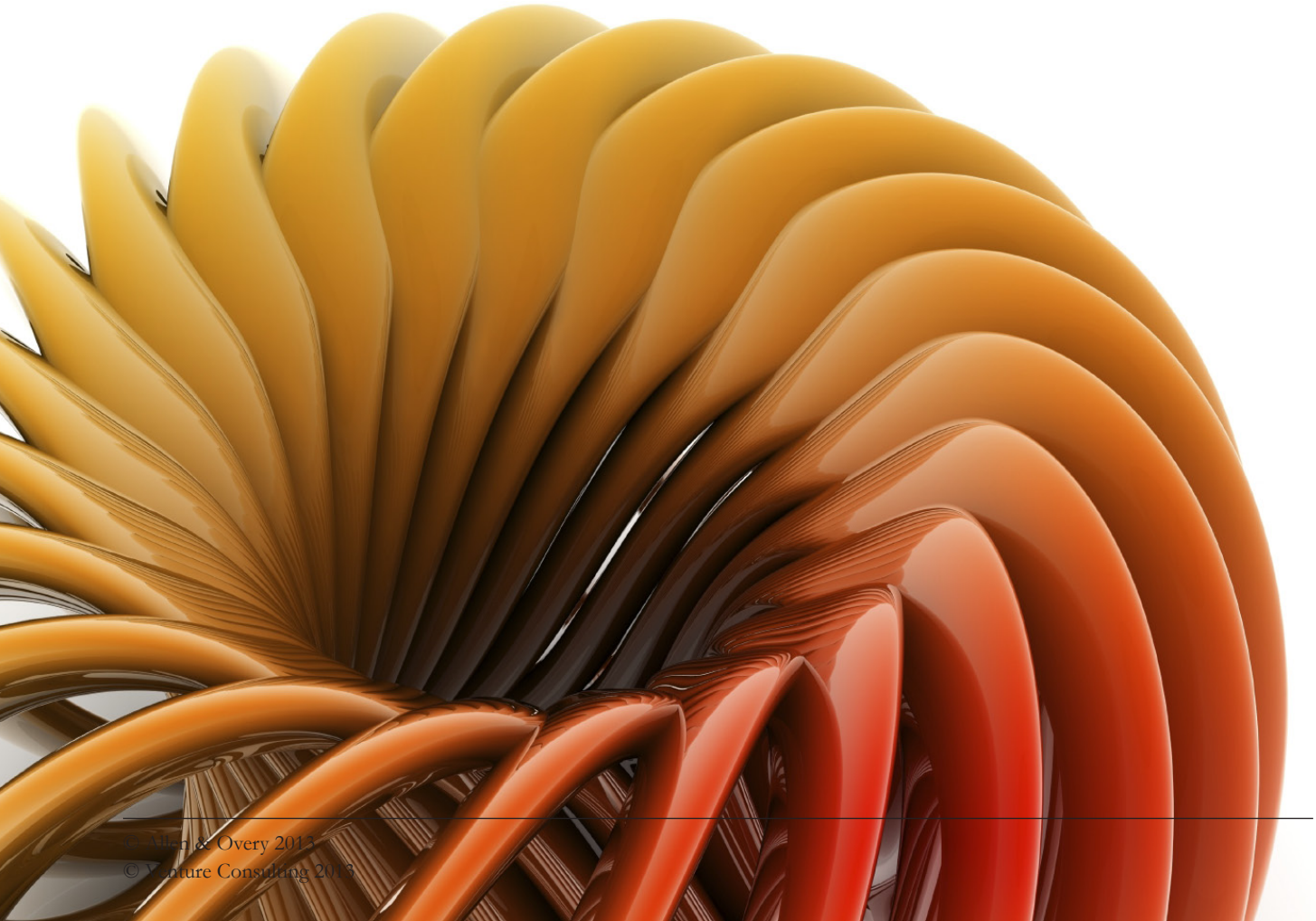
7_Ownership, financing and the role of the private sector

7.1_The current approach to private sector financing

In the immediate term NBN Co is entirely financed through Commonwealth equity injections. NBN Co 's most recent corporate plan estimates that private sector debt financing will take some of this load from 2015 and, by FY2021, 31% of total funding will come from private sector debt with a peak load debt financing of $13.7 billion.

However, very recently the Parliamentary Joint Committee on the NBN has urged the Federal Government to begin gauging private investor interest in the NBN and to investigate the optimum capital structure for NBN Co, well ahead of the planned 2015 debt raising. This committee had previously recommended that NBN Co progress its consideration of private sector involvement.

Absent a Commonwealth guarantee any private sector debt financier will need to understand the long-term structure and viability of the project. That is somewhat difficult in the current environment.



7.2_Legislative restrictions on restructuring the NBN

The current legislative package for the NBN has set certain principles regarding private sector involvement in the NBN. Under the *NBN Companies Act 2011,* the Commonwealth is required to retain ownership of NBN Co until:

– The Communications Minister has declared that, in his opinion, the NBN should be treated as built and fully operational.

– The Productivity Minister has caused to be tabled in both Houses of Parliament, a report of an inquiry by the Productivity Commission on the NBN.

– The Parliamentary Joint Committee on the Ownership of NBN Co has examined the Productivity Commission's report.

– The Finance Minister has declared that, in his opinion, conditions are suitable for the entering into and carrying out of an NBN Co sale scheme.

However, these legislative hurdles were set by Parliament under a Labor majority and the legislation can be readily changed by Parliament under a Coalition majority. Provided it controls both Houses of Parliament the Coalition can determine its preferred policy for private sector participation in the NBN.

Lack of control of the Senate could allow Labor to frustrate the sale of equity in NBN Co. However, it would not frustrate asset sales or the establishment of new private sector entities with some level of Commonwealth equity. If the Coalition runs its campaign on the basis of its NBN plans, as it is already doing, it will also claim a mandate from the electorate, making Senate intervention unappealing. Moreover, private sector equity is unlikely to be a proposition until the entire model has been reset, which will be well into the Coalition's first term.

"Provided it controls both Houses of Parliament the Coalition can determine its preferred policy for private sector participation in the NBN."

7.3_Sell some or all NBN assets and return to full facilities based competition

Malcolm Turnbull has advocated a return to full facilities based competition and argues that the existence of competition in countries such as Korea ensures a variety of options to consumers and helps keep prices down.[61] However, rewinding the clock to full facilities based competition while achieving deployment goals and Telstra's structural separation is not possible immediately as a transition period is required in which Government will retain a significant level of involvement.

The largely incomplete NBN network of 2013 is unlikely to be of any interest in its entirety to private sector investors. What is required is an aggregation of broadband assets in key areas that allows the optimal use of all the existing assets across a given region. Private sector investors will not be interested in the existing NBN Co, limited as it is by uneconomic technology choices, national scope and embedded cross subsidies and regulatory risk.

Significant yet less than national regions with a focus on metropolitan consumers with higher ARPU will be more attractive to the private sector. Customer access network assets, both those held by NBN Co and the private sector, would need to be pooled in entities that are subject to open access regulations (similar to the Singapore model for national broadband).

However, some of the NBN assets may be of interest to private operators, such as a standalone satellite proposition. A private operator could potentially make use of one or both of the satellites for purposes other than remote broadband provision, making for an economic investment. The sale of the satellites (or the procurement and launch contracts) to a private operator could be negotiated (possibly using incentives) to ensure broadband access is still provided to remote areas.

Under any option involving the sale of assets, access terms would need to be set.

61. http://delimiter.com.au/2011/03/11/nbn-korea-kept-its-hfc-cable-says-turnbu

7.4_Seek partial private ownership of assets and networks

The current NBN structure is a government owned monopoly. This could become a joint venture between the Government and private sector investors. The Government could retain reasonable controls to regulate prices and ensure access extends to all Australians (in some form). While these controls will be achieved through the regulatory environment, the Commonwealth may still hold equity for its contribution of assets. It is also possible that private sector investors may want to see it retain some level of "skin in the game".

