Corporate Plan

2013-16

28 June 2013

COMMERCIAL IN CONFIDENCE

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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) (**CAC Act**), 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 (together, **Reporting Obligations**).

Forecasts

The Corporate Plan has been prepared for the consideration of the Shareholder Ministers only, and contains various long-range plans, projections and forecasts and other forward looking information (together, **Forecasts**). The Forecasts are based on NBN Co's best considered professional assessment of present economic and operating conditions, present Australian Government policy, and a number of assumptions regarding future events and actions which, at the date of this Corporate Plan, are expected to take place. Such Forecasts involve known and unknown risks, uncertainties and other factors outside of NBN Co's control that may cause NBN Co's actual results, performance or achievements to be materially different from any future results, performance or achievements expressed or implied by the Forecasts.

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

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NBN Co Limited
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Australia

Date

This Corporate Plan is dated 28 June 2013.

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1 Forewords

1.1 Chairman's Message

NBN Co's Corporate Plan describes how Australia's investment in fundamental telecommunications infrastructure will be managed and operated. The preparation of the 2013-16 Corporate Plan represents an important milestone for NBN Co. It is now four years since NBN Co was established and previous Corporate Plans have, by necessity, focused on network design and regulatory settings. It is therefore appropriate that this Corporate Plan focuses on how NBN Co will operate as a business – its construction progress, its customers, its cost and revenue management, and its governance and regulatory controls.

The period 2010-2013 was the 'foundation' era of NBN Co. The building blocks were put in place to create a new wholesale open-access broadband network: the regulatory framework for the company was established; arrangements with Telstra to access infrastructure and to allow for structural separation were made binding; the network was designed to minimise costs while ensuring all Australians can receive a standard service and the majority will receive super-fast speeds over fibre; and contracts were entered into with more than 30 businesses to supply key products and services to build the network. On behalf of the Board, I thank Harrison Young for his outstanding Chairmanship during these crucial early years.

At the beginning of the 2014 financial year many aspects of the commercial operations are already in place:

- NBN Co's core 'Transit network' is operating and will be fully completed by 2015.
- The 'Long Term Satellite Service' that will serve remote Australia with fast broadband is more than 20% built and will be launched in 2015.[1]
- The 'OSS/BSS IT' systems that will operate the network have been largely built and are already operating. These IT systems will continue to be enhanced and will benefit from annual improvements.
- An ongoing cost efficiency program established by NBN Co management has already identified savings of approximately $700 million.[2]

A year ago, in the June 2012 quarter, 290 premises/lots per day were being connected by fibre to the Transit Network. In the June 2013 quarter to date this has increased to more than 1,000 premises/lots per day. NBN Co plans to lift this rate to more than 4,000 per day by the June 2014 quarter, and to maintain a rate of 5,900 to 6,800 per day until the network is completed.[3]

[1] Percentage completed based on Capital Expenditure spend to May 2013 compared to forecast total Project Spend over construction period.

[2] Savings of $0.7 billion have been identified to date and are included in the 2013-16 Corporate Plan. Further potential savings are at early stages of consideration by NBN Co and remain subject to further validation.

[3] Stated as FTTP Access and FTTP Greenfield Premises/Lots Passed per working day for the June 2012 quarter, 1 April to 14 June 2013, and June 2014 quarter. Premises / Lots Passed from FY2015 to the end of the network construction period are annual figures. Forecast Premises/Lots Passed stated per 250 working days per year on average.

During 2013 the company trialled several methods for connecting homes by fibre to the Transit Network including fully and partially outsourcing the task. Costs have been in line with expectations however elements of the current outsourcing model have proven too slow and have not performed to our expectation. NBN Co will continue to modify its outsourcing approach to increase the rate at which premises are connected by fibre to the Transit Network.

A significant part of NBN Co's commercial operations are reliant upon commercial partners. NBN Co gratefully acknowledges the support of:

- More than 15 equipment manufacturers who supply materials such as joints, cable, and machinery.[4]
- Ten primary Delivery Partners who supply services such as trench-boring and fibre splicing.[4]
- More than six primary IT companies who assist in mapping and operating the network.[4]
- The 43 retail telecommunications companies who have signed NBN Co's Wholesale Broadband Agreement to market and sell its products.[5]
- Telstra, which supplies access to its pits, ducts and exchanges, and also sells NBN Co wholesale products to its customers under the Wholesale Broadband Agreement.

As custodians of a public investment, the Board's focus is on ensuring the company delivers against its Statement of Expectations within a context of commercial discipline. In doing so the Board appreciates the additional oversight provided by Ministers, regulators and other bodies including:

- Parliamentary bodies: Joint Committee on the National Broadband Network, Senate Estimates, the Parliament of Australia.
- Federal regulators: Australian Competition & Consumer Commission, Comcare, Australian Tax Office, Australian Securities & Investments Commission, Australian Communications and Media Authority, Telecommunications Universal Service Management Agency and the Telecommunications Industry Ombudsman.
- Other regulators: health and safety regulators in each state and territory along with other state and local authorities.

The safety of employees, contractors and the community is our key priority. In May 2012 NBN Co's Health Safety and Environment management system was accredited to AS4801, OHSAS18001 and ISO14001. We have continued to enhance HSE management systems focussing on the identification, assessment and control of critical risks and will continue to work closely with the national taskforce on asbestos in telecommunications infrastructure. While we maintained a low Lost Time Injury frequency during the year, tragically a fatality occurred at a rollout site where subcontractors were undertaking construction activity. No fatality is ever acceptable and on behalf of everyone at NBN Co I offer my sincere condolences to the family and friends for their loss.

[4] Stated as at May 2013.

[5] Stated as at April 2013.

The Board maintains a strong focus on financial performance and capital management. To date, NBN Co has been funded by equity injections totalling $5,229 million, including $2,397 million in FY2013. The key assumptions underpinning this Corporate Plan have been tested against NBN Co's actual operational and financial experience and, this testing has affirmed those assumptions. NBN Co is also on track to complete the build of the network by June 2021.

As at June 2013 there are more than 6,800 people engaged in operating and building the National Broadband Network, I thank these staff, management and contractors for their dedicated service and my fellow Board members for their ongoing commitment.[6]

Siobhan McKenna

Chairman

[6] NBN Co's 2,655 employees and estimated 4,200 contractors were employed in the building of the National Broadband Network as at April 2013.

1.2 Chief Executive Officer's Update

The 2013-16 Corporate Plan provides an update of NBN Co's progress building and operating the National Broadband Network, indicates the outlook for the next three years, and confirms financial targets to FY2021.

In the past 12 months NBN Co has moved from the design and early implementation phase to be an established company with systems, contracts and resources in place to operate as a growing open access, wholesale provider of high-speed broadband services. Major milestones include the ramp-up toward volume rollout activities following finalisation of the Telstra Definitive Agreements in March 2012, and the execution of a series of additional contracts for the design and construction of the FTTP Network, Satellite Network and the Transit Network.

NBN Co has continued to develop its products, announcing plans for a 25/5 Mbps wholesale service on the Fixed Wireless Network and the Satellite Network,[7] and for a 1 Gbps/400 Mbps wholesale service on the FTTP Network before December 2013. IT systems and personnel are in place to connect and activate a growing number of End-Users.

The Corporate Plan has been updated to incorporate the impact of developments since the 2012-15 Corporate Plan. There have been no major changes to NBN Co's scope or objectives that materially affect the Company's cost structure. As a result, the forecast capital expenditure of $37.4 billion and operating expenditure of $26.4 billion have remained unchanged in this Corporate Plan.[8]

Following a thorough review, NBN Co announced (on 21 March 2013) revised forecasts for the FTTP Network construction programme. Despite this reforecast, the FY2021 NBN completion date has remained unchanged.

There has been an adjustment to the cumulative revenue projection of approximately $(1.4) billion for the period FY2011 to FY2021 (to $21.6 billion)[8] reflecting the impact of the revised forecast of rollout numbers. NBN Co's Internal Rate of Return remains at 7.1%, due mainly to the combined movements in timing of revenues and expenditure.

NBN Co's funding profile is typical of a large-scale GBE infrastructure operator with funding requirements met through Government equity and private sector debt. Peak Government equity is forecast to remain at $30.4 billion with NBN Co assuming access to private sector debt in FY2015. This Corporate Plan assumes private sector debt of $15.2 billion, an increase of +$1.6 billion compared to the 2012-15 Corporate Plan.

The rollout of the Transit Network is on schedule to be substantially completed by FY2015, providing connectivity between the major network elements and back to NBN Co's Network and Service Operations Centre to support the FTTP, Fixed Wireless and Satellite access technologies.

[7] NBN Co is planning to release the 25/5 Mbps wholesale service on the Fixed Wireless Network in June 2013. Services on the Interim Satellite Service (**ISS**) are limited to 6/1 Mbps. NBN Co is planning to launch two satellites with commercial operations starting in mid-2015. At that time, NBN Co will offer 12/1 Mbps and 25/5 Mbps on the Satellite Network. For further details: http://www.nbnco.com.au/assets/media-releases/2013/internet-speed-doubles-fixed-wireless.pdf.

[8] Stated as cumulative Nominal dollars for the period covering FY2011-FY2021. This statement may include forecasts. Please refer to NBN Co's Legal Notice on Page 2 of the 2013-16 Corporate Plan for information about these statements.

Early in 2013 NBN Co announced the successful partner to launch two satellites in 2015. This constitutes the final equipment component of the Long Term Satellite Service, with contracts previously announced for the construction of the satellites, construction of 10 earth stations, and purchase of ground equipment.

In support of the Government's objective to reshape Australia's telecommunications industry, NBN Co has established a wholesale-only, open access network, subject to Australian Competition and Consumer Commission (**ACCC**) scrutiny.

To provide certainty to service providers in relation to the terms of their access to NBN services, and to set a framework for the long term recovery of NBN Co's own costs, NBN Co has voluntarily submitted a Special Access Undertaking to the ACCC.

There are currently over 200 NBN fibre retail service plans ranging from 12/1 Mbps to 100/40 Mbps wholesale speed tiers, and over 100 Fixed Wireless and Satellite service plans, in the market. The NBN is also facilitating the development of new business models for a range of companies in the telecommunications sector. Companies which had previously built a customer base using a specific technology, such as satellite, are now able to expand into different markets using NBN Co's open access wholesale network.

