



Corporate Plan

2012–15

6 August 2012

Legal Notice

Introduction

This Corporate Plan has been prepared by NBN Co Limited (**NBN Co**) for its shareholder ministers, Senator the Hon Penny Wong and Senator the Hon Stephen Conroy (**Shareholder Ministers**) as required by the *Commonwealth Authorities and Companies Act 1997* (Cth), the *Commonwealth Authorities and Companies Regulations 1997* (Cth), the Commonwealth Government Business Enterprise Governance and Oversight Guidelines (October 2011) (**GBE Guidelines**) and Australian Government policy as communicated to NBN Co by the Commonwealth from time to time.

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Date

This Corporate Plan is dated 6 August 2012.

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1 EXECUTIVE SUMMARY

1.1 Introduction to the 2012-15 Corporate Plan

This Corporate Plan (**2012-15 Corporate Plan** or the **Plan**) sets out the key objectives and priorities for NBN Co Limited (**NBN Co**) for the 3 years from 1 July, 2012 to 30 June, 2015. The 2012-15 Corporate Plan has been prepared in accordance with the requirements of the *Commonwealth Authorities and Companies Act 1997 (Cth)* and *Commonwealth Government Business Enterprise Governance and Oversight Guidelines* (October 2011).

NBN Co submitted an initial Corporate Plan to the shareholder ministers responsible for NBN Co (**Shareholder Ministers**) on 17 December 2010 for the financial years 2011 – 2013 (the **2011-13 Corporate Plan**). The 2012-15 Corporate Plan now supersedes the initial 2011-13 Corporate Plan.

The 2012-15 Corporate Plan reports on:

- NBN Co's current status;
- NBN Co's current organisation aimed at addressing the challenge of large-scale rollout of the National Broadband Network (**NBN**);
- Regulatory issues and policy decisions following changes to the legislative and regulatory framework;
- Deployment forecasts for the period FY2012 – FY2015;
- Specific assumptions concerning the rollout in relation to New Developments, Customer Connection, Multi-Dwelling cabling and network design trade-offs;
- Market and product developments, with expected consequences on Revenues; and
- Financial performance indicators and funding requirements.

The 2012-15 Corporate Plan incorporates the financial impact of the definitive agreements between Telstra Corporation Limited (**Telstra**) and NBN Co (**Telstra Definitive Agreements**) and the agreement between Singtel Optus Pty Ltd and other Optus entities (**Optus**) and NBN Co (**Optus HFC Agreement**), both executed on 23 June 2011.

The Telstra Definitive Agreements supersede the financial heads of agreement that NBN Co entered into with Telstra on 20 June 2010 (**Financial Heads of Agreement**), which was a precursor to the Telstra Definitive Agreements and which was reflected in the 2011-13 Corporate Plan. All conditions precedent to the Telstra Definitive Agreements have now been satisfied and the Telstra Definitive Agreements became wholly unconditional on 7 March 2012.

The Optus HFC Agreement was entered into after the 2011-13 Corporate Plan and the financial impact was therefore not included in that plan. On 19 July 2012, the ACCC published a final determination granting authorisation of the Optus HFC Agreement. All conditions precedent to the Optus HFC Agreement have now been satisfied and the agreement is wholly unconditional.

1.2 Summary Objectives

NBN Co's primary objectives in the years leading to 30 June 2015 will be to:

- Comply with the Statement of Expectations (**SOE**) provided by the Shareholder Ministers;
- Meet the financial forecasts set out in Section 9, *Financial Forecasts*; and
- Deliver on the following outcomes:
 - Complete the Transit network in FY2015 (being the deployment of Dark Fibre connectivity, 121 Points of Interconnect (**POIs**) and more than 650 Fibre Access Nodes (**FANs**); the remaining FANs, being estimated at more than 400, to be built over the FY2016 – FY2021 period);
 - Implement the Telstra Definitive Agreements;
 - Implement the Optus HFC Agreement;
 - Achieve the premises passed and connected forecasts set out in Section 5.1, *Overview*. This includes an objective of Construction Commenced or Completed for approximately 758,000 Fibre premises by 31 December 2012, in line with NBN Co's '12 month Fibre Rollout Schedule'¹ and an objective of Construction Commenced or Completed for approximately 3.5 million Fibre premises by 30 June 2015, in line with NBN Co's '3 year Fibre Rollout Plan'²;
 - Launch two satellites with commercial operations starting in mid-2015; and
 - Rollout the Fixed Wireless network to provide access services in regions not covered by NBN Co's Satellite and Fibre networks.

¹ http://www.minister.dbcde.gov.au/media/media_releases/2012/022.

² <http://www.nbnco.com.au/assets/media-releases/2012/three-year-national-release-29-03-12.pdf>.

1.3 2012-15 Corporate Plan Highlights

The 2012-15 Corporate Plan incorporates the impact of changes and developments in the delivery of the National Broadband Network since the 2011-13 Corporate Plan. The Plan also reflects the experience that NBN Co has gained in the field over the past 20 months, as well as the outcome of commercial agreements that now underpin many of the major cost assumptions in the 2012-15 Corporate Plan.

Despite a number of amendments to the project assumptions, settings and goals, including a 9 month delay in the commencement of the Telstra Definitive Agreements and the inclusion of the consequences of the Optus HFC Agreement in the scope of the forecasts, NBN Co's underlying business case remains fundamentally unchanged from that outlined in the 2011-13 Corporate Plan.

- Wholesale broadband prices are projected to fall over time in both real and nominal terms;
- The Internal Rate of Return (**IRR**) remains above 7% per annum;
- Total forecast Capital Expenditure to end of the Fibre Construction period increased by 3.9%;
- Construction Commenced or Completed for approximately 758,000 Fibre premises by December 2012; and
- Fibre Construction period extended by 6 months despite 9 month delay in Commencement Date.

The forecasts in the 2012-15 Corporate Plan are informed by contracts executed for the Fibre, Fixed Wireless, Satellite and Transit network rollouts, including construction and equipment contracts.

The 2012-15 Corporate Plan forecasts a net increase in Capital Expenditure and Operating Expenditure during the Fibre network Construction period to FY2021, due to:

- The inclusion of the Optus HFC Agreement in the scope of the forecasts is projected to deliver additional End-Users and Revenues to NBN Co;
- The introduction of anticipated technology upgrades for both Fixed Wireless and Long Term Satellite Service (**LTSS**) End-Users in rural and remote Australia;
- The implementation of the Government's New Developments policy, the implications of which were only partially understood at the time of the 2011-13 Corporate Plan; and
- The move by NBN Co to use a more efficient 'Build Drop' method for customer connections.

These changes have long term benefits for the implementation of the Government's broad objectives for the National Broadband Network as well as for NBN Co's business case. The higher level of connections and revenues beyond FY2021 results in higher projected cash flows, which increase the forecast return (IRR) from 7% to 7.1% over the 30 year period used for the NBN Co financial model (from 1 July 2010 to 30 June 2040).

The financial highlights from the 2012-15 Corporate Plan are summarised in Exhibit 1-1.

Exhibit 1-1: Comparison of 2011-13 Corporate Plan vs. 2012-15 Corporate Plan for the Fibre Network Construction Period (\$ Billion) (Nominal Dollars)

Major Assumptions and Forecast Financial Metrics	2011-13 Corporate Plan	2012-15 Corporate Plan	Change
Forecast Return (30 year Unlevered IRR)	7.0%	7.1%	+0.1%
Capital Expenditure (to End Construction)	\$35.9 billion (to Dec'20)	\$37.4 billion (to Jun'21)	+\$1.4 billion
Revenues (to FY2021)	\$23.7 billion	\$23.1 billion	\$(0.6) billion
Operating Expenditure (to FY2021)	\$23.2 billion	\$26.4 billion	+\$3.2 billion

Source: NBN Co

Note: IRR: Internal Rate of Return. All numbers rounded to 1 decimal point.

1.4 Moving from the 2011-13 Corporate Plan to 2012-15 Corporate Plan

The 2012-15 Corporate Plan incorporates the following major changes when compared to the 2011-13 Corporate Plan:

- A. Changes in the scope of the overall project resulting from:
- The inclusion of the Optus HFC Agreement in the Corporate Plan forecasts; and
 - The latest assessment of the impact of implementing a number of policy requirements, including the full impact of the New Developments policy announced in December 2010 and revised in June 2011; the impact of the 121 semi-distributed Points of Interconnect (**Polis**) decision; and the requirement for NBN Co to rollout the Fibre network in all the current Telstra Band³ 1 and Band 2 copper exchanges.
- B. Other changes since the 2011-13 Corporate Plan resulting from:
- The impact of the delayed Commencement Date of the Telstra Definitive Agreements, which has led to a corresponding delay in the start of the volume rollout;
 - Reduced Capital Expenditure and increased Operating Expenditure as a result of more infrastructure being accessed under the Telstra Definitive Agreements; and

³ Exchange bands are based on the number of services in operation per square kilometre and are used by the ACCC in the price determinations for declared fixed access services such as Unbundled Local Loop (**ULL**).
<http://www.accc.gov.au/content/index.phtml/itemId/853517>.

- Accelerated Capital Expenditure during the Construction period to FY2021 as a result of adopting a 'Build Drop' strategy for connecting premises to the Fibre network.

The overall impact of the above changes is summarised in Exhibit 1-2:

Exhibit 1-2: Impact of Changes Moving from 2011-13 to 2012-15 Corporate Plan for the Fibre Network Construction Period (\$ Billion) (Nominal Dollars)

Type of Changes	Forecast Capital Expenditure (to End Construction)	Forecast Operating Expenditure (to FY2021)	Forecast Revenues (to FY2021)
A. Changes in Scope of the Overall Project	+ \$1.7 billion	+ \$2.2 billion	+ \$2.0 billion
B. Other Changes	\$(0.3) billion	+ \$1.1 billion	\$(2.6) billion
Total Changes	+ \$1.4 billion	+ \$3.2 billion	\$(0.6) billion

Source: NBN Co

Note: All numbers rounded to 1 decimal point.

1.4.1 Changes in Scope

Changes in the scope of the overall project required to be delivered by NBN Co have resulted in an increase in Capital Expenditure during the Construction period, an increase in Operating Expenditure to FY2021, but have also increased Revenues over the period to FY2021 and beyond. The principal changes in scope include:

1. **Optus HFC Agreement** – The movement of additional subscribers to the National Broadband Network under the Optus HFC Agreement results in migration payments to Optus and in increased connection costs during the Fibre network Construction period. These upfront increases in Capital Expenditure and Operating Expenditure are more than offset by additional Revenues projected in later years.
2. **Impact of Policy Decisions** – Since the 2011-13 Corporate Plan there have been a number of policy decisions that are now reflected in the 2012-15 Corporate Plan. These policies are discussed in detail in Section 4.3, *Policy Decisions*, and include;
 - **Points of Interconnect (Pols)** – It has now become clear that the operational and financial consequences of implementing the ACCC requirements for a semi-distributed model of 121 initial Pols (in application of the ACCC 'competition criteria' for Pol locations) were underestimated in the 2011-13 Corporate Plan.
 - **New Developments** – The cost of executing the Government's policy for connecting New Developments (Greenfields sites) has resulted in higher upfront financial costs than forecast in the 2011-13 Corporate Plan (see Section 6.1.2, *New Developments Status*).

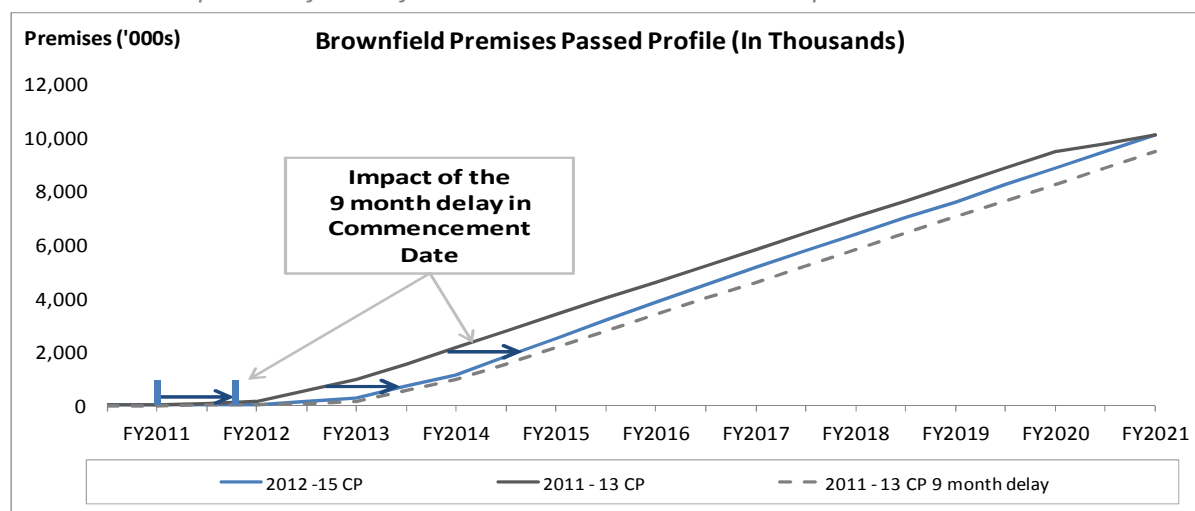
- **Battery Backup** – The 2011-13 Corporate Plan assumed that NBN Co would be required to provide Battery Backup to 100% of Fibre End-Users connections. Following consultation with the Shareholder Ministers, the 2012-15 Corporate Plan assumes that End-Users will be able to nominate whether or not they want NBN Co to provide Battery Backup. Priority Assistance households will be provided with a Battery Backup. It is now assumed that 50% of Fibre End-Users will elect not to have Battery Backup, with a consequent reduction in Capital Expenditure.
- **Fixed Wireless and Long Term Satellite Anticipated Technology Upgrades** – The 2012-15 Corporate Plan includes additional Capital Expenditure associated with NBN Co provisioning for anticipated technology upgrades on both the Fixed Wireless and Long Term Satellite services for rural and remote Australia.
- **Other Policy Issues** – The 2012-15 Corporate Plan reflects assumptions for the implementation of other policy decisions being the Fibre network full coverage of Band 1 and Band 2, Public Information on Migration (**PIM**), USO Payphones, Public Interest Premises (**PIPs**) and TUSMA Levy.

1.4.2 Other Changes

After taking into account the changes in scope outlined in Section 1.4.1, *Changes in Scope*, the 2012-15 Corporate Plan reflects a decrease in Capital Expenditure during the Construction period, an increase in Operating Expenditure to FY2021 and a reduction in Revenues to FY2021 compared with the 2011-13 Corporate Plan. Whilst there have been changes in many of the underlying assumptions, the net changes in Capital Expenditure, Operating Expenditure and Revenues can be attributed to three principal causes:

3. **Delayed Commencement of Volume Rollout** – The 2011-13 Corporate Plan assumed that the rollout would be completed by December 2020 (9.5 years from July 2011). As a result of the delay of the Commencement Date of the Telstra Definitive Agreement from June 2011 to March 2012 there was a corresponding delay in the commencement of the volume rollout. The deployment timeframe for the Fibre network has been extended by 6 months and is now forecast to be completed by June 2021. This movement is illustrated in Exhibit 1-3.

Exhibit 1-3: Comparison of Brownfield Premises Passed Between Corporate Plans



Source: NBN Co

4. **Increased Telstra Infrastructure** – Under the Telstra Definitive Agreements NBN Co obtains access to higher volumes of Telstra infrastructure than was anticipated in the 2011-13 Corporate Plan, notably for Dark Fibre and exchange space. This has resulted in higher Operating Expenditure in the period to FY2021 and beyond, offset by lower Capital Expenditure.
5. **Accelerated Customer Connect costs** – NBN Co is planning to use a predominantly ‘Build Drop’ strategy, in contrast to the ‘Demand Drop’ approach detailed in the 2011-13 Corporate Plan as further detailed in Section 6.2.3, *Customer Connect*. The ‘Build Drop’ strategy is expected to be more cost effective in the long run than performing ‘Demand Drops’, particularly in the context of the agreement with Telstra to disconnect its copper network.

The impact of the ‘Build Drop’ approach has been to accelerate Capital Expenditure into the period to FY2021, although overall it is expected to be beneficial to NBN Co due to increased efficiencies.

In moving from the 2011-13 Corporate Plan to the 2012-15 Corporate Plan NBN Co has analysed each of the other key areas of the business to determine whether the original underlying assumptions continue to be valid (and therefore reinforced) or whether, over the elapsed time, there have been material changes that need to be addressed and remodelled in the 2012-15 Corporate Plan. Overall, the net effect of these positives and negatives have approximately balanced out, meaning that, except as noted in items 1 to 5 above (Sections 1.4.1, *Changes in Scope* & 1.4.2, *Other Changes*), the business case remains consistent with the 2011-13 Corporate Plan:

- **Take-Up** – The 2012-15 Corporate Plan assumes take-up levels in the Fibre network are broadly consistent with those in the 2011-13 Corporate Plan, taking account of the revised deployment timeframe and the Optus HFC Agreement noted in items 1 and 3 above (Sections 1.4.1, *Changes in Scope* & 1.4.2, *Other Changes*).
- **Revenues** – Market data since the publication of the 2011-13 Corporate Plan provides support for the original assumptions on speed and data usage, as well as NBN Co’s objective to reduce prices over time, both in real terms and in nominal terms. Average Revenue per User (**ARPU**) assumptions are consistent with those in the 2011-13 Corporate Plan.
- **Capital Expenditure** – Increases in some Capital Expenditure items, other than those noted above in items 1-5 (Sections 1.4.1, *Changes in Scope* & 1.4.2, *Other Changes*), have been offset by savings in other areas. Whilst this is not an exhaustive list, the main variations in capital costs reflected in the 2012-15 Corporate Plan include:
 - **Network Distances** – NBN Co has increased assumptions for network distances based on the latest available planning information, which is considered more accurate than previous external data on which NBN Co had to rely at the time of the 2011-13 Corporate Plan.
 - **Equipment Costs** – Equipment costs are lower than originally estimated due to architectural optimisation and volume / price arrangements which NBN Co has negotiated since the 2011-13 Corporate Plan.
 - **Construction Labour Costs** – Construction labour costs are higher than originally forecast, based on: NBN Co’s experience from the initial deployment sites, construction contracts entered into and NBN Co’s latest planning activities.

- **Multiple Dwelling Units (MDUs)** – NBN Co’s experience in initial deployment sites has highlighted the challenges for connecting premises in MDUs and additional costs have therefore been embedded in the 2012-15 Corporate Plan.
- **IT Systems** – Additional costs have been incorporated into the 2012-15 Corporate Plan for IT systems costs and additional costs for Active Network Releases (**ANRs**).
- **Fixed Wireless and Satellite** – The costs of deploying the NBN in the Fixed Wireless and Satellite footprint are lower than anticipated in the 2011-13 Corporate Plan as a result of further network planning and design.
- **Operating Expenditure** – The 2012-15 Corporate Plan includes cost savings in a number of areas and increased costs in other areas. Other than noted above in items 1-5 (Sections 1.4.1, *Changes in Scope* & 1.4.2, *Other Changes*) the net effect of these changes has had a limited financial effect on a cumulative basis. Significant changes in Operating Expenditure assumptions include:
 - Additional resources in the areas of Construction contract management; Community engagement / End-User interaction processes; IT Management (particularly, alignment of databases and systems between, for example, Telstra, construction delivery partners and NBN Co); Telstra interactions; and general overhead (in relation to Media, Freedom of Information (**FoI**) activities, responses to Parliamentary Committees).
 - Savings in Operating Expenditure relating to End-User migrations, as a result of the Telstra Definitive Agreements and the Optus HFC Agreements.
 - Reduced Operating Expenditure in the Fixed Wireless and Satellite networks as a result of further network planning and design.

1.5 Summary of Key Corporate Plan Assumptions

The key assumptions embedded in the 2012-15 Corporate Plan are shown in Exhibit 1-4, which provides a comparison with the corresponding assumptions used in the 2011-13 Corporate Plan.

Exhibit 1-4: Comparison of Key Assumptions in the 2012-15 Corporate Plan to the 2011-13 Corporate Plan

Key Assumptions	2011-13 Corporate Plan	2012-15 Corporate Plan
Period Covered by Plan	FY2011 – FY2013	FY2012 – FY2015
Telstra Deal Scope	Telstra Financial Heads of Agreement (June 2010)	Telstra Definitive Agreements (June 2011)
Optus Deal Scope	Not included Plan assumed no Optus HFC subscribers migrate	Optus HFC Agreement (June 2011)

Key Assumptions	2011-13 Corporate Plan	2012-15 Corporate Plan
Policy Decisions / SOE Requirement	Preliminary assessment of Points of Interconnect (Pol) decision Preliminary assessment of Greenfields obligations Battery Backup to 100% of connected Fibre End-Users	Known impact to date of Pol decision Known impact to date of Greenfields obligations Battery Backup 'Must Opt' with an assumed 50% take-up Anticipated technology upgrades of Fixed Wireless & Long Term Satellite networks Fibre network Full Coverage of Band 1 & 2 Public Information on Migration (PIM) USO Payphones Public Interest Premises (PIPs) TUSMA Levy
Premises Passed/Covered		
End of Fibre Network Construction Period	December 2020	June 2021
Total Number of Fibre Premises Passed (FY2021)	12.2 million	12.2 million
Number of Fixed Wireless and Satellite Premises Covered (FY2021)	1.0 million	1.0 million
Premises Connected		
End of Telstra (PSAA) Disconnections	FY2022	FY2023
End of Optus HFC Subscribers Migration	N.A.	FY2020
Total Number of Fibre Premises Connected (FY2021)	8.3 million	8.5 million
Number of Fixed Wireless and Satellite Premises Connected (FY2021)	0.2 million	0.2 million
Key Capital Expenditure Drivers		
Covered Road Distance	130,000 kms	148,000 kms
GPON Physical Distance	181,000 kms	206,000 kms
Aerial (% of premises)		
- Local Network	25%	25%
- Distribution Network	0%	0%
- Transit Network	0%	0%
External Network Termination Devices (NTDs)	50%	Nil [^]
Network Architecture ⁴	'Type 1'	'Type 2'
Customer Connections Model	'Demand Drop'	'Build Drop'

Source: NBN Co

Note: [^] The 2012-15 Plan assumes 100% Internal NTDs.⁴ Refer Section 6.2.2, *Fibre Network*, for further details.

The financial forecasts of the Plan can be summarised in the following simplified profit and loss accounts and applications and sources of funds for the periods to FY2015 and to FY2021, respectively.

Exhibit 1-5: Profit and Loss (Cumulative, \$ Billion) (Nominal Dollars)

To the End of the Corporate Plan (July 2010 to June 2015) (Cumulative \$ Billion – Nominal Dollars)				To the End of the Fibre Network Construction Period in June 2021 (Cumulative \$ Billion – Nominal Dollars)			
Profit & Loss (Cumulative, July 2010 to June 2015)				Profit & Loss (Cumulative, July 2010 to June 2021)			
	(\$bn)		(\$bn)		(\$bn)		(\$bn)
Total Operating Expenses	6.6	Total Revenues	0.7	Total Operating Expenses	26.4	Total Revenues	23.1
Cumulative EBITDA	(6.0)			Cumulative EBITDA	(3.3)		

Source: NBN Co

Note: For the table To the End of the Corporate Plan: term is for 5 years. The comparable table in the 2010-13 Corporate Plan was for 3 years.

Exhibit 1-6: Funding Summary (Cumulative, \$ Billion) (Nominal Dollars)

To the End of the Corporate Plan (July 2010 to June 2015) (Cumulative \$ Billion – Nominal Dollars)				To the End of the Fibre Network Construction Period in June 2021 (Cumulative \$ Billion – Nominal Dollars)			
Funding Summary (Cumulative, July 2010 to June 2015)				Funding Summary (Cumulative, July 2010 to June 2021)			
	(\$bn)		(\$bn)		(\$bn)		(\$bn)
FY2010 Cash Flow	0.1	Equity	20.3	FY2010 Cash Flow	0.1	Equity	30.4
Cumulative EBITDA (July 2010 to June 2015)	6.0	Debt	0.5	Cumulative EBITDA (July 2010 to June 2021)	3.3	Debt	13.7
Total Capex	13.5			Total Capex	37.4		
Working Capital Movements	(1.1)			Working Capital Movements	0.1		
Distributions to Equity	-			Distributions to Equity	-		
Net Debt Funding Costs	(0.3)			Net Debt Funding Costs	2.6		
Tax	-			Tax	-		
Cash at Bank	2.6			Cash at Bank	0.6		
Total Applications	20.8	Total Sources	20.8	Total Applications	44.1	Total Sources	44.1

Source: NBN Co

Note: For the table To the End of the Corporate Plan: term is for 5 years. The comparable table in the 2010-13 Corporate Plan was for 3 years.

Distributions to Equity: the Corporate Plan embeds an assumption of debt-raising, which if successful will provide a mechanism to distribute surplus cash and repay equity over time after the end of the Fibre network Construction period.

Debt Funding: it has been assumed that peak Debt Funding equivalent to 31% of total funding required over the period FY2011-FY2021 would be raised; if actual debt raised at the time was lower than projected, then Equity Funding by Government would need to be increased.

Net Debt Funding Costs: defined as gross debt funding costs, less interest earned.

2 PROJECT STATUS UPDATE

2.1 Telstra and Optus Agreements

NBN Co and Telstra announced on 23 June 2011 that binding agreements had been entered into, subject to various conditions precedent (including Telstra Shareholder approval, regulatory, and other approvals).

The Telstra Definitive Agreements are based on the framework provided by the June 2010 Financial Heads of Agreement. The Telstra Definitive Agreements provide NBN Co access to certain Telstra facilities comprising ducts, pits, lead-in conduits (ownership of which transfers to NBN Co), exchange space and Dark Fibre to facilitate the efficient rollout of the NBN. The Telstra Definitive Agreements also require Telstra to progressively disconnect premises from Telstra's copper and Hybrid Fibre Coaxial (**HFC**) networks (except for certain pay-TV services over the HFC networks). All conditions precedent to the Telstra Definitive Agreements have been met, with Commencement occurring on 7 March 2012, and the 2012-15 Corporate Plan builds in the impact of these agreements.

On 23 June 2011, NBN Co executed an agreement with SingTel Optus Pty Ltd and other Optus entities (**Optus**) (the '**Optus HFC Agreement**') to progressively migrate Optus HFC subscribers to the NBN as it is rolled out. NBN Co has agreed to make progressive payments to Optus, based on the number of subscribers that migrate from its HFC network.

On 19 July 2012, the ACCC published a final determination granting authorisation of the Optus HFC Agreement. The Optus HFC Agreement is now unconditional.

2.2 Customers

As at 30 June 2012, 41 Access Seekers have signed NBN Co's Wholesale Broadband Agreement (**WBA**), constituting over 94% of the current fixed broadband market.⁵

In addition, 12 Access Seekers have signed NBN Co's Interim Satellite Services Agreement and 16 Access Seekers have signed the Fixed Wireless Trial Agreement.