NBN Co could engage in a number of joint ventures with private sector firms, devolving joint ownership to particular geographic regions. This would have many of the same benefits listed above but negotiating multiple new contracts would be a more time consuming process. A less convoluted option would be to award regional licences, where private sector firms were granted the right to establish broadband access exclusivity in certain regions for a period of time, subject to certain conditions imposed by the Government.

Awarding regional licences could be achieved in a fashion that resembles the New Zealand model, where the government owned Crown Fibre Holdings acts as the Government shareholder, but does not build or operate the network itself. Retaining NBN Co could be beneficial in administering subsidies/grants to private sector entities under such an approach.

7.5_Potential approaches to restructuring ownership and investment

Based on its policy objectives, the Coalition is likely to favour options that allow for both Government and private sector involvement, with the aim of allowing competitive forces to strengthen the efficiency of the NBN rollout, but also using government investment and regulatory settings to guard against a failure of the market to deliver a national broadband solution or to establish an appropriate market structure. An incoming Coalition government would have multiple options in terms of the ownership of the NBN network and its assets and the role to be played by the private sector.

As outlined above, if the chosen policy is to promote at least one owner of broadband infrastructure by region, and the regional and technology approach is as outlined above, then the key questions become:

– **The operating entities and their assets** – How best to pool and rationalise the relevant assets of specific entities.

– **Financing the operating entities** – What are the classes of private sector debt and equity investors that would be interested in these entities.

– **The build and operate arrangements** – NBN Co could engage companies to manage and operate all or parts of the network on its behalf, or even outsource the management of the entire construction process and operation to the private sector.

None of these models need be geographically universal. Indeed it is likely that the Coalition would employ a mix of solutions. For example, an incoming Coalition government might restrict public ownership of the Government controlled NBN to areas that were uneconomic. This could result in a wholly government owned NBN Co being scaled back to regional Australia, where it would focus on delivering high bandwidth in the most efficient manner. This business could then be put to tender to the private sector based on the lowest subsidy that would be required to meet given bandwidth and quality thresholds, without necessarily specifying the underlying technology that would be used.

In those areas that are expected to be profitable, the NBN project could be bid to the private sector and transferred to an entity in which the private sector (and potentially the Commonwealth) held equity. Different regions could have different equity investors. Each of these entities would have clear deployment and service obligations that ensured policy goals were met. Finally, the introduction of private sector debt and equity to metropolitan NBN projects would be much simpler and could occur more quickly.

7.6_Renewed NBN Co – The first phase

A simultaneous restructure of the current project at all levels would require some time. The first option would be to retain the existing Commonwealth owned NBN Co model, at least initially.

NBN Co's mission would be restated and directed at deploying a 'technology efficient' outcome employing a cost effective mix of FTTx, HFC, wireless and satellite based solutions. This would involve it renegotiating the existing agreements with Telstra and Optus to include long-term access to existing copper sub-loop and HFC networks.

Telstra and/or Optus could receive a minority equity position in NBN Co based on the contribution of their copper and HFC assets. However, we are doubtful that they would accept the conversion of their current cash compensation into equity. In some respects the greater public sector involvement and scale may make a Renewed NBN Co easier to debt finance in the near term.

The drawback with this model is that it is less likely to attract private sector capital in the mid term and will result in slower government disengagement. Because it maintains a single national project it is also less likely to result in an assessment of each of the major network components on a standalone cost/benefit basis.

However, a Renewed NBN Co will make it simpler to maintain the advantages of the existing NBN Co and to redirect its momentum. Under the global umbrella of the Renewed NBN Co a range of assets and operations could be restructured with less lost time. A Renewed NBN Co could be a transition option to establish separate operating entities and prepare for private sector investment later in the Coalition's first term.

As a practical matter the NBN Co has spent the last four years developing significant human capital and expertise. It is the staff of NBN Co that may be the Coalition's best resource for developing a new detailed strategy. While political theatrics have required some criticism of NBN Co itself we do not believe this is likely to continue after the Federal Election. In our view the Coalition will move quickly to ensure the continued involvement of key NBN Co executives and staff. A Renewed NBN Co will retain all of the intellectual capital and momentum of the current project.

7.7_Metro and Regional NBN Co's – The introduction of private capital

However, we do not believe that a monolithic NBN Co GBE is a long-term solution. It will be a transition model to a more complex structure. That more complex structure is unlikely to be implemented until later in the Coalition's first term.

There are several reasons why the Coalition might want to split NBN Co:

– to create one or more entities that would be more attractive to private investors due to their lower risk profiles and more certain returns;

– to allow benchmarking between NBN Cos to drive efficiency; and

– to promote competition between facilities based providers, either now or in the future.

Splitting NBN Co into one or more Metro Cos and Regional Cos would recognise that the metropolitan and regional NBN solutions will operate under fundamentally different economics. The intention would be for the metropolitan based businesses to be attractive to private investors at an earlier stage, while the regional business may require Government involvement and investment for a longer period.

In metropolitan Australia it would be possible to establish separate entities that are licensed to operate the NBN in different regions with different private sector equity investment (e.g. State by State). It is these regions where fixed network platforms will be the dominant solution, HFC, FTTN and FTTP. It is also in these regions where there is the greatest need to access Telstra facilities. In cities backhaul is not an issue, as there is considerable competitive fibre.

It is more logical for the wholly government owned NBN Co to focus on those parts of an NBN that the private sector will not deliver or has failed to deliver by a defined date. Deficit regions offer a much more sensible case for government intervention based on market failure. This would inevitably be rural and remote Australia. These regions will also encompass the fixed wireless and satellite solutions. There is also a need to consider backhaul in the overall network equation in regional Australia.

It is also possible that a Regional Co could introduce private capital more quickly. The more likely technologies for regional Australia, fixed wireless and satellite, do not require substantial renegotiation with Telstra and Optus. The regulatory and competitive risk issues are lower and the most critical issue is assessing and setting any government subsidy that may be necessary. The fixed wireless network also has a number of synergies with the mobile cellular networks in regional Australia. Fixed wireless may be able to use the same towers and backhaul and integrating the services may be attractive to consumers.

Another benefit of having more than one entity is that it is possible to benchmark their performance against each other. This is a tool to facilitate regulation as the regulator will be assessing a number of different entities and able to compare the information and performance of each. This makes it easier for the regulator to identify inefficiencies and ensure optimal settings.

Nevertheless, some significant issues would need to be considered and addressed before the Coalition could consider splitting NBN Co:

– RSPs' willingness to deal with more than one operator – especially if one Metro Co represents a significant proportion of the opportunity.

– The potential for Regional Co subsidies to be 'on-budget' expense items.

– Wholesale pricing levels and/or variations between Metro Co and Regional Co.

– The threat, or perceived threat, of a divergence in terms of innovation or service levels between Metro Co and Regional Co.

– Whether different NBN Cos would be able to compete with each other in the future – given the Coalition's dislike of 'regional monopolies'.

– Whether private sector funding would be attracted to a Metro Co given ongoing regulatory and/or political uncertainty.

7.8_Listed Net Co (including a Telstra demerger) – ASX listing

A demerger of Telstra's customer access network assets is another means of achieving the structural separation of Telstra. If Telstra's access network could be demerged from its retail operations to create an open access wholesale network, it would be incentivised to offer broadband in the most cost effective method possible, and would have no conflicts in allowing wholesale access to its network.

An elegant solution would be for all Telstra's copper local loop, HFC network and customer access network ducts and associated facilities, to become assets of the relevant NBN entities. Telstra's shareholders could hold equity in those entities, but Telstra could not be allowed to control them.