The take-up of services by the public has also been encouraging. In areas where the NBN has been operational (Ready for Service) for more than 6 months, over 30% of the Premises Passed has taken up an NBN-enabled service. This compares favourably with the introduction of other technologies; the 2006 census found that 28% of households had broadband 6 years after the introduction of ADSL.[9]

Under NBN Co's agreement with Telstra, End-Users inside the fibre footprint will need to migrate to the NBN within 18 months of the fibre network being activated in their area in order to maintain a fixed line service. NBN Co has begun the process of notifying End-Users in relevant locations of this requirement and working with its retail service providers to ensure a smooth migration. NBN Co forecasts an average take-up rate at the end of the disconnection period of approximately 70% by FY2021 and 74% by FY2023.

NBN Co is reviewing its business strategy regarding programme planning and management control and will take action to assist construction contractors in meeting their commitments where required. This was demonstrated by NBN Co assuming direct responsibility for deployment of the FTTP Network in the Northern Territory, and establishing an in-house splicing and testing capability to provide immediate support to assist Delivery Partners where splicing becomes a bottleneck.

The company is committed to providing a safe and healthy working environment for its employees, contractors and visitors to NBN Co's workplaces. The company takes all reasonable steps to control hazards and minimise risk.

The number of individuals involved in the Health, Safety and Environment function has increased from 18 full-time employees at the end of FY2011 to 48 at present (April 2013).

[9] Source: ABS Multi-Purpose Household Survey (MPHS) 2005-2006.

The company monitors on an ongoing basis policies and procedures for dealing with workplace hazards. It is a participant in the national taskforce on asbestos in telecommunications infrastructure established in June 2013. It is also working with parties including Comcare, the Federal Government and Telstra on the establishment of a new national standard for the removal of asbestos in pit and pipe.

Until such time as this standard is developed and implemented, NBN Co is working with specialist asbestos removal firms for the limited remediation the company is undertaking on Telstra's network.

NBN Co's revised targets in the 2013-16 Corporate Plan are over 4.7 million Premises Passed, and over 2.4 million Premises Activated by FY2016 across all technologies.

This Corporate Plan reflects the growing maturity of the organisation and its experience with the rollout to date. There are only incremental adjustments to the plan reflecting the fact that major agreements and policy decisions are in place.

Mike Quigley

Chief Executive Officer

2 About this Plan

The 2013-16 Corporate Plan sets out the major objectives for NBN Co Limited (**NBN Co**) for the period 1 July 2013 to 30 June 2016. This Corporate Plan has been prepared in accordance with 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.

This Corporate Plan is intended to inform the Shareholder Ministers on:

- NBN Co's objectives based on the Government's Statement of Expectations (**SoE**) and other communication of Australian Government policy by the Shareholder Ministers.
- Assumptions about the environment in which NBN Co operates, including the regulatory, legislative and policy environment.
- NBN Co's strategies in operating, building and maintaining the National Broadband Network (**NBN**).
- Factors likely to affect achievement of targets or create significant risk for NBN Co or the Commonwealth.
- Price control and quality control strategies for wholesale products supplied by NBN Co.
- Progress on the deployment of the NBN, as well as financial targets and projections of NBN Co, including comparison of key metrics against the 2012-15 Corporate Plan.
- Analysis of the non-financial measures of NBN Co, including diversity and engagement of the NBN Co workforce.
- Human resources strategies and industrial relations strategies.
- The investment and financing program of NBN Co, including how financial risk is managed.

The scope of the 2013-16 Corporate Plan relates to NBN Co and its subsidiaries, together referred to as **NBN Co** or the **Company**.

3 Operational and Financial Review

The 2013-16 Corporate Plan is based on NBN Co's operational experience to date and NBN Co's projections for deployment and activations as at May 2013. The major operational and financial metrics for the period ending 30 June 2021, which is the projected date for the completion of the FTTP Network, remain largely unchanged from those in the 2012-15 Corporate Plan; with the exception of cumulative forecast revenues to FY2021 and peak debt funding.

Major Operational and Financial Metrics	2012-15 Corporate Plan	2013-16 Corporate Plan	Change
Forecast Return (Unlevered IRR)	7.1%	7.1%	-
Capital Expenditure (Cumulative to FY2021)	$37.4 billion	$37.4 billion	-
Revenues (Cumulative to FY2021)	$23.1 billion	$21.7 billion	$(1.4) billion
Operating Expenditure (Cumulative to FY2021)	$26.4 billion	$26.4 billion	-
Total Peak Funding			
- **Peak Equity**	$30.4 billion	$30.4 billion	-
- **Peak Debt**	$13.7 billion	$15.2 billion	+$1.6 billion*
Network Metrics (Completion Dates)			
- **Transit Network** (121 Points of Interconnect Integrated)	FY2015	FY2015	-
- **FTTP Network** (FTTP Access Construction Completed)	FY2021	FY2021	-
- **Fixed Wireless & Satellite** (Permanent Satellite Capacity Launched)	CY2015	CY2015	-

Source: NBN Co. Note: IRR: Internal Rate of Return. All numbers rounded to 1 decimal point. *: Including funding costs.

Note: The above table and discussion below may include forecasts. Please refer to NBN Co's Legal Notice on Page 2 of the 2013-16 Corporate Plan for information about forecasts stated in this document.

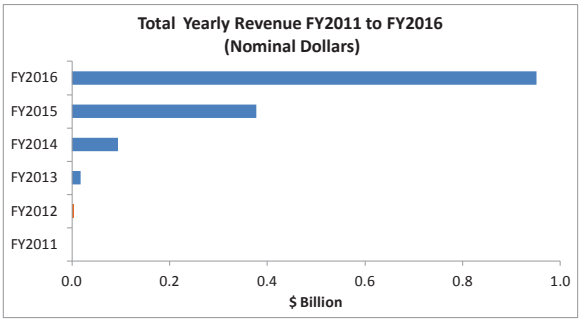
Operational and Financial Highlights since the 2012-15 Corporate Plan:

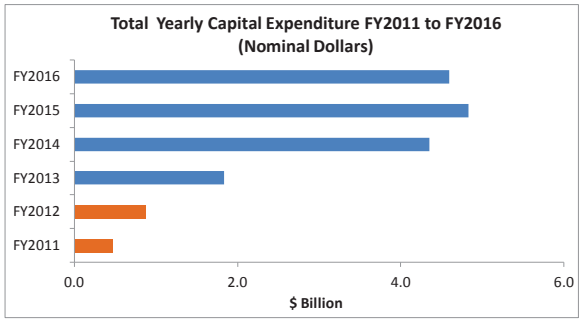
- **FTTP Network** passed 106,400 premises as at 9 May 2013. The construction activities of this 10-year programme are ramping up, but at a slower pace than anticipated and are currently 3 months behind schedule. The forecast FTTP Network completion date remains FY2021, in line with the 2012-15 Corporate Plan.
- **Fixed Wireless and Satellite Networks** covered 267,300 premises as at 9 May 3013. Take-up of the Interim Satellite Service is ahead of forecast. Two Ka-band satellites are on schedule for launch in CY2015. The Fixed Wireless Network has been impacted by timeframes required for tower approvals, spectrum availability and a lower than expected number of premises in the footprint.
- **Transit Network** is progressing to plan, with the core network scheduled to be completed by FY2015.
- **Active End-Users** on the NBN totalled 57,400 as at 9 May 2013 (64,400 when including Premises Pending Orders). This is below the 2012-15 Corporate Plan forecasts due to revised deployment forecasts for the FTTP Network and Fixed Wireless Network. Early indications on take-up rates support NBN Co's long term penetration forecasts.
- Projected **Revenue** to 30 June 2013 is in line with budget, with higher Average Revenue Per User (**ARPU**) offsetting a lower number of active End-Users. Cumulative Revenue to FY2021 is forecast to be $(1.4) billion lower than in the 2012-15 Corporate Plan as a result of the reduced forecast of active End-Users in the early years. Long term ARPU assumptions are consistent with the 2012-15 Corporate Plan.
- Forecast cumulative **Capital Expenditure** to FY2021 is in line with the 2012-15 Corporate Plan at $37.4 billion. Contingency remains at 10% of forward forecast Capital Expenditure.
- Projected annual **Operating Expenditure** to 30 June 2013 is below budget**.** The majority of direct operating expenditure is subject to existing contracts. The forecast cumulative Operating Expenditure to FY2021 is in line with the 2012-15 Corporate Plan at $26.4 billion.
- Projected **Total Peak Funding** to FY2021 is $45.6 billion, $1.6 billion higher than previously forecast due to the lower forecast revenue to FY2021. Additional funding is forecast to be provided through debt raising.

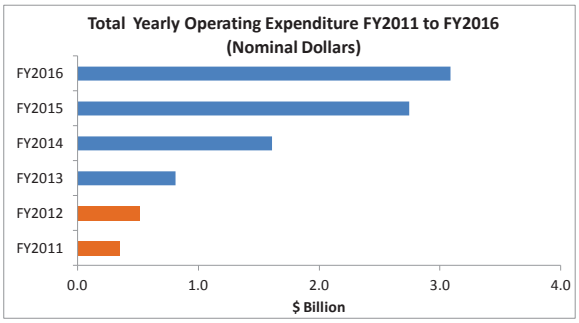
Financial Metrics for the 2013-16 Corporate Plan

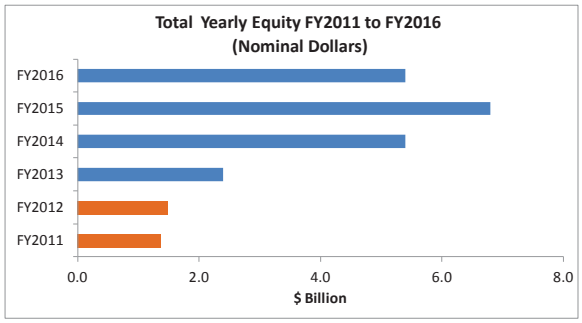
Actuals Forecasts[10]

(Yearly Incremental Amounts) (Nominal Dollars) (Opex: costs incurred view, refer Glossary)







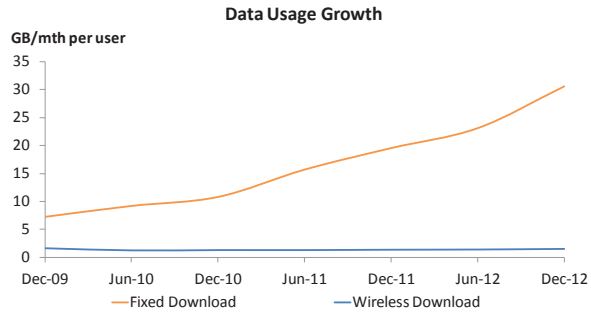


Source: NBN Co.