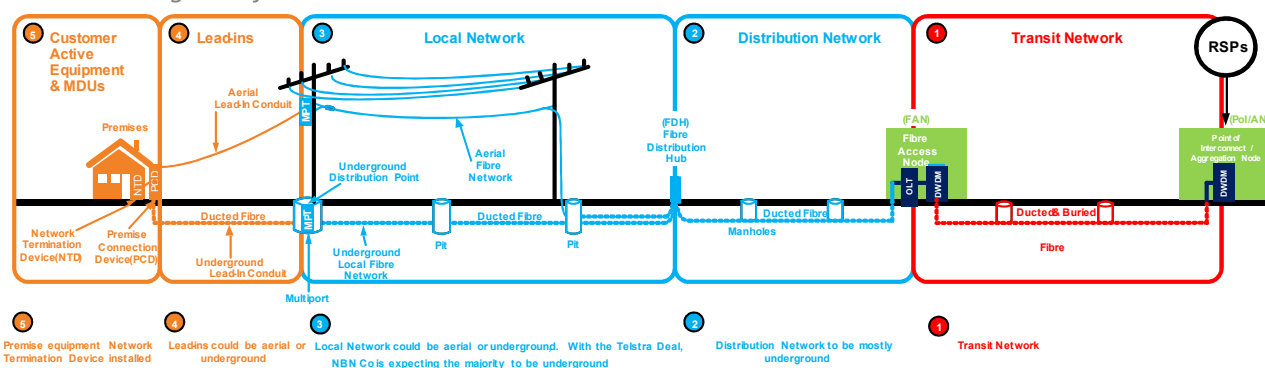
In September 2011 NBN Co successfully launched its first commercial fibre-based services over the National Broadband Network. As at 30 June 2012 there were over 500 NBN-based retail plans in the market from a range of Retail Service Providers (**RSPs**), with a heavy focus on the 25/5 Mbps and 100/40 Mbps services.

⁵ 94% is an NBN Co calculation based on total market number of broadband subscribers and the number of subscribers who purchase broadband services from RSPs that have signed a WBA with NBN Co.

2.3 Network Deployment

Exhibit 2-1 provides an overview of NBN Co's Fibre access network and Transit components.

Exhibit 2-1: Diagram of the Transit and Fibre Access Networks



Source: NBN Co

2.3.1 Transit Network

The Transit network is the backbone of the National Broadband Network and provides connectivity for each of NBN Co's three Access networks (Fibre, Fixed Wireless and Satellite) to the Points of Interconnect (**PoIs**) where Retail Service Providers connect to the NBN Co network. The Transit network includes planning for three elements: Dark Fibre Links, Fibre Access Nodes and Aggregation Nodes (where most Points of Interconnects will be located).

NBN Co will be using infrastructure provided by Telstra in the form of Dark Fibre and Rack Space in exchange buildings, Dark Fibre from the Regional Backhaul Blackspots Programme (**RBBP**) and some new facilities to build the Transit network.

The Transit network will use diverse transmission paths for the Dark Fibre (deployed as transmission rings) to carry high capacity Dense Wavelength Division Multiplexing (**DWDM**) optical signals from the regional and remote locations to the PoIs.

The Transit network project has been established in order to manage the rollout of the network with Telstra and other parties over a period of 42 months commencing 1 August 2011.

Design documents for the first five rings of Dark Fibre and all related Aggregation Nodes and Fibre Access Nodes (**FANs**) sites are complete. The related equipment has been ordered and the first ring has been successfully completed in the Berkley Vale area.

2.3.2 Fibre Access Network

Construction work on NBN Co's Fibre access network began in July and August 2010, when NBN Co signed construction agreements for the five First Release Sites (**FRS**) to trial design, construction and operational methodologies in diverse geographical locations. As at 30 June 2011 network construction in all five FRS, comprising 14,256 premises, had been completed.

In April 2011, NBN Co announced Tasmania Stage 2. As at 30 June 2012 the network construction was completed for 8,746 premises in Triabunna, Sorell, Deloraine, George Town, St Helens and Kingston Beach (with the exception of South Hobart which was re-scheduled).

NBN Co has now begun the volume construction of the Fibre network with a focus on efficiency and cost effectiveness. NBN Co's inaugural '12 month Fibre Rollout Plan' was published in October 2011.

On 29 March 2012, NBN Co released its first '3 year Fibre Rollout Plan', which has an objective of Construction Commenced or Completed for approximately 3.5 million Fibre premises by 30 June 2015, across 1,500 communities in every state and territory in Australia.

To determine the communities that will receive access to the NBN Co's Fibre network over the next 3 years, NBN Co followed design principles that balanced the Government's aim of providing the National Broadband Network to every Australian premises and the need to work efficiently and cost effectively.

These principles included first extending the network in areas where work has already begun; balancing construction across states and territories and between metropolitan and regional locations; and making use of available exchange and transit infrastructure as it becomes available from Telstra.

NBN Co has also prioritised growth corridors that are likely to contain a high number of New Development (Greenfield sites). It also will prioritise links to support the Fixed Wireless and Satellite networks. Finally, there is a need to spread construction contracts across geographies and prevent local community congestion.

Construction of the Fibre network is carried out on behalf of NBN Co by a number of construction partners across the country. NBN Co will progressively release work packages to selected construction partners in order to provide sufficient volumes to enable construction partners to scale their activities, and to provide a balance of work across the country and between the construction companies.

At the date of the 2012-15 Corporate Plan NBN Co has released four work packages for construction of the Fibre network:

- **Work Package 1** – (July 2011) Includes work in Queensland, New South Wales and the ACT (Silcar). The value of construction under the contract is estimated at approximately \$380 million over the first 2 years, with the option of a further 2 years at an additional value of \$740 million.
- **Work Package 2** – (September 2011) Includes work in Victoria (Transfield Services) and Western Australia (Syntheo). The total financial commitment of NBN Co under the Transfield Services agreement is estimated at approximately \$133 million over the first 2 years and an additional \$262 million for years 3 and 4. The total financial commitment of NBN Co under the Syntheo agreement is estimated at approximately \$174 million over the first 2 years and an additional \$310 million for years 3 and 4.
- **Work Package 3** – (November 2011) Includes work in South Australia and Northern Territory (Syntheo). The total financial commitment of NBN Co under the Syntheo agreement is estimated at approximately \$141 million over the first 2 years and an additional \$200 million for years 3 and 4.
- **Work Package 4** – (March 2012) Covers the remaining premises in Tasmania (Visionstream). The total financial commitment of NBN Co under the Visionstream agreements for Work Package 4 is estimated at approximately \$300 million. Similar to Work Packages 1 to 3, Work Package 4 includes an agreement for detailed design and construction activities. However, it also includes agreements for ongoing network augmentation, maintenance and field services. The

agreements are for an initial 4 year period and include an option for renewal over each of the following 2 years.

NBN Co is now in the process of extending Work Package Contracts 1 to 3 to include 'Build Drops' (installing Premises Connection Devices at the time of the Local network construction). NBN Co is also appointing contractors to perform on demand activations, network assurance and augmentations. NBN Co will increase construction capacity in more densely populated regions through the release and award of further construction work packages by the end of calendar 2012.

In September 2011, the trial service phase in the First Release Sites came to an end and commercial services commenced, with the first billing run completed on 22 October 2011.

As at 30 June 2012, NBN Co had Construction Commenced or Completed for approximately 305,000 premises.

2.3.3 Fibre in New Developments (Greenfields Sites)

Within the first quarter of 2011, NBN Co began the building of a capability, including staffing, legal instruments, systems and processes, to enable developers to lodge applications for service in New Development estates. At 30 June 2012, NBN had received 2,589 applications from developers, covering approximately 132,000 lots. These lots are expected to become premises passed in the future, however, occupancy levels will depend on developers' timeframe to build.

In order to meet the service delivery requirements of the Government's New Developments policy, NBN Co has designed, tested and qualified a Temporary Fibre Access Node (**T-FAN**) solution to meet Greenfields requirements prior to the deployment of NBN Co's Transit network.

As at 30 June 2012, a total of 428 Network Design Documents (**NDDs**) had been produced for New Developments with 10,054 lots passed.

2.3.4 Fixed Wireless and Satellite Networks

The Fixed Wireless and Satellite networks will provide high capacity services for premises beyond the Fibre network, ensuring that all Australian premises have access to high speed broadband services.

In February 2011, NBN Co acquired licenses to operate in the 2.3 GHz and 3.4 GHz spectrum bands from AUSTAR. On 13 July 2011, NBN Co acquired spectrum in Western Australia, the Northern Territory, South Australia, outback Queensland and far west New South Wales at an auction run by the Australian Communications and Media Authority (**ACMA**). This increases the geographic coverage NBN Co can achieve for its Fixed Wireless network by complementing the initial spectrum NBN Co purchased from AUSTAR.

On 1 June 2011, NBN Co signed a 10 year Fixed Wireless equipment supply and managed services contract with Ericsson.

The first services over NBN Co's Fixed Wireless network commenced in April 2012. As at 30 June 2012, NBN Co had Construction Commenced or Completed in Wireless Serving Areas (**WSAs**) containing approximately 15,000 premises.

NBN Co developed an Interim Satellite service (also referred to as the First Release Satellite Service (**FRSS**)) to act as a transition between the Australian Broadband Guarantee (**ABG**) Scheme (which

expired on 1 July 2011) and NBN Co's Long Term Satellite Service (**LTSS**) (scheduled for commercial service in mid-2015).

To provide Satellite capacity, NBN Co entered into a contract with Optus in May 2011 to provide managed satellite services for an initial 5 year period. A second contract was signed with IPStar for additional Satellite capacity. NBN Co's first commercial Satellite services were launched on 1 July 2011 and had 9,578 users as at 30 June 2012.

On 8 February 2012, NBN Co announced that Space Systems / Loral (**SS/L**) had been selected to build two next generation Ka-band satellites planned for launch in 2015. The contract signed was valued at approximately \$620 million and followed a comprehensive 2 year procurement process. Following this announcement, NBN Co also announced in the third quarter FY2012 that Merimbula and Bourke in NSW and Geeveston in Tasmania had been chosen as the first three sites for the construction of Satellite ground facilities. These facilities are due to be operational by 2015. On 12 July 2012 NBN Co announced the award of a \$280 million contract to ViaSat for the manufacture and supply of ground equipment and services for the LTSS. Other LTSS agreements to follow will cover further ground systems and the launch capability.

2.4 IT Systems

During the period since the 2011-13 Corporate Plan was released NBN Co has undertaken significant work to stand up core foundational IT capabilities across the four main delivery programmes:

- **Business Support Systems (BSS)** – The core Enterprise Resource Planning System (**ERP**) which included finance, procurement, project, and portfolio management capabilities was delivered in July 2010. Further quarterly releases have delivered additional capabilities to support supply chain, enterprise content management, customer relationship management, business intelligence analytics, identity and access management and systems to support portal development, including the Telstra interaction management system and new property developers' access portal.
- **Operational Support Systems (OSS)** – The OSS contract was signed in April 2011 and has seen all the core capabilities delivered to plan in under a year. Core capabilities delivered to date include the Service Portal, Billing, Fulfilment and Assurance systems and the Business to Business (**B2B**) gateway. The B2B gateway was delivered in February 2012, with the first fully automated order sent by an RSP on 23 May 2012. The implemented assurance systems now allow RSPs to raise trouble tickets directly via the Service Portal and NBN Co Network Operations to manage and report faults in real-time.
- **Shared Security Services (SSS)** – Establishing the security services platforms that provide controls that can be used to reduce risk related to NBN Co assets.
- **Telstra Interaction Systems (TIS)** – Implementing the capability required to manage the operational and commercial agreements between Telstra and NBN Co.

NBN Co has adopted a delivery model based around groups of related systems (**Platforms**). IT development and support teams are aligned to these Platforms.

Exhibit 2-2: Platform and Capabilities

Platform	Capabilities
Service Management	Assurance – Event, Alarm, and Service Performance Management, including ability for Access Seekers to raise faults. Fulfilment – Order Management, Orchestration, Product and Service Catalogues.
Resource Management	Physical Network Inventory, Appointment / Workforce Management and Supply Chain Management, Network Planning & Design.
Portals and Online Services	Internet, intranet, and extranet capabilities, including portals and B2B gateways, Online Collaboration, CRM, Contact Centres, as well as Integration and Process Orchestration.
Business and Financial Management	Finance and accounting, human capital management, health and safety, project and portfolio management, risk management, billing, and revenue management.
Enterprise Information Management	Business Intelligence and Analytics, Enterprise Content Management, and Master Data Management.
Security Management	Identity and Access Management, Perimeter Security, Data Protection, Encryption, Audit / Logging, Security compliance, CERT.

Source: NBN Co

2.5 Design of the Active and Passive Networks

NBN Co has approached the challenge of designing and testing new releases of network capability using a phased approach. Starting with the Fibre access network, NBN Co has created ‘packages’ of network capability that are designed and tested as integrated solutions at the National Test Facility (NTF) prior to deploying to the live network. Progressively, the Network Releases will deliver the full range of NBN Co network capability across the Fibre, Fixed Wireless, Satellite and Transit networks.

Release packages specific to the Active Network are referred to as Active Network Releases (**ANRs**) and generally deliver a range of product and operational business capabilities.

- **Active Network Release 1 (ANR1)** was initially deployed to the First Release trial sites in April 2011 and was deemed operationally ready for commercial services in September 2011. ANR1 delivered a range of foundation product capability to support broadband data and voice and technology enablers covering GPON, Lawful Interception and Aggregation.
- **Active Network Release 2 (ANR2)** was released for network wide deployment in June 2012 (following testing and initial rollout deployment in November 2011) and introduces broadband data services in the Fixed Wireless coverage areas and an Access Seeker trial of Multicast. This release enables Long Term Evolution (**LTE**) for the Fixed Wireless network and Dense Wavelength Division Multiplexing (**DWDM**) capability for the Transit network.

Similar to the process for the design, testing and release of ANRs, NBN Co adopts a phased approach for the release of Passive Network Releases (**PNRs**). These deliver a range of product and operational capabilities.

- **Passive Network Release 1 (PNR1)** was released for network wide deployment in June 2012 and delivers passive Fibre access network architecture from Optical Distribution Frame (**ODF**) to premises drop.

Design Testing is undertaken on every Active Network Release and OSS / BSS release before deployment to the live network. The testing involves configuring the necessary hardware (network and systems) and loading the necessary software into the NTF system integration facility and performing full end-to-end process and integration testing on the combined release in a configuration which closely simulates the live network and systems.

2.6 Facilities

2.6.1 National Service Operations and Test Facility

At the end of 2010, the construction started on the Network and Service Operations Centre (**NSOC**), incorporating the National Test Facility (**NTF**), at Docklands in Melbourne. This facility has been operational since June 2011 and allows Access Seeker certification testing and Active Network Release (**ANR**) testing to be undertaken. The NTF at Docklands also contains the Discovery Centre, which is a purpose-built demonstration and education centre for the education of the public on the technical and operational details of the NBN.

The NSOC is the primary operational interface with NBN Co's Access Seekers and other infrastructure providers. Service Activation Centres (**SACs**) have been established in both Sydney and Melbourne and support the connection of Access Seekers onto the NBN network and the activation of their End-Users.

The three Tasmanian pre-release sites continue to be managed using the arrangements that were initially established for these trials. A strategy to align their operational model with the mainland sites and Second Release Tasmania sites will be implemented in 2012/13.

2.6.2 Data Centres

NBN Co entered into two short-term managed hosting agreements in 2009/10 to provide IT infrastructure to support the rollout of IT systems and the corporate website. In January and March 2011, two NBN Co managed data centre facilities were established supporting all IT infrastructure needs, including the OSS / BSS rollouts. The implementation was based upon leasing space and power within existing third party facilities in Pymont (NSW) and Springfield (QLD).

There are now over 2,000 servers and 500 databases running in these facilities to support NBN Co systems. The virtualisation and automation technologies used have supported the rapid growth required of the OSS / BSS capabilities. The migration of the external systems run by managed host providers into the NBN Co Data Centres were completed by December 2011 and resulted in significant ongoing cost savings.

2.7 Regulatory and Policy Decisions Update

Since the release of the 2011-13 Corporate Plan, the *National Broadband Network Companies Act 2011* and the *Telecommunications Legislation Amendment (National Broadband Network Measures – Access Arrangements) Act 2011* have been passed, establishing:

- The governance, ownership and operating arrangements for NBN Co; and
- The regime to facilitate open access to the wholesale-only NBN for downstream service providers.

This legislation builds on the reforms implemented by the *Telecommunications Legislation Amendment (Competition and Consumer Safeguards) Act 2010*, including the framework for Telstra's voluntary structural separation via the Telstra Definitive Agreements. Progress has also been made since the release of the 2011-13 Corporate Plan in relation to the following regulatory matters:

- **New Developments** – Clarity has been provided in relation to NBN Co's role in New Developments.⁶ The *Telecommunications Legislation Amendment (Fibre Deployment) Act 2011* specifies NBN Co's role as the wholesale provider of last resort in New Developments in accordance with policy statements released by the Government (for developments over 100 lots over 3 years). Pit & pipe and conduit lead-in infrastructure ('Fibre-Ready Facilities') are provided by developers to NBN Co.
- **Public Works Committee** – An exemption from the *Public Works Committee Act 1969* has been provided in the *National Broadband Network Companies Act 2011*.
- **Authorisations required for implementation** – Subject to certain conditions being met, provisions in the *Telecommunications Legislation Amendment (National Broadband Network Measures – Access Arrangements Act 2011)* are intended to authorise conduct of NBN corporations under Parts IV, XIB and XIC of the *Competition and Consumer Act 2010* in relation to interconnection, bundling of services and cross-subsidisation, in order to promote the national interest in structural reform of the telecommunications industry and to promote uniform national wholesale pricing of NBN services.⁷

2.8 Local Content

Local content is actively promoted as part of NBN Co procurement processes. Certain contracts are inherently local such as construction and network operations. For other contracts, NBN Co has sought to maximise the local content, particularly where local manufacturers are already established.

Local content was 51% of contract value as at 30 June 2012. Further future Australian construction and operations contracts are expected to increase the value and proportion of local content.

⁶ Fibre in New Developments: Policy Update 22 June 2011.

⁷ See Corporate Plan 2011 - 2013 released 20 December 2010, at Section 1.10, *Government Policy Decisions*, p.27.

3 COMPANY UPDATE

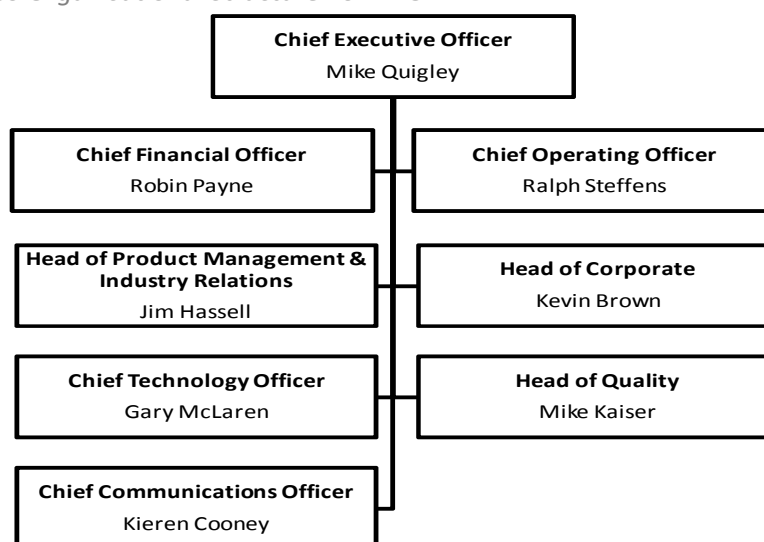
3.1 Management Restructure in August 2011

NBN Co reorganised its management structure in August 2011 to cater for its transition from a start-up, focused on planning and network design, to an established business ready for volume rollout. The organisational changes included:

- The creation of a new role of Chief Operating Officer with responsibility for construction, deployment planning, IT and network operations, health, safety and environment;
- The integration of sales, pricing, industry relations and regulatory functions in the expanded department of Product Management and Industry Relations;
- The bringing together of supply chain management, procurement, commercial strategy and the management of the Telstra Definitive Agreements and the Optus HFC Agreement as part of the Corporate department;
- An increased focus on quality planning, control and improvement with the appointment of a Head of Quality; and
- The appointment of a Chief Communications Officer to manage Government, media and stakeholder relations as well as to oversee the public information campaign that will inform and educate the Australian public about the NBN rollout.

The restructure resulted in 7 functions reporting into the CEO. This includes 4 newly-created or newly-consolidated functions, as shown in the new organisational charts in Exhibit 3-1:

Exhibit 3-1: NBN Co Organisational Structure 2012-15



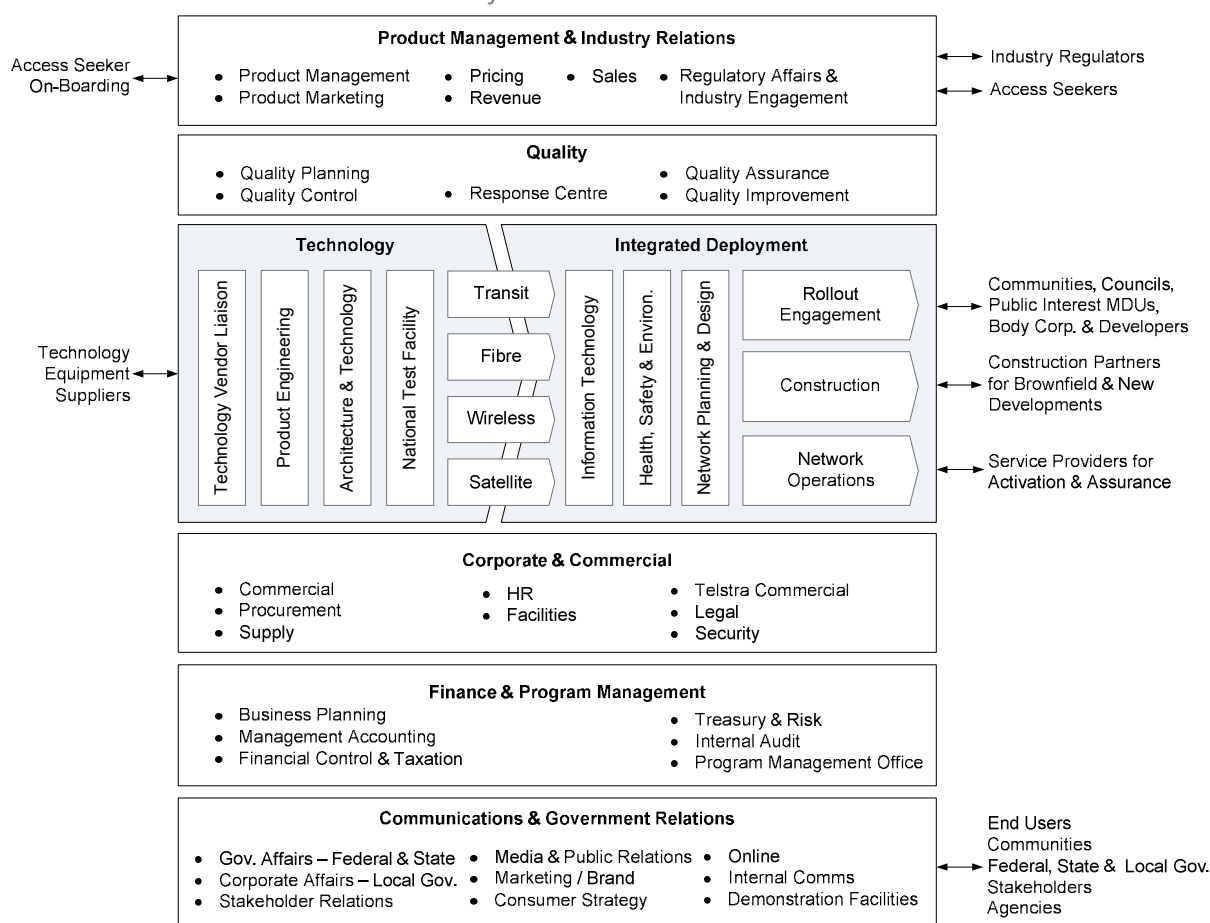
Source: NBN Co

Since the 2011-13 Corporate Plan the following appointments of senior management personnel have occurred:

- Ralph Steffens as Chief Operating Officer;
- Robin Payne as Chief Financial Officer;
- Mike Kaiser as Head of Quality; and
- Kieren Cooney as Chief Communications Officer.

Exhibit 3-2 shows NBN Co's functions and interfaces.

Exhibit 3-2: NBN Co's Functions and Interfaces



Source: NBN Co

3.2 People and Policies

NBN Co had 1,620 employees as at 30 June 2012 and has developed a suite of integrated policies, processes and systems to support its staff. NBN Co employs people in all states and has permanent offices in Sydney, Melbourne, Hobart, Canberra, Brisbane, Townsville, Adelaide and Perth.

The NBN is part of Australia's critical national infrastructure and is designed to meet the security requirements laid down in the Protective Security Policy Framework (**PSPF**). NBN Co is also working closely with the Commonwealth to make sure that any applicable security requirements arising from the current Telecommunications Security Sector Reform process are put into place.

3.3 Health, Safety and Environment (HSE)

NBN Co's HSE Management System was further implemented during the calendar year 2011. It includes incident and hazard reporting capability, risk assessment, investigation, auditing, case management and reporting modules.

The frequency of Lost Time Injuries (**LTI**) to 30 June 2012 for NBN Co employees was 0.3 LTI per million work hours and for contractors it was 0.9 LTI per million work hours. The frequency of Medical Treatment Injury (**MTI**) in the period to 30 June, 2012 for NBN Co employees was 1.2 MTI per million work hours and for contractors it was 9.9 MTI per million work hours.

NBN Co's HSE Management System has been accredited to AS4801, OHSAS18001 and ISO14001.

The harmonised Work Health and Safety laws came into force as from 1 January 2012. Training on the new laws and duty of care has been provided to relevant staff.

3.4 Focus on Community Relations

NBN Co has been conducting public information sessions in the release sites, consulting councils about issues relating to development approvals, permits, traffic management and educating the public through direct mail and limited local advertising.

NBN Co will continue to develop a local stakeholder engagement model, the scale of which will increase commensurate with increased rollout activity. It will be consistent with the requirements of the Public Information on Migration (**PIM**), reflected in an Information Campaign and Migration Deed (**ICMD**) between Telstra and the Government dated 23 June 2011. The intention of the ICMD is to ensure high levels of awareness for the need to migrate services from the existing copper network to the NBN.

NBN Co's local stakeholder engagement model provides for a single point of contact within NBN Co to co-ordinate all engagement throughout the design, build and ready-for-service phases of NBN Co's rollout in any given area, including management of the complaints process.

A key focus is to further develop this model beyond council and broad stakeholder / community engagement to integrate all of the engagement activities which need to occur ahead of the rollout.

As part of NBN Co's stakeholder engagement the following activities will be undertaken:

- NBN Co will engage with body corporate entities / owners of Multi-Dwelling Units (**MDUs**), including commercial MDUs, to gain their approval to install network infrastructure;

- Public Interest Premises (**PIPs**) such as schools, hospitals, universities and aged care facilities, will be specifically consulted in order to provide appropriate connection solutions; and
- NBN Co has released (refer to the company's website) its programme for network extensions to premises where End-Users are willing to pay the incremental additional cost of connection (the **Network Extension Programme**). Further details are provided in Section 4.3, *Policy Decisions*.