Telstra has already accepted that it must transfer effective control and use of these assets to NBN Co through the preferential use rights it has granted in the Telstra Definitive Agreements. In one view the transfer of these assets is not a large strategic step. However, the alternate view is that this is a heartland issue for Telstra with strategic, accounting and workforce implications. If Telstra is opposed to this solution it would be complex and time consuming to resolve. It would also result in a listed entity with public shareholders, which is probably not suitable until the NBN projects are mature.

A demerger would be extremely complex, involving not just network assets, but also people, platforms and products. In New Zealand, the Chorus demerger effectively consumed the management team's attention for two years.

Accordingly, we believe this is more likely to await proof of concept and a lowering of Telstra's resistance to a demerger. It may be that the NBN Metro Co and NBN Regional Co initially operate under the second option through the allocation of capacity on the Telstra HFC network and sub loops. However, at some date in the future the NBN entities could consider acquiring those assets in return for the issue of equity to Telstra shareholders and a listing of the NBN entities on the ASX. Alternatively, this step may not be required.

7.9_Potential private sector investors

There are two important policy objectives that the Coalition will want to achieve: firstly to attract private sector investment to reduce the strain on public sector financing; and secondly, to avoid retail telecommunications service providers being in a position of control because of the impact this could have on competition. With this in mind the potential private sector debt and equity investors in NBN Co are likely to be:

– Australian and international banks.

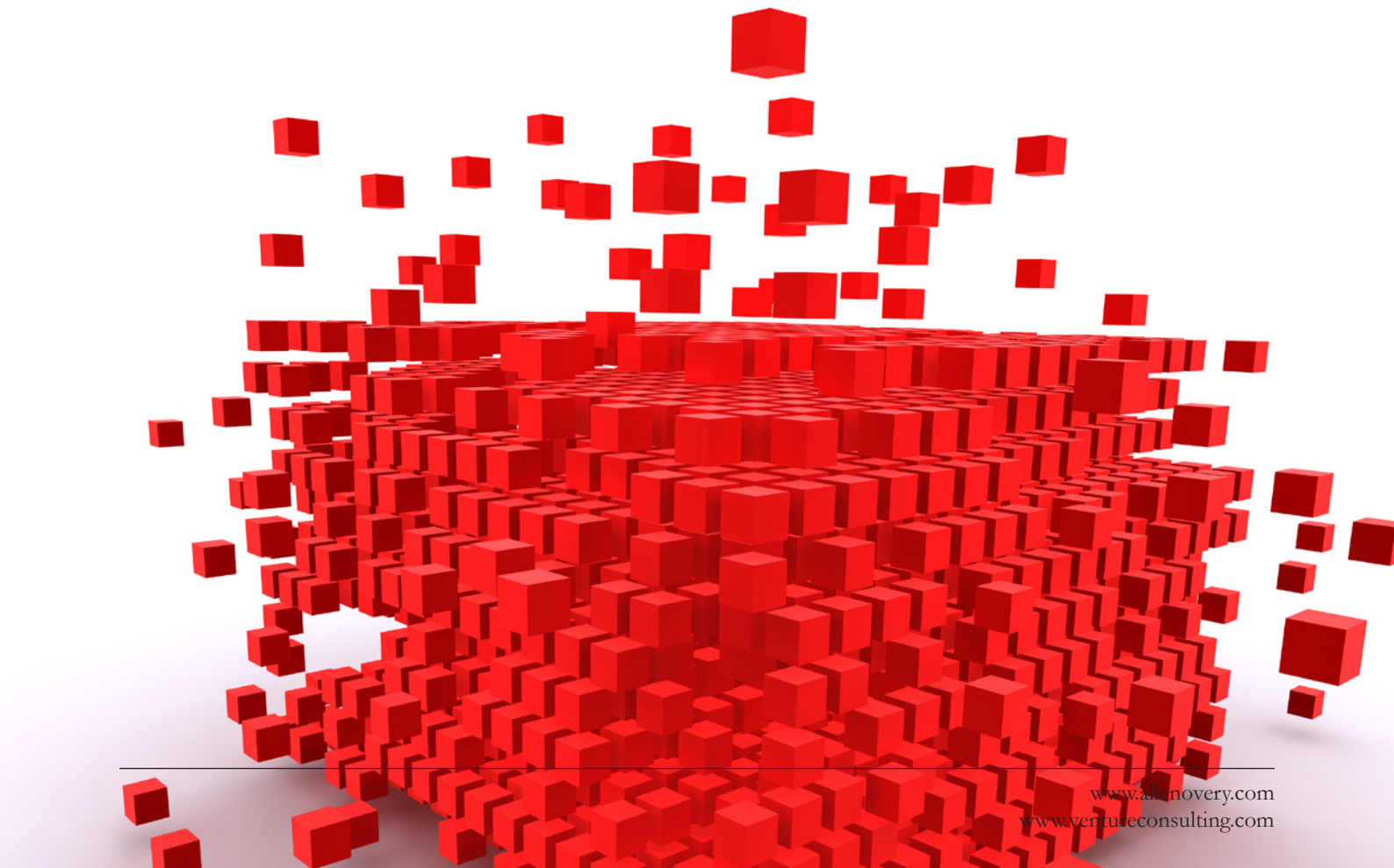
– Domestic telecommunications carriers.

– International carriers with a focus on NBN operation and management.

– Global infrastructure investors.

– Public market shareholders.

– Special investor classes with a demand for particular investment classes such as securitisation.



7.10_Options for debt financing

As we have outlined above, the existing NBN Co business plan assumes private sector debt financing from 2015. This plan would comprise one of the most significant syndicated loan programmes in Australia from 2015 to 2021. It would presumably involve all of the major Australian domestic banks and a number of international banks (or international banks would participate in the secondary market).

A government guaranteed facility would find ready acceptance and low interest rates. However, that is hardly testing the veracity of the project in the private sector. But there is little prospect of attracting private sector debt on a limited recourse basis before the 2013 Federal Election or at any time that there is a significant risk of the project changing course.

Once a new project is defined and there is stability around policy, costing and structure the NBN should readily be able to attract the support of a syndicated debt facility. Political risk will have been reduced, the project cost will be lower and the overall economics better and the projects will have been structured for private sector equity

7.11_The carriers as investors and the case for asset for equity swaps

The Coalition is likely to welcome telecommunications industry equity as bringing operational knowledge and experience in the local market. However, it would be problematic if any domestic carrier held a controlling position in any NBN entity. If the relevant capital were to come from Telstra, then it would again control the customer access network and the other carriers would object strongly.

In the past, groups of carriers have proposed to bid for and operate metropolitan NBNs (e.g. the 'G9' or 'Terria' bids by a coalition of competitive carriers in 2005 to 2008). However, at a time when retail carriers have a wide variety of needs to upgrade aspects of their intelligent network systems, committing all of their available capital to a wholesale local broadband network is probably not a high priority. Some of them may see themselves as investors, particularly if they have other roles in the construction and operation of the networks. However, most will see themselves solely as customers and a minor equity position in a large project will have little attraction.

While an asset for equity swap would be ideal for the Federal Government, we would not expect Telstra and Optus to trade the cash consideration in their existing deals for equity in an entity they do not control. In the absence of another strategic outcome we believe that the major carriers would be unlikely to exchange assets for equity, at least until an NBN entity is closer to a listing and the equity will have liquidity.

The regional wireless network may be an exception. Optus has shown interest in this in the past through the Opel joint venture. The alignment with its mobile network in regional Australia may be attractive. Optus is also the only major domestic terrestrial carrier with a satellite fleet and the capacity to own and operate the NBN satellites.

While the days of significant new international carrier investments in Australia have passed, there are potentially carriers globally that have a strategic focus on NBN deployment. There will be interest if the opportunity is right. They see it is an opportunity in the global shift towards NBNs. While they are unlikely to be interested in Labor's model, some may see possibilities in a more economic structure. They would not want the equity investment to be passive and would presumably require an operations and management contract.