Non-Financial Metrics

(rounded to nearest digit)	FY2012	April 2013	Target
Health and Safety			
Lost Time Injury (**LTI**) – NBN Co (per million work hours)	0.3	0.3	Minimise
Lost Time Injury (**LTI**) – Contractors	0.9	1.5	Minimise; benchmark: 3.1
Gender Diversity			
Women in management roles	20%	22%	Improve to representation in industry
Staff Engagement			
Employee survey score (*: based on pilot, December 2012)	n/a	68%*	Maximise
End-User Satisfaction			
Installations only (*: 8 Week Rolling Average, as 9/05/13)	n/a	77%*	Benchmark: 90%
Staff Retention			
Proportion of staff retained (over 12 months)	88%	88%	Benchmark: 80%

Market Environment (Broadband Usage)



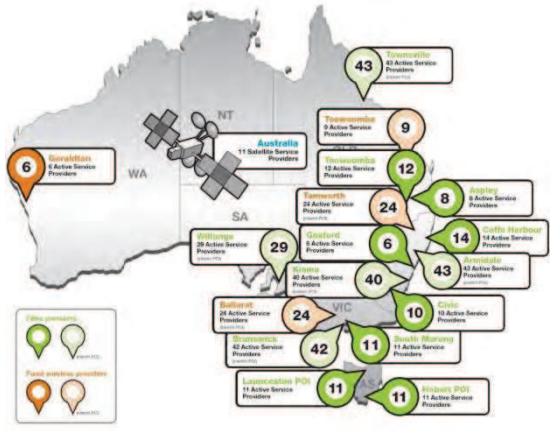
Source: ABS 8153.0 - Internet Activity, Australia, December 2012

- Total fixed-line download traffic represented 95% of all downloads as at December 2012, up from 93% in 2011.
- Broadband usage in Australia continued to grow, accelerating in the six months July 2012-December 2012.
- Average downloads per fixed broadband subscriber increased 56% year-on-year, to 30.6 GB/month.
- Average downloads per mobile broadband subscriber increased 12% year-on-year, to 1.5 GB/month.

Source: NBN Co unless otherwise stated.

[10] Note: The exhibits above may include forecasts. Please refer to NBN Co's Legal Notice on Page 2 of the 2013-16 Corporate Plan for information about forecasts stated in this document.

Service Providers' Activity on the NBN

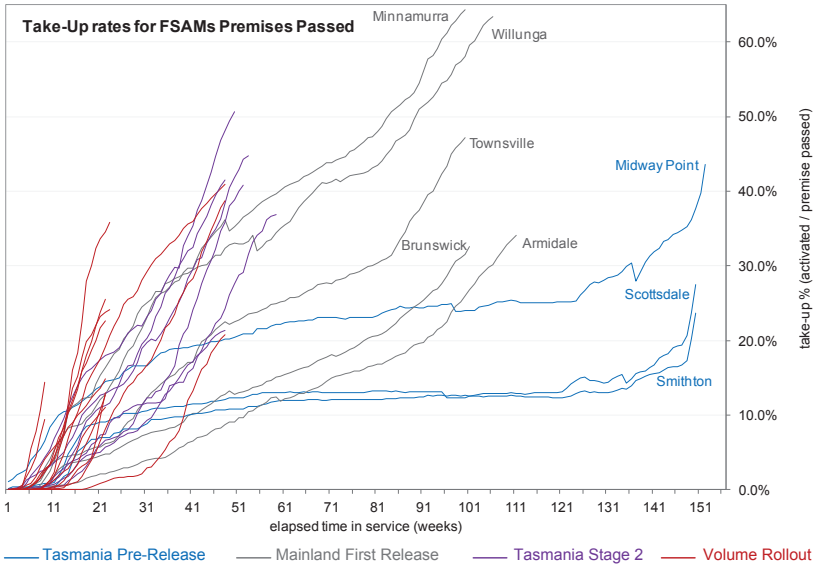


Source: NBN Co as at 30 April 2013
Note: Includes NBN Co Service Providers, as well as Indirect Sellers.
*Based on retail offers currently in the market as at 30 April 2013.

As at 30 April 2013 NBN Co had:

- 43 Service Providers with signed Wholesale Broadband Agreements (**WBAs**).
- 25 Service Providers offering 317 retail plans based on NBN wholesale products*:
  - 20 Service Providers offering 206 retail FTTP plans.
  - 7 Service Providers offering 32 retail Fixed Wireless plans.
  - 7 Service Providers offering 79 retail NBN Interim Satellite plans.
- Average of 5.4 Service Providers connecting at each of NBN Co's Points of Interconnect (**PoIs**).

End-Users' Take-up Rates[11]



FSAM Name	Take-up Rate	Weeks In Service
Minnamurra	64.4%	100
Willunga	63.4%	106
Kingston Beach	50.6%	50
Townsville	47.1%	100
Sorell	44.7%	53
Midway Point	43.6%	152
George Town	41.5%	48
South Morang	40.9%	48
Deloraine	40.8%	52
Armidale	38.7%	48
Triabunna	36.8%	59
Crace	35.9%	23
Armidale	34.1%	111
Brunswick	32.5%	101
Scottsdale	27.5%	150
Coffs Harbour	25.5%	22
Crace	24.2%	23
Smithton	23.7%	150
Hobart	22.7%	22
St Helens	21.3%	48
Armidale	20.8%	48

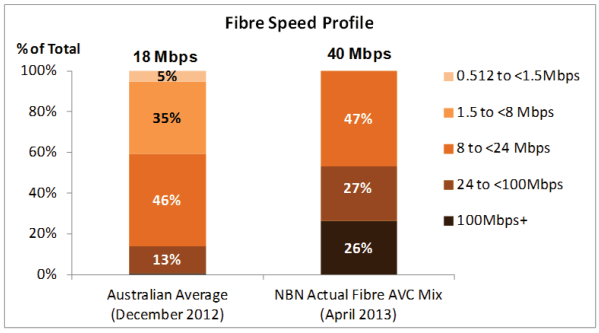
- 57,400 Total Premises Activated on all technologies (FTTP Brownfields, FTTP Greenfields, Fixed Wireless and Satellite) at 9 May 2013.
- Highest take-up rates of over 62% in two FSAMs (Minnamurra and Willunga).

- Copper/HFC Disconnection Notices had been issued for 31 FSAMs as at 30 April 2013, comprising approximately 59,000 Premises Passed.
- The Disconnection Notice begins the 18 month timeline within which Telstra and Optus must disconnect premises in an FSAM/Rollout Region, subject to certain exceptions.

Source: NBN Co unless otherwise stated.

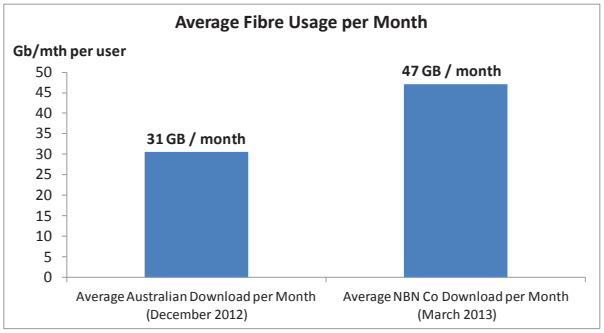
[11] Notes:
1) The take-up rate is calculated by dividing the number of Premises Activated by the number of Premises Passed.
2) Fibre Serving Area Modules (**FSAMs**) shown in the diagram and table are Ready for Service (**RFS**).

End-User Demand – Speed and Usage



Source: ABS, 8153.0 - Internet Activity, Australia, December 2012. This is based on advertised speeds for the ABS Australian average. NBN Co data as at 30 April 2013.

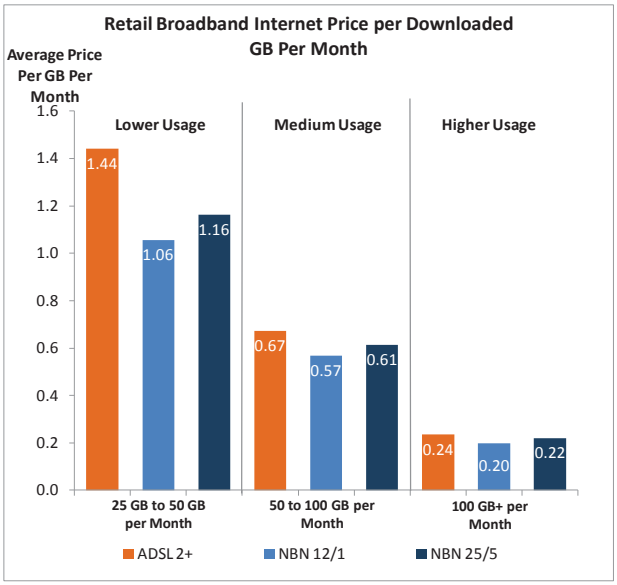
- Average peak speed of 40 Mbps on the NBN as at 30 April 2013 is 2.2 times more than the Australian average at 18 Mbps (ABS – December 2012).
- 54% of NBN Co's End-Users are on speed tiers of 24 Mbps or more, compared to the Australian average of 13%.



Source: ABS - 8153.0 - Internet Activity, Australia, December 2012. NBN Co Data 31 March 2013.

- NBN End-Users are consuming on average 47 GB/month in downloads as of 31 March 2013.
- This is approximately 50% higher than the Australian average of 31 GB/month in downloads.

Retail Prices on the NBN



Source: NBN Co analysis based on Service Providers' data as at 29 April 2013. NBN Co data as at 30 April 2013.

Service Providers' retail pricing based on NBN Co's wholesale products is competitive relative to current ADSL offers:[12]

- Lower usage (25 to 50 GB per Month): NBN Co based average retail price per GB is 26% lower on the 12/1 Mbps speed tier, and 19% lower on the 25/5 Mbps speed tier product.
- Medium usage (50 to 100 GB per Month): NBN Co based average retail price per GB is 15% lower on the 12/1 Mbps speed tier, and 9% lower on the 25/5 Mbps speed tier product.
- Higher usage (100 GB+ per Month): NBN Co based average retail price per GB is 17% lower on the 12/1 Mbps speed tier, and 8% lower on the 25/5 Mbps speed tier product.