3.5 Business Continuity

Business Continuity Management ensures that NBN Co identifies, evaluates, mitigates, monitors and reports risks. This enables NBN Co to continue operations in the event of a material business disruption, whilst also ensuring that it can continue to meet financial and service obligations to stakeholders.

NBN Co has established a Crisis Management Team (**CMT**) to ensure its critical business areas have plans in place to recover operations in the event of 'Major' and / or 'Catastrophic' disruption. Two exercises involving the CMT have been completed to 31 May 2012. Business Continuity, Crisis Management and Disaster Recovery Plans have been created and will evolve as the organisation develops and matures.

3.6 Quality Control and Continuous Improvement

The management reorganisation announced in August 2011 created a specific focus on Quality and continuous improvement through the establishment of a central Quality Office.

Quality activities since submitting the 2011-13 Corporate Plan began with the development of a consistent approach to quality across NBN Co, including the integration of quality planning, quality assurance, measurement and continuous improvement processes.

NBN Co has chosen to seek AS ISO9001: 2008 '*Quality Management Systems – Requirements*' accreditation and has had initial discussions with the British Standards Institute with a view to attaining accreditation.

A focus for NBN Co as it ramps up its rollout activities will be its efforts to benchmark, validate and improve the quality of processes to achieve scale. NBN Co will also seek to bring a consistent approach to capturing relevant feedback from End-Users and Access Seekers in order to guide product and process improvements.

In particular, NBN Co is developing a rigorous complaints management process, including integrating a call centre capability into the operations of NBN Co to effectively deal with consumer queries and complaints. This will also capture feedback to drive systemic improvement.

3.7 Human Resource, Industrial Relations and Safety

NBN Co's major Human Resource challenge has been to manage the rapid growth in the workforce required to meet NBN Co's needs.

NBN Co works with its employees and their representatives, and adheres to the Fair Work Principles. NBN Co has four enterprise bargaining agreements (**EBAs**), which cover classifications of employees in the technical, professional, clerical / administration and contact centre areas. These EBAs are in

place until 2014 and provide competitive terms and conditions for NBN Co employees covered by the agreements.

NBN Co requires its contractors to be responsible employers who provide safe work environments and efficient work practices taking into account legal requirements, all relevant market factors and business operating conditions. NBN Co requires contractors engaged in the construction of the NBN to demonstrate their ability to effectively manage employee relations matters including compliance with the Fair Work Principles and National Code of Practice for the Construction Industry and the associated 2009 version of the implementation guidelines.

NBN Co is taking a key role in scoping the labour pool required for the construction of the NBN and will generate a range of programmes that will build NBN Co's workforce in close cooperation with construction contractors. NBN Co has identified key qualifications required for this workforce and is developing a range of training programmes including an NBN Co Safety and Awareness course that is undertaken by NBN Co construction workers.

The externally contracted NBN Co construction workers will be dispersed across the country providing opportunities for local employment. NBN Co seeks to encourage its principal contracting partners to have in place management plans for local industry engagement and indigenous participation. NBN Co will work with its partners to encourage implementation and compliance with these plans.

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4 ACCESS ARRANGEMENTS, REGULATORY AND POLICY DECISIONS

4.1 Wholesale Broadband Agreement (WBA)

NBN Co's Wholesale Broadband Agreement (**WBA**) was published as a Standard Form of Access Agreement (**SFAA**) on 30 November 2011 with an initial term that will run for 12 months, unless extended by agreement between the Access Seeker and NBN Co.

In developing the WBA, NBN Co undertook intensive consultation to assist in the formulation of supply terms that appropriately balance the interests of NBN Co and the interests of its Access Seekers. This provides potential Access Seekers with a meaningful role in the formulation of the WBA and enables NBN Co to comply with its non-discrimination obligations.

To date more than 40 Access Seekers have entered into the WBA with NBN Co, and the commercial supply of Fibre services to Access Seekers has commenced. NBN Co is continuing to engage with the Australian telecommunications industry regarding the further enhancement of the WBA, via the Contract Development Process set out in the WBA itself.

NBN Co has also published the Wireless Trial Agreement, the Interim Satellite Services Agreement, the Satellite Wholesale Broadband Agreement and Testing Terms and Conditions as Standard Form of Access Agreements.

4.2 Special Access Undertaking (SAU)

NBN Co lodged a Special Access Undertaking (**SAU**) with the ACCC on 5 December 2011, following which the ACCC commenced a public consultation process in relation to that SAU.

NBN Co has been carefully working through feedback received from the ACCC and Access Seekers in relation to the SAU as lodged in December 2011, and continuing to engage constructively with them. NBN Co views the process of achieving an accepted SAU as a dynamic and consultative one, through which the undertaking can be further developed and refined between original lodgement and final acceptance.

As a result of this ongoing engagement process, NBN Co has developed a revised approach to the SAU which addresses issues raised by Access Seekers and the ACCC. The high level design principles for the proposed 'Incentive Based Modular SAU' were provided to the ACCC and subsequently published on 20 June 2012 to facilitate further engagement with stakeholders. NBN Co is currently developing the detailed drafting to implement the proposed approach, and is intending to lodge the revised SAU with the ACCC well in advance of the completion of the Contract Development Process in relation to the Wholesale Broadband Agreement (**WBA**). The ACCC has announced that it is suspending its assessment of the December 2011 SAU while NBN Co develops its revised approach.

The SAU covers the NBN Access Service (which covers services offered over the Fibre, Fixed Wireless, and Satellite networks) and sets out, for a 30 year term, the service description and certain price-related and non-price related terms and conditions of access.

The SAU has two key objectives: to provide an appropriate degree of regulatory certainty to Access Seekers (and through them, End-Users) and NBN Co; and to provide the long term framework reasonably necessary to achieve Uniform National Wholesale Pricing (**UNWP**) of eligible services supplied by NBN Co to service providers and utilities.

The SAU requires NBN Co to comply with price and non-price commitments that are made in the SAU. The SAU will require NBN Co to ensure that its Standard Form of Access Agreement (including the WBA) remains aligned with the SAU.

The SAU commitments have been made as part of an overall package of measures that provide NBN Co with the opportunity to recover its prudently incurred costs over time, including a rate of return above the long term Government bond yield.⁸

4.3 Policy Decisions

4.3.1 2012-15 Corporate Plan Policy Assumptions

The most recent developments in policy decisions that have been integrated into the 2012-15 Corporate Plan are:

- **‘Frustrated’ MDUs** – NBN Co is considering its engagement model with Bodies Corporate to define ‘frustrated’ MDUs in line with the Statement of Expectations (SOE).
- **Accounting Separation** – As required by the SOE, NBN Co is consulting with the ACCC on the design and implementation of accounting systems to aid any future accounting separation arrangements. Accounting separation covers assets and costs, but not revenues.
- **Battery Backup** – The Government has consulted widely with key stakeholder groups on the extent to which NBN Co provides Battery Backup to different types of End-Users (e.g. phone-only End-Users, Special Services and Priority Assist End-Users). The 2012-15 Corporate Plan incorporates the Government’s policy approach that End-Users will be able to nominate whether or not they want NBN Co to provide Battery Backup. Priority Assistance households will be provided with a Battery Backup. It is now assumed that 50% of Fibre End-Users will elect not to have Battery Backup, with a consequent reduction in Capital Expenditure.
- **Complete Coverage within the Fibre Footprint** – NBN Co will ensure that all premises within Telstra Bands 1 and 2 are served (unless they are declared ‘frustrated’) and provide a definition of the Fibre footprint.
- **Network Extension** – NBN Co has established a framework for Network Extensions where individuals, businesses or governments are willing to pay the incremental cost of extension of the fibre or fixed wireless network to areas where it would not otherwise be built. Under the Network Extension Programme, (a) premises outside the Fibre footprint can apply to have NBN Co extend the Fibre optic network – this is both for individual premises located in areas adjacent to the Fibre footprint, or for large projects covering towns or groups of premises, and (b) small towns planned to be served by satellite technologies can apply to be connected to the Fixed Wireless network. Applicants will be required to pay the incremental cost for the design and construction of the network extension to the premises. There is considerable interest from the community and various levels of government in Network Extensions.⁹

⁸ For further information on the NBN Co SAU, refer the ACCC website:
<http://www.accc.gov.au/content/index.phtml/itemId/1020185>.

⁹ Process document available on NBN Co website for getting connected via Network Extension programme.
<http://www.nbnco.com.au/getting-connected/network-extension.html>.

- **Public Interest Premises (PIPs); mostly composed of Universities, Schools and Hospitals** – NBN Co has had discussions with Government on the expectations of how PIPs should be served. NBN Co is undertaking a trial with a number of PIPs to further refine its engagement model.
- **Adequately Served** – The Government has released a policy paper setting out the criteria and a process for determining whether existing fibred premises are adequately served. NBN Co will not be required to overbuild existing networks which are adequately servicing premises.
- **Non-Premises (Non-Addressable Locations)** – The 2012-15 Corporate Plan does not include any costs nor revenues for non-premises, which are defined in the Statement of Expectations as non-addressable locations that NBN Co is permitted, but not required to connect unless directed to do so by the Government.¹⁰

Other assumptions in relation to ongoing Government policy decisions, which are consistent with the 2011-13 Corporate Plan, include:

- **Cherry Picking** – NBN Co assumes the continued operation of the ‘level playing field’ regime in *Part 7 of the Telecommunications Act 1997*.¹¹
- **Points of Interconnect (Pols)** – NBN Co assumes the continued use and effectiveness of the ACCC list currently on the ACCC’s website.¹²
- **Universal Service Arrangements** – The 2012-15 Corporate Plan includes a specific provision for the cost of connecting and providing wholesale services to Universal Service Obligation (**USO**) payphones. The Plan also includes estimates of NBN Co’s contribution to the TUSMA levy.
- **Spectrum Requirements** – As at 30 June 2012 NBN Co has secured all the spectrum required for its Long Term Satellite Service.
- **Fixed Wireless and Satellite Anticipated Technology Upgrades** – The 2012-15 Corporate Plan incorporates the additional costs and revenues associated with anticipated technology upgrades for Fixed Wireless and Long Term Satellite.

¹⁰ Statement of Expectations, 17 December 2010, refer pages 5 and 14, Attachment A – *Premises Definition*.

¹¹ Statement of Expectations, 17 December 2010, refer pages 4-5.

¹² <http://www.accc.gov.au/content/index.phtml/itemId/952292>.

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5 DEPLOYMENT FORECASTS

5.1 Overview

In the period since the publication of the 2011-13 Corporate Plan it has been necessary to revise NBN Co's deployment forecasts to take account of a number of factors:

- Delays in the finalisation of the conditions precedent to the Telstra Definitive Agreements. It was originally assumed that by 30 June 2011 NBN Co would have access to the core infrastructure (Ducts, Dark Fibre and Exchange space) necessary to construct the NBN most efficiently and cost effectively. However, the final condition for the Telstra Definitive Agreements becoming unconditional, being the ACCC approval of Telstra's Structural Separation Undertaking, did not occur until 7 March 2012;
- Prolonged negotiations in order to achieve sustainable and cost effective construction contracts. A contract with Silcar for construction on the Eastern Seaboard was signed on 1 July 2011 after an extended negotiation; the subsequent three contracts for Victoria (Transfield Services), Western Australia (Syntheo) and Tasmania (Visionstream), were announced in September 2011 for Victoria and Western Australia and March 2012 for Tasmania. While the awarding of these construction contracts was later than originally planned, it was a consequence of NBN Co taking all the steps necessary to assure that 'value for money' was being achieved;
- The various decisions of the Government and ACCC, which led to the implementation of a semi-distributed Points of Interconnect (**POIs**) model with 121 locations, resulted in a much greater reliance on access to Telstra exchanges and the availability of backhaul rings to connect these locations. This reliance has compounded the impact of the delay in the finalisation of the conditions precedent to the Telstra Definitive Agreements;
- Slower than anticipated occupation rate and connection demand in New Developments. The demand from new estate developers to rollout Fibre has been lower than anticipated in the 2011-13 Corporate Plan, reflecting: a) softness in the construction industry; b) the impact of Queensland floods; and, c) the transfer back to Telstra of approximately 73,000 premises, which were at Stage 5 approvals at the time of the 2011-13 Corporate Plan; and
- The priority given to:
 - Deployment of the Transit network;
 - NBN Co's obligation to connect New Developments. This has led NBN Co to review its network planning and rollout activities, in particular to include Fibre Serving Areas (**FSAs**) containing large numbers of New Development premises in its Fibre rollout geographic priorities; and
 - Deployment of the Fixed Wireless network.

These factors have led to an overall lowering of the Fibre forecasts for FY2012 to FY2015, although the annual run rate is back in line with the 2011-13 Corporate Plan by FY2015.

These forecasts are consistent with the objective of Construction Commenced or Completed for approximately 758,000 Fibre premises by 31 December 2012, in line with NBN Co's '12 month national Fibre rollout schedule' and Construction Commenced or Completed for approximately 3.5 million Fibre premises by 30 June 2015, in line with NBN Co's '3 year Fibre rollout plan'.

Exhibit 5-1 provides a summary of the deployment forecasts embedded in the 2012-15 Corporate Plan.

Exhibit 5-1: Premises Passed or Covered (Cumulative Year-on-Year)

2012 - 15 CP					
Premises or Lots Passed* /Covered YoY					
	FTTP Brownfields	Fixed Wireless & Satellite	Subtotal Brownfields and Fixed Wireless & Satellite	FTTP Greenfields**	Total
FY2011	18,000	165,000	183,000	-	183,000
FY2012	29,000	174,000	203,000	10,000	213,000
FY2013	286,000	320,000	606,000	55,000	661,000
FY2014	1,129,000	374,000	1,503,000	178,000	1,681,000
FY2015	2,499,000	752,000	3,251,000	413,000	3,664,000
FY2016	3,862,000	907,000	4,769,000	763,000	5,532,000

Source: NBN Co

Premises or lots passed / covered rounded to the nearest thousands.

Premises are passed / covered when the shared network and service elements are installed, accepted, commissioned and ready for service which then enables an End-User to order and purchase a broadband service from their choice of retail service provider.

*Greenfields in New Developments: lots passed may not equal premises passed depending on developer's timeframe to build.

**FTTP Greenfields are demand-driven activities which are subject to variations in housing starts and Developer activities (supply of new premises and demand from new developers for NBN Co to install Fibre).

The lowering of the premises passed / covered forecasts has led to a corresponding adjustment to forecasts for premises activated. Exhibit 5-2 provides a summary of the connection forecasts embedded in the 2012-15 Corporate Plan.

Exhibit 5-2: Premises with Active Service (Cumulative Year-on-Year)

2012 - 15 CP					
Premises Activated YoY					
	FTTP Brownfields	Fixed Wireless & Satellite	Subtotal Brownfields and Fixed Wireless & Satellite	FTTP Greenfields*	Total
FY2011	600	200	800	-	800
FY2012	3,000	10,000	13,000	500	13,500
FY2013	44,000	38,000	82,000	10,000	92,000
FY2014	420,000	64,000	484,000	67,000	551,000
FY2015	1,311,000	100,000	1,411,000	204,000	1,615,000
FY2016	2,559,000	145,000	2,704,000	477,000	3,181,000

Source: NBN Co

Premises activated rounded to the nearest thousands where number of premises or lots exceeds 1,000.

Premises are activated when a valid service order is received to install the dedicated optic fibre cable connection to the premises optical Network Termination Devices (NTDs) and reliable Power Supply Unit (PSU), with Battery Backup (BBU) option (for Fibre premises).

*FTTP Greenfields are demand-driven activities which are subject to variations in housing starts and Developer activities (supply of new premises and demand from new developers for NBN Co to install Fibre).

5.2 Transit Network

NBN Co has prioritised Transit connectivity to support earlier connection of Greenfields estates ahead of the volume rollout. Prioritising the Transit rollout also supports the rapid deployment of the Fixed Wireless network. The 2012-15 Corporate Plan forecasts that the Transit network will be completed by the end of FY2015, with the bulk of the network in place by the end of FY2014.

5.3 Fibre Construction Programme

The volume construction plan is shown in Exhibit 5-3:

Exhibit 5-3: Deployment Schedule for 2012-15 Corporate Plan

Deployment Schedule to FY2021											
June YE	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021
Brownfields Premises Passed ('000s Premises)	18	29	286	1,129	2,499	3,862	5,168	6,423	7,610	8,879	10,091
<i>BF Premises Passed Daily Run Rate (250 Working Days/Year)</i>	<i>73</i>	<i>42</i>	<i>1,028</i>	<i>3,372</i>	<i>5,482</i>	<i>5,450</i>	<i>5,225</i>	<i>5,020</i>	<i>4,746</i>	<i>5,078</i>	<i>4,847</i>
Greenfields Premises Passed ('000s Premises)	-	10	55	178	413	763	1,111	1,415	1,673	1,904	2,111
<i>GF Premises Passed Daily Run Rate (250 Working Days/Year)</i>	<i>-</i>	<i>40</i>	<i>179</i>	<i>492</i>	<i>941</i>	<i>1,400</i>	<i>1,392</i>	<i>1,215</i>	<i>1,033</i>	<i>922</i>	<i>829</i>
Fibre Premises Passed ('000s Premises)	18	39	341	1,307	2,912	4,625	6,279	7,838	9,283	10,783	12,202
Fibre Premises Passed Daily Run Rate (250 Working Days/Year)	73	83	1,207	3,864	6,423	6,850	6,617	6,235	5,780	6,001	5,677
Brownfields Premises Connected ('000s Premises)	1	3	44	420	1,311	2,559	3,566	4,578	5,468	6,195	6,939
<i>BF Premises Connected Daily Run Rate (250 Working Days/Year)</i>	<i>3</i>	<i>11</i>	<i>161</i>	<i>1,504</i>	<i>3,565</i>	<i>4,991</i>	<i>4,029</i>	<i>4,047</i>	<i>3,562</i>	<i>2,908</i>	<i>2,976</i>
Greenfields Premises Connected ('000s Premises)	-	1	10	67	204	477	775	1,017	1,227	1,412	1,574
<i>GF Premises Connected Daily Run Rate (250 Working Days/Year)</i>	<i>-</i>	<i>2</i>	<i>40</i>	<i>227</i>	<i>548</i>	<i>1,092</i>	<i>1,189</i>	<i>968</i>	<i>841</i>	<i>740</i>	<i>649</i>
Fibre Premises Connected ('000s Premises)	1	4	54	487	1,515	3,036	4,341	5,594	6,695	7,607	8,513
Fibre Premises Connected Daily Run Rate (250 Working Days/Year)	3	13	201	1,731	4,114	6,083	5,218	5,016	4,403	3,648	3,624
Fixed Wireless & Satellite Premises Covered ('000s Premises)	165	174	320	374	752	907	921	934	948	961	974
Fixed Wireless & Satellite Premises Connected ('000s Premises)	0	10	38	64	100	145	161	191	206	219	232
Total Premises Connected - All Platforms ('000s Premises)	1	14	92	551	1,615	3,181	4,502	5,785	6,901	7,827	8,745

Source: NBN Co

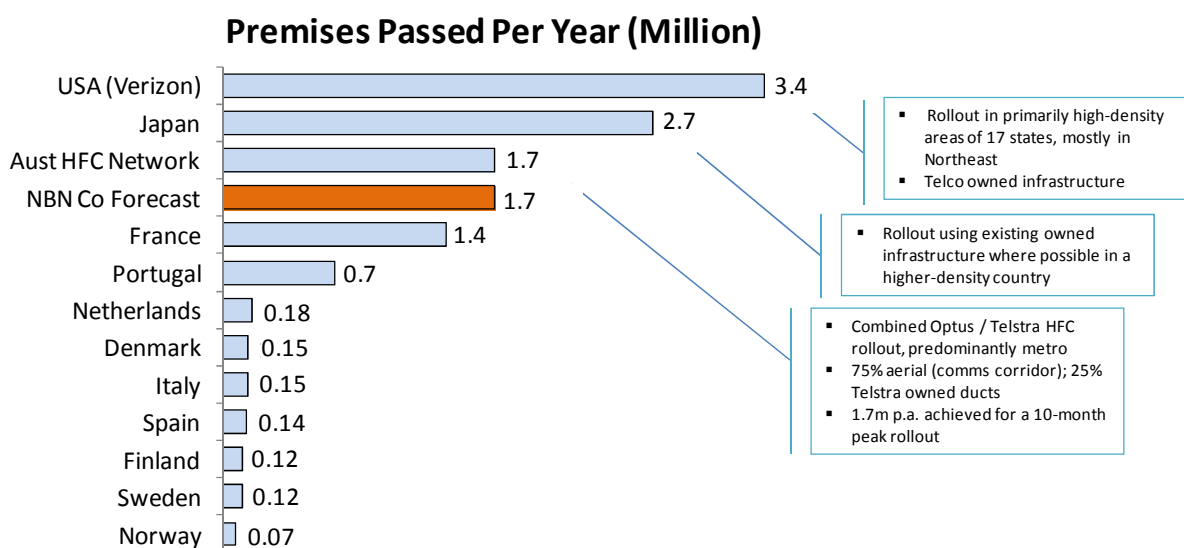
Deployment completion planned in June 2021.

The volume construction plan is aimed at maintaining peak levels of construction activities (premises passed and connected) at similar levels as the previous 2011-13 Corporate Plan. This has required an extension of the end of the Rollout Period by 6 months to June 2021 because of the slower ramp-up in construction over the period FY2011-FY2014.

- Over the period covered by the 2012-15 Corporate Plan, NBN Co will ramp up its construction capacity to a daily run rate of 6,400 premises passed per day during FY2015 (total of Brownfields plus Greenfields premises, out of which 5,500 relate to Brownfields premises only) in order to reach 2.9 million premises passed by Fibre at the end of FY2015.
- From FY2016, the daily run rate is expected to stay in a range of between 5,700 to 6,800 premises passed per day (total of Brownfields plus Greenfields premises) with an average of 6,200 premises passed per day during peak construction (assuming a 10 year rollout and 250 working days per year).

NBN Co provided a comparison with rollouts in other countries in the 2011-13 Corporate Plan, an updated version of which is shown in Exhibit 5-4 below and indicates that the NBN Co forecast run rate of approximately 1.7 million premises passed per year, albeit challenging, is achievable.

Exhibit 5-4: Annual Rollout Comparison with Other Countries



Source: IDATE, *FTTH European Panorama*, December 2008. RVA LLC, *Fibre to the Home: North American Market Update for the FTTH Council*, April 2009. Japanese Ministry of Internal Affairs and Communications, *Japan Monthly Statistics Information and Communication Service Subscribers and Contracts*, 2009. Analysys Mason, *Fixed Broadband: connections and penetration*, October 2009. Company reports. NBN Co Forecast: based on an average of 6,200 premises passed per day (versus forecast daily run rate in a range of between 5,700 to 6,800 premises passed per day during peak construction activity). This compares to a forecast in the 2011-13 Corporate Plan of 6,000 premises per day (rounded, versus forecast daily run rate of 5,900 premises passed per day).

NBN Co expects that, over the 3 years to June 2015, it will take an average of 12 months from the commencement of the detailed design in each location to the time when premises are Ready For Service (**RFS**) and a connection order can be placed. The 12 months is expected to reduce over the 3 years, taking somewhat longer than 12 months as the rollout begins and reducing below 12 months in the latter part of the 3 year period.

5.4 Fixed Wireless and Satellite

5.4.1 Wireless Access Service and Satellite Access Service

The NBN Co Wireless Access Service (**WAS**) and long term Satellite Access Service (**SAS**) will, to the greatest extent possible, mirror the NBN Co Fibre Access Service. The Fixed Wireless and Long Term Satellite networks will initially provide services to NBN Co's wholesale customers at a peak speed of 12 megabits per second (**Mbps**) in the downlink, 1 megabit per second in the uplink (both at a wholesale level).¹³ Both networks will continue to be upgraded to match the fibre speed tiers when the technology and costs make this possible. The 2012-15 Corporate Plan includes the costs associated with anticipated technology upgrades across both technologies.

¹³ NBN Co is designing the NBN to be capable of delivering these speeds to NBN Co's Retail Service Providers (**RSPs**) and Wholesale Service Providers (**WSPs**) via Fibre, Fixed Wireless and Satellite. Speeds actually achieved by retail End-Users will depend on a number of factors including the quality of their equipment and in-premises connection, the broadband plans offered by their service provider and how their service provider designs its network to cater for multiple End-Users.

5.4.2 Contract with Ericsson and Fixed Wireless First Release Sites

In August 2011, NBN Co announced that the communities of Toowoomba, Tamworth, Ballarat, Darwin and Geraldton would be the first to receive the Fixed Wireless Access Service. Work has commenced on all five sites for the design and construction.

The Fixed Wireless rollout plan that has been developed takes into account the availability of the Transit network, spectrum and likely community consultations for the building of new poles and towers for the Fixed Wireless network.

5.4.3 Long Term Satellite

The planned launch date for the two satellites that form the basis of NBN Co's Long Term Satellite Service remains unchanged from the 2011-13 Corporate Plan, at FY2015. NBN Co has successfully completed agreements for the delivery of the satellites and for essential ground equipment. Work will continue through FY2013 on the planning and design of ground stations and on selecting NBN Co's satellite launch partner.

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6 NETWORK ROLLOUT AND COSTS

6.1 Network Rollout – New Developments

6.1.1 Overview

From 1 January 2011, NBN Co was given responsibility for delivering a fully NBN-compliant wholesale-only, open access network to all New Developments above a certain size inside the long term Fibre footprint of the NBN. In summary, this responsibility, as the 'Infrastructure Provider of Last Resort', is to deploy Fibre to developments in accordance with the Government's Fibre in New Developments Policy (developments of 100 or more lots (over 3 years) within the long term Fibre footprint and selected smaller developments at NBN Co's discretion). This responsibility applies to commercial, industrial and residential developments.

The construction and delivery of Fibre to New Developments is driven by market demand, which varies from State to State, across regions and between individual local growth corridors. If a development meets the qualification criteria set out in the Government's policy, then NBN Co is required to install Fibre ahead of occupants moving into newly-constructed premises. Occupants of premises in New Developments that are connected to the NBN will have Fibre as their only fixed line access. Therefore, NBN Co seeks to meet expected first service connection dates, even if this means that only one premises is connected at the outset. Consequently, NBN Co designs and delivers a Fibre network, including interim Transit, within a very short timeframe. This requires rapid mobilisation and completion across all New Developments nationally.

NBN Co has invested in IT systems specifically for New Developments to enable developers to apply online for a Fibre service. Additional investments in people and processes have been required to establish contracting processes between developers and NBN Co. Developers are required to design and install pit & pipe and conduit lead-in infrastructure ('Fibre-Ready Facilities'), to NBN Co's specifications, and NBN Co is responsible to deliver a wholesale-only, open access Fibre network to all premises constructed in that development.