7.12_The case for attracting infrastructure investors

The domestic carriers would be unlikely to object to the equity participation of financial investors under the right regulatory conditions.

There is significant capital available globally for infrastructure assets with a stable long term yield that matches the return profile that these funds must deliver. The relevant investors are sovereign wealth funds, specialist infrastructure funds and pension funds. Australia's Future Fund is an example and, while it must make independent decisions to achieve its return objectives, appropriately structured NBN assets may well do so. Australian superannuation funds see value in infrastructure as an attractive asset class. A range of investment banks either have specialised funds or balance sheet capital that they will invest in these assets as part of a broader consortium that they will often also advise. These consortia will typically include, financial sponsors, builders and operators with skills in the relevant asset class.

In 2009 Canada's largest pension fund, CPPIB, acquired the then listed Macquarie Communications Infrastructure Group which owns communications infrastructure, including Broadcast Australia, the owner of most of Australia's shared broadcast tower infrastructure. More recently Ontario Teachers Pension Fund announced that it would be acquiring NextGen, the backbone telecommunications network owned by Leighton Holdings (that holds the RBSP contract with the Commonwealth). Construction companies are often participants in greenfield consortia where they also provide civil constructions services (which is how Leighton began the process that ultimately lead to it owning Nextgen). The NYSE listed Crown Castle owns communications towers in Australia and is a listed entity with a specific focus on certain classes of communications infrastructure. There is a range of other infrastructure funds with holdings in Australia in the transport (ports, roads and rail) and other sectors. Australia is an attractive market for these investors.

These are just local examples. Globally there are other cases of telecommunications network assets meeting the needs of these investors. It is an emerging sector for this asset class that has historically focused on more traditional physical infrastructure. They value stability of earnings more highly than telecommunications operators and a metropolitan NBN model with a clear remit and low regulatory and commercial risk may be very attractive to them. These investors would be an excellent fit with telecommunications operators as co-investors and customers. They have an incentive to drive efficiencies, but not to favour downstream retail service operations.

While these investors will demand a higher return than Government, it is not that much higher, and lower priced consumer services can still be delivered off the back of a lower cost structure and greater private sector efficiencies.

However, these investors will require a very stable business model and many would prefer to see operating performance before they invest. An NBN will look more attractive as a brownfield rather than a greenfield investment. While there is global interest in certain forms of greenfield infrastructure projects this is usually in an environment where revenues are clear because there are predictable off-take arrangements. Many of these investors will not be attracted to construction and revenue risk at an early stage of the project. Having said that, the initial Australian majority investors in Optus took these risks, although at a different phase of industry growth.

This suggests that this investor group is more likely to become involved late in the Coalition's first term or during a Coalition second term when the project is more mature. However they present a significant opportunity to raise pre-IPO capital and are an important evolutionary step towards a return of the NBN entities to public markets.

"While these investors will demand a higher return than Government, it is not that much higher, and lower priced consumer services can still be delivered off the back of a lower cost structure and greater private sector efficiencies."

7.13_An eventual IPO

There are other models that could be pursued to use private sector financing for a metropolitan NBN model. However, these options would require even greater stability and project maturity and would not be sensible in the short term.

An eventual IPO would have great appeal to the Federal Government as it would deliver an important asset to a diverse range of shareholders, including Australian institutional and retail investors. The NBN entities would have an identifiable and strong national brand coupled with predictable yields. In certain respects it would have parallels with Telstra.

The Federal Government has also wanted to stimulate the corporate retail bond market. The NBN's combination of brand and yield would have the potential to make a significant contribution to any emerging retail bond market.

We can assume that this will be the Coalition's long term goal, as it was a very long term goal for Labor. However, the Federal Government will want to ensure the stability of the NBN business model before exposing it to retail investors. If we look five to six years out towards the end of a second term Australia will be operating under different equity market conditions that should be more conducive to large scale IPOs. It is at this point that the NBN entities will have stable businesses with a predictable base case.

As outlined above, this option may also be combined with a Telstra demerger to establish a broad shareholder base immediately. We do not see that as plausible in the short term political environment. However, in the mid term, say late in a Coalition second term, this may have changed.

"An eventual IPO would have great appeal to the Federal Government as it would deliver an important asset to a diverse range of shareholders, including Australian institutional and retail investors."

7.14_Securitisation

To the extent that an NBN entity presents stable revenue streams from RSPs this may present a securitisation opportunity in the future. With appropriate structuring, securitisation could deliver a cheaper funding solution through the issuance of more highly rated debt, appealing to a more diverse range of investors. However, there would need to be considerable predictability of baseline revenue streams which would mean a stable competitive environment and regulatory conditions.

A securitisation vehicle could be used to attract wholesale investor capital across a wide base of investors. For example, the NSW Government is considering securitising its remaining gaming revenue stream and this has been done elsewhere in the world. This is a more complex, later stage model. We do not see this as an opportunity for some time. However, it is one of a variety of corporate finance techniques that could come up for consideration in the mid to long term.

7.15_Network build and management contracts

The Government could also consider tendering NBN Co responsibilities out to third parties. These management contracts could be issued on a Build Operate Transfer (**BOT**) basis.

This would reduce the size of NBN Co, hopefully allowing for greater efficiency. These infrastructure build and management contracts would be best allocated for different geographic areas of deployment, and for particular network technologies. The fixed-wireless, as well as the upgrade of HFC networks would be prime candidates. As for the fibre deployment, a number of management contracts, potentially divided geographically could be offered, as, with the exception of Telstra, there is unlikely to be a private operator large enough to operate the entire network.

The fixed wireless network for the current NBN already involves a turnkey network contract issued to Ericsson. Global equipment vendors would presumably be interested in BOT contracts. Global carriers with a focus on NBN deployments may also be interested in a BOT contract for elements of the network. Both groups offer the advantage of not being vertically integrated providers of retail services in Australia.

Network build and management contracts should not be a focus simply to seek to privatise these functions. It would need to be clear that they delivered additional efficiencies and cost savings over and above a deployment by NBN Co. With the exception of the fixed wireless network NBN Co has planned on the basis of a more traditional network where ownership and engineering control are often valued above cost savings. There is scope to re-examine some aspects of this equation in the overall NBN strategy.

Our industry discussions suggest that there is widespread support for NBN Co to focus on the provision of wholesale broadband access, including the definition and management of this product set and these customer relationships, while working with the private sector to outsource large components of the design, build, management and maintenance of the NBN networks. There is also agreement that such an approach could yield significant efficiencies versus the current model in which NBN Co is responsible for almost every aspect of the project's design and delivery.

Globally, incumbent operators have been responsible for building the vast majority of fibre access networks. Therefore, while the Coalition would object to Telstra's ownership of NBN infrastructure, it may consider what role Telstra may play in the design and build of the network. Arguably, Telstra is the best placed operator to efficiently build any FTTN component of the NBN, under contract to NBN Co. This creates an interesting additional component to the Coalition's renegotiation with Telstra.

7.16_Conclusions for a new ownership and financing model

The Coalition is committed to greater private sector participation in the NBN and is also keen to encourage facilities based competition. It is also clear that the NBN must be governed by appropriate open access provisions regardless of who owns it. However, the Coalition is unlikely to be strongly wedded to a particular ownership model.

Therefore, one option for an incoming Coalition government would be to invite expressions of interest from the private sector to garner the level of interest in NBN assets/ licences/management contracts. This could occur while the there was an independent review of the broad cost/benefit analysis. Indeed these processes need to be linked. The level of private interest would then inform the extent to which the Coalition seeks to 'privatise' the NBN at a later stage, subject to a suitable regulatory environment.

As a working model a Regional NBN Co and a Metro NBN Co is worthy of consideration (and possibly more than one). Separating their different economic models, technologies and levels of government involvement within an overall regulatory environment will assist in better matching financing with these businesses. However, we do not favour excessive fragmentation.