Source: NBN Co

[12] Stated as the average retail pricing of broadband internet products offered by Service Providers. The average product pricing is calculated for each Service Provider separately based on the broadband internet pricing of plans offered. Product download quotas are inclusive of peak and off-peak quota allowances. NBN Co product pricing is inclusive of voice connectivity costs, either as VoIP or traditional PSTN services. Voice inclusions vary significantly between Service Provides, with some offering only rental with voice usage charged in additional, while others offer some or unlimited voice calling. Product pricing reflects advertised monthly usage fees and excludes install charges, additional customer premise equipment charges or other annual charges.

4 About NBN Co

4.1 Objectives of NBN Co

The National Broadband Network (**NBN**) is a national wholesale-only, open access communications network that is already operating and delivering high speed broadband and telephony services in a number of areas across Australia. The NBN forecast completion date is FY2021 to pass or cover 100% of Australian premises.[13]

NBN Co Limited (**NBN Co**) was established in April 2009 to design, build and operate the NBN. NBN Co is a Government Business Enterprise (**GBE**) operating under the *Commonwealth Authorities and Companies Act 1997 (**CAC Act**), the Commonwealth Government Business Enterprise Governance and Oversight Guidelines October 2011 (**GBE Guidelines**) and the Corporations Act 2001*. In accordance with the GBE Guidelines, NBN Co operates as a commercial entity with the long term objective of earning a commercial return for its shareholder, the Commonwealth Government.

NBN Co has two Shareholder Ministers – the Minister for Broadband, Communications and the Digital Economy, and the Minister for Finance and Deregulation, who represent the Commonwealth.

The Government's policy objectives on which NBN Co is to deliver are detailed in the Statement of Expectations (**SoE**) issued in December 2010.[14] The SoE has been supplemented by subsequent policy communicated to NBN Co from time to time. The Government's central policy objective is for NBN Co "*... to deliver significant improvement in broadband service and quality to all Australians; address the lack of high speed broadband in Australia, particularly outside of metropolitan areas; and reshape the telecommunications sector. ...*"

Specifically, these policy objectives include:

- The aim of connecting 93% of Australian homes, schools and businesses with Fibre-to-the-Premises (**FTTP**) technology providing wholesale speeds of up to 100 Mbps, with a minimum coverage requirement of 90% of Australian premises.
- The requirement for all remaining premises to be served by a combination of next-generation fixed wireless and satellite technologies providing wholesale peak speeds of at least 12 Mbps.
- The requirement for NBN Co to supply services to Service Providers on a wholesale only, open access basis via Layer 2 services.
- The expectation that NBN Co will utilise existing infrastructure where it is efficient and economical to do so.
- That NBN Co should proceed with planning and construction of the network on the basis of a Gigabit Passive Optical Network (**GPON**) architecture.
- The requirement to provide connection to all New Developments meeting certain size criteria from 1 January 2011.
- The requirement that NBN Co implement a semi-distributed Points of Interconnect (**PoIs**) architecture as determined by the ACCC, which has resulted in an initial list of 121 PoIs.

[13] To pass: with Fibre-to-the-Premises (**FTTP Access**). To cover: with Fixed Wireless and Satellite.
[14] http://www.dbcde.gov.au/__data/assets/pdf_file/0003/132069/Statement_of_Expectations.pdf

- NBN Co should achieve a rate of return that is, at a minimum, in excess of public sector debt rates.

4.2 Overview of the NBN

The NBN comprises three delivery platforms over which telecommunications services can be provided to Service Providers and End-Users – Fibre-to-the-Premises (**FTTP**), Fixed Wireless and Satellite. These three platforms share a common core network that is referred to as the **Transit Network**. Overlaying these physical networks are the IT capabilities and facilities that NBN Co has developed in order to manage the networks. This set of common capabilities and facilities are also used to manage the business, provide customer service and deliver enterprise end-to-end management systems and processes.

NBN Co's customers, also referred to as **Service Providers** or **Access Seekers**, are able to connect to the NBN at 121 PoIs spread across Australia. Each PoI serves a defined geographic area and all the traffic from that area is brought back to the PoI by NBN Co, where it is handed off to the Service Provider's own network.

4.3 NBN Co's Wholesale Products & Customers

NBN Co's product set has been designed to provide a ubiquitous wholesale-only telecommunications platform covering all of Australia and offering uniform national wholesale pricing across core products.

As a wholesale-only network operator NBN Co does not provide services direct to homes and businesses (referred to as **End-Users**). Instead, NBN Co has developed a suite of wholesale products that are made available to Service Providers. The Service Providers in turn develop their own retail products that they then provide to End-Users. The NBN has been designed to allow Service Providers as much flexibility as possible to develop differentiated retail product sets using the wholesale products provided by NBN Co.

NBN Co provides Service Providers with entry level speeds of 12 Mbps downstream and 1 Mbps upstream (**12/1**) and an enhanced service of 25 Mbps downstream and 5 Mbps upstream (**25/5**), regardless of whether they are on the FTTP Network, Fixed Wireless Network or Satellite Network.[15] Service Providers on the FTTP Network initially may access wholesale speeds of up to 100 Mbps upstream and 40 Mbps downstream (**100/40**), with a 1,000 Mbps (**1 Gbps**) downstream and 400 Mbps upstream (**1000/400**) wholesale product offering planned to be available by the end of calendar year 2013.[16]

4.4 Regulated Products and Pricing

By 2021, as a result of agreements entered into with Telstra Corporation Limited (**Telstra**) and various entities in the SingTel Optus corporate group (**Optus**) and the regulatory framework within which NBN Co operates, it is expected that the NBN will be the only wholesale national fixed-line telecommunications network operating across Australia. As a fixed-line telecommunications

[15] Services on the Interim Satellite Service (**ISS**) are limited to 6/1 Mbps. NBN Co is planning to launch two satellites with commercial operations starting in mid-2015. At that time, NBN Co will offer 12/1 Mbps and 25/5 Mbps on the Satellite Network.

[16] NBN Co is designing the NBN to be capable of delivering these speeds to NBN Co's Service Providers and Wholesale Service Providers (**WSPs**) via Fibre, Fixed Wireless and Satellite. Speeds actually achieved by 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.

wholesale monopoly, NBN Co is regulated by a specific framework that applies in addition to that regulating other telecommunications companies to ensure that, amongst other things, NBN Co's products and prices achieve the Government's stated objectives of improving broadband quality for consumers and promoting competition at the retail services level. Under this framework:

- All services provided by NBN Co are 'declared' and therefore subject to oversight by the ACCC, using the various powers provided by the regulatory framework.
- NBN Co must not discriminate in the supply of services, or in activities related to the supply of services (other than in limited circumstances, e.g. on the basis of creditworthiness or a failure to comply with NBN Co's terms and conditions).
- NBN Co must publish its service offers (as 'Standard Forms of Access Agreements' (**SFAAs**)), to ensure that the terms of supply are transparent.
- NBN Co must provide the ACCC with the details of access agreements that contain different terms from NBN Co's published offers, and the ACCC maintains register of these differences.

NBN Co has lodged a Special Access Undertaking (**SAU**) with the ACCC. An SAU is a set of commitments offered voluntarily to the ACCC and, if accepted by the ACCC, will operate as an important part of NBN Co's long term regulatory framework.

The SAU is intended to provide:

- NBN Co's Service Providers, their End-Users and NBN Co with certainty about the terms of access to NBN Co's services, including an appropriate regulatory oversight role for the ACCC.
- The framework necessary for long term cost recovery and for NBN Co to deliver uniform national wholesale pricing.

NBN Co continues to work with the ACCC and industry stakeholders to finalise the SAU in response to the ACCC's draft decision of 4 April 2013, in which the ACCC noted that, while there is further work to be done to finalise the SAU:

- The 'modular' design of the SAU allows for different matters to be 'locked in' for different periods of time, enabling a balance to be struck between providing certainty about long term cost recovery and allowing for flexibility to respond to changing circumstances.
- The initial prices set out in the SAU are generally likely to allow for a smooth transition from existing telecommunications networks.
- The revenue constraint provides NBN Co with the opportunity to recover its prudent costs over the term of the SAU.
- Long term commitments not to raise prices above a CPI minus 1.5% price control provide significant price certainty, and have the potential to create incentives for NBN Co to efficiently operate and invest in the NBN.
- Commitments to consult with customers on various matters have the potential to reduce information asymmetries between NBN Co and its customers.

The SAU is intended to work in conjunction with NBN Co's Standard Forms of Access Agreements, the main one currently being the Wholesale Broadband Agreement (**WBA**). The WBA is a commercial

supply contract between NBN Co and each of its customers, and is capable of operating with or without an accepted SAU in place.

Further detail in relation to NBN Co's regulatory framework is contained in the appendices.

4.5 Building the NBN

The building of the NBN brings with it unique challenges in terms of technical complexity, scale and speed of the build, resource requirements and geographic dispersion.

In order to address these challenges NBN Co has been guided by three broad principles:

- Re-use of existing infrastructure wherever possible (such as exchange buildings, Transit Fibre, ducts, wireless towers and poles).
- Leverage existing market capabilities.
- Retaining control over overall program design, planning and management.

NBN Co has developed an overall deployment operating model that sets out the way in which the various elements that make up the NBN will be rolled out. The operating model focuses NBN Co on planning, design and oversight, whilst physical construction is, wherever possible, delivered by suitably qualified and resourced third parties (**Delivery Partners**). This model is intended to allow NBN Co to leverage the existing capabilities of Delivery Partners, without the need for NBN Co to procure, train and manage a very large internal workforce of its own.

Within the overall operating model each individual delivery program has been evaluated in order to determine an initial mix of insourced/outsourced activities required to deliver that program. Some delivery programs (such as the Interim Satellite Service) lend themselves to a substantially outsourced model, whereas others (such as high level Service Assurance) are considered best managed internally.

Over the course of the rollout NBN Co is continuously evaluating the optimal insource/outsource mix for each delivery program. Over time it is likely that the current model will evolve for some areas of the rollout (for example, NBN Co announced in March 2013 that it would assume more direct control of the build of the FTTP Access Network in the Northern Territory).

5 Migrating End-Users to the NBN

5.1 Overview of the Migration Process

Subject to a limited number of exceptions, Telstra has agreed that it will use the NBN FTTP Network exclusively as the fixed line connection to premises in the NBN Fibre Footprint for a 20 year period from the commencement of the Definitive Agreements. This means that following the Disconnection Date in respect of a Rollout Region, Telstra will (subject to a limited number of exceptions) only use the NBN FTTP Network to provide fixed line Carriage Services to End-Users' premises in the NBN Fibre Footprint.