6.1.2 New Developments Status

Significant changes in the business model for New Developments have taken place since publication of the 2011-13 Corporate Plan:

A. Forecast Premises Connected

In the 2011-13 Corporate Plan it was assumed that NBN Co would accept applications from developers for Greenfields estates that had commenced Stage 5 civil works construction prior to 1 January 2011. These applications for service (totalling in the range of 70,000 - 100,000 premises) had been lodged with Telstra but were included in the 2011-13 Corporate Plan forecasts as it was assumed NBN Co would be required to service these premises.

NBN Co subsequently agreed with Telstra that, due to the age of many of the development service applications, their locations and average size, these development applications should be completed by Telstra. Consequently, these applications are no longer being handled by NBN Co, substantially reducing the Greenfield forecasts for FY2011 and FY2012.

In addition, the 2011-13 Corporate Plan underestimated the significant time lag between the required date of service availability of the first premises in an estate and the connection and activation of all premises on that development. This is particularly lengthy in Broadacre Single Dwelling Units (**SDUs**) developments. In these SDU developments NBN Co is required to provide Fibre across the entire stage of the development (referred to as 'lots passed'); yet, physical premises are constructed and occupied at a much slower rate.

B. Forecast Capital Expenditure

With the rollout of Fibre to New Developments, many of these developments will be connected well before Brownfields deployment occurs and the Transit network is operational. This has required NBN Co to implement interim connectivity arrangements whilst the Transit network is being constructed. As the Transit network is built, connected New Developments sites will be migrated to the permanent network.

The capital investment is front-end loaded and will represent significant additional costs as NBN Co needs to:

- Design and build a Temporary Transit Fibre Network (**TTFN**) as well as extensions of the Distribution network ahead of the NBN Fibre network being deployed in these geographically dispersed and relatively small size areas. These long routes from Telstra exchanges to the estate boundaries represent a significant proportion of the increased forecast costs for New Developments in the 2012-15 Corporate Plan; and
- Provide Fibre access aggregation capability. NBN Co has devised an interim engineering solution, using on-site Temporary Fibre Access Nodes (**T-FANs**) deployed via a roadside cabinet, to enable each development to be connected to an interim Transit service.

NBN Co has designed the architecture to ensure that passive and active assets can be fully utilised in the permanent network. The active and passive assets are identical to those deployed in Brownfields and are therefore able to be re-used. The interim fibre build from the estate boundaries to the managed backhaul service connected at the Telstra exchange location is built to NBN Co's passive specifications and will form part of the Distribution network when the development is connected to the permanent Point of Interconnect (**Pol**). As the Transit network is deployed, the T-FANs will be replaced by permanent FAN sites and all active electronic components in the T-FANs are expected to be re-used in other FAN sites.

Nevertheless in the short term capital investment will exceed premises demand as the equipment capacity will not be fully utilised for some time after the initial development stages (noting that the level of utilisation will differ estate by estate).

The 2012-15 Corporate Plan also takes account of higher design and construction costs due to mobilisation overheads incurred by NBN Co's construction partners. These mobilisation overheads are due to two main factors:

- Having to deploy a workforce in geographically dispersed and relatively small size areas, and therefore not getting economies of scale as envisaged in Brownfields Fibre Service Area Modules (**FSAMs**); and
- Having to respond to multiple truck rolls during the lifecycle of the New Developments, as lots passed become premises passed, and as these premises later become occupied.

C. Forecast Operating Expenditure

As the 'Infrastructure Provider of Last Resort', NBN Co will provide Fibre in eligible developments anywhere inside the long term Fibre footprint, regardless of location and type, where requested to do so by developers. These developments may range from Broadacre SDUs to large vertical MDUs, retirement villages and commercial and industrial developments. The wide dispersion, as well as the diversity of development types, requires national and multifunctional capabilities.

The Operating Expenditure impacts of this requirement include:

- Network Operations field staff have to activate premises across a dispersed geography, with consequent resource and scheduling inefficiencies; the net effect being higher staff numbers and lower productivity;
- Each New Development is connected via a managed interim Transit service, selected from a panel of Service Providers, to the PoI to enable RSPs to deliver services to residents in each New Development. The cost of these managed services varies markedly according to the number of backhaul providers in a particular location. In metropolitan fringe (typically where most Broadacre developments are) and regional areas, there is often minimal backhaul competition and prices are significantly higher; and
- Interim Transit costs are incurred to service the first premises in a new development, even though it may take 12 – 18 months before that development is populated to the point of efficiently using the interim Transit capacity.

The 2012-15 Corporate Plan assumes an increased cost per premises for New Developments to reflect all of the above factors. These costs are based on contracts already entered into or under negotiation.

6.2 Network Rollout – Cost Forecast

6.2.1 Summary of Major Capital Expenditure Changes from 2011-13 to 2012-15 Corporate Plan

- Total Capital Expenditure during the Construction period has increased by \$1.4 billion from \$35.9 billion in the 2011-13 Corporate Plan to \$37.4 billion in the 2012-15 Corporate Plan;
- A reduction in the costs of equipment has been reflected in the 2012-15 Corporate Plan, which is offset by an increase in other costs. These costs relate predominantly to additional labour costs provisioned for factors such as increased network distance estimates, additional works in Customer Connect and Multi-Dwelling Units (**MDUs**), and to higher volumes of ‘Build Drops’;
- The 2012-15 Corporate Plan assumes the terms of the Optus HFC Agreement are fully implemented; the effect being an increase in Capital Expenditure for the migration of the Optus HFC subscribers; and
- Additional Capital Expenditure relating to the implementation of Policy Decisions has been included in the 2012-15 Corporate Plan.

6.2.2 Fibre Network

A. Increased Covered Road and Physical Network Distances

The 2012-15 Corporate Plan has embedded increased covered road distances and therefore increased physical network distances for the Local and Distribution segments of the Fibre network. The Fibre network is now forecast to be fully deployed by passing more than 148,000 kms of covered road distance and 206,000 kms of physical network distance (up from 130,000 kms of covered road distance and 181,000 kms of physical network distance in 2011-13 Corporate Plan, respectively).

The corresponding cable distances have also been increased to accommodate the increased covered road and physical network distances, as well as the deployment of Tether Cables (‘Type 2 Architecture’).

B. Update on Network Design: Design of the Fibre Passive Network (‘Type 2 Architecture’)

NBN Co has designed the passive optical network hierarchy beginning with a Fibre Distribution Area (**FDA**), which connects approximately 200 End-Users over the local Fibre network to a Fibre Distribution Hub (**FDH**). A group of up to 16 FDAs form a Fibre Serving Area Module (**FSAM**). The Distribution network provides diverse optical paths from each Fibre Distribution Hub to the Fibre Access Node, which is usually located in a Telstra exchange. The diverse optical paths allow NBN Co to meet service restoration times in the event of Fibre cuts in the Distribution network.

In the 2011-13 Corporate Plan, NBN Co had based its costing on an architecture informed by overseas deployments (referred to as ‘**Type 1 Architecture**’). As a consequence of the Telstra Definitive Agreements, NBN Co focused attention on optimising the architecture for the re-use of the Telstra duct network and using ‘ribbon’ rather than ‘loose tube’ fibre. This resulted in a change to the passive network design and is now referred to as ‘**Type 2 Architecture**’.

A key aspect of the ‘Type 2 Architecture’ is the use of ribbon fibre technology. Ribbon fibre has been deployed worldwide in large-scale FTTP deployments (for example Korea Telecom and NTT) and continues to be used in existing and new networks.

The ribbon fibre chosen by NBN Co is a 12 fibre matrix, in which 12 fibres are contained within an acrylate coating. This matrix allows for all 12 fibres to be prepared and fusion spliced simultaneously, significantly reducing the cost of equipment and reducing the time to rectify cable cuts.

Decreases in equipment costs have now been factored into the 2012-15 Corporate Plan as a result of this architectural change and also due to fibre equipment contracts already entered into.

6.2.3 Customer Connect

A. Approach to Customer Connect ('Build Drops')

The connection from the street to the premises can be carried out when the distribution and local segments of the Fibre network are being built – a 'Build Drop'; or when an order for a service is received from a Retail Service Provider (**RSP**) – a 'Demand Drop'.

In the 2011-13 Corporate Plan it was assumed that 'Demand Drops' would be used. Further analysis suggests 'Build Drops' from the street to the premises for SDUs and MDUs are the most effective way to minimise mobilisation / de-mobilisation costs and to realise productivity improvements. This is, in part, a consequence of the greater certainty in uptake due to the commencement of the Telstra Definitive Agreements and the Optus HFC Agreement.

The assumptions regarding 'Build Drops' are now as follows:

- Drops to 100% of MDU premises passed to a Premises Connection Device (**PCD**);
- Drops to 90% of Brownfields SDUs to a PCD (assuming 10% non-consent or vacant homes); and
- Drops to 100% of Greenfields SDUs and MDUs to a Network Termination Device (**NTD**) where the premises have been completed (pre-installs).

As part of the review of the 'Build Drop' strategy, incremental costs have been embedded in this Plan for the notification process and access to premises for the installation of the lead-in from street to PCD.

B. MDU Cabling

The 2011-13 Corporate Plan did not differentiate between Single Dwelling Units (**SDUs**) and Multiple Dwelling Units (**MDUs**).

The 2012-15 Corporate Plan incorporates a provision for increased MDU costs relating to the design and cabling of all End-User units inside MDUs, with the following assumptions:

- NBN Co will build, at the same time, the Local network and the drop inside the MDU ('Build Drop'), from the Network Access Point to the PCD; and
- NBN Co will need to have a higher degree of engagement with body corporate entities and undertake site surveys ahead of time, incurring the detailed design and installation costs for the internal cabling of MDUs.

This process is now anticipated to increase costs, on average, above the cost of connecting an SDU, and will be compounded by the diversity in MDU designs, the low number of End-User premises per MDU location (average 9 units per MDU building, excluding duplexes) and the age of these MDUs (lack of riser infrastructure).

C. Activation Costs / Battery Backup

The 2012-15 Corporate Plan reflects the latest estimates of activation costs, from the PCD to the NTD. Partially offsetting increases in activation costs is the assumption that under a 'Must Opt' regime 50% of Fibre End-User premises will elect for a Battery Backup Unit (**BBU**) rather than the 100% mandatory adoption previously assumed in the 2011-13 Corporate Plan.

6.2.4 Fixed Wireless and Satellite Footprints

The 2012-15 Corporate Plan incorporates the latest estimates for the costs relating to the Fixed Wireless Network and the Satellite Network (being the First Release Satellite Services (**FRSS**) and the establishment of the Long Term Satellite Service (**LTSS**) Project).

The Plan additionally includes further network planning and design in the Fixed Wireless network build to maximise utilisation of both launched Satellite capacity and deployed Fixed Wireless capacity.

Fixed Wireless costs have been reviewed to take account of:

- The latest estimates for the establishment and rollout of the Fixed Wireless network, including contractual arrangements with Ericsson, spectrum acquisition costs and the number of cell sites required over time; and
- The adoption of marginally higher planning take-up assumptions than in the 2011-13 Corporate Plan as a result of the inclusion of anticipated technology upgrades in the Fixed Wireless and Satellite footprint.

The Long Term Satellite Service costs have been reviewed to take account of the latest estimates to supply, launch, and commission new in-orbit satellite capacity (two satellites) and establish the ground segment (build and commission ground station facilities). Contractual arrangements are now in place for the space segment following the award to Space Systems / Loral (**SS/L**) in February 2012 to build two Ka-band satellites and for ground equipment following the award to ViaSat in July 2012.

6.3 IT Systems and Network Releases

NBN Co's core IT capabilities will continue to be enhanced to support the Company's expanding business needs, as well as to provide increasing levels of automation for critical business interactions (for example, with Access Seekers, construction partners and infrastructure providers). Further integrated Operational Support Systems (**OSS**) / Business Support Systems (**BSS**) releases are scheduled for July 2012, November 2012 and March 2013 as well as a number of intermediate platform releases. These releases will provide additional capabilities to support:

- Automation for the construction of 'Build Drops', defect management, and a portal for construction contractors;
- Implementation of the Telstra Definitive Agreements;
- External workforce and demand management for RSPs, Network Operations and Construction Delivery Partners; and
- Expansion of NBN Co Fibre product portfolio with features such as Multicast and Small Business Broadband.

The operation of the NBN Co network, including activation and assurance transactions, will be highly automated through progressive capability being delivered by the OSS programme. During FY2013 the Business to Business (**B2B**) gateway will support increasing levels of automation between NBN Co and Access Seekers on a non-discriminatory basis. Progressive OSS capability releases will enable Access Seekers to monitor their services and operationally support their End-Users.

Following completion of the additional major releases it is anticipated that NBN Co will move towards a continuous delivery model, which will allow quality and tested code to be delivered into production on a continuous basis.

In addition, NBN Co is planning a number of Active Network Releases (**ANRs**) and Passive Network Releases (**PNRs**) to deliver a range of enhanced product and operational business capabilities, including:

- **Active Network Release 3 (ANR3)** will be released for network wide deployment in late 2012 and will deliver Multicast capability and broadband voice enhancements. The technology enablers provide operational capability enhancements.
- **Active Network Release 4 (ANR4)** will be released for network wide deployment in mid 2013 and will deliver Quality of Service (**QoS**) architecture and the capability for higher speeds in the Fixed Wireless network. This will enable the National Connectivity Network (**NCN**) that provides national Layer 2 and Layer 3 services to support NBN Co infrastructure.
- **Passive Network Release 2 (PNR2)** will be released for network wide deployment in late 2012 and delivers passive Fibre network Premises Install Equipment (**PIE**).

The estimated costs of developing and enhancing NBN Co's core IT systems and for supporting additional ANR and PNR have been included in the 2012-15 Corporate Plan.

6.4 Implementation of Optus HFC Agreement

The 2011-13 Corporate Plan did not include the impact of an agreement for the migration of the Optus HFC subscribers to the NBN over time.

The 2012-15 Corporate Plan incorporates the migration of an initial addressable number of 0.5 million Optus HFC subscribers under the Optus HFC Agreement.

6.5 Implementation of Policy Decisions

As noted in Section 4.3, *Policy Decisions*, the 2012-15 Corporate Plan incorporates the implementation of several Policy decisions, being: Points of Interconnect, New Developments, Battery Backup, Fixed Wireless and Long Term Satellite anticipated technology upgrades, Fibre network full coverage of Band 1 and Band 2, Public Information on Migration (**PIM**), USO Payphones, Public Interest Premises (**PIPs**), and TUSMA Levy.

No other outstanding policy decisions have been quantified and incorporated into the 2012-15 Corporate Plan.

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7 MARKET ENVIRONMENT AND PRODUCTS

7.1 Market Environment Update

7.1.1 Market Demand Assumptions Remain the Same

Market developments and trends in the past year have been in-line with (or ahead of) expectations, supporting NBN Co's core revenue assumptions contained in the 2011-13 Corporate Plan. As further explained below, the following key revenue drivers remain largely unchanged from the 2011-13 Corporate Plan. Key points include:

- Strong data usage growth has continued since 2011-13;
- Fixed broadband speed growth has been restricted on legacy non-fibre networks;
- NBN Co's pricing model has been validated by the market; and
- Residential wireless-only homes are within expectations.

With commercial services recently launched, the integration and analysis of actual End-User data will be included in future updates to the Corporate Plan.

7.1.2 Data Usage Growth

Data usage continues to increase at an annual rate considerably higher than that assumed in the 2011-13 Corporate Plan, as indicated by the following range of recent external benchmark growth rates, see Exhibit 7-1.

Exhibit 7-1: Summary of Data Usage Benchmarks

Key Benchmarks	Data Usage per month	Growth %
Australia		
ABS – Historical trend - Fixed Broadband Downloads per subscriber (GB / mth) (ABS 8153.0, December 2011)	Q42011 – 20 GB/month	80% YoY 51% 3yr CAGR
Telstra – Historical trend - Broadband data traffic per user on the Copper Network (Telstra AGM Explanatory Memorandum - Grant Samuel Report, 2011)	n/a	FY11 - 80% YoY
International		
TeleGeography – Historical trend - International bandwidth usage (Global Bandwidth Research, July 2012)	n/a	57% 4yr CAGR (2007-11)
Hong Kong – Historical trend – Broadband Internet Traffic Volume divided by subscribers (Office of the Communications Authority, 2012)	Dec-2011 – 76 GB/month	43% 10yr CAGR (from Dec-2001)

Ericsson – Global Forecast - Fixed
Broadband Traffic growth
(Traffic and Market Report, June 2012)

n/a

30% 6yr CAGR (2011-2017)

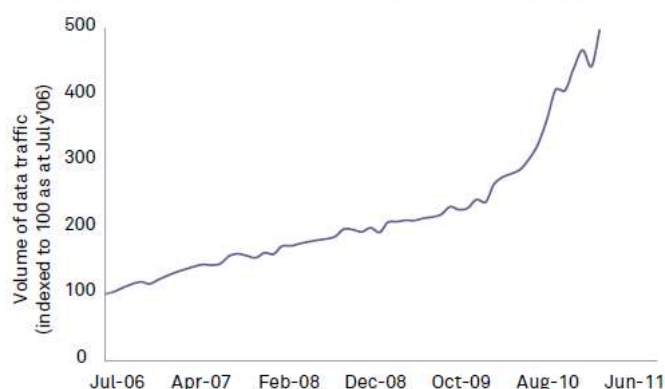
Source: Various as listed above

The strong recent data usage growth trend, primarily as a result of End-Users utilising a greater share of their allocated data allowances, is supported by data from the following sources:

- Australian Bureau of Statistics (**ABS**) Internet Activity Survey (ABS 8153.0¹⁴) in December 2011 shows that:
 - Average traffic per fixed broadband subscriber increased 80.5% over the last 12 months, from 10.8 GB/month to 19.5 GB/month. Total reported data usage increased by 80.2% or an increase of 51,256 TB/month (from 63,885 TB/month to 115,141 TB/month) over the last 12 months. The total average blended (fixed and mobile) monthly usage per user (the ABS Fixed plus Wireless categories) is now circa 10.4 GB/month (a 57.8% or 3.8 GB/month increase compared to the December 2010 Quarter results). The blended (fixed and mobile) monthly usage per subscriber growth of 57.8% is a result of an 80.5% growth in fixed line monthly usage per subscriber and 5.6% growth in mobile monthly usage per subscriber over the 12 months to December 2011; and
 - Fixed broadband data accounted for 93.3% of the total monthly data downloaded over the period.
- Telstra AGM Explanatory Memorandum¹⁵ cites that the company had witnessed an “80% growth in broadband data traffic per user on the Copper Network in the financial year ended 30 June 2011” (refer to Exhibit 7-2).

Exhibit 7-2: Telstra’s Fixed Broadband Traffic Growth

FIGURE 8: TELSTRA’S FIXED BROADBAND TRAFFIC GROWTH



Source: Grant Samuel Report, Page 13¹⁶

¹⁴ <http://www.abs.gov.au/ausstats/abs@.nsf/mf/8153.0?OpenDocument>.

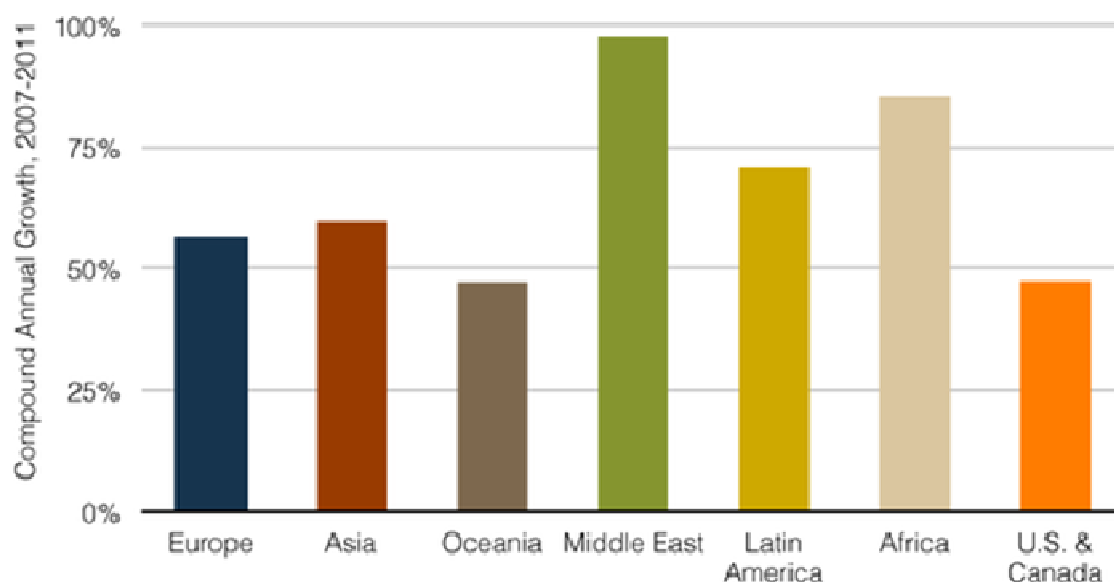
¹⁵ Telstra AGM Explanatory Memorandum 2011 (Page 13).

<http://telstra.ice4.interactiveinvestor.com.au/telstra1101/ExplanatoryMemorandum2011/index.html>.

¹⁶ <http://www.telstra.com.au/abouttelstra/download/document/Explanatory-Memorandum.pdf>.

Globally, data from TeleGeography's Global Bandwidth Research Service (July 2012) reveals that demand for international bandwidth grew 45% in 2011, and at a compounded rate of 57% annually between 2007 and 2011. International bandwidth requirements in Asia and Europe grew at a compounded rate of more than 55% between 2007 and 2011, while international bandwidth demand in North America and Oceania grew 47%, as shown below.

Exhibit 7-3: Used International Bandwidth Growth by Region, 2007-2011



Source: TeleGeography July 2012

Broadband is expected to remain the dominant fixed-line revenue growth driver over the period covered by the 2012-15 Corporate Plan. Strong usage growth is expected as real-time on-demand traffic increases with the introduction of new Internet Protocol Television (**IPTV**) products released to the market and an increased adoption of digital devices and cloud-based applications. This has been evidenced by:

- Telstra Connected Home Index report showed that customers are now equally likely to choose to stay at home and download movies via the internet or watch Video-on-Demand (**VoD**) on their TV as they are to visit the cinema. Furthermore, 68% also agreed that the introduction of IPTV products had increased their home entertainment experience with the most popular features being downloading and watching movies (31%);¹⁷
- Telstra research in 2011 found that the average Australian home had four net-connected devices. In the preceding year half of those homes had added at least one more;¹⁸

¹⁷ Telstra Connected Home Index Report <http://www.telstra.com.au/abouttelstra/media-centre/announcements/telstra-switches-on-new-iptv-content-and-apps.xml>.

¹⁸ Telstra doubles plan data allowance for Broadband subscribers <http://www.telstra.com.au/abouttelstra/media-centre/announcements/double-the-data-boost-for-telstra-bundle-customers.xml>.

- Telstra upgraded their fixed broadband plans, which included the introduction of a 500 GB plan. Telstra cited “*increased concurrent device usage*” from subscribers¹⁹ as the underlying factor behind this decision;
- Market Clarity²⁰ reported that the median broadband usage allowance plan had increased from 55 GB in 2010 to 200 GB in 2011, an increase of 264%; and
- The lack of comparable IPTV products and services in the local market has meant that Australia is yet to experience the full data impact from this segment, however, given the rate of new product releases, it is expected that this is only a matter of time. In February 2012,²¹ Home Box Office (**HBO**), a subsidiary of Time Warner, took a 10% share in local media startup Quickflix, which is looking to emulate the success of Netflix in the US. Netflix now makes up 33% of peak downstream fixed access network traffic²² in the US. HBO has developed a range of streaming movie options to either internet connected TVs, game consoles or via web browsers, in addition to a mail-order DVD rental business purchased from BigPond in 2012.

There has also been an observed increase in the level of investment in Data Centres and international capacity builds over the last 12 months.

- Over the last 18 months a range of international and local companies, including Hewlett Packard, Dell, Amazon, Equinix, Telstra, Leighton and NextDC have all announced plans to build new data centres in Australia.²³ These new builds have been justified by increasing data consumption, which has resulted from higher video usage and the adoption of cloud-based services and applications;
- Leighton Contractors announced the construction of a new Perth to Singapore cable which could provide up to 16 Tbps at full capacity. In addition a US\$100 million internet cable between New Zealand and Sydney will be built creating more capacity; and
- Existing international cable networks Southern Cross Cable²⁴ and Australian Japan Cable²⁵ announced capacity upgrades to their existing international cable networks. Both companies have upgraded their current 10 Gbps platforms to 40 Gbps with an ability to further scale to 100 Gbps in the future.

¹⁹ Telstra Plan Upgrade <http://exchange.telstra.com.au/2011/09/19/better-value-again-for-all-bigpond-customers/>.

²⁰ Closing the Trans-Tasman Broadband Value Gap: Comparing Prices in Australia and New Zealand <http://www.marketclarity.com.au/freebies/>.

²¹ <http://investor.quickflix.com.au/IRM/Company/ShowPage.aspx/PDFs/1836-30088996/InvestmentbyTimeWarnersHomeBoxOfficeInc>.

²² Global Internet Phenomena Report: 1H 2012 @ http://www.sandvine.com/news/global_broadband_trends.asp

²³ NextDC Investing \$200 million in new data centre builds in Sydney, Melbourne, Canberra and Perth, Leighton investing \$500 million in expansion plans nationally, Telstra \$800 million in a new Melbourne Data Centre Build.

²⁴ <http://www.southerncrosscables.com/public/home/whatsnewdetail.cfm?WhatsNewID=97>.

²⁵ http://www.arnnet.com.au/article/418455/australia-japan_cable_picks_ciena_upgrade/.

7.1.3 Speed / Bandwidth Growth

Recent trends indicate that while End-Users continue to upgrade their speed tier plans, the End-User experienced speed growth over current fixed broadband infrastructure is starting to slow, supporting the need for fibre.

Australian Bureau of Statistics (ABS) data²⁶ illustrates the demand for faster broadband services. During the year to December 2011 the number of broadband subscribers purchasing high speed broadband services (over 24 Mbps), available at a premium compared to ADSL2+ services, increased by 35%. This group made up 11% of total internet subscribers at year end.

There are signs emerging that the growth in average End-User speeds experienced is beginning to slow in Australia due to DSL limitations. This is illustrated by the fact that largely DSL-based indicative user-tested download speeds (excluding Telstra and Optus) have increased only 12% in the year up to April 2012.²⁷ By comparison, overall speed growth was 36% (up from 30% in the prior year) when Telstra and Optus are included due to the impact of HFC upgrades. This illustrates the underlying demand for higher speeds where the technology is able to provide them.

Responding to the demand for faster speeds, FTTP network operators overseas have begun to offer commercial downstream speeds well in excess of 100 Mbps. Operators include Bredbands Bolaget (Sweden), Superonline (Turkey), Altibox (Sweden & Denmark), and TEO (Lithuania). Hong Kong Broadband Network remains the trailblazer offering 1 Gbps symmetrical services.²⁸

Long term bandwidth demand predictions also remains strong with an Analysys Mason report on access networks for the UK regulator, Ofcom (2010), estimating the continued evolution of residential demand for both upstream and downstream bandwidth. This is being driven by the emergence of e-government, e-health, e-learning, e-business, e-homes, Cloud Computing, IPTV, and Social Networking / User-Generated services. This estimation was based on an extensive research programme, involving consultation with a large number of different stakeholders (operators, equipment vendors, Internet Service Providers (ISPs), regulators and academics).