The existing HFC and copper local loop networks should be transferred to these operating entities (either through ownership or capacity allocation). To the extent this is achieved through an assets/ rights for equity swap this will lower overall cost to investors and maintain the engagement of Telstra and Optus with the operating entities. However, we expect both carriers to want to retain their current cash deals. Ideally the project entities should be in a position to achieve debt funding and private sector equity at an early stage. At a later stage there would be an option to look to public capital markets.

Ownership and investment may also be divorced from construction and operation. The Commonwealth could directly, or through the NBN Cos, award build and operate or simply management contracts to private sector entities, which would help reduce the inefficiencies inherent to a large scale monopoly.

8_Revising the deals with industry stakeholders

8.1_The Telstra Definitive Agreements

On 23 June 2011 Telstra entered into the Telstra Definitive Agreements with NBN Co and the Commonwealth that came into force on 7 March 2012, after the ACCC accepted Telstra's Structural Separation Undertaking. There are seven separate but interdependent agreements, which are each governed by an implementation deed.

The key commitments under the Definitive Agreements include:

– Telstra will progressively disconnect copper services and HFC broadband services that are provided to premises in the NBN fibre footprint as the NBN fibre network is rolled out.

– Telstra will be compensated up to $500 million (on a sliding scale basis) if the rollout is terminated or is very slow, although this compensation only applies if NBN Co has covered at least 20% of its fibre footprint.

– NBN Co is committing to key product features and prices in supplying Telstra with NBN Co's basic service offering on the NBN fibre network for a period of five years.

– Telstra will provide NBN Co with long-term access to a substantial percentage of its passive network infrastructure (including dark fibre links, exchange rack spaces and ducts), as well as initial access to lead-in conduits.

– The Commonwealth will implement a package of measures including.

  – Increased funding for Telstra's provision of the universal service.

  – Funding of $100 million over an eight year period, for the retraining of certain Telstra staff whose roles are currently linked to the operation of the Telstra copper network and the HFC network, or who would otherwise face redundancy as a result of the rollout of the NBN fibre network.

  – Arranging for NBN Co to conduct a public education campaign that informs end users about the nature and timing of the rollout of the NBN fibre network in their area.

– There is a guarantee by the Commonwealth in favour of Telstra in relation to NBN Co's payment and performance obligations under the Telstra Definitive Agreements.

In addition, the Government has made policy commitments to implement reforms to the Universal Service Obligation (**USO**), including the establishment of the Telecommunications Universal Service Management Agency (**TUSMA**), which is to assume regulatory responsibility for the USO as the NBN fibre network is rolled out and to pay Telstra to provide the USO services. The enabling legislation establishing TUSMA was passed on 21 March 2012.

For 20 years Telstra must exclusively use the NBN as the fixed line connection to premises in the NBN FTTP footprint. There are a number of exceptions to this network preference, including where Telstra provides point to point fibre services using Telstra fibre in operation, or fibre installed by Telstra in accordance with a right of first refusal process with NBN Co. Telstra may not promote wireless services as a substitute for fibre based services for 20 years, but otherwise remains free to compete in the market for the supply of wireless services.

These are enormously complex agreements, but at the risk of over simplification they can be broken down into three core areas:

– Telstra will receive progressive payments for switching off its copper and HFC customers in a serving area as the NBN FTTP network is switched on. This allows NBN Co to ensure it connects premises as it will become the only fixed line connection to the home.

– Telstra will provide facilities access to NBN Co to support the FTTP deployment in a manner that allows NBN Co to avoid the cost of duplicating these facilities or the difficulty of using the access regime to use them.

– A number of aspects of the regulatory regime that Telstra required.

8.2_The Optus Definitive Agreement

On 23 June 2011 Optus entered into an agreement with NBN Co for the migration of its HFC customers to the NBN. The total value of the agreement is estimated to be approximately $800 million on a post tax net present value basis. Optus and NBN Co expect that the initial migration of customers to NBN infrastructure will commence in 2014. The programme is expected to take up to four years. Optus will continue to supply services to customers using its HFC network until the NBN is built and customers have been migrated.

In broad terms the Optus Definitive Agreement provides for:

– The progressive migration of Optus customers to the NBN once the network is rolled out in an area and is ready to provide services to customers currently served by Optus' HFC network.

– Once migration is completed, Optus will progressively decommission the parts of the HFC network that do not provide ongoing support for mobile infrastructure and business customers.

– Optus has agreed to a fixed line network preference in favour of the NBN for residential and small business customers currently served by the Optus HFC network, with NBN Co to make progressive payments to Optus based on the actual number of customers that migrate from the Optus HFC network to the NBN.

– Optus must not further extend the coverage of the HFC network or grant any right or interest or permit any person to use, operate or provide any service over or using the HFC network after deactivation.

– Optus is prevented from conducting a marketing campaign for 15 years in respect of wireless data services targeted at retail customers within the HFC serving area, which is disparaging of the performance or functionality of the NBN but Optus remains free to compete in the market for the supply of wireless services.

– The Commonwealth Government is providing a separate guarantee to Optus to back NBN Co's obligations.

The Optus arrangements are simpler but, in broad terms, the Optus Definitive Agreement is similar to the Telstra Definitive Agreements in relation to the Telstra HFC network. However, importantly, the Optus arrangements provide for decommissioning while the Telstra HFC arrangements allow it to continue to operate its HFC network to support Foxtel pay television transmissions. This suggests that it may be a more logical step for Optus to convert its deal into a transfer of its HFC assets to relevant NBN entities.

8.3_Telstra's existing deal value

Both Telstra and Optus will presumably be open to altering the form of their deals, provided the value of them is the same. As the Telstra CEO David Thodey recently stated to The Australian, changing the form of the agreement is open to negotiation, but changing the value of the agreement is not.

Telstra will have modelled the net present value of a world with and without the NBN. We can assume that this involves many complex valuations, sensitivities, assumptions and scenarios with considerable ranges. However, we do know the broad themes of the output of the Telstra model for the purposes of putting the proposal to Telstra shareholders.

David Thodey has said the agreements and associated Government policy commitments were expected to provide Telstra approximately $11 billion in post-tax net present value over the life of the agreements comprising:

– $4 billion from disconnection payments and sale of lead-in conduits to NBN Co.

– $5 billion in infrastructure access payments.

– $0.7 billion from TUSMA services.

– $0.3 billion from housing estate fibre provision responsibilities.

– $1 billion for contractual commitments by the Commonwealth towards funding for retraining of Telstra staff, and migration of certain customers and services on-to the NBN Fibre Network, as well as costs Telstra will avoid due to the public education campaign undertaken by NBN Co.

The deal is expected to generate up to $3 billion in additional cash flow for Telstra over the next three years.[62]

The large value items are clearly linked to the NBN deployment. As NBN Co rolls out the NBN to each rollout region (approximately 3,000 premises per region), Telstra will disconnect standard copper-based customer access network services and broadband services on its HFC cable network (but not pay TV services) that are provided to premises in the NBN fibre footprint in that rollout region.

In broad terms, the disconnection must be completed within 18 months of NBN Co declaring that new region to be ready for service (which cannot happen until at least 90% of the premises in that rollout region are passed by NBN Co fibre). A separate regime (with different time frame for disconnection) applies to disconnection of special services provided over the copper customer access network.

Telstra is entitled to payment for disconnecting premises in the NBN fibre footprint in rollout regions as the NBN rolls out to those regions. This is based on various criteria including the number of lines to the premises disconnected, whether or not commercial services were provided on those

62. http://afr.com/p/technology/coalition_nbn_could_help_telstra_iifhDYL3Lgpx9OKvxKd4QN

lines (and if so, the types of service provided on those lines), the time at which the disconnection occurs, and in some cases, whether or not the premises have connected to the NBN.