Typically all households and businesses will migrate off the Copper and HFC Networks within 18 months from the date on which NBN FTTP services are first available in their community. It is therefore important that households and businesses are kept fully informed of the key dates and activities relevant to their community.

The critical dates for each community (usually a Fibre Serving Area Module (**FSAM**)) are summarised below.

Exhibit 5-1: Migration Process – Critical Dates

Construction Commenced	When contract instructions to Delivery Partner(s) have been issued together with the initial Network Design Documents so that Delivery Partner(s) 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 website showing the coverage area for that FSAM and the estimated number of premises to be passed.
Ready for Service	The date on which NBN Co services can be provided by Service Providers, which is on average 12-15 months following Construction Commenced.
Disconnection Date	The date from which telephony and broadband services will no longer be available on the existing Copper and/or HFC Networks (subject to certain exceptions), which is usually 18 months following Ready for Service.

Source: NBN Co

NBN Co has developed a comprehensive approach to ensuring that Service Providers, households and businesses are provided with up-to-date information on the progress of the NBN rollout in each community.

5.2 Rollout Plans – Informing Service Providers & End-Users

NBN Co provides regular updates of the rollout plan to ensure that Service Providers and End-Users are informed of when NBN services will be available in each community.

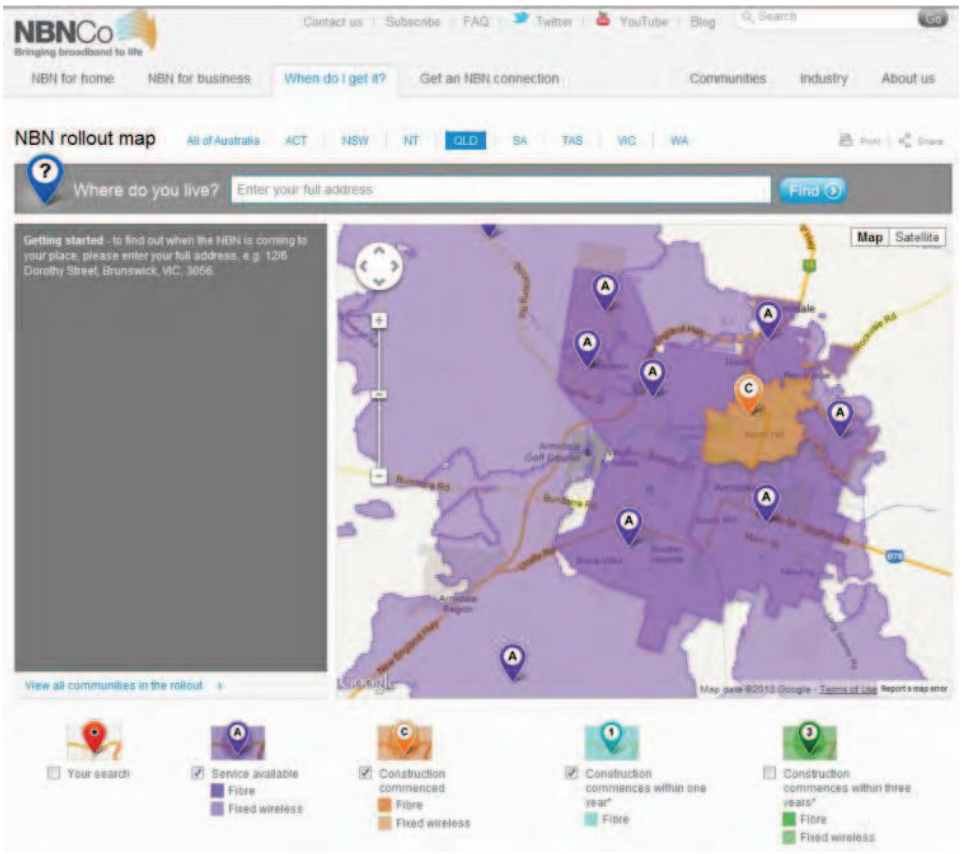
Prior to construction commencing in a particular Rollout Region the main source of information is through the interactive Rollout Maps on the NBN Co website, as summarised in the Exhibit below.

Exhibit 5-2: Rollout Plans and Rollout Maps

Three Year Rollout Plan	Updated annually, the Three Year Rollout Plan provides information on approximate boundaries for the NBN FTTP, Fixed Wireless & Satellite Networks, where the NBN is already available, where construction is already underway, and where construction is due to commence within the next three years. NBN Co released the latest Three Year Rollout Plan on 5 May 2013, bringing to 4.85 million the number of premises where construction will have commenced or where services can be ordered by June 2016.[17]
One Year Rollout Plan	Updated every quarter, the One Year Rollout Plan provides an updated annual view of where the NBN is already available, where construction has commenced, and where construction is due to commence within the next twelve months. The latest One Year Rollout Plan was released on 18 April 2013.[18]
Detailed Rollout Maps	Each month NBN Co releases detailed maps providing precise boundaries for the Fibre and Fixed Wireless Networks in communities where construction has commenced that month.[19]

Source: NBN Co

Exhibit 5-3: Example of a One Year Rollout Plan: Armidale, NSW



Source: NBN Co

[17] http://www.nbnco.com.au/about-us/media/news/national-3-year-update.html
[18] http://www.nbnco.com.au/assets/documents/rollout-info-1-year-construction-plan.pdf
[19] http://www.nbnco.com.au/when-do-i-get-it/index.html

The first targeted communication that NBN Co has in a community is when construction commences, at which time NBN Co releases a detailed map of the network footprint in this community.

Notification processes ensure that households and businesses are informed individually about:

- When NBN Co (or its Delivery Partner) will be visiting their property in order to install fibre from the street to the house and to connect the Premises Connection Device (**PCD**) on the outside of the house.
- When their Rollout Region has entered the Migration Period, at the end of which premises with standard Copper and HFC services will be disconnected.[20]

At the conclusion of the construction process in a Rollout Region, when an FSAM has been declared Ready for Service (**RFS**), the 18 month Migration Period commences, at the end of which telephony and broadband services will no longer be available over Telstra's Copper and HFC Networks (subject to certain exceptions) in that region. The key requirements during the Migration Period are set out in the Information Campaign and Migration Deed (**PIM Deed**) between the Commonwealth Government and Telstra. The overarching objective of the PIM Deed is to ensure continuity of services as households and businesses migrate to the NBN.

NBN Co is working in consultation with stakeholders within the PIM Governance process to define additional communications and the process to support individual households and businesses in the lead up to disconnection. This includes discussions with the Telecommunications Universal Service Management Agency (**TUSMA**), which are responsible for supporting voice-only customers through the process of disconnecting the Copper Network. TUSMA is currently developing its communications approach.

5.3 Measuring End-Users Satisfaction

NBN Co is implementing an End-User experience measurement framework to track performance through the migration process, focusing on awareness, consideration, activation, installation, and service experience. The integration of Consumer Perception tracking and Consumer Experience tracking is due to commence in early FY2014.

[20] The Disconnection Date is subject to some limited exceptions for specially configured copper lines used primarily for business services. The Special Services will generally continue operating beyond the Disconnection Date until 36 months after NBN Co has delivered equivalent functionality over the NBN or until Telstra elects to no longer make the services available.

6 NBN Co's Products and Pricing

6.1 NBN Co's Wholesale Product Construct

The NBN has been designed to provide a ubiquitous wholesale broadband network across Australia, with all business and residential premises having access to a network capable of providing a minimum of 12 Mbps downstream and 1 Mbps upstream. The NBN will provide Service Providers with a uniform, nationwide set of wholesale capabilities and prices on which to build their retail offers. NBN Co has sought to deliver a consistent product set across each of the three access technologies – FTTP, Fixed Wireless and Satellite – through a product construct which provides scope for differentiation by Service Providers. The product construct is based on Access and Connectivity components.

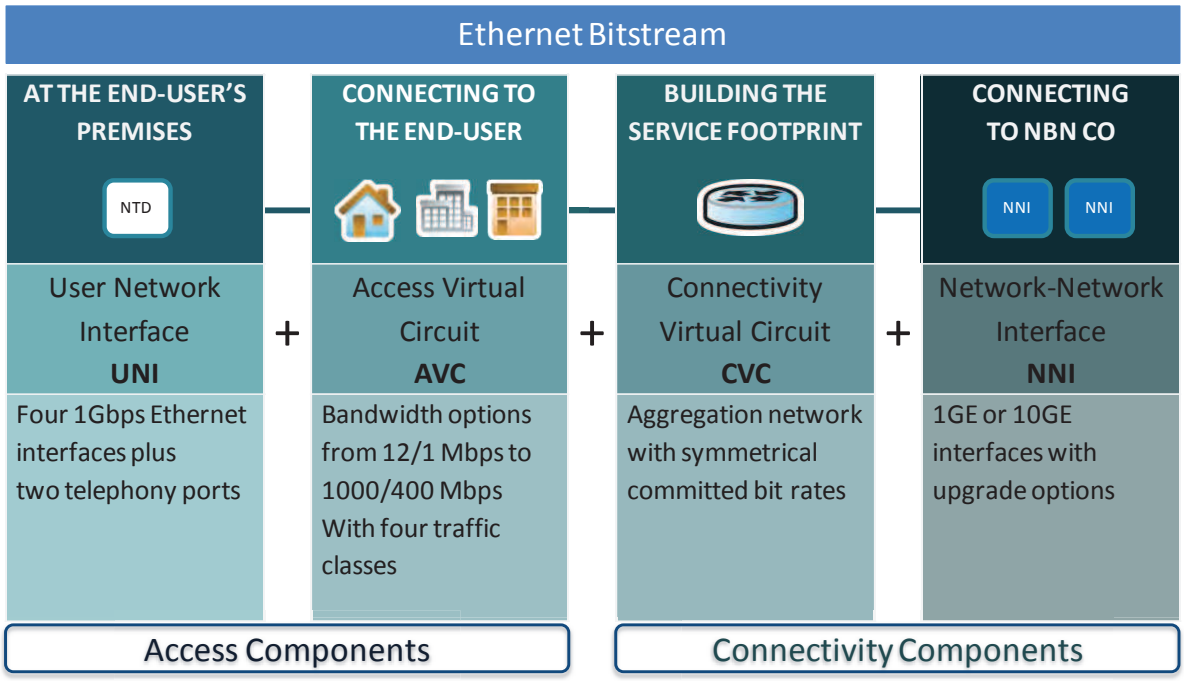
Exhibit 6-1: NBN Co Access and Connectivity Components

Access components	The User Network Interface (**UNI**) and Access Virtual Circuit (**AVC**) – provisioned specifically for each End-User premises, depending on factors such as the peak or committed speeds required by that End-User and the level of service (e.g. fault restoration times).
Connectivity components	The Connectivity Virtual Circuit (**CVC**) and the Network to Network Interface (**NNI**) – provisioned on an aggregate basis and have the capacity to cover a large number of End-User premises.