Exhibit 7-4: Downstream Demand Assumptions for Residential Customers

Figure 3.13: Downstream demand assumptions for residential customers [Source: Analysys Mason]

Timescale	Services	Total downstream bandwidth requirements
2015	2x3DTV channel and 30Mbps Internet	90Mbps
2025	2xHD 3DTV channel and 100Mbps Internet	300Mbps
2035	2xultra-HD 3DTV channel and 300Mbps Internet	900Mbps ²⁸

Source: Analysys Mason 'Review of the efficiency and prudence of NBN Co's Fibre and wireless network design' report March 2012, Page 35, available at <http://www.accc.gov.au/content/index.php?id=1020185>

²⁶ <http://www.abs.gov.au/ausstats/abs@.nsf/mf/8153.0?OpenDocument>.

²⁷ NetSpeed/Ookla national average sample of voluntary user speed tests to September 2011. Source: www.netindex.com/source-data/.

²⁸ <http://www.diffractionanalysis.com/blog/2012/05/09/free-webinar-successful-ftth-service-strategies.html>.

Exhibit 7-5: Upstream Demand Scenario Assumptions

Figure 3.14: Upstream demand scenario assumptions [Source: Analysys Mason]

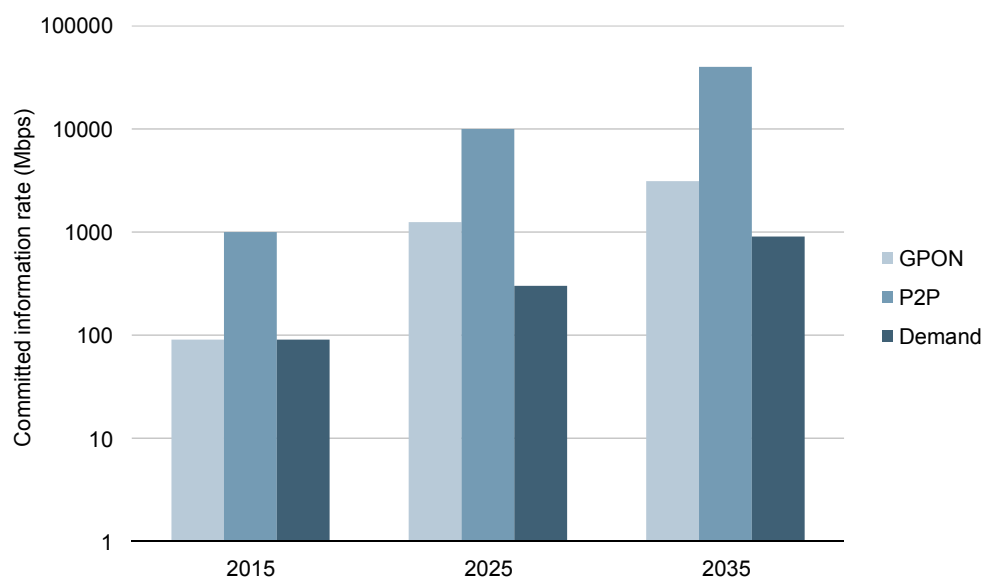
Timescale	Upload type	Upstream bandwidth requirements
2015	<ul style="list-style-type: none"> • Upload 3D video • Upload large file (50MB in 1 minute) 	<ul style="list-style-type: none"> • 30Mbps • 10Mbps
2025	<ul style="list-style-type: none"> • Upload HD 3D video • Upload large file (300MB in 20 seconds) 	<ul style="list-style-type: none"> • 100Mbps • 120Mbps
2035	<ul style="list-style-type: none"> • Upload ultra-HD 3D video • Upload large file (1GB in 20 seconds) 	<ul style="list-style-type: none"> • 300Mbps • 400Mbps

Source: Analysys Mason 'Review of the efficiency and prudence of NBN Co's fibre and wireless network design' report March 2012, Page 35, available at <http://www.accc.gov.au/content/index.phtml/itemid/1020185>

From their analysis, it can be seen that a ten-fold increase in demand is expected between 2015 and 2035. This indicative prediction was re-confirmed in a 2012 report on the 'Review of the efficiency and prudence of NBN Co's fibre and wireless network design' by Analysys Mason commissioned for the NBN Co Special Access Undertaking (SAU) submission.²⁹

Exhibit 7-6: Downlink Bandwidth Requirements vs. Evolution of Technology Bandwidth

Figure 3.15: Downlink bandwidth requirements vs. evolution of technology bandwidth [Source: Analysys Mason]

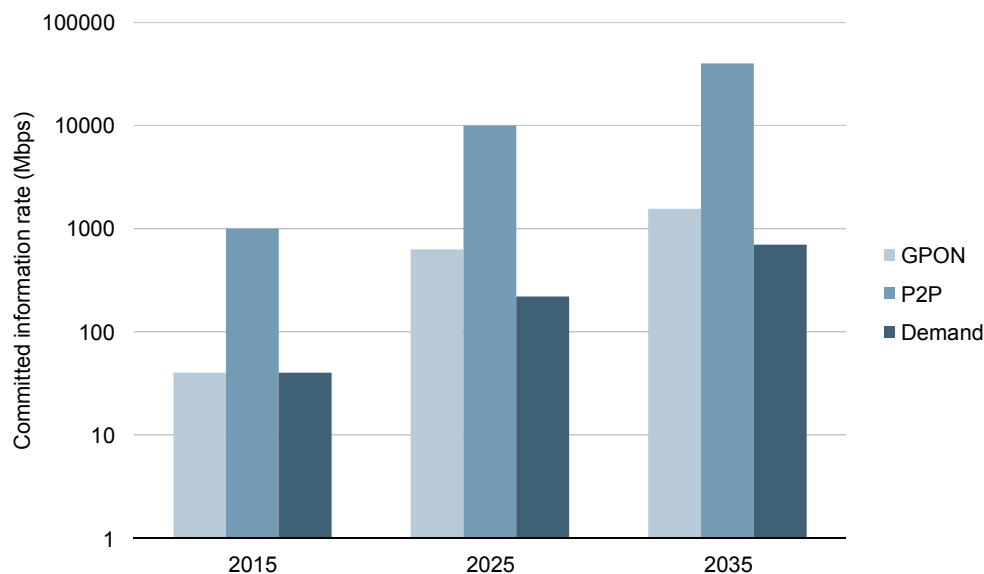


Source: Analysys Mason 'Review of the efficiency and prudence of NBN Co's fibre and wireless network design' report March 2012, Page 36, available at <http://www.accc.gov.au/content/index.phtml/itemid/1020185>

²⁹ <http://www.accc.gov.au/content/index.phtml/itemId/1020185>.

Exhibit 7-7: Uplink Bandwidth Requirements vs. Evolution of Technology Bandwidth

Figure 3.16: Uplink bandwidth requirements vs. evolution of technology bandwidth [Source: Analysys Mason]



Source: Analysys Mason 'Review of the efficiency and prudence of NBN Co's fibre and wireless network design' report March 2012, Page 36, available at <http://www.accc.gov.au/content/index.php?id=1020185>

7.1.4 Wireless-only Homes (Residential Market)

The 2011-13 Corporate Plan assumed that 'Wireless-only Homes' grow from 13% in FY2011 to 16.3% in FY2020. These assumptions have been retained in the 2012-15 Corporate Plan.

Roy Morgan Research surveys have found homes without a fixed line voice service ('Voice Wireless-only Homes') averaged approximately 11.5% of households during FY2011, up from approximately 10% in FY2010. Of these households a proportion subscribe to either a fixed line broadband service (Naked DSL or HFC broadband), and / or a cable based Pay TV service. Roy Morgan data indicates that, during FY2011, 20% of households without a fixed line voice service had either both fixed broadband or Pay TV. This suggests that approximately 9.5% of households (FY2011 average) do not have any form of fixed line service, compared with the assumption of 13% in the 2012-15 Corporate Plan.

This assessment aligns with the assessment previously undertaken by Ovum for the preparation of the 2011-13 Corporate Plan.

7.2 Product Development

7.2.1 Product Overview

The NBN Co product set is being offered as follows:

- A uniform product construct across Fibre, Fixed Wireless and Satellite – featuring the same four product components³⁰ across each access network and based on the technology-agnostic Ethernet bitstream framework;

³⁰ Access Virtual Circuit (AVC) – bandwidth allocated to End-User premise.

- A 12 Mbps downstream and 1 Mbps upstream³¹ entry-level offer at a wholesale level across all three access networks³² at the same wholesale price; and
- A Fibre product with speed options of up to 1 Gbps (1000/400 Mbps downstream/upstream)³³ will be introduced in 2014 with initial speed options up to 100/40 Mbps. In all cases speeds are at a wholesale level only.

The NBN Co product roadmap will be delivered across six 'Product Releases' for the Fibre offering, and two releases each for both the Fixed Wireless and the Satellite offering. The first releases of both the Fibre and Satellite products were completed in 2011 and the initial release of Fixed Wireless in April 2012.

NBN Co has implemented two traffic classes that are distinguished in capability and performance. They are designed to accommodate the widest variety of applications on the NBN. Access Seekers may take advantage of these traffic classes to provide more tailored performance and effective utilisation of the NBN. Traffic Class_1 (**TC 1**) provides a committed level of premium capacity on the NBN. It is targeted towards applications that require deterministic performance and are likely to be sensitive to packet loss such as real-time, interactive applications e.g., voice. Traffic Class_4 (**TC 4**) provides capacity on a 'best efforts' basis and is targeted at browser-based applications, such as email and internet. Traffic is marked on from the End-User premises on the Access Virtual Circuit (**AVC**) and is queued at the Connectivity Virtual Circuit (**CVC**) according to that marking. The traffic classes on the Connectivity Virtual Circuit are all committed capacity to an individual Customer. NBN Co plan to introduce two further traffic classes in 2013 to support business specific applications and networking.

7.2.2 2012 Product Development Achievements

Building on the core foundation Fibre and Satellite capability of 2011, NBN Co continues to develop and launch product features to market. NBN Co has also continued its consultation and collaboration with the industry on future product releases.

In December 2011, NBN Co released two consultation papers - an update to its Product and Pricing Overview and a Business Service paper. Feedback on the papers is being used to craft the product requirements and scheduled launch dates. These consultation papers were coupled with three network discussion papers on Traffic Performance, Network to Network Interface Redundancy and Network Availability.

In March 2012, the 3 year Initial Product Roadmap was published on the NBN Co website. This document sets out the detailed features and functionality to be delivered to 2015. It will be updated quarterly and is a key communication vehicle with the industry.

Connectivity Virtual Circuit (**CVC**) – aggregated capacity acquired within each Point of Interconnect (**Pol**) service area.
User Network Interface (**UNI**) – data and voice ports at the End-User premise.

Network-to-Network Interface (**NNI**) – data port at the Point of Interconnect (**Pol**).

³¹ See footnote 13 in relation to factors affecting End-User speeds.

³² Satellite access networks means the Long Term Satellite Service (**LTSS**) after 2015.

³³ See footnote 13 in relation to factors affecting End-User speeds.

In March 2012, Multicast became available to Access Seekers in the National Test Facility ‘sandpit’ as an Alpha Release with a targeted launch date of late third quarter 2012. The Facilities Access product was launched in May 2012 in line with the availability of the first permanent Points of Interconnect (**Pois**).

The first release of Fibre was enhanced in June 2012 when Network-to-Network Interface (**NNI**) redundancy options became available, including the options for long range interfaces on this product component.

The Initial Release of the Fixed Wireless Access Service was achieved in April 2012. This release provides a 12 Mbps downstream and 1 Mbps upstream,³⁴ similar to NBN Co’s Fibre product with general release scheduled for third quarter of calendar year 2013.

NBN Co continues to perform ‘Customer Focused Design’ analysis of each product that it launches to market. In line with NBN Co’s commitment to quality and to Access Seekers, these projects seek to understand the strengths and opportunities for improvement for each product after it has been launched. These projects focus on the product experience of both Access Seekers and individual End-Users.

7.2.3 Next Steps for NBN Co Products Development

The key future product releases for NBN Co are focussed on servicing commercial premises, be they small or home offices, medium business or large enterprises. Fibre product releases 3, 4 and 5 will all focus on the business market. Product Release 3 will deliver an initial product set for business, which will include additional service levels. Product Release 4 will include additional traffic classes to ensure that business traffic can be prioritised as it is carried over the NBN. Product Release 5 will focus on high data availability for large enterprises and will include redundant links and additional service levels.

NBN Co is also planning to launch the ‘Product Development Forum’, which is a collaboration tool where Access Seekers are able to submit ideas to NBN Co for future Layer 2 products.

7.3 NBN-Based Retail Plans

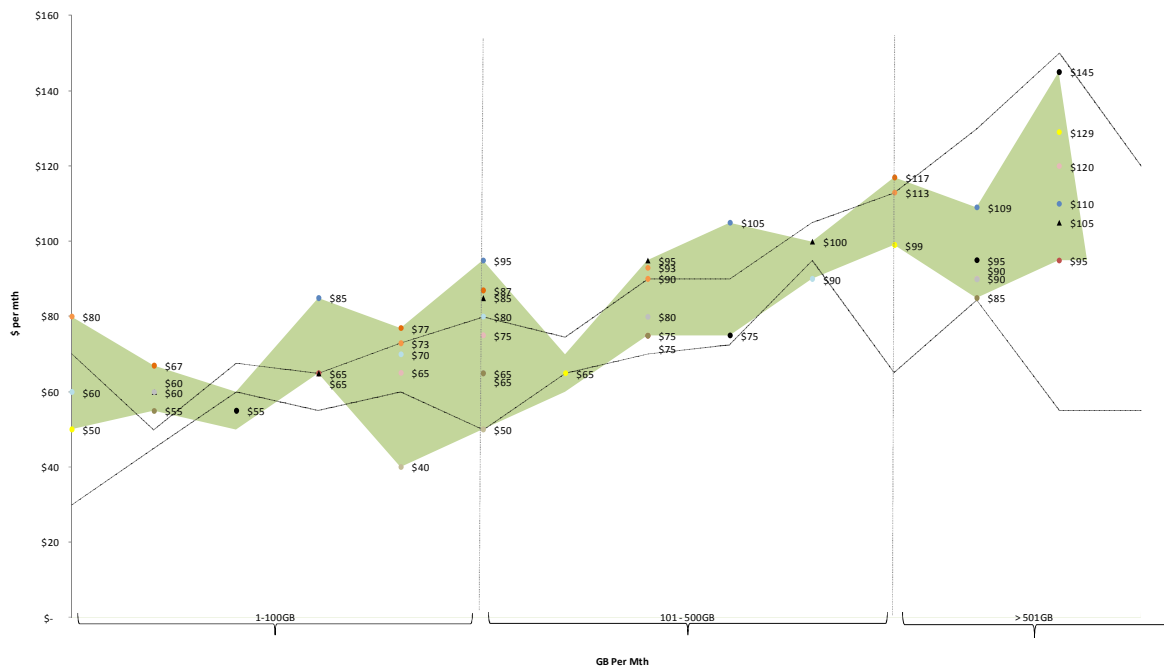
7.3.1 Retail Plans Overview

The launch of commercial retail services has confirmed that the pricing construct developed by NBN Co will achieve the objectives initially set. NBN services are now commercially available to End-Users with prices comparing well with the alternatives, ADSL 2+ and HFC broadband. As at June 2012, all major Retail Service Providers (**RSPs**) with the exception of TPG Telecom had released NBN retail plans to market. Currently:

- More than 500 NBN plans (total permutations) are in the market from 15 RSPs, including both Fibre and Satellite services;
- Benchmark setters Telstra and Optus priced offers equivalent to existing Copper / HFC services;

³⁴ See footnote 13 in relation to factors affecting End-User speed.

Exhibit 7-9: Comparative Bundled Pricing NBN Retail 25/5 Mbps – ADSL 2+

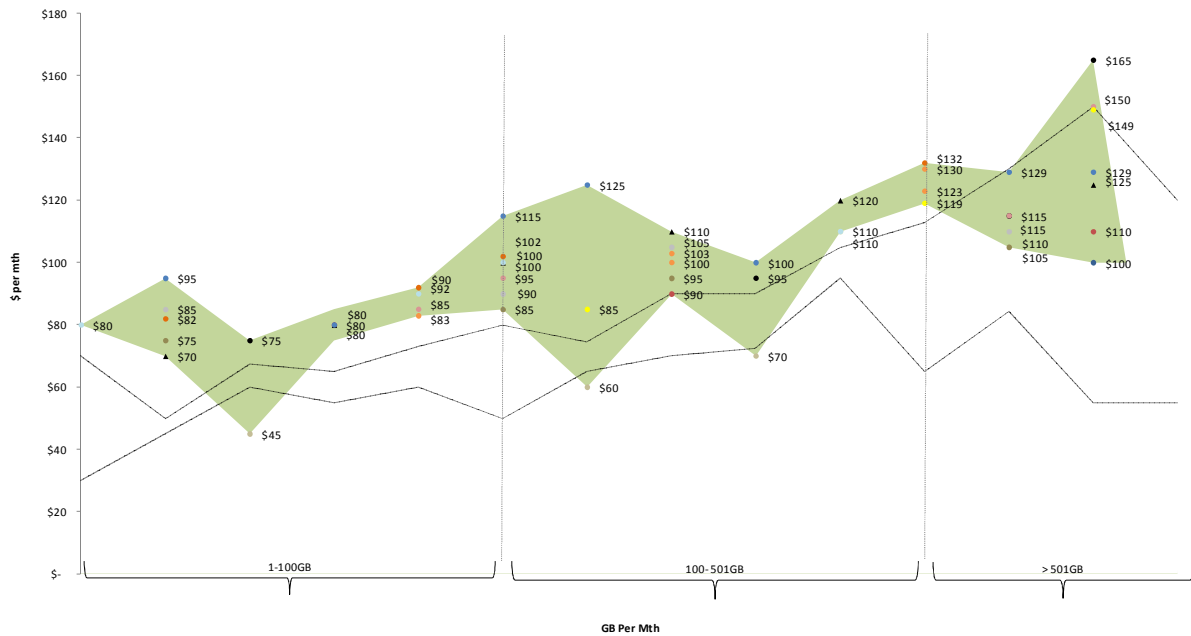


Source: NBN Co, Analysis based on RSPs published pricing as at June 2012, reflecting circa ~90% of market share.

Note: *The shaded Green area represents the range of bundled NBN plans in the market at the indicated speed tier.

**The range of bundled ADSL plan price points in the market are depicted by the area between the 2 solid lines on the chart.

Exhibit 7-10: Comparative Bundled Pricing NBN Retail 100/40 Mbps – ADSL 2+



Source: NBN Co, Analysis based on RSPs published pricing as at June 2012, reflecting circa ~90% of market share.

Note: *The shaded Green area represents the range of bundled NBN plans in the market at the indicated speed tier.

**The range of bundled ADSL plan price points in the market are depicted by the area between the 2 solid lines on the chart.

7.3.2 NBN Wholesale Pricing Overview

While current NBN retail pricing at the 25/5 Mbps speed tier is highly competitive with equivalently bundled retail ADSL pricing in the market, the underlying wholesale costs for the service are even more compelling.

When compared to both the ACCC's Interim Access Determination charges and Telstra's initial proposed rates for wholesale ADSL services, comparable NBN port wholesale rates are up to 27% cheaper than Telstra's Zone³⁷ 2/3 rate and up to 12% cheaper than the finally declared ACCC rate.

As shown in Exhibit 7-11 AGVC, NBN Co's CVC charges are approximately 60% cheaper than Telstra's proposed AGVC per Mbps charge and approximately 40% per Mbps cheaper than the post June 2012 rate declared by the ACCC.

Exhibit 7-11: Comparative Wholesale Pricing NBN vs. Telstra

	Telstra Proposed Wholesale ADSL Pricing January 2012 ³⁸	ACCC Interim Access Determination February 2012 ³⁹	NBN 25/5 Pricing December 2011 ⁴⁰
Zone 1	\$30.00	\$25.40	\$27.00
Zone 2/3	\$37.00	\$30.80	\$27.00
AGVC / CVC (per Mbps)	\$55.00	\$40.50 * / \$33.65**	\$20.00

* until 31/6/2012

** from 1/7/2012

Source: NBN Co, Telstra, ACCC

Note: Telstra requires service provider purchasing wholesale DSL services to purchase Aggregating Virtual Circuits (AGVC)

Note that additional charges are applicable in order to provide a fully working service. NBN Co is required to offer interconnect at 121 locations, while customers of Telstra's wholesale DSL services interconnect at state capital locations.

7.3.3 Initial Customer Response to NBN Pricing

Initial take-up of commercial services and the results of purchaser intention surveys are both indicating that the mix of speeds to be acquired by End-Users could be higher than the average speed forecast reflected in the 2012-15 Corporate Plan. NBN Co's pricing and product value proposition is proving to be attractive to the initial pool of End-Users. The bandwidth demand assumptions of future Corporate Plans will be further reviewed as the customer base moves beyond the initial mix of early adopters and trial participants.

³⁷ "... At a wholesale level, Telstra charges some wholesale customers different prices for ports in different geographic areas. The ACCC understands that Telstra characterises ESAs into 'Zone 1' or 'Zone 2/3' for its wholesale customers based on whether there is actual or potential DSLAM-based competition."

Source: Declaration of the wholesale ADSL service under Part XIC of the Competition and Consumer Act 2010, Final Decision, Page 35; February 2012.

Website: <http://www.accc.gov.au/content/item.phtml?itemId=1032837&nodeId=470c5fa5cc54ef5632e868cbb91ade22&fn=Declaration%20of%20the%20wholesale%20ADSL%20service%20-%20final%20decision%20paper.pdf>

³⁸ Telstra:

<http://www.accc.gov.au/content/item.phtml?itemId=1028700&nodeId=42fac81417face176936f1638f65aaa1&fn=Telstra%20-%20Public%20submission%2019%20January%202012.pdf>

³⁹ ACCC: <http://www.accc.gov.au/content/index.phtml/itemId/1039811>.

⁴⁰ NBN Co: <http://www.nbnco.com.au/assets/documents/product-and-pricing-overview-dec-11.pdf>.

8 REVENUE FORECASTS

8.1 Snapshot of Revenue Forecasts

Exhibit 8-1: Revenue Plan – Forecast Summary

Revenue													
June YE	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2028	FY2040
Premises Passed or Covered ('000s Premises)													
FTTP Premises	18	39	341	1,307	2,912	4,625	6,279	7,838	9,283	10,783	12,202	13,467	15,435
Fixed Wireless & Satellite Premise	165	174	320	374	752	907	921	934	948	961	974	1,055	1,181
Total Premises Passed	183	213	661	1,681	3,664	5,532	7,200	8,772	10,230	11,744	13,176	14,522	16,616
Premises Connected ('000s Premises)													
FTTP Premises	1	4	54	487	1,515	3,036	4,341	5,594	6,695	7,607	8,513	10,010	11,464
Fixed Wireless & Satellite Premise	0	10	38	64	100	145	161	191	206	219	232	303	399
Total Premises Connected	1	14	92	551	1,615	3,181	4,502	5,785	6,901	7,827	8,745	10,313	11,863
Gross Revenue (\$M)	-	2	18	120	529	1,346	2,281	3,221	4,200	5,167	6,175	9,769	14,597

Source: NBN Co

8.2 Revenue Plan

NBN Co's overall Revenue forecasts are broadly similar to those in the 2011-13 Corporate Plan (see Exhibit 8-2). The 2012-15 Corporate Plan has relatively lower Revenues in the early years, mainly due to slower deployment of the Fibre access network, and relatively higher Revenues in the later years, mainly due to the addition of an initial addressable number of 0.5 million Optus HFC subscribers under the Optus HFC Agreement.

The assumptions underlying the initial revenue projections contained in the 2011-13 Corporate Plan have continued to be refined as NBN Co has had the opportunity to test the market, albeit on a relatively limited scale so far, and to identify new potential sources of revenue. Adjustments in the rollout profile, particularly for the Fibre network and New Developments, have also impacted the revenue plan, as has the assumption that Optus HFC subscribers will migrate to the NBN over time.

As discussed in Section 7.1.2, *Data Usage Growth*, and Section 7.1.3, *Speed / Bandwidth Growth*, recent market data supports the 2011-13 Corporate Plan assumptions around speed and data usage growth. These trends are further supported by the initial composition of services activated and the level of usage seen across the NBN Co network. While retaining data usage and product mix assumptions largely unchanged, there remains significant uncertainty as to whether – and for how long – the historic Compound Annual Growth Rate (**CAGRs**) of the past 10-15 years can be maintained over the longer term. NBN Co continues to evaluate the potential upside from additional services to the projected revenue base.

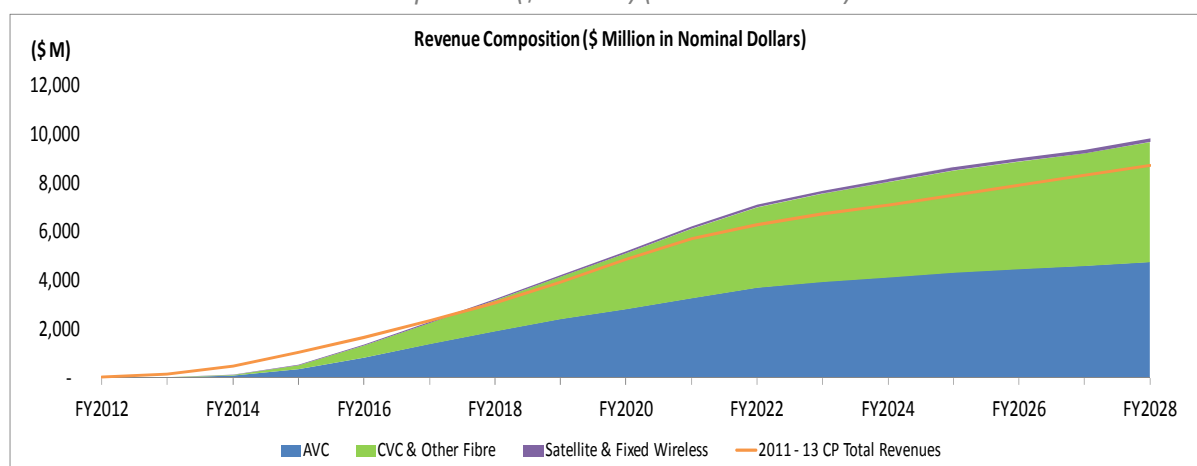
The 2012-15 Corporate Plan retains the assumption that both CVC and AVC prices will fall over time in both real and nominal terms. NBN Co retains the flexibility to modify the rate at which future prices are decreased in the event that actual data usage and / or speed growth is higher or lower than assumed in the 2012-15 Corporate Plan – for example, should actual data usage growth exceed the assumed growth rate then NBN Co would be able to reduce prices more quickly and still maintain the same overall return.