If a permanent cessation of rollout or very slow rollout occurs, NBN Co will, subject to limited exceptions, compensate Telstra for it being left with a geographically dispersed network. This compensation is on a sliding scale to a maximum of $500 million, (if NBN Co's fibre rollout has reached 20% of NBN Co's current coverage target of 93% of premises in Australia) reducing to zero (if NBN Co's rollout has reached that current coverage target). Compensation is not payable if the rollout never reaches that 20% threshold.

As discussed above, it is unlikely that the NBN rollout will have reached this threshold by the time of the September 2013 Federal Election. Therefore the bulk of the Telstra payments are not committed if the fibre deployment ceases. At that time, Telstra will be bound to support and to be paid for an FTTP rollout (but only should one occur). Telstra does not have a guaranteed right to receive $11 billion, only a right to progressive payments if the rollout occurs.

"Therefore the bulk of the Telstra payments are not committed if the fibre deployment ceases. At that time, Telstra will be bound to support and to be paid for an FTTP rollout (but only should one occur). Telstra does not have a guaranteed right to receive $11 billion, only a right to progressive payments if the rollout occurs."

8.4_Telstra's position on a Coalition Government

A successfully negotiated relationship with Telstra is integral to the success of any new Coalition NBN policy, without Telstra's agreement, devising a new NBN would be difficult and deployment would be slower. This gives Telstra significant bargaining power, as was evidenced in the last round of negotiations.

At an investor briefing on 19 April 2012 David Thodey stated that Telstra is in a strong position in relation to the NBN, despite any potential future change of government, commenting that a change to a Coalition government "*could be seen as advantageous*". Thodey has stated that '*should [the Coalition] want to renegotiate that contract my door is always open and I will negotiate in the interests of creating value for shareholders*'.[63]

Thodey predicted that the existing deal with NBN Co would not change a great deal under a Coalition Government, and may in fact be delivered sooner, due to the quicker time frame for rolling out fibre to the node, instead of fibre to the home, as the Coalition has proposed. He was confident that Telstra had enough protection in its contracts to realise their value, despite the fact that fresh negotiations would be required.

In this context, it is critical to recognise that an accelerated transition is not necessarily optimal for Telstra's shareholders. It would bring forward payments to Telstra under the deal, but it will also shorten the time over which Telstra earns healthy returns from its copper. This is important, because it implies that if the Coalition wished to accelerate the deployment, Telstra could regard this as a cost.

63. http://www.theaustralian.com.au/national-affairs/nbn-rival-has-merits-telstra-ceo-david-thodey/story-fn59niix-1226333827288

8.5_What has to change in the Telstra deal under a Coalition Government

The deal NBN Co completed with Telstra was designed to implement Federal Government policy at the time it was agreed, not to provide alternatives for the future.

"Our deal with Telstra includes a long-term lease for purchase of their pits, pipes and conduits to run our fibre through, we concluded this would be more cost efficient then digging our own trenches. We didn't buy Telstra's copper wires because our instructions were to use fibre"[64]

From the Coalition's perspective, a basic failing of the existing Telstra agreements is that they are designed for one option only, FTTP. In its absolute commitment to an FTTP policy, Labor arguably missed the opportunity to provide options for alternative technology solutions. The difficulty of concluding the agreements may well have meant that negotiating such alternatives was unrealistic and to do so may have been seen as indicating a lack of faith in the FTTP solution. Whatever the justification, it means that the Coalition will need to bring Telstra back to the table if it wishes to make any substantive changes to the current NBN arrangements.

Material aspects of the existing agreements may remain relevant:

– The ability to support an FTTP rollout should not be lost, as there will be a number of fibre serving areas built out and some metropolitan areas may justify FTTP connections. However, the scale of the FTTP network will be substantially reduced.

– Access to facilities above the node will remain relevant as fibre will be deployed to the node in many areas.

– The agreed regulatory settings may not need to be altered in a manner that is fundamental to Telstra value.

"In its absolute commitment to an FTTP policy, Labor arguably missed the opportunity to provide options for alternative technology solutions."

64. Harrison Young, Chairman, NBN Co – speech given at CEDA Event in Sydney on 10 September 2012 P4

However, a shift to FTTN and optimising use of the existing HFC network does require change to the Telstra arrangements.

– The existing agreements are focused on duct access in the local loop to lay fibre to premises, and access to Telstra's copper sub loop below the node is not countenanced.

– An FTTN solution requires duct access to lay fibre to the node, but then the ability to cutover all the sub loop connections at the node, the installation of electronics at the node and access to the copper between the node and the premise is required.

– Cutting over all of the copper local sub loops at the node at the one time will be important to economic efficiency. This cutover requires the switch off of all the Telstra copper local loop direct connections at a node.

– The current payments for the HFC network are to restrict its use to pay television transmission, while a Coalition plan would require that this network is upgraded and used for broadband access.

Certain of these revised dynamics will only apply where FTTN is to replace FTTP. To the extent that the Coalition expands the satellite and wireless broadband networks in regional Australia, they will entirely bypass Telstra copper local loop infrastructure. The only remaining issue is whether the Telstra infrastructure is left to operate in parallel and compete with the NBN.

The FTTN plan will still need to resolve how voice services will be provided: through copper back to the exchange or through an IP based solution over VDSL? The former would require a more complex deal or for Telstra to provide voice services, neither of which is likely to be attractive to the Coalition. Therefore, maintaining a hard cutover of services is a more likely outcome.

Telstra may well analyse its compensation for an earlier hard cut over, given that it will make returns on its copper for a shorter period of time. It is also likely to seek additional compensation if the ownership of its HFC network changes. The Coaliton will be very wary of increasing the value of the Telstra deal. This has the potential to create an impasse, which could lead to delay.

8.6_The strategic impact of risk and delay

Certain practicalities need to be factored into an assessment in deciding on the type of deal to be done with Telstra. Australia has an extensive access regime for telecommunications services and facilities. NBN Co is a carrier and can therefore access many of the Telstra services and facilities it requires at a regulated price under the access regime. Its shareholder, the Commonwealth, is able to change these regimes to enhance the ability of NBN Co to deploy its network. The Commonwealth also controls the licence terms applicable to carriers. This is a significant risk for Telstra.

However, as a practical matter, if Telstra is an unwilling access provider it is very difficult to deploy a massive integrated rollout where time is critical and there are complex interdependencies between various components. So at one level, the Commonwealth is able to regulate Telstra if it is unwilling to assist the rollout of the NBN, while knowing that in the absence of clear incentives. Telstra can be very disruptive. This balance makes an appropriate deal with Telstra important to project management.

There are also potentially unresolved legal debates between Telstra and the Commonwealth that introduce a level of volatility to a "no-deal" scenario. In 2008, Telstra sought to challenge the application of the access regime to its unbundled local loop under section 51(xxxi) of the Constitution, which renders a law invalid if it provides for the acquisition of property on unjust terms.[65] Telstra lost those proceedings on the basis that, although Telstra owned and maintained its network, its ownership of the relevant network assets was always subject to a statutory access regime. However, this case focused on loop by loop customer churn, it was not necessary to decide on a fact scenario in which all of the copper sub loops were cutover at the node (which is necessary for FTTN deployment).

One of the early reasons cited by Stephen Conroy for the selection of FTTP, was that it made irrelevant the need to access the copper sub loop and removed any risk that Telstra may seek to pursue another High Court challenge. The risk of such a proceeding is potentially in the time required and the possibility that it would disrupt FTTN deployment and private sector financing. Eliminating this risk is another reason for engagement with Telstra.

65. Telstra Corporation Limited v The Commonwealth [2008] HCA 7 (6 March 2008)

8.7_A new Telstra deal

Timing is a sensitive issue for the NBN as much of the Coalition criticism has been directed at the current NBN only being completed in 2021. The Coalition would not want the types of extended delays seen in Telstra's original negotiations with NBN Co. Many commentators have suggested that a new Telstra deal will take as long as the first and maybe longer as Telstra will not give up the $11 billion that it has. Malcolm Turnbull has suggested that it should not take very long. So what should we expect?