Source: NBN Co

The basic product construct can then be broken down into four main components.

Exhibit 6-2: NBN Co Product Construct Components



Source: NBN Co

The product components work in conjunction with each other to deliver an end-to-end Ethernet Bitstream service from the NBN Co Point of Interconnect to the End-User's premises. The product components can be configured by Service Providers in different ways in order to tailor their product offerings to the specific needs of individual market segments (such as households, small businesses or large enterprises).

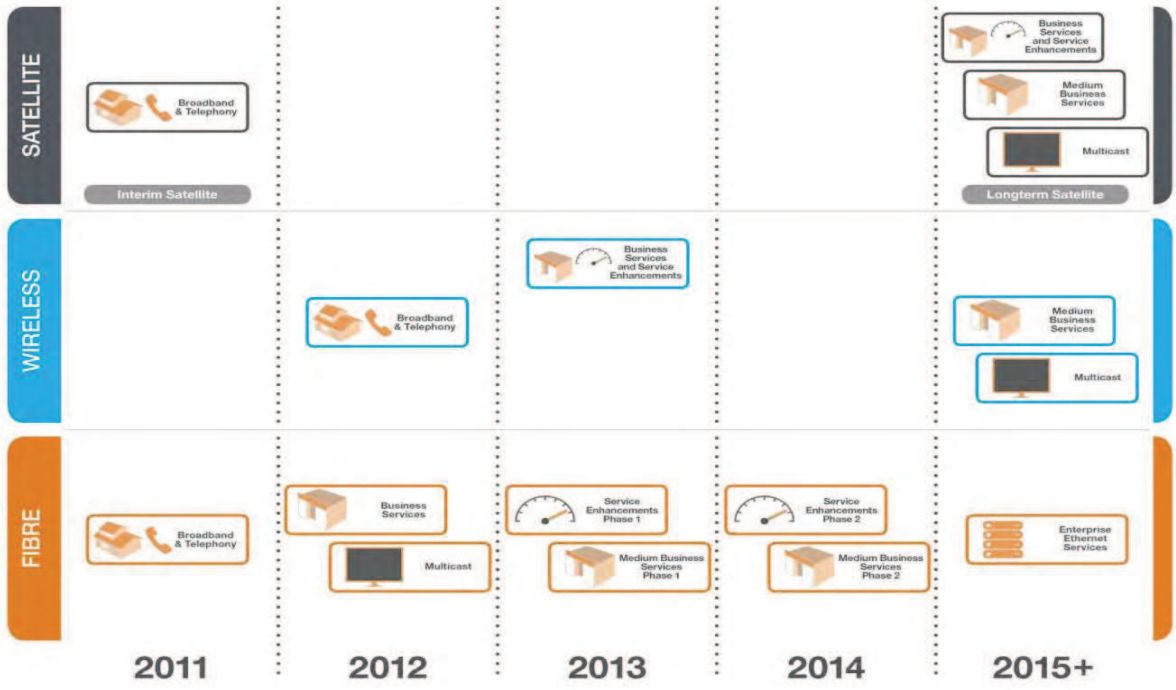
Additional features, such as traffic classes, committed information rate speed tiers, enhanced service levels and protected infrastructure are able to be selected as additional options. NBN Co will also make available a Facilities Access Service that enables physical access to NBN Co facilities and interconnect between a Service Provider's own network and the NBN.

6.2 NBN Co's Product Roadmap

NBN Co has released an integrated product roadmap which sets out the expected product development path over the next 2-3 years.[21] The aim of the integrated product roadmap is to incorporate customer experience and feedback into the prioritisation of proposed product feature releases. The integrated product roadmap also helps ensure that product feature releases are internally aligned with the network enhancements and IT systems capabilities that are required to deliver them.

The NBN Co product roadmap is being delivered across a series of staged 'Product Releases' for the FTTP, Fixed Wireless and Satellite offerings respectively. The first releases of both the FTTP and Satellite products were completed in 2011 and the initial release of Fixed Wireless was completed in April 2012.

Exhibit 6-3: Overview of NBN Co Product Release Roadmap



Source: NBN Co

Note: The exhibit above and discussion below may include forecasts. Please refer to NBN Co's Legal Notice on Page 2 of the 2013-16 Corporate Plan for information about forecasts stated in this document.

[21] http://www.nbnco.com.au/industry/service-providers/product-components/product-roadmap.html

Key products that have been released by NBN Co include:

- **Broadband and Telephony** – The release of the foundation product offering in 2011 has provided Service Providers the ability to build their core broadband and telephony products for the NBN. This release included five wholesale access speed tiers (i.e. 12/1 Mbps up to 100/40 Mbps). This release also included the delivery of the first two traffic classes, Traffic Class 4 (NBN Co's best efforts traffic class) and Traffic Class 1 (NBN's highest priority traffic class).
- **Multicast** – This release saw the introduction of the Multicast feature on the FTTP Network. Multicast allows Service Providers to inject data once into an NBN Co's PoI, and have that data replicated out to thousands of End-User Premises simultaneously. This makes the technology well suited for Internet Television (**IPTV**) or video on demand services to End-Users.
- **Business services and service enhancements** – This release supports business End-Users with high speed broadband and multi-line telephony capability. These enhancements are incremental to the foundation broadband and telephony products and are suited to small-medium business users. This release also provides service and operational enhancements to Service Providers.

Key products to be released in the period FY2013 to FY2016 include:

- **Medium Business Services** – This planned release will comprise features intended to support medium sized businesses. It will include additional traffic classes designed to support video conferencing and collaboration, data networking and additional enhanced service level options.
- **Enterprise Ethernet Services** – This planned release will enable Service Providers to serve the mission critical sites of large enterprise customers (for example, hospitals and banks). It will include very high bandwidth options, transparency features and access redundancy.

In addition, NBN Co has set the timing for the launch of its One Gigabit FTTP service, which will see the introduction of 1000/400, 500/200 and 250/100 Mbps wholesale speed tiers services over the FTTP Network in December 2013. NBN Co has also set the timing for the launch of the Fixed Wireless 25/5 Mbps wholesale speed tier service in June 2013.[22]

6.3 Wholesale Pricing on the NBN

6.3.1 Overview

The four product components described in Section 6.1, *NBN Co's Wholesale Product Construct*, deliver a construct to address both consumer and business needs via a set of wholesale speed tiers, as well as supporting differentiation by Service Providers at several points in the end to end path. The principles of NBN Co's pricing are aimed at:

- Providing value that is equal or better than what is available in the wholesale market today.
- Fostering early migration through compelling Service Provider economics.
- Providing uniform national wholesale pricing across all three delivery technologies.
- Reducing wholesale prices as quickly as possible whilst generating an adequate return on the Commonwealth Government's investment.

[22] Services on the Interim Satellite Service (ISS) are limited to 6/1 Mbps. NBN Co is planning to launch two satellites with commercial operations starting in mid-2015. At that time, NBN Co will offer 12/1 Mbps and 25/5 Mbps on the Satellite Network. For further details: http://www.nbnco.com.au/assets/media-releases/2013/internet-speed-doubles-fixed-wireless.pdf.

To support these principles, NBN Co has made a number of pricing commitments in its proposed Special Access Undertaking (**SAU**), including:

- A commitment for initial prices to remain fixed until 2017 for a set of basic services which are uniform across NBN Co's FTTP Network, Fixed Wireless Network and Satellite Network, and which serve to anchor the prices of higher speed and functionality products.
- An individual price increase limit of the Consumer Price Index less 1.5% that applies annually to all of NBN Co's products.
- A commitment that all prices will fall in real terms.

6.3.2 Initial Wholesale Prices

NBN Co's initial wholesale pricing has been designed to promote migration of existing broadband and voice End-Users. The balance between AVC and CVC pricing has been designed to enable NBN Co to drive, and benefit from, the forecast increase in capacity usage in the future.

The following Exhibits summarise NBN Co's current wholesale pricing, which is consistent with pricing provided in the 2012-15 Corporate Plan.

Exhibit 6-4: 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	INTERIM 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	$27.00	$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[23] in relation to factors affecting End-User speeds.

Availability of these services is in accordance to the NBN Co product roadmap.

NBN Co wholesale product pricing and terms are further specified in the Wholesale Broadband Agreement.[24]

[23] NBN Co is designing the NBN to be capable of delivering these speeds to NBN Co's Service Providers and Wholesale Service Providers (**WSPs**) via Fibre, Fixed Wireless and Satellite. Speeds actually achieved by 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.

[24] http://www.nbnco.com.au/industry/service-providers/agreements/wba.html

Exhibit 6-5: Connectivity Virtual Circuit (CVC) Pricing

CAPACITY		MONTHLY RECURRING CHARGE (EX-GST)				AVAILABILITY BY PLATFORM			
	TYPE	TRAFFIC CLASS 1	TRAFFIC CLASS 2	TRAFFIC CLASS 3	TRAFFIC CLASS 4	TRAFFIC CLASS 1	TRAFFIC CLASS 2	TRAFFIC CLASS 3	TRAFFIC CLASS 4
5 Mbps	CIR	$100				FIB, SAT, WIR			
10 Mbps	CIR	$200				FIB, SAT, WIR			
20 Mbps	CIR	$400			$400	FIB, SAT, WIR			SAT, WIR
50 Mbps	CIR	$1,000	$1,000	$1,000	$1,000	FIB, SAT, WIR	FIB	FIB	SAT, WIR
100 Mbps	CIR	$2,000	$2,000	$2,000	$2,000	FIB, SAT, WIR	FIB	FIB	FIB, SAT, WIR
150 Mbps	CIR	$3,000	$3,000	$3,000	$3,000	FIB, SAT, WIR	FIB	FIB	FIB, SAT, WIR
200 Mbps	CIR	$4,000	$4,000	$4,000	$4,000	FIB, SAT, WIR	FIB	FIB	FIB, SAT, WIR
250 Mbps	CIR	$5,000	$5,000	$5,000	$5,000	FIB, SAT, WIR	FIB	FIB	FIB, SAT, WIR
300 Mbps	CIR	$6,000	$6,000	$6,000	$6,000	FIB, SAT, WIR	FIB	FIB	FIB, SAT, WIR
400 Mbps	CIR	$8,000	$8,000	$8,000	$8,000	FIB, SAT, WIR	FIB	FIB	FIB, SAT, WIR
500 Mbps	CIR	$10,000	$10,000	$10,000	$10,000	FIB, SAT, WIR	FIB	FIB	FIB, SAT, WIR
600 Mbps	CIR		$12,000	$12,000	$12,000		FIB	FIB	FIB, SAT, WIR
700 Mbps	CIR		$14,000	$14,000	$14,000		FIB	FIB	FIB, SAT, WIR
800 Mbps	CIR		$16,000	$16,000	$16,000		FIB	FIB	FIB, SAT, WIR
900 Mbps	CIR		$18,000	$18,000	$18,000		FIB	FIB	FIB, SAT, WIR
1,000 Mbps	CIR		$20,000	$20,000	$20,000		FIB	FIB	FIB, SAT, WIR

Source: NBN Co

Availability of these services is in accordance to the NBN Co product roadmap.