The major changes in the revenue plan compared with the 2011-13 Corporate Plan are as follows:

- Inclusion of Optus HFC subscribers migrating to the NBN;
- Adjustments to forecast connections resulting from deployment changes, notably in New Developments;
- Rebalancing the profile of AVC tiers to reflect the initial composition of speed tiers being taken up over the National Broadband Network;
- Minor adjustments to AVC and CVC pricing profiles; and
- Adjustments to Fixed Wireless and Satellite Revenues, resulting from higher take-up due to the introduction of anticipated technology upgrades.

Incorporating these assumptions results in a revenue profile as illustrated in Exhibit 8-2.

Exhibit 8-2: Forecast Revenue Composition (\$ Million) (Nominal Dollars)



Source: NBN Co

8.2.1 Optus HFC Subscribers

As noted in Section 1.1, *Introduction to the 2012-15 Corporate Plan*, the Optus HFC Agreement has been given final authorisation from the ACCC on 19 July 2012 and the impact of that agreement has been included in the base case for the 2012-15 Corporate Plan.

Optus reported 496,000 subscribers on its HFC network at the end of March 2012. The 2012-15 Corporate Plan assumes an initial addressable number of 0.5 million subscribers under the Optus HFC Agreement.

This assumption differs to the 2011-13 Corporate Plan, which assumed that these subscribers would remain on the Optus HFC network. The impact is to increase Revenues in the 2012-15 Corporate Plan, both through higher subscriber numbers and through a positive impact on ARPU (see Section 8.2.4, *AVC Product Mix*).

8.2.2 New Developments

NBN Co has updated the premises growth forecast for New Developments to reflect current softness in short-to-medium term construction supply and economic conditions, while still aligning with underlying housing demand growth in the longer-term (based on population growth projections).

FY2012 has seen building commencements and approvals for residential dwellings continue to decline. These lower levels are expected to continue into FY2013 resulting in lower completion volumes through to FY2014 than previously expected.

- Short-term cumulative premises growth has been revised down by (14)% through to FY2014. This is based on a range of recent Australian Bureau of Statistics (**ABS**) dwelling construction 'Approvals' and 'Starts', Construction Industry and Bank Industry Dwelling starts and Investment projections; and
- No significant change has been made to longer-term assumptions as the market is assumed to upturn to a level supporting future underlying demand in residential households. NBN Co's long term forecasts have been referenced to residential household growth rates, assuming a FY2012 to FY2025 Compound Annual Growth Rate (**CAGR**) of 1.6% p.a., from ABS forecasts.

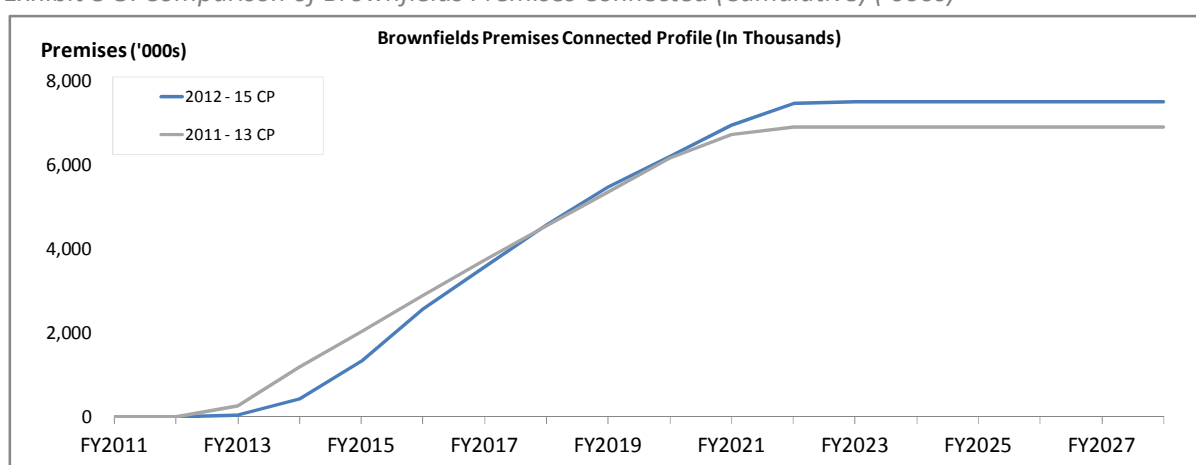
The above factors result in a forecast average growth in the FTTP footprint of approximately 163,000 new occupied residential and business sites each year over the period FY2010 to FY2025 and an average growth of approximately 154,000 per year over the period FY2010 to FY2040.

8.2.3 Connections Profile

As discussed in Section 5, *Deployment Forecasts*, connections forecasts have been revised to incorporate the following:

- Integration of revised deployment forecasts;
- Integration of the Optus HFC agreement, which is forecast to increase the number of connections over time as outlined in Section 8.2.1, *Optus HFC Subscribers*.

Exhibit 8-3: Comparison of Brownfields Premises Connected (Cumulative) ('000s)

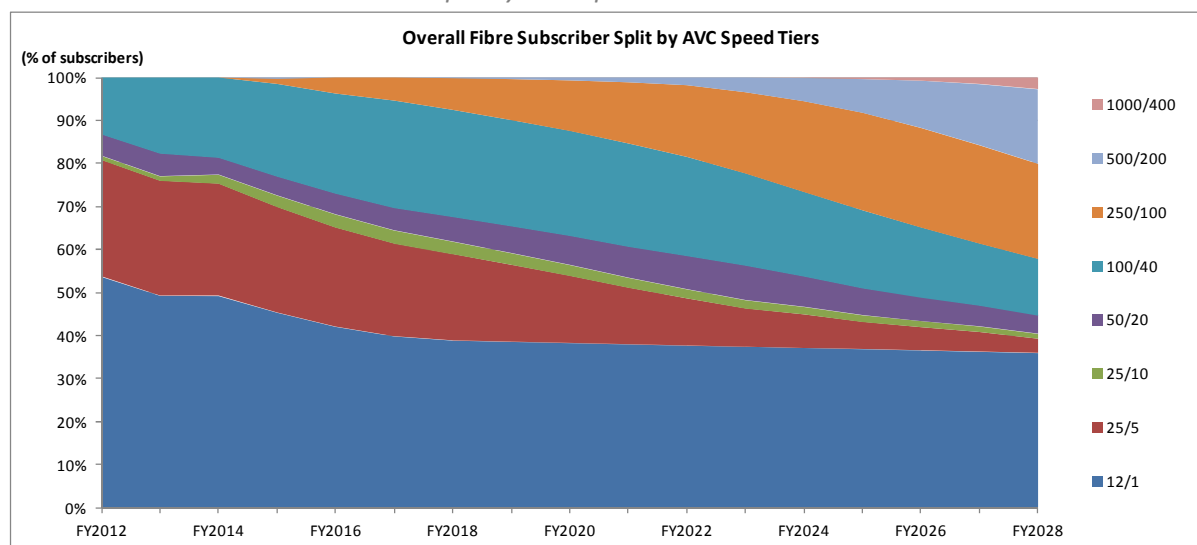


Source: NBN Co

8.2.4 AVC Product Mix

The profile of speed tiers forecast to be purchased by End-Users has been revised reflecting the positive impact of the inclusion of high download speed services migrated from the Optus HFC network and the market reaction to the launch of commercial NBN Co Fibre services. The marketing of retail fibre offerings from the major RSPs (Telstra and Optus) have focused on the 25/5 and 100/40 Mbps tiers, and this has been reflected in the take-up across the initial rollout footprint. This has resulted in a redistribution in the 2012-15 Corporate Plan in favour of the 25/5 and 100/40 Mbps products when compared to the 2011-13 Corporate Plan and is illustrated in Exhibit 8-4.

Exhibit 8-4: Overall Fibre Subscriber Split by AVC Speed Tiers



Source: NBN Co

The forecast of average speed provisioned remains unchanged from the 2011-13 Corporate Plan beyond FY2021, and a substantial proportion taking 12/1 Mbps services retained throughout reflecting expected demand from low-end broadband and voice only End-Users.

8.2.5 Data Usage

The long term assumptions used to forecast demand for CVC have largely been retained from the 2011-13 Corporate Plan base case assumption - Option (A1).

As discussed in Section 7.1.2, *Data Usage Growth*, data usage continues to increase at an annual rate considerably higher than that assumed in the 2011-13 Corporate Plan. The approach adopted for the 2012-15 Corporate Plan reflects the continued confidence that medium-term growth in data usage can be sustained but recognises that visibility of long term growth remains limited. In the event that actual CAGR for data usage exceeds NBN Co's assumptions, pricing may be adjusted accordingly (i.e. reduced more rapidly) in order to maintain overall Revenue levels.

8.2.6 NBN Co Pricing

The exhibits below summarises NBN Co's current pricing construct. These prices are consistent with the 2011-13 Corporate Plan,⁴¹ subject to:

- Exhibit 8-5 now includes a 6/1 Mbps Access Virtual Circuit (**AVC**) tier for the First Release Satellite Service (**FRSS**);
- Exhibit 8-6 now reflects the introduction of a 300 Kbps Traffic Class 1 tier; and
- Exhibit 8-7 is also amended with a new tier for the First Release Satellite Service (**FRSS**).

Exhibit 8-5: Access Virtual Circuit (AVC) Pricing

AVC TIER	ACCESS CAPACITY				MONTHLY RECURRING CHARGE (Ex-GST)			
	DOWNSTREAM CAPACITY	UPSTREAM CAPACITY	TRAFFIC CLASS	TYPE	FIBRE	WIRELESS	LONG TERM SATELLITE	FIRST RELEASE SATELLITE
6/1 Mbps	6 Mbps	1 Mbps	TC 4	PIR				\$24.00
12/1 Mbps	12 Mbps	1 Mbps	TC 4	PIR	\$24.00	\$24.00	\$24.00	
25/5 Mbps	25 Mbps	5 Mbps	TC 4	PIR	\$27.00			
25/10 Mbps	25 Mbps	10 Mbps	TC 4	PIR	\$30.00			
50/20 Mbps	50 Mbps	20 Mbps	TC 4	PIR	\$34.00			
100/40 Mbps	100 Mbps	40 Mbps	TC 4	PIR	\$38.00			
250/100 Mbps	250 Mbps	100 Mbps	TC 4	PIR	\$70.00			
500/200 Mbps	500 Mbps	200 Mbps	TC 4	PIR	\$100.00			
1,000/400 Mbps	1,000 Mbps	400 Mbps	TC 4	PIR	\$150.00			

Source: NBN Co

Note: See footnote 13 in relation to factors affecting End-User speeds.

⁴¹ Exhibit 8-6 includes rounding adjustments and the correction of a typographical error for Traffic Classes 1 and 3; Exhibit 8-7 also corrects a typographical error in the earlier Network-to-Network Interface (**NNI**) pricing table.

Exhibit 8-6: Pricing for Symmetrical Capacity by Traffic Class and Availability by Platform Technology for Access Virtual Circuits (AVC)

CAPACITY				MONTHLY RECURRING CHARGE (Ex-GST)			AVAILABILITY (AS PER TRAFFIC CLASS)			
ACCESS CAPACITY	DOWNSTREAM CAPACITY	UPSTREAM CAPACITY	TYPE	TRAFFIC CLASS 1	TRAFFIC CLASS 2	TRAFFIC CLASS 3	FIBRE	WIRELESS	LONG TERM SATELLITE	FIRST RELEASE SATELLITE
150 kbps	150 kbps	150 kbps	CIR	\$10.00			YES	YES	YES	
300 kbps	300 kbps	300 kbps	CIR	\$20.00			YES	YES	YES	
500 kbps	500 kbps	500 kbps	CIR	\$33.00			YES		YES	
1 Mbps	1 Mbps	1 Mbps	CIR	\$66.00			YES			
2 Mbps	2 Mbps	2 Mbps	CIR	\$132.00			YES			
5 Mbps	5 Mbps	5 Mbps	CIR	\$330.00	\$32.00		YES			
10 Mbps	10 Mbps	10 Mbps	CIR		\$64.00	\$48.00	YES			
20 Mbps	20 Mbps	20 Mbps	CIR		\$128.00	\$96.00	YES			
30 Mbps	30 Mbps	30 Mbps	CIR		\$192.00		YES			
40 Mbps	40 Mbps	40 Mbps	CIR		\$256.00	\$192.00	YES			
100 Mbps	100 Mbps	100 Mbps	CIR			\$480.00	YES			

Source: NBN Co

Note: See footnote 13 in relation to factors affecting End-User speeds.

Exhibit 8-7: Network to Network Interface (NNI) Pricing

NETWORK TO NETWORK INTERFACE			PRICING (Ex-GST)		AVAILABILITY			
DESCRIPTION	INTERFACE CAPACITY	SERVICE RANGE	ONE-OFF ESTABLISHMENT CHARGE	MONTHLY RECURRING CHARGE	FIBRE	WIRELESS	LONG TERM SATELLITE	FIRST RELEASE SATELLITE
1000BaseT – 0.1kms range	1 Gbps	0.1 kms	\$1,000	\$200				YES
1000BaseLX – 10kms range	1 Gbps	10 kms	\$1,000	\$200	YES	YES	YES	YES
1000BaseEX – 40kms range	1 Gbps	40 kms	\$7,000	\$500	YES	YES	YES	
10GBaseLR – 10 kms range	10 Gbps	10 kms	\$5,000	\$400	YES	YES	YES	
10GBaseER – 40kms range	10 Gbps	40 kms	\$35,000	\$1,000	YES	YES	YES	

Source: NBN Co

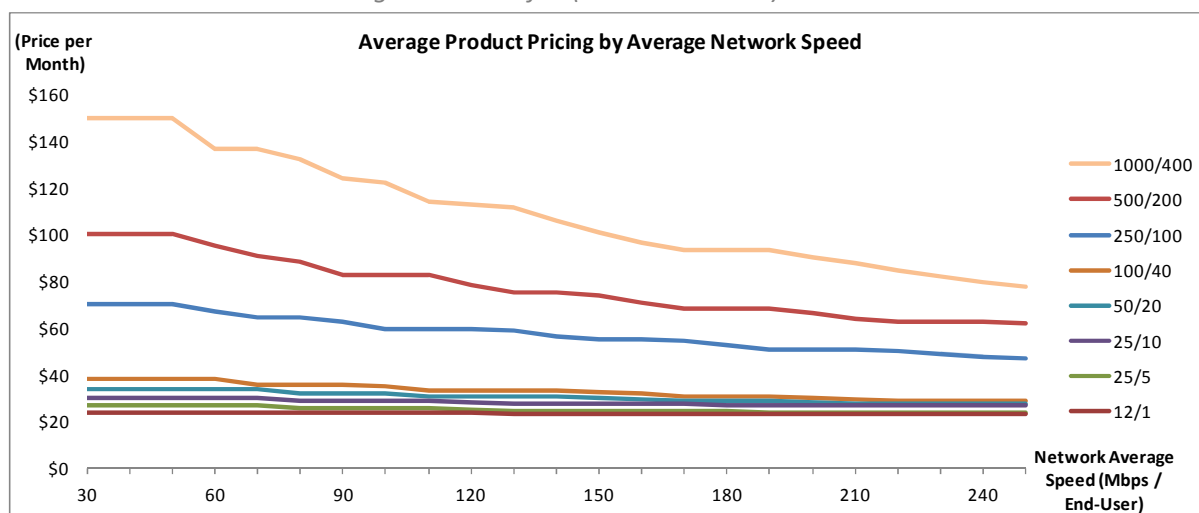
Note: See footnote 13 in relation to factors affecting End-User speeds.

8.2.6.1 AVC Price Profile

Over time, NBN Co expects the cost of bandwidth tiers to be reduced in nominal dollar terms as the speed in Mbps, averaged across all network End-Users, increases. This intention aligns the expectation that demand for faster services will rise over time as End-User behaviour evolves and applications develop, while affordability needs to be maintained.

Current projections follow a similar trajectory to those outlined in the 2011-13 Corporate Plan.

Exhibit 8-8: Forecast AVC Pricing Decline Profile (Nominal Dollars)



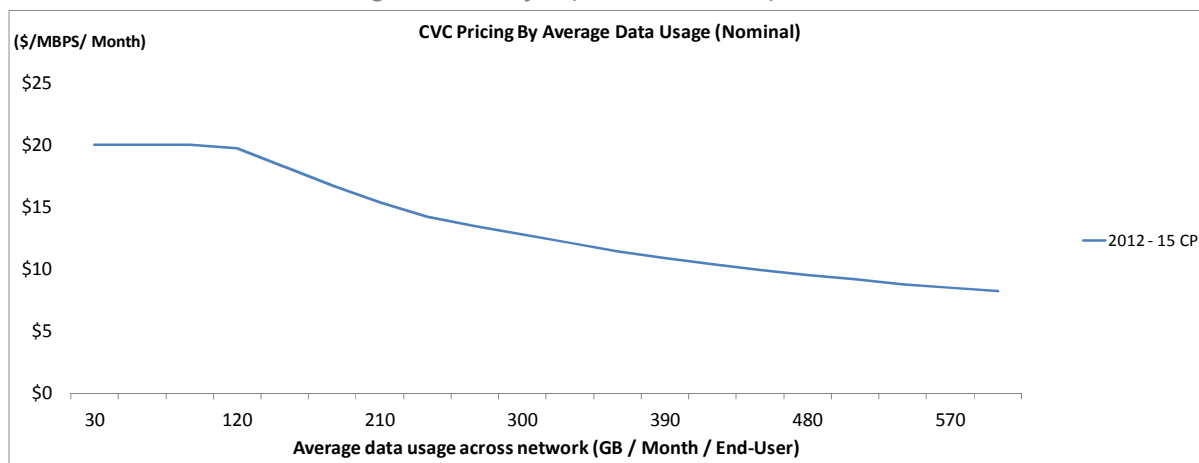
Source: NBN Co
See footnote 13 in relation to factors affecting End-User speeds.

8.2.6.2 CVC Price Profile

Consistent with the 2011-13 Corporate Plan, NBN Co plans to reduce CVC prices as traffic across the network increases over time. The CVC price reduction profile in the 2012-15 Corporate Plan is consistent with the 2011-13 Corporate Plan.

Following engagement with the industry, NBN Co has decided to reduce the cost of CVC initially by crediting the cost of the first 150 Mbps in each Connectivity Serving Area (CSA), up to the point in time when construction passes more than 30,000 premises in the CSA.

Exhibit 8-9: Forecast CVC Pricing Decline Profile (Nominal Dollars)

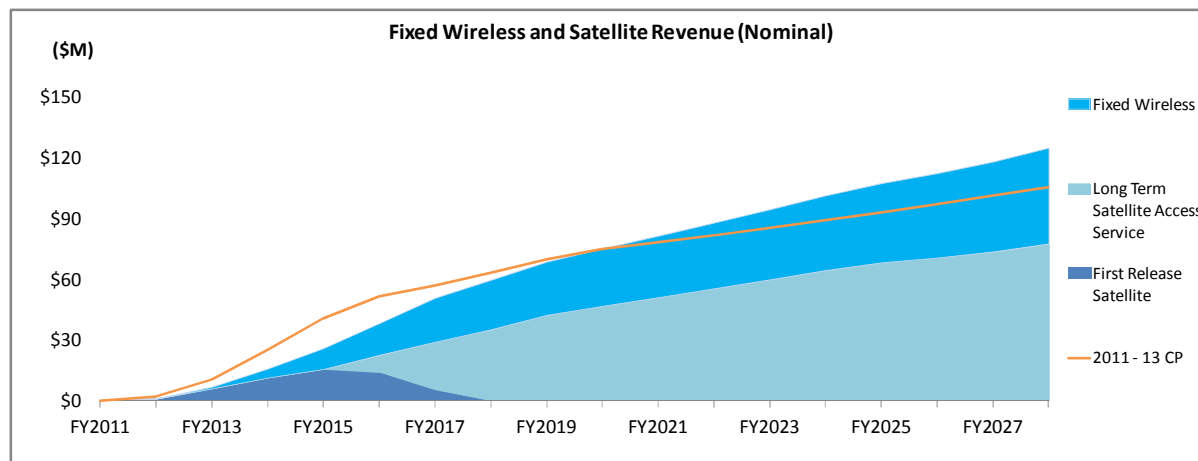


Source: NBN Co

8.2.7 Fixed Wireless and Satellite Revenues

The Exhibit 8-10 below illustrates the forecast evolution of Revenues from First Release Satellite to Long Term Satellite and the forecast Revenues from the Fixed Wireless network.

Exhibit 8-10: Forecast Fixed Wireless and Satellite Revenues (\$ Million) (Nominal Dollars)



Source: NBN Co

8.2.8 Mobile Backhaul

NBN Co has received requests from the industry to develop products that are suitable for use as mobile backhaul. This would allow the utilisation of NBN Co's Fibre infrastructure for connectivity between mobile base stations and an operator's core network. NBN Co is considering these requests and evaluating whether to develop products suitable for use as mobile backhaul. As no decision has yet been made, any potential impact from these services has not been included in the 2012-15 Corporate Plan.

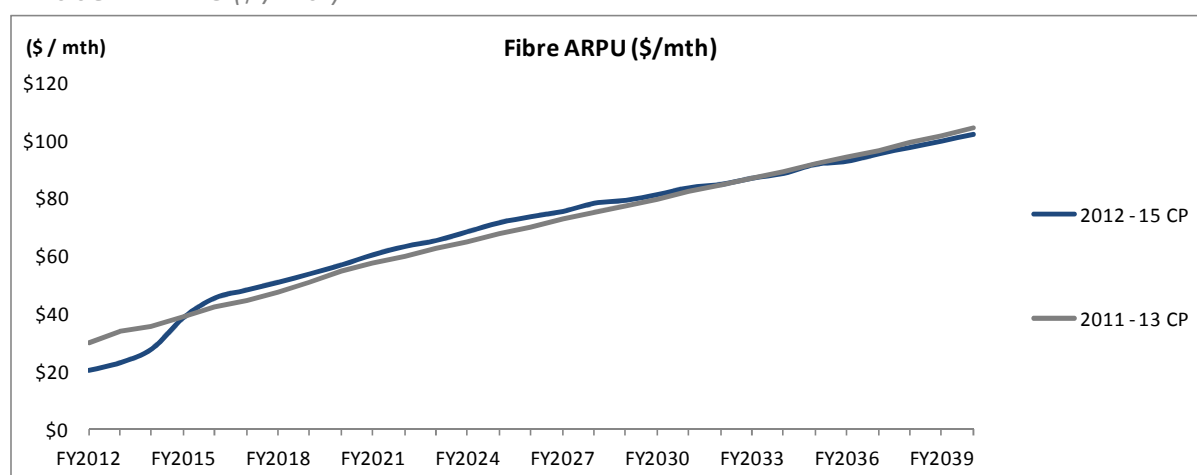
8.2.9 Community Services Port Utilisation (Second Port)

NBN Co continues to evaluate the potential for additional Revenue from provision of connections on behalf of providers of community services. It is envisioned that National, State and Local governments, in addition to private providers, will look to improve service delivery and drive cost reductions through use of the NBN to deliver services such as e-health, aged care and e-education to End-Users. This could be done through utilisation of the Second port on the Network Termination Devices (NTDs) to provide services to End-Users. Initial evaluations suggest that should these service models be adopted revenues could be increased.

8.2.10 Average Revenue per End-User (ARPU)

The ARPU per month forecast in the 2012-15 Corporate Plan reflects the combined impact of the changes discussed in Section 8.2, *Revenue Plan*. The overall profile of ARPU is similar to that assumed in the 2011-13 Corporate Plan over the period FY2016 to FY2040, but with a lower initial forecast in the early years, as illustrated in Exhibit 8-11, mainly due to the CVC transitional arrangements.

Exhibit 8-11: ARPU (\$ / Mth)



Source: NBN Co

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9 FINANCIAL FORECASTS

9.1 Summary Financial Forecasts

Exhibit 9-1: Selected Forecasts and Projections for the Fibre Network Construction Period (FY2011 – FY2021)

Forecasts and Projections	Fibre Network Construction Period Key Metrics (Rounded) (Nominal Dollars)
Coverage	<ul style="list-style-type: none"> ▪ 13 million premises covered by FY2021 in line with the coverage obligations set out in the Statement of Expectations.
FTTP Network Characteristics	<ul style="list-style-type: none"> ▪ 206,000 kms of Gigabit-capable Passive Optical Network (GPON) (physical distances). ▪ 25% of premises in the Local network to be passed aerially.
Greenfields	<ul style="list-style-type: none"> ▪ NBN Co to pass all Greenfields developments by the end of the deployment, representing 2 million premises in the Fibre footprint.
Capital Expenditure	<ul style="list-style-type: none"> ▪ \$37.4 billion total forecast Capital Expenditure to the end of the Fibre Construction period (to Jun'21).
Revenues	<ul style="list-style-type: none"> ▪ \$23.1 billion total forecast Revenues to FY2021.
Operating Expenditure	<ul style="list-style-type: none"> ▪ \$26.4 billion total forecast Operating Expenditure to FY2021.
Cumulative EBITDA	<ul style="list-style-type: none"> ▪ \$(3.3) billion of cumulative forecast EBITDA to be funded prior to the end of the Fibre Construction period (to Jun'21).
Levered Funding (to FY2021)	<ul style="list-style-type: none"> ▪ Estimate of \$30.4 billion of peak Government equity. ▪ Estimate of \$13.7 billion of peak debt funding. ▪ Together, a total forecast peak funding requirement of \$44.1 billion (including funding costs).
Internal Rate of Return (IRR)	<ul style="list-style-type: none"> ▪ 7.1%.