As we have outlined above, Telstra is not losing an $11 billion dollar benefit, it is not guaranteed these payments if the FTTP ceases. It is simply changing the form of that arrangement. A change in the deal will simply result in a comparison of the two alternatives and confirmation of preservation of shareholder value. Telstra knows the net present value of its current deal and it will want to ensure a deal with a Coalition Federal Government is just as beneficial.

There should not be as many ancillary issues that could delay a new commercial agreement. Having already made strategic decisions regarding losing its market power in the local loop, changing its business strategy and ensuring shareholder support, Telstra has addressed most of its strategic concerns. A Coalition policy requires changes in implementation but not fundamental changes in the strategic direction of Telstra.

The ACCC has already completed its review and approved the existing deal with Telstra, which had a more fundamental impact on competition (as Labor policy involves moving to the exclusive use of FTTP in fibre serving areas, the closure of competing broadband networks and restrictions on promoting wireless). Overall it is a less significant regulatory proposition.

Accordingly, we do not believe that striking a new deal with Telstra will take anywhere near as long as the original deal, not if it has overall commercial logic. It is entirely possible that the revised Telstra agreements can be renegotiated in parallel with the Coalition's independent review. There will be a need for parallel activity, rather than the sequential timeline that delayed the initial fibre deployment, if a Coalition Government is to achieve results during a first term in office.

8.8_Negotiate sub loop access with Telstra

At a minimum the NBN operating entities need to secure the exclusive use of Telstra's sub loop. To achieve this outcome, a new national access agreement would need to be negotiated with Telstra.

The policy necessity now is that, instead of Telstra granting access to its ducts from node to customer premises under the current arrangements, it must grant access to its sub loop. It is essential that Telstra agrees to cutover all of its sub loops at the node to the NBN and that this access is at a reasonable cost based price. The ACCC has spent many years reviewing what that price should be. If this can be achieved under the access regime, then Telstra can be brought to the table on sub loop access.

Telstra has already agreed to give up its customer connection under the existing deal. Once the FTTP network is deployed the copper network has no value. Indeed it is likely to be removed as the copper loop needs to be maintained and the copper itself has value. It is not a major strategic step for Telstra to change the deal to allow access to the sub loop or even to sell the sub loop if it receives similar overall payments. If NBN Co took on the maintenance of the sub loop this would not be an added cost to Telstra.

This is important as even if sub loop access/ownership transfer can be renegotiated within the existing deal then NBN Co's resources could be redirected quickly after the election to FTTN deployment in urban areas not covered by the HFC networks. Time would not be lost.

8.9_The HFC networks

The current arrangements between Telstra and NBN Co prohibit the use of Telstra's HFC network other than for the carriage of pay television signals. It is not a great leap to change that arrangement to one in which an NBN entity has the exclusive use of the HFC network (other than for pay television transmission in the case of Telstra).

However, it may not even be necessary to receive access to both HFC networks. The Telstra and Optus networks have a significant degree of overlap and two networks would not be required in the same areas. Optus may be more willing to transfer the ownership of its HFC network in lieu of shutting it down. If Telstra is unwilling, the Optus HFC network could become the core of an HFC broadband solution. Provided that the Telstra deal still applies to it receiving payments for restricting the use of its HFC network to pay television, access to the Telstra HFC network may not be necessary. If this is not the case the Government could possibly restrict the use of the Telstra HFC network through legislation and licence conditions to pay television transmission.

In summary, it may be possible to leave the Telstra deal intact as far as its HFC network is concerned, have NBN Co acquire the Optus HFC network for a similar price to the existing Optus deal and then upgrade that network to provide a high bandwidth solution for its coverage area.

"If Telstra is unwilling, the Optus HFC network could become the core of an HFC broadband solution."

8.10_Conclusions for a new Telstra deal

In summary, the Coalition would need to vary the existing Telstra and Optus agreements in the following manner:

– Both Telstra and Optus will want to achieve comparable shareholder value, but should be prepared to renegotiate within this envelope.

– Access to Telstra's ducts and other facilities above the node would continue to be necessary. The ability to deploy FTTP would also still be attractive, but at a vastly reduced scale.

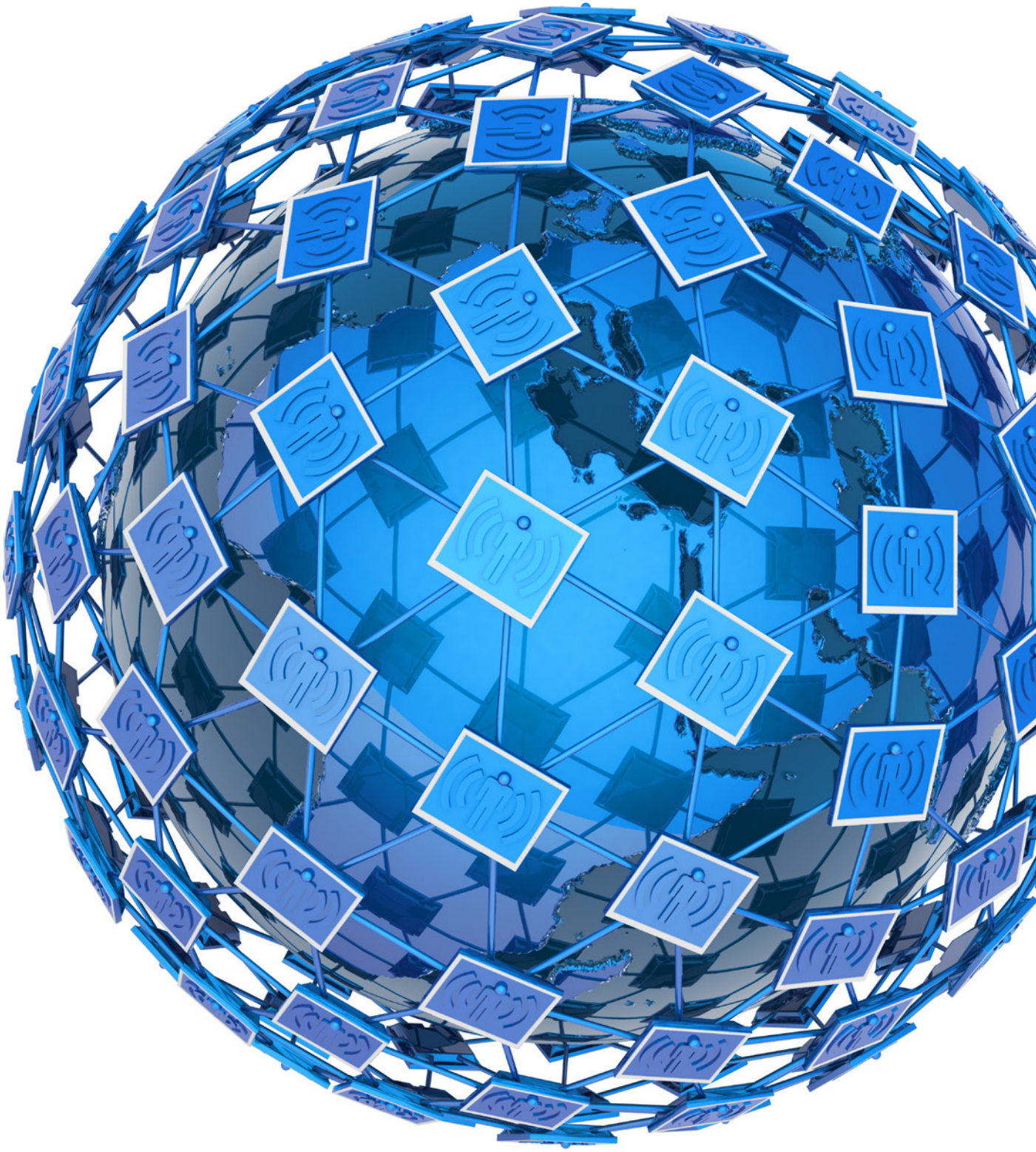
– A deal in which Telstra is required to shut down its entire copper local loop and offer up its entire local loop duct system would now become a deal in which duct access is offered to the node and access to the copper sub loop is provided below the node. This is a different deal, but perhaps not one with a significantly different impact on Telstra.