NBN Co wholesale product pricing and terms are further specified in the Wholesale Broadband Agreement.[25]

Exhibit 6-6: Network to Network Interface Pricing

NETWORK TO NETWORK INTERFACE		PRICING (Ex-GST)		AVAILABILITY			
DESCRIPTION	INTERFACE CAPACITY	ONE-OFF ESTABLISHMENT CHARGE	MONTHLY RECURRING CHARGE	FIBRE	WIRELESS	LONG TERM SATELLITE	INTERIM SATELLITE
1000BaseT	1 Gbps	$1,000	$200				YES
1000BaseLX	1 Gbps	$1,000	$200	YES	YES	YES	YES
1000BaseEX	1 Gbps	$7,000	$500	YES	YES	YES	
10GBaseLR	10 Gbps	$5,000	$400	YES	YES	YES	
10GBaseER	10 Gbps	$35,000	$1,000	YES	YES	YES	

Source: NBN Co

Note: See footnote[23] in relation to factors affecting End-User speeds.

Availability of these services is in accordance to the NBN Co product roadmap.

NBN Co wholesale product pricing and terms are further specified in the Wholesale Broadband Agreement.[25]

[25] http://www.nbnco.com.au/industry/service-providers/agreements/wba.html

6.4 Retail Pricing on the NBN

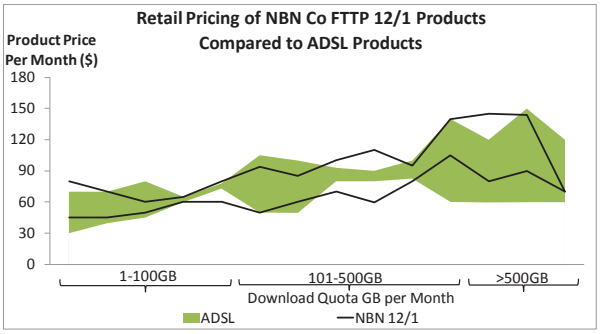
As at 30 April 2013 43 Service Providers have signed Wholesale Broadband Agreements (**WBAs**) with NBN Co. 25 Service Providers are currently offering 317 retail plans based on NBN wholesale products, including:

- 20 Service Providers offering 206 retail FTTP plans.
  - This represents between 65 to 70 retail offers for each of the 12/1, 25/5 and 100/40 wholesale speed tiers.
- 7 Service Providers offering 32 retail Fixed Wireless plans.
- 7 Service Providers offering 79 retail NBN Interim Satellite plans.

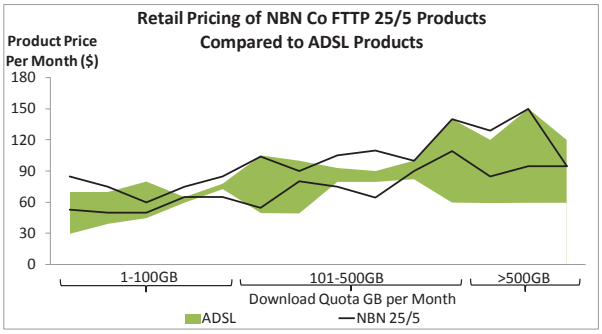
Exhibit 6-7: Retail Pricing on the NBN (by Wholesale Speed Tier)

Retail Pricing on the NBN (by Wholesale Speed Tier)

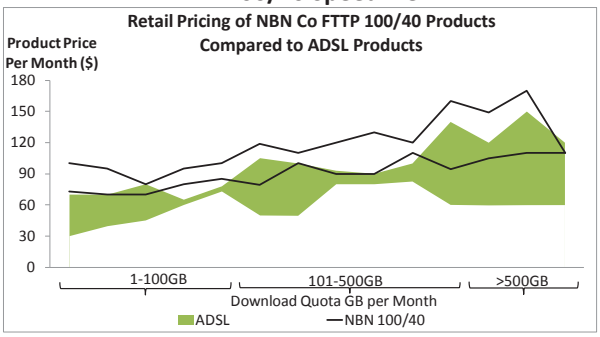
FTTP 12/1 Speed Tier



FTTP 25/5 Speed Tier

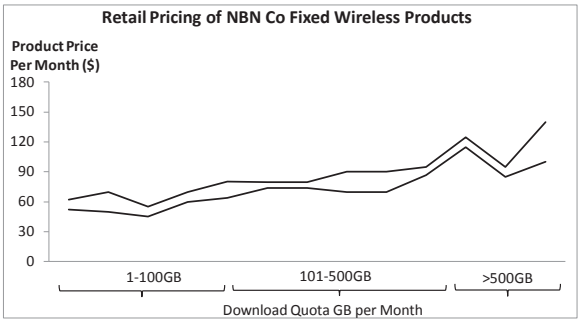


FTTP 100/40 Speed Tier

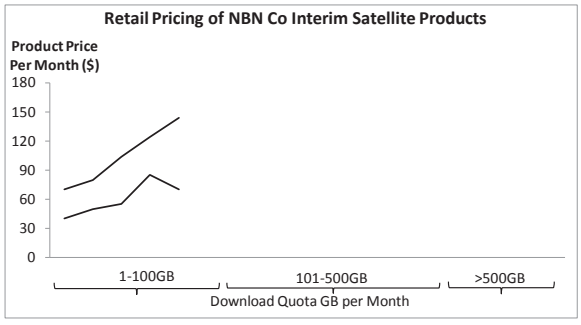


- Service Providers' current retail pricing based on NBN Co's wholesale products is competitive relative to current ADSL offers for the 12/1 Mbps and 25/5 Mbps speed tiers.
- The current retail pricing for the 100/40 Mbps speed tier is at premium to existing ADSL offerings, reflecting the speed differential offered at this tier.
- A comparison of Service Providers' retail pricing on the Fixed Wireless Network to the range of NBN Co 12/1 Mbps retail FTTP speed tiers shows consistency with comparable Fibre products.

Fixed Wireless



Interim Satellite



Source: ADSL retail service provider published prices as at 29 April 2013; NBN Co Analysis

Notes: *: The shaded area highlights the range of bundled ADSL and voice price points from retail service providers. The line represents the published Service Provider pricing as at 29 April 2013.

**: All NBN Pricing includes voice connectivity as a VoIP or traditional PSTN service.

***: Voice inclusions vary significantly between ADSL service providers, with some offering only basic rental with voice usage charged in addition, while others offer some or unlimited voice calling.

****: Pricing for ADSL Plans above reflect advertised monthly usage fees, and exclude any install charges, additional Customer Premise Equipment (CPE) charges, or any other annual charges.

6.4.1 Future Wholesale Prices

As in prior Corporate Plans, the 2013-16 Corporate Plan builds in the assumption that NBN Co's wholesale prices will decline over time in both real and nominal terms. The actual rate of price decline will depend on the End-Users' take-up of NBN services.

The SAU provides an upper boundary for the wholesale prices that NBN Co is able to charge for certain key products. The 2013-16 Corporate Plan assumes that prices, in real values, will fall over time significantly faster than permitted under the proposed SAU.[26]

The 2013-16 Corporate Plan forecasts the wholesale price for a 12 Mbps/1 Mbps service consuming 30GB per month is to fall by approximately 18% in real terms to FY2021 and the wholesale price for a 100 Mbps/40 Mbps service consuming 100GB per month is to fall by 22% in real terms to FY2021. This compares to forecast reduction of 15% in the maximum wholesale price NBN Co is permitted to charge over this period.[27]

[26] Real Values: real values adjust nominal values to remove the projected effects of CPI changes over time. This calculation is done using an assumption of CPI increase of 2.5% per annum.

[27] Statements in this section include forecasts. Please refer to NBN Co's Legal Notice on Page 2 of the 2013-16 Corporate Plan for information about forecasts stated in this document.

7 NBN Co's Organisation

7.1 Governance

The Board of Directors has ultimate responsibility for the performance of NBN Co, and is accountable for this to the Shareholder Ministers.[28]

The Board currently comprises seven Non-Executive Directors and one Executive Director appointed to provide a mix of skills and experience essential to guide NBN Co to successful delivery of the National Broadband Network.

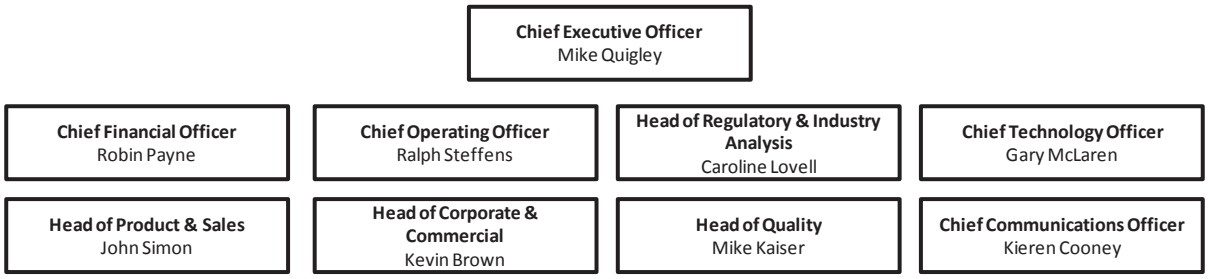
The Board has delegated specific powers and responsibilities to Board committees, including the Audit Committee, Nominations Committee, People and Performance Committee and the Contracts Committee (formerly the Implementation Committee).