Source: NBN Co

Exhibit 9-2: Forecast Summary Financials (Nominal Dollars)

Summary Financials															
June YE	Total (FY2011 to Dec 2020)	Total (FY2011 to FY2021)	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2028	FY2040
Total Premises Passed - Fibre ('000s)	11,492	12,202	18	39	341	1,307	2,912	4,625	6,279	7,838	9,283	10,783	12,202	13,467	15,435
Total Connected - Fibre ('000s)	8,060	8,513	1	4	54	487	1,515	3,036	4,341	5,594	6,695	7,607	8,513	10,010	11,464
Premises Covered - Fixed Wireless & Satellite ('000s)	968	974	165	174	320	374	752	907	921	934	948	961	974	1,055	1,181
Total Connected - Fixed Wireless & Satellite ('000s)	226	232	0	10	38	64	100	145	161	191	206	219	232	303	399
Total Connected ('000s)	8,286	8,745	1	14	92	551	1,615	3,181	4,502	5,785	6,901	7,827	8,745	10,313	11,863
Total Revenue	19,970	23,058	-	2	18	120	529	1,346	2,281	3,221	4,200	5,167	6,175	9,769	14,597
Total Operating Expenditure	(24,819)	(26,394)	(337)	(521)	(1,093)	(1,777)	(2,903)	(3,628)	(3,394)	(3,351)	(3,201)	(3,037)	(3,151)	(2,437)	(3,351)
EBITDA	(4,849)	(3,337)	(337)	(519)	(1,076)	(1,657)	(2,375)	(2,282)	(1,113)	(130)	999	2,130	3,024	7,332	11,246
EBITDA Margin	(24)%	(14)%	NM	NM	NM	NM	(449)%	(170)%	(49)%	(4)%	24%	41%	49%	75%	77%
EBIT	(13,328)	(12,650)	(356)	(589)	(1,328)	(2,070)	(3,015)	(3,190)	(2,224)	(1,410)	(415)	591	1,355	5,544	9,499
Net Cash Interest (Funding Costs)	(2,099)	(2,580)	33	60	55	72	83	(1)	(176)	(344)	(615)	(786)	(961)	(188)	(1,215)
EBT	(15,427)	(15,230)	(323)	(529)	(1,273)	(1,998)	(2,932)	(3,191)	(2,400)	(1,754)	(1,030)	(194)	394	5,356	10,715
Total Capital Expenditure	(35,681)	(37,358)	(463)	(888)	(3,191)	(3,946)	(5,016)	(4,920)	(4,224)	(3,986)	(3,760)	(3,610)	(3,355)	(1,536)	(2,939)
Movement in Working Capital	(30)	(80)	38	193	495	241	98	(251)	(284)	(311)	(103)	(94)	(99)	(90)	(61)
Cash Tax	-	-	-	-	-	-	-	-	-	-	-	-	-	(1,607)	(3,214)
Levered Free Cash Flow	(42,659)	(43,354)	(729)	(1,155)	(3,717)	(5,290)	(7,211)	(7,454)	(5,797)	(4,772)	(3,479)	(2,360)	(1,391)	3,911	6,248
Government Funding	-	-	1,362	2,832	7,504	13,623	20,287	25,047	28,949	30,400	30,400	30,400	30,400	19,297	-
Debt Funding	-	-	-	-	-	-	523	2,008	3,816	6,619	10,023	12,267	13,653	1,678	-
Total Funding	-	-	1,362	2,832	7,504	13,623	20,810	27,055	32,765	37,019	40,423	42,667	44,053	20,975	-
Debt / EBITDA	-	-	0.0 x	0.0 x	0.0 x	0.0 x	(0.2)x	(0.9)x	(3.4)x	(50.9)x	10.0 x	5.8 x	4.5 x	0.2 x	0.0 x
Debt / Total Funding	-	-	0.0%	0.0%	0.0%	0.0%	2.5%	7.4%	11.6%	17.9%	24.8%	28.8%	31.0%	8.0%	NM

Source: NBN Co

9.2 Scope for the 2012-15 Corporate Plan

The 2012-15 Corporate Plan retains the 30 year timeframe used in the 2011-13 Corporate Plan, with the inclusion of actuals for the financial year 2010 – 2011 and the pre-audited June figures for financial year 2011 – 2012. Retaining the same end point for the long range explicit forecasting (30 June 2040) will allow 'like-for-like' comparisons as subsequent Corporate Plans are produced.

As noted in Section 1.1, *Introduction to the 2012-15 Corporate Plan*, the 2012-15 Corporate Plan integrates both the Telstra Definitive Agreements and the Optus HFC Agreement executed on 23 June 2011. The 2011-13 Corporate Plan reflected NBN Co's best estimate of the final agreements at the time based on the Financial Heads of Agreement which predated the Telstra Definitive Agreements. The 2011-13 Corporate Plan did not include any potential impact of an agreement with Optus to migrate its HFC subscriber base.

Exhibit 9-3: Moving from the 2011-13 Corporate Plan to the 2012-15 Corporate Plan

Business Model	2011-13 Corporate Plan	2012-15 Corporate Plan
Period Covered:	FY2011 – FY2013	FY2012 – FY2015
Telstra Deal Scope:	Telstra Financial Heads of Agreement (June 2010)	Telstra Definitive Agreements (June 2011)
Optus Deal Scope:	Not included Plan assumes no Optus subscribers migrate	Optus HFC Subscriber Agreement (June 2011)
Compared to:	No Deal	-

Business Model	2011-13 Corporate Plan	2012-15 Corporate Plan
Policy Decisions / SOE Requirement:	Preliminary assessment of Points of Interconnect (Pol) Decision Preliminary assessment of Greenfields obligations Battery Backup to all Connected Fibre End-Users	Known impact to date of PoI decision Known impact to date of Greenfields obligations Battery Backup 'Must Opt' with an assumed 50% take-up Anticipated technology upgrades of Fixed Wireless & Long Term Satellite networks Fibre network Full Coverage of Band 1 & 2 Public Information on Migration (PIM) USO Payphones Public Interest Premises (PIPs) TUSMA Levy

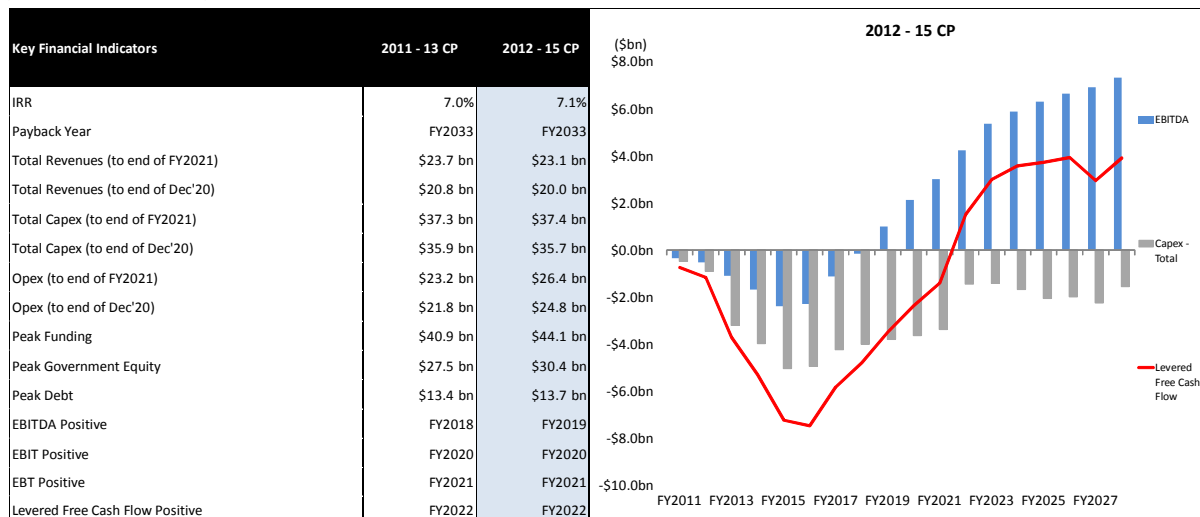
Source: NBN Co

9.3 Forecast Key Financial Indicators

Exhibit 9-4 illustrates the forecast key financial indicators for NBN Co, including the project forecast Internal Rate of Return (IRR).

The 2012-15 Corporate Plan forecast return of 7.1% is similar to the forecast return in the 2011-13 Corporate Plan.

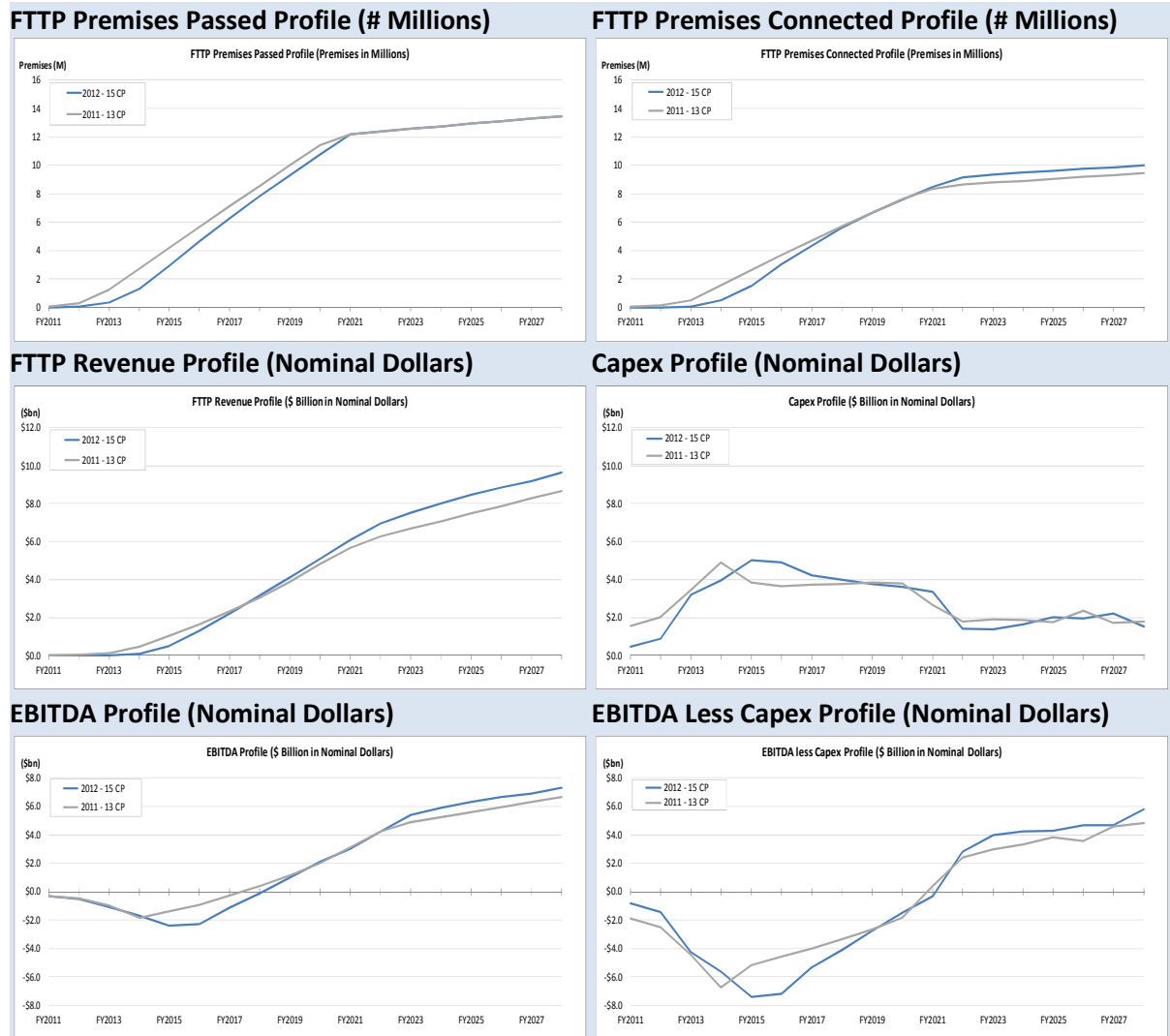
Exhibit 9-4: Forecast Key Financial Indicators for 2011-13 Corporate Plan vs. 2012-15 Corporate Plan (Nominal Dollars)



Source: NBN Co

9.4 Comparison to 2011-13 Corporate Plan

Exhibit 9-5: Key Differences between 2012-15 Corporate Plan and 2011-13 Corporate Plan



Source: NBN Co

9.5 Deployment Profile

The 2012-15 Corporate Plan incorporates the revised deployment forecasts and the 6 month extension to June 2021. It forecasts that 13 million premises will be passed or covered by NBN Co by the end of FY2021 (100% of premises across all networks). By the end of FY2015, NBN Co forecasts passing or covering 3.7 million premises, of which 2.9 million will be with Fibre.

Exhibit 9-6: Forecast Premises Passed and Connected by FY2021

At end of FY2021	Premises Passed/Covered ('000s)	Coverage	Premises Connected ('000s)	Take-up (% of premises passed/covered)
FTTP	12,202	93%	8,513	70%
Fixed Wireless & Satellite	974	7%	232	24%
Overall	13,176	100%	8,745	66%

Source: NBN Co

9.6 Type of Deployment for the Fibre Network

9.6.1 FTTP GPON Network

The 2012-15 Corporate Plan projects that the FTTP network will be constructed by passing more than 206,000 kms of physical network distance (based on network configuration and covered road distances of 148,000 kms).⁴² 25% of the premises are expected to be passed aerially in the Local network, representing 35,000 kms of aerial deployment.

9.7 Capital Expenditure

Exhibit 9-7: Forecast Capital Expenditure (\$ Million) (Nominal Dollars)

Capital Expenditure													
June YE	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2028	FY2040
(\$ million)													
Fibre and Transit	101	428	1,659	2,614	3,571	3,811	3,593	3,446	3,176	3,156	2,923	703	1,636
Fixed Wireless & Satellite	130	123	633	723	789	463	95	55	77	23	22	17	12
Other Capex	232	337	898	609	656	646	536	485	507	432	410	817	1,291
Total Capex	463	888	3,191	3,946	5,016	4,920	4,224	3,986	3,760	3,610	3,355	1,536	2,939

Source: NBN Co

The total Capital Expenditure from FY2011 to the end of FY2021 in nominal terms is forecast to be \$37.4 billion. This represents the cost of completing the Fibre, Fixed Wireless and Satellite networks to provide 100% national coverage, with 66% of premises connected by the end of FY2021 across all three networks.

The \$37.4 billion total Capital Expenditure forecast to the end of the Construction period is 3.9% higher than the 2011-13 Corporate Plan at \$35.9 billion. This net increase is the result of a series of adjustments, including:

- The incorporation of the Telstra Definitive Agreements.
- The incorporation of the Optus HFC Agreement:

⁴² Covered road distances have been used as inputs to the network configuration model, which multiplies the road distances by a factor depending on the type of deployment (aerial vs. underground) and the localisation of these distances in the Fibre network (Local, Distribution).

- Additional connection costs associated with the migration of an initial addressable number of 0.5 million Optus HFC subscribers.
- The timing effect of the revised deployment profile and the 6 month extension of the FTTP rollout.
- Decreases in estimated equipment costs arising from:
 - Confirmation of network architecture (**'Type 2 Architecture'**);
 - Contract negotiations with suppliers (most of the equipment for Fibre, Fixed Wireless and the Long Term Satellite Service (**LTSS**) is now under contract); and
 - Internal rather than external NTDs.
- Increased provisioning for the Fibre and Transit Networks:
 - Additional construction costs from higher estimates of network distances than previously forecast;
 - A review of the construction costs in the Transit network (such as Transit make-ready works), the Local network and the Distribution network (including design, aerial deployment, assurance and maintenance); and
 - A positive effect from a review of likely physical lifetime of network equipment.
- Increased Customer Connect costs:
 - A move to the implementation of a 'Build Drop' model instead of a 'Demand Drop' model, in the context of the agreement with Telstra to decommission the copper network. This includes increased estimates of the costs to notify and access properties as well as the costs to install a lead-in cable and network termination equipment;
 - Additional costs to design and install in-building cables inside Multi-Dwelling Units (**MDUs**); and
 - Increased costs to activate End-User premises.
- Additional costs provisioned to deliver Information Technology (**IT**) systems and infrastructure as well as to support Network Releases.
- Implementation of Policy Decisions:
 - Additional costs to service demand in New Developments, as described in Section 6.1.2, *New Developments*;
 - Introduction of anticipated technology upgrades in the Fixed Wireless and Long Term Satellite footprint;
 - Additional costs in the Fibre footprint from the Fibre network full coverage of Band 1 and Band 2; and
 - Additional provisioning of costs to connect Public Interest Premises (**PIPs**) and provide Universal Service Obligation (**USO**) payphone connectivity.

9.8 Operating Expenditure

Exhibit 9-8: Forecast Operating Expenditure (\$ Million) (Nominal Dollars)

Operating Expenditure													
	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2028	FY2040
(\$ Million)													
Direct	6	72	393	1,098	2,174	2,862	2,597	2,536	2,369	2,168	2,268	1,471	2,037
Other	331	449	700	679	730	766	797	814	832	869	883	966	1,314
Total Opex	337	521	1,093	1,777	2,903	3,628	3,394	3,351	3,201	3,037	3,151	2,437	3,351

Source: NBN Co

The 2012-15 Corporate Plan reflects changes in assumptions and operational delivery models for:

- Increased usage of Telstra Dark Fibre;
- Increased usage of Telstra exchanges through access to additional quantities of Rack Space;
- Inclusion of migration payments to Optus as part of the Optus HFC Agreement;
- A review of the costs associated with network augmentation and restoration activities and other infrastructure-related Operating Expenditure;
- Additional investment in headcount to support:
 - The delivery areas of Planning & Design (production of Network Design Documents (**NDDs**)), Construction and Network Operations;
 - The Community and Rollout Engagement functions in order to meet Recommendation Four of the Second Joint Committee on the NBN (**JCNBN**) Report⁴³;
- Increased level of indirect costs from staff increases as well as other General and Administration costs; and
- Implementation of Policy Decisions:
 - Additional Operating Expenditure required to meet New Developments demand in geographically dispersed and small areas. New Developments of 100 or more premises need to be serviced ahead of NBN Co passing these areas, resulting in increased costs from managed connectivity services (backhaul links) leased ahead of NBN Co's Dark Fibre connectivity being in place;
 - An estimate that NBN Co, as a carrier, will be liable for a share of the Telecommunications Universal Service Management Agency (**TUSMA**) costs to administer the Universal Service Obligation (**USO**). It is anticipated that this will be charged to NBN Co by way of a levy based on revenue;
 - NBN Co providing payphone connectivity; and

⁴³

http://www.aph.gov.au/Parliamentary_Business/Committees/House_of_Representatives_Committees?url=jcnbn/report2.htm.

- Additional costs provisioned for the marketing and execution of a Public Information on Migration (**PIM**) campaign over the deployment period, similar to previous communications efforts put in place during the analogue switchover for broadcasters. These costs have been offset by the removal of specific provisions for uptake incentives contained in the 2011-13 Corporate Plan.
- Additional IT Systems and Network Releases costs.

9.9 Working Capital

The 2012-15 Corporate Plan factors in estimates for working capital. Working capital is not forecast to be significant.

9.10 Taxation

9.10.1 Income Tax

NBN Co will incur significant income tax losses in the first 11 years of its operations (from FY2010), and it is assumed that these losses will be carried forward and offset against future profits. NBN Co expects to start utilising brought forward tax losses in FY2021.

A significant change in ownership (50% or more) would require NBN Co to satisfy certain continuity of business rules in order to continue to carry forward past losses.

NBN Co expects that the majority of costs incurred will be deductible or depreciable for tax purposes.

NBN Co has assumed a corporate income tax rate of 30% throughout the forecast period.

9.10.2 Other Taxes and Related Charges

GST is not expected to create any particular additional costs for NBN Co, other than general cost of compliance. All unit costs and product pricing referenced within the 2012-15 Corporate Plan are ex-GST. The cost of other significant taxes (e.g. payroll tax, superannuation guarantee contributions) has been factored into the base case using the rates currently legislated.

9.11 Funding NBN Co

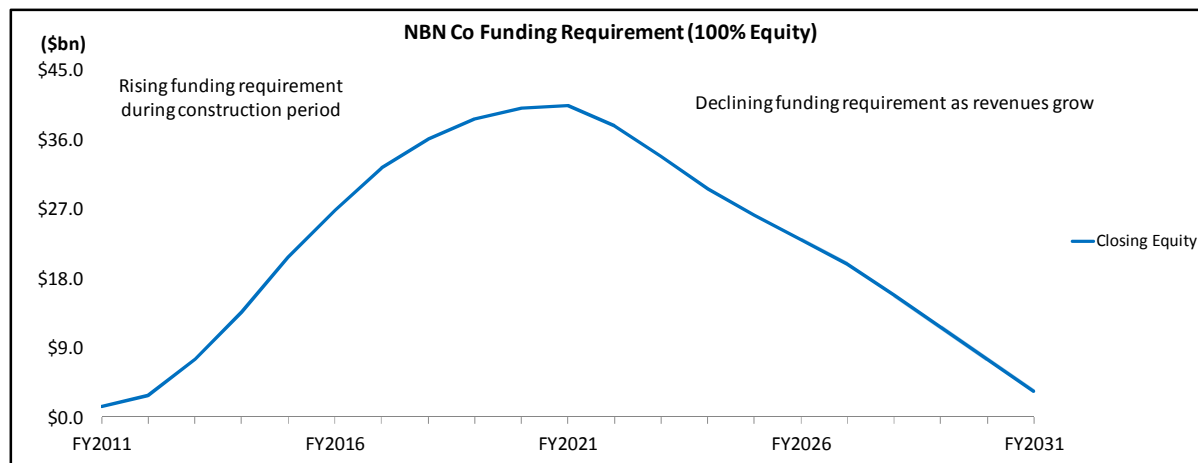
NBN Co has been funded by successive equity injections totalling \$2,832 million (as of 30 June 2012), including \$1,470 million in the FY2012 financial year.

On 22 June 2011, NBN Co entered into an Equity Funding Agreement (**NBN Co Equity Agreement**) with the Commonwealth. The NBN Co Equity Agreement formalises the Australian Government's intention to provide equity to fund the rollout of the NBN, with such funding being conditional on the annual appropriation process. The NBN Co Equity Agreement stipulates that the Commonwealth intends to provide equity funding to NBN Co in accordance with the NBN Co Equity Agreement in order to provide financial stability for the NBN Co and confidence that NBN Co can pursue the programmes necessary to achieve the Commonwealth's policy objectives as set out in the Statement of Expectations (**SOE**).

9.11.1 Determining NBN Co's Funding Requirement

NBN Co's funding requirement is driven by the forecast EBITDA and Capital Expenditure profiles, including working capital. NBN Co's forecast free cash flow profile is shown in the Exhibit 9-9.

Exhibit 9-9: NBN Co's Forecast Unlevered Funding Requirement (\$ Billion) (Nominal Dollars)



Source: NBN Co

Total unlevered funding requirement over the deployment period is forecast to peak at \$40.4 billion by FY2021. In a scenario where NBN Co meets part of its funding requirement by raising debt, external funding costs are projected to add an additional funding requirement over the deployment period, with peak total (levered) funding requirement at \$44.1 billion at the end of FY2021.

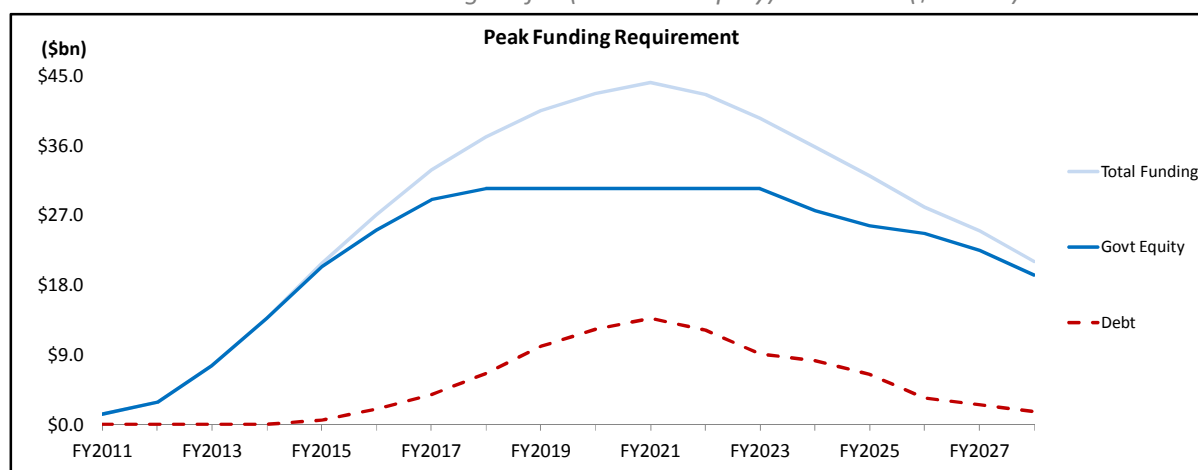
9.11.2 Profile of Long Term Funding Scenarios

The modelling of the long term funding profile assumes that NBN Co will seek external funding from banks and financial markets without explicit guarantees from the Shareholder Ministers, as early as possible.

For the purpose of the 2012-15 Corporate Plan, it is assumed that peak Government Equity will be \$30.4 billion.

In this scenario, NBN Co has embedded debt funding costs into the financial model. It is expected that total external funding would contribute up to 31% of the total funding to FY2021.

Exhibit 9-10: NBN Co's Forecast Funding Profile (Debt and Equity) to FY2028 (\$ Billion)



Source: NBN Co

Peak debt funding is forecast at \$13.7 billion in FY2021, with initial debt-raising assumed in FY2015. Average issuance per annum would amount to \$2 billion over the 7 year period (FY2015 to FY2021 inclusive).

As no assurances can be given that such debt-raising requirements will be met, the capital structure and debt issuance decisions will be determined at the time by the Shareholder Ministers.

9.11.3 Funding the FY2012 to FY2015 Period

Exhibit 9-11 provides a forecast equity funding drawdown profile (cash-based).

*Exhibit 9-11: NBN Co's Forecast Equity Funding Requirement (\$ Million) (Nominal Dollars)**

Year Ending 30 June	2011 - 13 CP		2012 - 15 CP	
	Cumulative (\$ Million)	Annual (\$ Million)	Cumulative (\$ Million)	
	Forecast Equity Funding Requirement Grossed Up	Forecast Equity Funding Requirement	Forecast Equity Funding Requirement	
2010 (Actual)	312	312	312	
2011 (Actual)	2,100 (f)	1,050	1,362	
2012	4,800	1,470	2,832	
2013	9,200	4,672	7,504	
2014	15,800	6,119	13,623	
2015	19,900	6,664	20,287	
2016	23,500	4,760	25,047	
2017	26,700	3,902	28,949	
2018	27,500	1,451	30,400	

Source: NBN Co

* Forecast Equity Funding Requirement is calculated assuming external funding (debt) will be available to NBN Co by FY2015.

The anticipated total funding requirements (debt and equity) amount to \$19,448 million for the period from July 2011 to June 2015 (FY2012-FY2015), of which equity will represent \$18,925 million.

9.11.4 Termination Liabilities

The NBN Co Equity Funding Agreement between the Australian Government and NBN Co commits the Australian Government, in the event of a termination of the NBN rollout, to provide sufficient funds to NBN Co to meet its direct costs arising from the termination. The NBN Co Equity Agreement terminates on 30 June 2021.