– Rather than Telstra restricting its HFC network to pay television and Optus shutting its HFC network down, NBN Co could acquire the Optus HFC network and upgrade it to provide broadband in its coverage areas and leave the Telstra HFC arrangements in place. Again, this is a different deal, but not one with a more significant impact.

– To the extent that the satellite and wireless networks are expanded there will be less need to access Telstra facilities.

– This would leave the Commonwealth with the significant cost of these deals, but still an overall project with substantial savings.

Of course this analysis makes it seem very logical and ignores the impact of negotiating strategy. However, while it will certainly not be this simple, it is also certainly entirely possible.



Appendices

Appendix 1_National Broadband Models (International Examples)

Exhibit 11: Selected international NBN models

	NBN (Aust.)	UFB (NZ)	NGNBN (Singapore)	NBN (Malaysia)	SFA (UK)
Estimated total cost	AUD37.4 billion	NZD1.5 billion (AUD1.2 billion)	SGD750 million (AUD586 million)	MYR11.3 billion (AUD3.5 billion)	GBP2.5 billion (AUD 3.8 billion)
Estimated total cost per capita	AUD1655	NZD285 (AUD226)	SGD144 (AUD113)	MYR390 (AUD122)	GBP143 (AUD219)
Business Model	Government operated and funded	Consortium of incumbent operators, publicly funded	Consortium of incumbent operators, publicly funded	Public-Private Partnership with Telekom Malaysia (20% Govt., 80% TM)	Privately funded by BT Openreach
Population density (people per square km)	3	17	7257	86	256
Length of build project	~11 years	~8 years	~4 years	18 months	~3 years
% of premises to be connected by fibre	93% (FTTP)	75% (FTTP)	95% (FTTP)	33% (FTTP)	66% (FTTN)

Appendix 2 – Key Constraints

Though NBN deployment has not kept pace with targets, it has nonetheless been deployed to 39,000 premises, of which 3,500 are connected, and by the time of the next Federal Election (likely around August – September 2013) 12% of premises will have been passed.

In line with this, as deployment has already commenced, some contractors have committed obligations, which reduces the scope of the Coalition to reduce the total cost of their own NBN.

Exhibit 12: Areas of active NBN service[66]

66. NBN Co website

Exhibit 13: Areas of active NBN service (A), areas where construction has commenced (C) and areas where construction is to commence within one year (1):[67]

67. NBN Co website

Exhibit 14: Executed contracts[68]

Company:	Contract:	Region:	Signed:	Length:	Cost:
Consortium of Cisco, EMC & VMware	Data centre computing platform		Nov 2010		$9.8 million
Ericsson	Fixed wireless build		June 2011	Ten years	$1.1 billion
Silcar	Construction	QLD, NSW, ACT	June 2011	Two years,	Up to $380 million
Transfield Services	Construction	VIC	Sept 2011	Two years	Up to $133 million
Syntheo	Construction	WA	Sept 2011	Two years	Up to $174 million
Syntheo	Construction	SA, NT	Nov 2011	Two years	Up to $141 million)
Visionstream	Detailed designed, construction and maintenance	TAS	March 2012	Four years	Up to $300 million
Space Systems/ Loral	Build 2 Ka-band satellites		July 2012	Satellite due to launch in 2015	$620 million
ViaSat	Satellite antennae for ground stations, satellite dishes for homes, infrastructure for NBN data centres		July 2012	Construction due to be completed by 2015	$210 million
Cisco	Equipment to support the NBN's national connectivity network		Sept 2012	Five years	$38 million
Silcar	Network installation and maintenance	QLD, NSW, ACT	Sept 2012	Two years	$78 million
Service Stream	Network installation and maintenance	VIC, WA, NT, SA	Sept 2012	Two years	$64 million
Perkins	4 satellite transmission centres	WA	Oct 2012	Construction due to be completed in 2015	$180 million
Cockram Corporation	6 satellite transmission centres	NSW, QLD, SA, TAS	Oct 2012		

68. Venture Consulting Research, primarily from NBN Co website

Appendix 3 – The Authors

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Justin Jameson

Justin Jameson is the CEO and founder of Venture Consulting. Justin has been a strategy consultant for 20 years, focusing on the media, telecommunications and digital industries for his whole career. He was previously the co-head of the Asia Pacific region for Spectrum Value Partners. He has worked in Australia for eight years and prior to that was based in Singapore and London.

Justin advised the AUSAlliance consortium (AUSTAR, Unwired and Soul) in its regional broadband bid under the previous Coalition Government. Following the election, Justin advised Optus/Terria and the G9 during their bids under the original NBN proposals. Over the last three years, Justin has advised Vector Ltd on its telecommunication strategy, including its participation in the Ultrafast Fibre Broadband proposal (New Zealand's NBN), its bid under the Labour policy that preceded it and Vector's own fibre business plan prior to that. He has also advised Australian, New Zealand and Singapore clients on the likely impact of their respective NBNs on their businesses. Justin has an excellent knowledge of the commercial constructs underpinning Government funded fibre across the region and understands how this is likely to impact the respective telecommunications and media market participants.

Venture Consulting

Venture Consulting is the region's leading independent media, telecommunications and digital strategy consultancy firm. The firm was formed in January 2009, following a local management buyout of the Sydney office of global management consultancy Spectrum Value Partners. Venture Consulting's head office is in Sydney and it has offices in Melbourne Singapore. Venture Consulting delivers corporate and commercial strategy, market entry planning and support, transaction support, bid management, operational improvement, policy and regulatory advice, rights management, strategic technology decision support and strategy implementation. Venture Consulting's clients include leading media players and telecoms operators, new market entrants, policy makers, regulators, vendors and financiers.

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He has worked in the Australian and Asia Pacific telecommunications sectors for 20 years, beginning with the Optus second carrier bid and the establishment of Optus Vision as Australia's first HFC network. He was also closely involved in the development and restructuring of the Hong Kong communications sector over a 10 year period as well as a range of other Asian markets.

For three years until early 2009 Michael advised the group of carriers that led the private sector bidding process for the original NBN proposal (the G9 carriers and Terria). He has an extensive understanding of the commercial and regulatory models underpinning the NBN.

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As an international law firm, our overriding goal is to work alongside our clients as a trusted adviser, providing the support they need to thrive in this dynamic economic environment. As our clients have moved to maximise commercial opportunities in new markets, so have we. We continue to invest in a growing network of international offices that covers Europe, Asia Pacific, the Middle East, the Americas and most recently Africa.

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Greece	Singapore	**Africa**	
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Italy/Italia	Vietnam		
Luxembourg			
Netherlands			
Poland			
Romania			
Russia			
Slovakia			
Spain/Espana			
Turkey			
United Kingdom			

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However, the views in this paper are our own and only reflect feedback with which we agree.

Disclaimers

The views in this paper have been collected to encourage public debate about an important public policy issue. They are a contribution to the policy debate by the authors and are not necessarily the views of Allen & Overy or Venture Consulting. The information in this paper does not comprise any advice by the authors or Allen & Overy or Venture Consulting and should not be relied on.

The authors are not engaged by any client in relation to current NBN policy. However, we have advised on previous iterations of NBN policy in Australia. We have also provided NBN related advice to various commercial parties over the last three years.

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