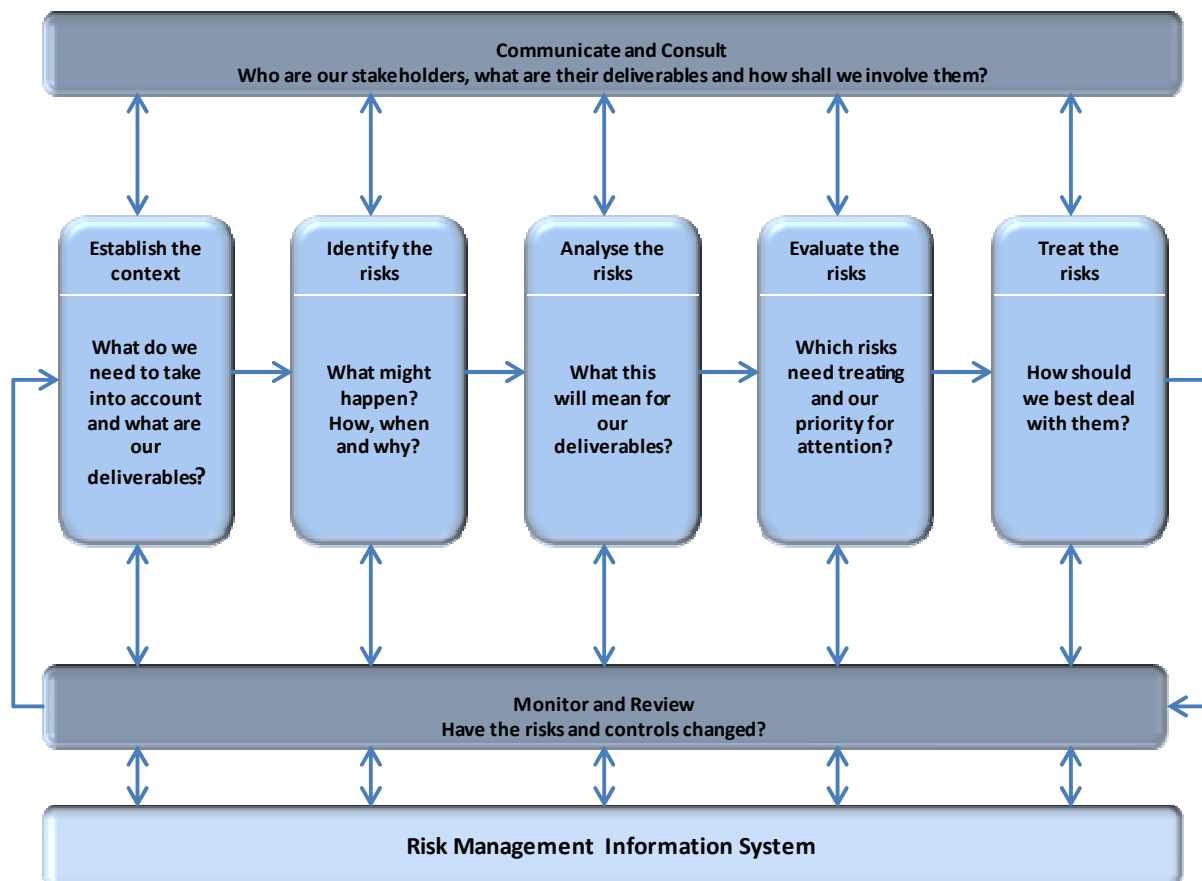
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10 RISK MANAGEMENT

10.1 Risk Management System

NBN Co has established an enterprise-wide risk management system to facilitate the identification of significant business risks and implementation of appropriate risk mitigation or treatment plans and monitoring processes. The system is built upon the premise that all employees have responsibility for risk management in their job areas.

Exhibit 10-1: Enterprise Risk Management System



Adapted from ISO 31000:2009

Source: NBN Co

The approach adopted by NBN Co is consistent with the international risk management standard, Australia / New Zealand Standard ISO 31000:2009. NBN Co’s Risk Management Policy defines the way in which NBN Co establishes the risk context, identifies, assesses, analyses, evaluates and treats risk to effectively manage its business, assign roles and responsibilities for risk management. From this a risk register and reporting framework has been established to facilitate the process and meet reporting obligations.

Risk profiles are defined and managed for each of NBN Co’s business functions and major activities. The aggregation of the applicable profile forms the NBN Co Group Risk profile and the basis for Management and Board reporting of risks and associated management processes. Risk mitigation actions and treatment plans are reported quarterly to the Board under the following categories:

- Safety and Environment;
- Strategic (includes technology, regulatory, product, industry);
- Financial (includes revenue, cost management, funding); and
- Operational (includes sourcing, construction, network operations, quality and security).

The risk categories, with the corresponding likelihood and impact are reported to the Board.

The Risk Management Policy that establishes and underpins the risk management system is reviewed at least annually and updated as required to reflect NBN Co's evolving needs. This ensures the risk management system remains fit-for-purpose as NBN Co's primary activities move through planning and design, to construction and commercial operation.

10.2 Corporate Plan Risks

As of 2012-15, the Board and Management of NBN Co have identified, among other matters, the following risk areas. These are:

- Safety;
- Quality;
- Telstra Definitive Agreements;
- Optus HFC Agreement;
- Construction;
- Revenue;
- Operational Support Systems;
- New Developments; and
- Spectrum (Fixed Wireless).

Safety

With thousands of people working on the project in traffic exposed locations using large machines or potentially working at heights close to power lines, the probability of an incident is high.

Mitigation strategies include:

- Comprehensive Health Safety and Environment (**HSE**) programme established to AS4801/ISO 14001 standards;
- Monthly Health, Safety, and Environment Committee review chaired by the Chief Executive Officer;
- HSE Key Performance Indicators reported at every Board meeting;
- Stringent HSE requirements in all construction contracts;
- Piloted Safe Driver Programme;
- Maintaining a 'no fear' culture, no blame for the reporting of incidents and near misses without injury;
- Introducing an eLearning induction programme for all NBN Co employees; and

- Use of industry experts to advise on establishing a 'no blame' safety culture across NBN Co.

Quality

The Quality risk lies in product or process failures resulting in unacceptable operational performances.

Mitigation strategies include:

- Implementation of a comprehensive Quality Framework consistent with ISO 9001;
- Implementation of ISO 27001, ISO 20000 and Capability Maturity Model Integration (**CMMI**);
- Reporting and review of Quality performance at Board and Management level, including the establishment of a Quality Improvement Council;
- Quality Key Performance Indicators and issues reviewed at each Implementation Committee meeting;
- Implementation of a Corrective and Preventative Actions (**CAPA**) system to capture and manage quality improvement opportunities;
- Requirement specifications, qualifications and audits for vendors and suppliers;
- Implementation of a Quality Internal Audit Plan and Schedule; and
- A staged deployment.

Telstra Definitive Agreements

The Telstra Definitive Agreements implementation risks include lack of capacity for management of the Telstra Definitive Agreements.

Mitigation strategies include:

- Specialist team appointed to manage delivery of the Telstra Definitive Agreements requirements; and
- IT systems are currently being developed to manage the agreement, and to automate interactions with Telstra.

Optus Agreement

The Optus HFC Agreement implementation risks include lack of capacity to implement the Optus HFC Agreement.

Mitigation strategies include:

- Specialist team appointed to manage implementation of the Optus HFC Agreement.

Construction

The key construction risk is associated with systematic cost overruns in relation to the forecast cost per premises and is a significant risk.

Mitigation strategies include:

- Appointment of Silcar, Syntheo, Transfield Services and Visionstream as delivery partners based on the 'benchmark' model;

- Ability to value engineer the design to reduce cost;
- Ability to cap actual costs vs. modelled costs;
- Development of robust commercial and operational processes which define and track unit cost components as an ongoing management tool; and
- Work with the construction delivery partners and relevant bodies regarding training for the NBN rollout workforce.

Revenues

The key risks to Revenue relate to the failure to meet aggregated Revenue projections. They include speed and usage; wireless substitution; short term lower than anticipated take-up; longer term impact of cherry-picking (including Point-to-Point (**P2P**)); regulated pricing at levels lower than assumed for the purposes of the Corporate Plan; and the impact of backhaul costs on demand related to the number of Points of Interconnect (**PoIs**).

Mitigation strategies include:

- Building out sales channels to support Retail Service Providers (**RSPs**) to generate additional demand and sales pipeline for new entrants;
- Rigorous pre-sales, on-boarding process to prepare RSPs to be NBN ready;
- Fostering a Wholesale Aggregation Model to support a range of business models;
- Detailed strategic marketing plan to promote the NBN value proposition and address competition from wireless substitution;
- Development and lodgement of a Special Access Undertaking (**SAU**), to provide regulatory certainty for NBN Co and Access Seekers;
- A Contract Development Process (**CDP**) established to manage the development of the longer-term Wholesale Broadband Agreement (**WBA**);
- Product lifecycle management of core NBN Co products to ensure new opportunities are captured;
- Application sponsoring (e.g. Health, Education) to stimulate End-User interest; and
- The inclusion of a Public Information on Migration (**PIM**) campaign over the deployment period.

OSS

The Operational Support Systems (**OSS**) are key support systems to the project. The OSS provides the capabilities needed to provision, configure, manage and operate the network. Delays in deployment of these systems are a key risk to the project.

Mitigation strategies include:

- Contracted IBM as Prime System Integrator (**SI**); and
- Three way collaborative approach to detailed design, development and testing involving business stakeholders, delivery teams and vendors, with one SI.

New Developments

The key risk relating to New Developments is the failure to meet NBN Co's obligations as infrastructure provider of last resort.

Mitigation strategies include:

- Engage with external contractors to progress construction;
- Deploy temporary FAN sites to service new developments ahead of permanent FAN sites; and
- Arrange interim Transit to each estate directly with Transit providers.

Spectrum

This key risk is associated with Spectrum acquisition for the Fixed Wireless network.

Mitigation strategies include:

- The majority of Fixed Wireless spectrum requirements have been secured commercially; and
- NBN Co is evaluating alternative strategies in the event that the preferred spectrum is not available in areas not covered by existing commercial agreements.

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11 GLOSSARY OF TERMS

Access Aggregation Region (AAR)	The area served by a Point of Interconnect (Pol) located in an Aggregation Node (AN) and connected via Transit Fibre to regional Fibre Access Node (FAN) sites. The backhaul from the regional FAN to the AN is termed the Transit network.
Access Seeker	A customer acquiring NBN Co wholesale services with the intention to supply broadband services to Retail Service Providers (RSPs) or End-Users.
Access Virtual Circuit (AVC)	The bandwidth allocated to the End-User premises.
Aggregation Node (AN)	A facility that provides a Point of Interconnect (Pol) to RSPs / WSPs for an Access Aggregation Region (AAR), comprising a number of regional FAN sites. Note that an AN will also have a co-located FAN site for its local area.
Asymmetric Digital Subscriber Line (ADSL)	A technology for delivering high-speed data transmission over a copper phone line. As the name suggests, it provides different downstream (network to End-User) and upstream (End-User to network) bandwidth.
Australian Broadband Guarantee (ABG)	The Australian Broadband Guarantee is an Australian Government initiative designed to help residential and small business premises access a high quality broadband service. The programme targets premises unable to access commercial metropolitan-comparable services, particularly those living in remote parts of Australia.
Average Revenue Per User (ARPU)	The total revenue divided by the number of subscribers.
Basis Points (bps)	One Basis Point is equal to 1/100 th of 1%.
Brownfields	Pre-existing premises that will be covered by either Fibre, Fixed Wireless or Satellite services.
'Build Drop'	Where the connection from the street to the premises is carried out when the distribution and local segments of the Fibre network are being built.
Business Support System (BSS)	The set of systems that will provide NBN Co with the capabilities to manage Access Seekers, take orders, process bills and collect payments.
Business-to-Business (B2B)	Commerce transactions between businesses.
Capital Expenditure (Capex)	The cost of purchasing tangible and intangible assets.
Commencement Date	7 March 2012, being the date that the Telstra Definitive Agreements became wholly unconditional.
Compound Annual Growth Rate (CAGR)	"Year on Year" growth rate, over a specified period of time.
Connectivity Serving Area (CSA)	A logical collection of End-User Premises defined by NBN Co. Each CSA has approximately the same number of End-User Premises.

Connectivity Virtual Circuit (CVC)	Determines the capacity required to serve each CSA. The CVC is an aggregation of the AVCs from the End-User premises back to the PoI.
Construction Commenced	Contract instructions have been issued together with the initial Network Design Document (NDD) so that construction partners can commence work on the detailed design, field inspections and rodding / roping activities in an FSAM. This is followed by the release of a rollout map for the FSAM on the NBN Co web site showing the coverage area for that FSAM and the estimated number of premises to be passed / covered.
Construction Completed	When the premises in an FSAM are defined as Premises Passed.
Dark Fibre	Optical fibre with no active electronics attached.
Deal Case	The base case used for the Corporate Plan, assuming that all the terms of the Telstra Definitive Agreements and Optus HFC Agreement are fully implemented.
'Demand Drop'	Where the connection from the street to the premises is carried out when an order for a service is received from a retail service provider.
Digital Subscriber Line (DSL)	A family of technologies that deliver high-speed data transmission over a copper phone line.
Digital Subscriber Line Access Multiplexers (DSLAMs)	Network devices normally located in telephone exchanges providing multiple ports connecting End-User copper lines for the provision of DSL broadband service.
Distribution Fibre	Connection between the Fibre Distribution Hub (FDH) and the FAN, for both Regional FANs and the Metropolitan FANs, as well as the connectivity between the non adjacent Fibre Serving Area Modules in the Capital Cities and the Metropolitan FANs. Distribution Fibre routes are designed in a ring structure to minimise the impact of any fibre break on consumer services as well as providing diverse paths for protected commercial point to point services.
Distribution Network	The part of the network that connects the FAN to the FDH.
Earnings Before Interest and Taxes (EBIT)	The operating profit before deduction of interest and income taxes.
Earnings Before Interest, Taxes, Depreciation and Amortisation (EBITDA)	The operating profit before deduction of interest, income taxes, depreciation and amortisation.
End-Users	Final downstream customers to NBN Co's Access Seekers.
Enterprise Resource Planning (ERP)	The system that will provide NBN Co with the capabilities to manage enterprise functions such as finance, fixed assets, human resources, project management, supply chain management, and contract management.
Ethernet	A frame based transport protocol for forwarding traffic across Local Area Networks (LANs).

Fair Work Principles	Under the Department of Education, Employment and Workplace Relations, these principles support the creation of quality jobs by ensuring that NBN Co procurement decisions are consistent with the Fair Work Act and its aims, including promoting fair, cooperative and productive workplaces.
Fibre Access Node (FAN)	A facility that houses the active equipment providing services to a Fibre Serving Area (FSA). Note that Urban FANs will also provide a Point of Interconnect (PoI) to Access Seekers.
Fibre Distribution Area (FDA)	The geographic area served via a single Fibre Distribution Hub (FDH) which connects addresses to the serving FAN site(s) via Local Fibre. Typically serving up to 200 premises.
Fibre Distribution Hub (FDH)	The equipment located in a Fibre Distribution Area where Distribution Fibre is split to provide Local Fibre that runs down each street.
Fibre Footprint	The premises that will be serviceable by NBN Co's FTTP network by the end of the Rollout Period.
Fibre Serving Area (FSA)	The area served by a FAN site, which for the regional areas will be a cluster of FDAs and for the 16 city metropolitan locations will be a cluster of FSA Modules. The FDAs and FSA Modules will be connected via Distribution Fibre.
Fibre Serving Area Module (FSAM)	A series of up to 16 FDAs linked in a double loop configuration. Typically, a single fibre sheath will connect the FSAM and its (up to 16) FDHs back to a nominated Fibre Access Node (FAN). An FSAM may be a small town or a part suburb in the case of large cities. The number of premises contained in an FSAM is typically between 2,000 – 3,000, depending on location and network planning / topology.
Fibre-To-The-Home (FTTH)	Same as Fibre-To-The-Premise.
Fibre-To-The-Premises (FTTP)	The network design in which the Fibre network is deployed to each premises.
Financial Heads of Agreement (FHOA)	The agreement entered into between NBN Co and Telstra Corporation on 20 June 2010.
First Release Site (FRS)	The first locations (after the Pre Release Sites in Tasmania) where NBN Co will deploy Fibre services.
FTTx	Fibre to the x (FTTx) is a generic term for any broadband network architecture using optical fibre to replace all or part of the usual metal local loop used for last mile telecommunications. The generic term was initially a generalization for several configurations of fibre deployment (FTTN, FTTC, FTTB, FTTH...), all starting with 'FTT' but differentiated by the last letter, which is substituted by an x in the generalization.
FY20XX	Financial Year ended 30 June 20XX.
Geocoded National Address File (GNAF)	GNAF [®] information is provided by PSMA Australia Limited (PSMA). GNAF [®] lists all valid physical addresses in Australia. It contains approximately 12.6 million physical addresses, each linked to its unique geocode (that is, the specific latitude and longitude of the address). Data used to build GNAF [®] comes from contributors that include the Australian Electoral Commission, Australia Post, state, territory and Australian Government mapping agencies and land registries. GNAF [®] is provided by PSMA Australia Limited (PSMA).

Gigabit-capable Passive Optical Network (GPON)	<p>A point to multi-point fibre to the premises network architecture that uses combination of electronics network and passive optical splitters to deliver speeds up to 1,000 Mbps to End-Users.</p> <p>The GPON active layer technology uses electronics that are designed to be compatible with a fibre that is subsequently split into multiple downstream fibres.</p>
Gigahertz (GHz)	Unit for measurement of frequencies. One Gigahertz is equal to 10 ⁹ hertz.
Greenfields	A new development that can be either Broadacre or Infill Premises. Greenfields developments represent the growth of the premises market.
Health, Safety & Environment (HSE)	A supporting division of NBN Co that will not be directly involved in the operation of the NBN but will be responsible for establishing and maintaining the company's policies regarding employee health, safety and environment issues.
Hybrid Fibre Coaxial (HFC) Network	A network utilising both optical fibre and coaxial cable for the delivery of Pay TV, internet and voice services.
Infills	A type of Greenfields development where new premises or a redevelopment (i.e. demolition and rebuild) are planned to be built on currently developed land that is surrounded by established areas, where Telstra copper services are currently available.
Information Technology (IT)	An umbrella term for technologies that process, store and communicate information.
Internal Rate of Return (IRR)	The average annual total return from an investment over a specified time period, used to measure and compare the profitability of the investment.
Internet Protocol (IP)	The international standard by which data is transmitted between networks (packet data protocol by which data is routed between IP enabled devices (computers) and networks).
Internet Protocol Television (IPTV)	A service where video streams are delivered across Internet (broadband) connections for viewing at an End-User premise.
Ka-band	Satellite radio frequency spectrum from 27 – 40 GHz.
Key Performance Indicator (KPI)	A metric used to measure the progress or degree of fulfilment of a particular success criterion.
Kilobits per second (kbps)	One Kilobit Per Second is equal to 1,000 bits per second.
Layer 1 Network/Wholesale Services	The physical network layer providing electrical impulse or wavelength based services on a point-to-point (P2P) basis.
Layer 2 Network/Wholesale Services	The transmission layer that encodes and decodes information bits across layer 1 infrastructure. Layer 2 is the active layer of an optical fibre network.
Local Area Network (LAN)	A computer network that connects computers and devices in a limited geographical area (e.g. home, office building).

Local Fibre	Connection between the FDHs and the individual GNAFs or buildings via a series of radial fibre cables containing Network Access Points (NAPs), then a Drop Fibre to the building. Note that the Local network fibre cables are not tapered, but the 'ends' of each segment are interconnected to provide through connection of the Distribution and Trunk fibres.
Local Network	The part of the network from the Fibre Distribution Hub down each street.
Long Term Evolution (LTE)	Standardisation work by the 3 rd Generation Partnership Project (3GPP) to define a new high-speed performance air interface for mobile communication systems. Commonly regarded as a 4G technology.
Megabits Per Second (Mbps)	A unit of measurement of transmission speeds. One Megabit Per Second is equal to 1,000 kbps. X/Y Mbps means a maximum downstream speed of X Mbps and a maximum upstream speed of Y Mbps.
Metropolitan FAN	A Fibre Access Node (FAN) serving a metropolitan area.
Multiple Dwelling Unit (MDU)	Premises that contains more than one dwelling unit, which can range from duplexes to 200+ unit apartment blocks. Each dwelling unit is assumed as equivalent to one GNAF (e.g. a 50 unit apartment block will have 50 GNAFs).
National Broadband Network (NBN)	The nation-wide broadband network that will be deployed by NBN Co and third parties engaged on behalf of NBN Co.
National Code of Practice for the Construction Industry	Sets minimum standards that businesses must meet to be eligible for certain Australian Government building and construction work.
National Connectivity Network (NCN)	The National Connectivity Network provides national Ethernet and IP connectivity for the purpose of transporting internal NBN Co services including operational management traffic, wireless signalling traffic and NBN Co enterprise traffic.
NBN Co	NBN Co Limited ACN 136 533 741.
Network Access Points (NAP)	The point at which Drop Fibre is connected to Local Fibre.
Network and Service Operations Centre (NSOC)	Facility overseeing management and operation of the network infrastructure.
Network Termination Device (NTD)	NBN Co's termination point on each premise, for residential fibre services (typically) featuring 4 Ethernet and 2 telephone interfaces.
Network-to-Network Interface (NNI)	The port at NBN Co's Point of Interconnect (PoI) where Access Seekers connect their internet transmission backhaul.
No Deal Case	Alternative to the Deal Case, assuming no deal with Telstra and Optus.

Non-Premises	Non-Premises are defined in the Statement of Expectations as non-addressable locations which NBN Co is permitted, but not required to connect unless directed to do so by the Government, the connection of which will not count towards the coverage objective. Non-Premises are defined at Attachment A – <i>Premises Definition</i> , of the Statement of Expectations.
Occupational Health & Safety (OHS)	A discipline concerned with protecting the safety, health and welfare of people engaged in work or employment.
Operating Expenditure (Opex)	The ongoing cost of running a business, system or product.
Operational Support Systems (OSS)	The set of systems that will provide NBN Co with the capabilities to provision, configure, manage, and operate the NBN.
Optical Line Terminal (OLT)	The equipment to provide the GPON signals to each of the FDAs.
Optus HFC Agreement	The agreement between NBN Co and Singtel Optus Pty Ltd and other Optus entities (Optus) which was executed on 23 June 2011. The Optus HFC Agreement provides for the progressive migration of Optus HFC subscribers to the NBN as it is rolled out. NBN Co has agreed to make progressive payments to Optus, based on the number of Optus subscribers that migrate from its HFC network.
Per Subscriber Address Amount (PSAA)	Per Subscriber Address Amount (PSAA) as defined in the Telstra Definitive Agreements.
Point of Interconnect (Pol)	The connection point that allows RSPs and WSPs to connect to the NBN Co access capability. In the field, this is the physical port on the Ethernet Fanout Switch (EFS) switch located at NBN Co's Pol, where an Access Seeker connects to establish exchange of traffic with NBN Co's network.
Point-to-Point (P2P)	A network design in which a dedicated access fibre connects individual premises directly to the fibre exchange.
Power Supply Unit (PSU)	A component which provides power to a device.
Premises	Premises are defined as addressable locations which NBN Co is required to connect and are included at Attachment A – <i>Premises Definition</i> , of the Statement of Expectations. The Statement of Expectations refers to this definition as the basis for measuring NBN Co's achievement of the Government's coverage objectives.
Premises Activated	Premises are activated after receiving and provisioning a service order from a Retail Service Provider to install a new service at the premise.
Premises Passed	All design, construction, commissioning and quality assurance activities in an FSAM have been completed for the Local network and Distribution network.
Pre Release Sites	The locations in Tasmania where Fibre-To-The-Premises (FTTP) was first deployed, before the First Release Sites.

Priority Assistance	Means those services supplied to Priority Customers under the Priority Assistance policy. A Priority Customer is a customer who satisfies the eligibility criteria in relation to a diagnosed life-threatening medical condition.
Public Information on Migration (PIM)	The Public Information on Migration (PIM) activities implement the Government's objective for NBN Co to be responsible for funding awareness and education to inform telecommunication users about the migration of services in fibre areas from copper or HFC-based infrastructure to the NBN fibre-based services. The PIM requirements are outlined in the Public Information and Migration deed between the Commonwealth and Telstra.
Public Interest Premises (PIPs)	Public Interest Premises (PIPs) refers to Government, Health and Education premises.
Public Works Committee (PWC)	The PWC was established in 1913 and is one of the oldest investigative committees of the Parliament. The Committee is constituted by the Public Works Committee Act 1969. The PWC Act provides that (with certain limited exceptions) a public work with an estimated cost exceeding \$15 million shall not be commenced unless it has been referred to the Parliamentary Standing Committee on Public Works (PWC).
Quality of Service (QoS)	The traffic engineering term Quality of Service (QoS) refers to resource reservation control mechanisms rather than the achieved service quality. Quality of Service is the ability to provide different priority to different applications, users, or data flows, or to guarantee a certain level of performance to a data flow.
Ready For Service (RFS)	Ready to accept / provision service orders from Retail Service Providers.
Regional Backhaul Blackspots Programme (RBBP)	An initiative of Department of Broadband, Communications and the Digital Economy (DBCDE), as part of the NBN, which is investing up to \$250 million to immediately address areas where existing backhaul does not provide broadband access throughout regional Australia.
Retail Service Provider (RSP)	A third party provider of retail broadband services to End-Users.
Single Dwelling Unit (SDU)	Premises that contain only one dwelling unit. One SDU is equivalent to one GNAF.
Special Services	Special Services are services delivered using the copper CAN other than voice or broadband.
Statement of Expectations (SOE)	Letter to NBN Co from its Shareholder Ministers dated 17 December 2010. See http://www.dbcde.gov.au/__data/assets/pdf_file/0003/132069/Statement_of_Expectations.pdf
System Integrator (SI)	The supplier that is chosen to implement and integrate a system.
Telstra Definitive Agreements	Telstra Definitive Agreements means the suite of agreements entered into between NBN Co and Telstra on 23 June 2011 and which are described in the release issued by Telstra to the ASX on that day.
T-FAN	A temporary Fibre Access Node (FAN) to serve Greenfields developments.

Transit Fibre	Connection between Points of Interconnect (Pols) where the Retail Service Providers connect to the NBN, and the regional based FANs. Transit Fibre can also provide connectivity for the Metropolitan FANs to Pols if required.
Transit Network	The fibre rings which connect the regional FAN sites and the nearest Pol, served by Transit Fibre.
'Type 2 Architecture' (T2A)	'Type 2 Architecture' describes the equipment being deployed for volume rollout by NBN Co in the Local and Distribution networks. The significant differences between 'Type 1 Architecture' and 'Type 2 Architecture' are in the 'Type 2 Architecture's' use of ribbon fibre, the diverse connections available for Point-to-Point and PON connections from an FDH, and the diversity which is fully available for service restoration between FDH and FAN.
TUSMA Levy	In March 2012, the Federal Parliament passed the universal service reform legislation to ensure basic universal telecommunication service standards during and after the rollout of the NBN and to establish the Telecommunication Universal Service Management Agency (TUSMA), which will administer the Universal Service Obligation (USO) and other public interest services. The Government will supplement TUSMA's funding in the first 2 financial years as a transitional measure. From 1 July 2012, all telecommunication carriers, including NBN Co, will have to contribute to the costs of TUSMA.
Universal Service Obligation (USO) Payphones	Universal Service Obligation (USO) Payphones are defined as a payphone which is activated in compliance with the USO as per Attachment A – <i>Premises Definition</i> , of the Statement of Expectations which lists USO Payphones as non-premises which NBN Co is required to connect, on terms approved by Government, but do not count towards the coverage objective.
User Network Interface (UNI)	The physical port on the NBN Co NTD at the End-User premises which connects the End-User's residential gateway or Ethernet enabled device to the NBN.
Video-on-Demand (VoD)	A technology or service that allows people to select and watch video content at the time of their choosing, unrestricted by a linear schedule.
Wholesale Broadband Agreement (WBA)	A document which sets out the terms and conditions of access to NBN Co's services and products and will constitute NBN Co's standard form of access for the purposes of the Access Arrangements Act.
Wholesale Service Provider (WSP)	A provider of wholesale services to RSPs.
Wireless Serving Area (WSA)	A series of Base Transceiver Stations (BTS) linked in a geographic cluster configuration.