7.2 Executive Team

Whilst the Board sets the strategic direction for NBN Co, it is senior management that implements this strategy and guides the development of NBN Co's operations.

The Executive Committee is the senior management body that assists and advises the CEO on operational matters and is responsible for the day-to-day operations of NBN Co.

Exhibit 7-1: NBN Co Executive Committee

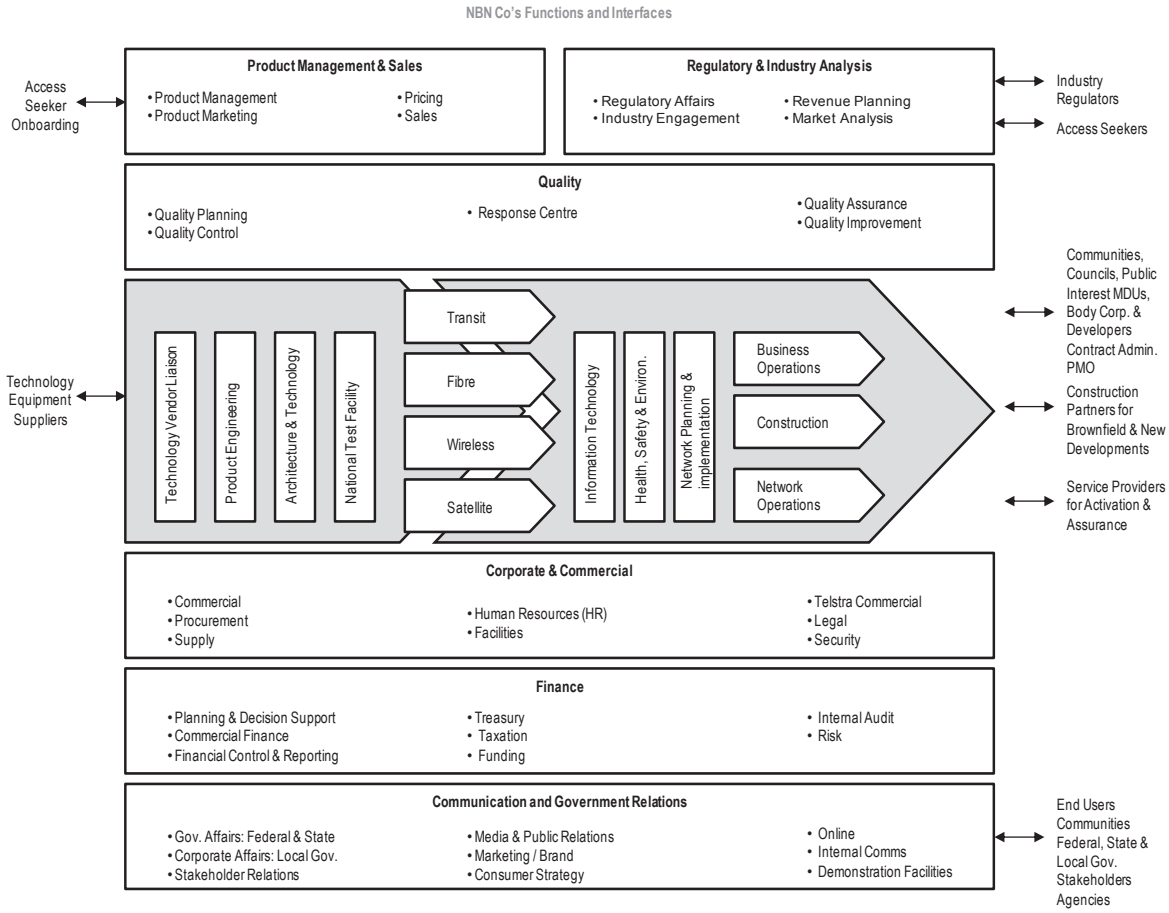


Source: NBN Co

Since publication of the previous Corporate Plan in August 2012, John Simon joined as Head of Product & Sales and Caroline Lovell was appointed to the Executive Committee as Head of Regulatory and Industry Analysis.

[28] The role of the NBN Co Board is further set out on the NBN Co website and in the Board charter: http://www.nbnco.com.au/assets/documents/board-charter.pdf

Exhibit 7-2: NBN Co's Functions and Interfaces



Source: NBN Co

7.3 People and Policies

As at 30 April 2013, NBN Co had a headcount of 2,655 employees (2,594 employees, 14 contractors and 47 labour hires). This compares to a headcount of 1,674 as at 30 June 2012 (1,620 employees, 19 contractors and 35 labour hires). As at 30 April 2013, NBN Co employs people in all states and has permanent offices in Sydney, Melbourne, Hobart, Canberra, Brisbane, Townsville, Adelaide and Perth.

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 has developed a suite of integrated policies, processes and systems to support its staff and works closely with its employees and their representatives.

NBN Co has developed a diversity framework encompassing NBN Co's commitment to support all employees, regardless of gender, physical, mental and intellectual abilities, race, ethnicity, age, sexual orientation, socio-economic status, religious beliefs or professional background. NBN Co is committed to:

- A diverse workforce reflective of the wider communities in which NBN Co operates.
- An inclusive environment that unifies NBN Co and recognises employees unique needs and utilizes diverse talents.
- Utilising diverse business partners, engaging the community, and positioning NBN Co to meet the needs of NBN Co's customers and End-Users.

7.4 Health and Safety

In addition to NBN Co's 2,655 employees, an estimated 4,200 contractors were employed in the building of the National Broadband Network.[29] The total number of people engaged directly or indirectly in the construction of the NBN is expected to rise to a peak of 15,000 – 20,000 by 2015-16. The health and safety of all those who are involved in the NBN is NBN Co's highest priority and during the past year NBN Co has continued to enhance HSE Management Systems, focussing on the identification, assessment and control of Critical Risks.

The frequency of Lost Time Injuries (**LTI**) to 30 April 2013 for NBN Co employees was 0.3 LTI per million work hours (30 June 2012: 0.3) and for contractors it was 1.5 LTI per million work hours (30 June 2012: 0.9). The frequency of Medical Treatment Injury (**MTI**) in the period to 30 April 2013 for NBN Co employees was 2.3 MTI per million work hours (30 June 2012: 1.2) and for contractors it was 13.5 MTI per million work hours (30 June 2012: 9.9).[30]

NBN Co's HSE Management System was accredited to AS4801, OHSAS18001 and ISO14001 in May 2012.

NBN Co is very conscious of the potential for asbestos hazards in rolling out the network and is concerned to ensure the safety of those building the network and the community more generally. NBN Co is particularly aware of asbestos hazards in the remediation of ageing pit and pipe infrastructure that is being carried out by Telstra Corporation under the terms of the Definitive Agreements.

NBN Co's HSE Management system includes a 2 day general safety awareness course which includes coverage of asbestos hazards. Approximately 3,650 people had completed this course at the end of April 2013.

Under NBN Co's construction contracts it is a requirement that work be undertaken in accordance with all relevant work health and safety laws and Codes of Practice, including for example the Codes of Practice on managing, controlling and safely removing asbestos. NBN Co field supervisors check for compliance with licensing requirements for asbestos removal. Skills assurance audit activity covering 878 individuals undertaken by NBN Co identified 14 individual non-conformances related to Regulated Asbestos training requirements.

NBN Co conducted a number of internal and external audits and accreditation processes during 2013 which incorporated a review of the procedures for managing and controlling asbestos and removal of asbestos. To ensure all hazards are managed as appropriately as possible a task force has been established to undertake a hindsight review of relevant audit and accreditation activity.

NBN Co also established a second task force to review all asbestos related work being carried out by project workers on the NBN. An independent HSE firm is engaged to review NBN Co's Asbestos Containing Material management processes.

[29] Total employees are stated as at 30 April 2013. Total contractors and suppliers is stated as at 31 March 2013.
[30] All figures supplied are project to date.

Additionally NBN is participating in the establishment of a new industry training standard for asbestos handling. In the period before the commencement of the new national training standard, NBN Co has required that its Tier 1 contractors ensure that asbestos removal and disposal tasks be undertaken by licensed specialist asbestos removal firms.

7.5 Human Resources and Industrial Relations

NBN Co adheres to the Fair Work Principles and 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 applicable NBN Co construction workers. The externally contracted NBN Co construction workers will be dispersed across the country providing opportunities for local employment.

NBN Co encourages 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.

7.6 Reconciliation Action Plan

NBN Co has registered its first Reconciliation Action Plan (**RAP**) with Reconciliation Australia in 2013. The vision for RAP is to see a 'connected community' where Aboriginal and Torres Strait Islander people share equally in the benefits of the National Broadband Network no matter where they live. The NBN will positively impact Aboriginal and Torres Strait Islander health and wellbeing through enhanced medical practices and outcomes and increased access to education and training – especially in remote locations.

7.7 Material Issues

Serious injury or fatality: The risk of serious injury or fatality to NBN Co employees, contractors or members of the community.

- The risk of a serious injury or fatality to NBN Co employees, contractors or the general public requires constant vigilance and the establishment and adherence to a comprehensive safety management system has been a key focus for NBN Co.
- NBN Co's approach to health and safety is outlined in Section 7.4, *Health and Safety*. NBN Co will continue to monitor critical safety risks, including asbestos hazards in rolling out the network, through conducting scenario analyses and working with key stakeholders (Board and

Shareholders) to ensure appropriate measures are in place to prevent incidents wherever possible and to respond to any incidents that arise. Additionally during June 2013 a review of NBN Co's integrated Health, Safety and Environment Management System was approved for commencement in July 2013.

Ability to attract and retain high quality people: The risk of not being able to attract or retain the staff with the right skills and experience to deliver NBN Co's corporate plan objectives.

- NBN Co will continue to review its organisational structure to ensure talented people are in positions where they can perform to their abilities and new high quality people are brought in as required.

Serious misconduct or fraud: The risk of serious misconduct or fraud as the volume and value of transactions passing through NBN Co increases.

- Undertaking activities to fulfil requirements relating to Commonwealth Fraud Control Guidelines (March 2011) and AS 8001-2008: The Australian Standard on Fraud and Corruption Control.
- Ensuring strict segregation of duties, particularly in areas relating to creating purchase orders, releasing payments and access to master data.
- Regular internal and external auditing of high risk areas.
- Strict enforcement of NBN Co policies across the organisation.

8 Planning and Designing the NBN

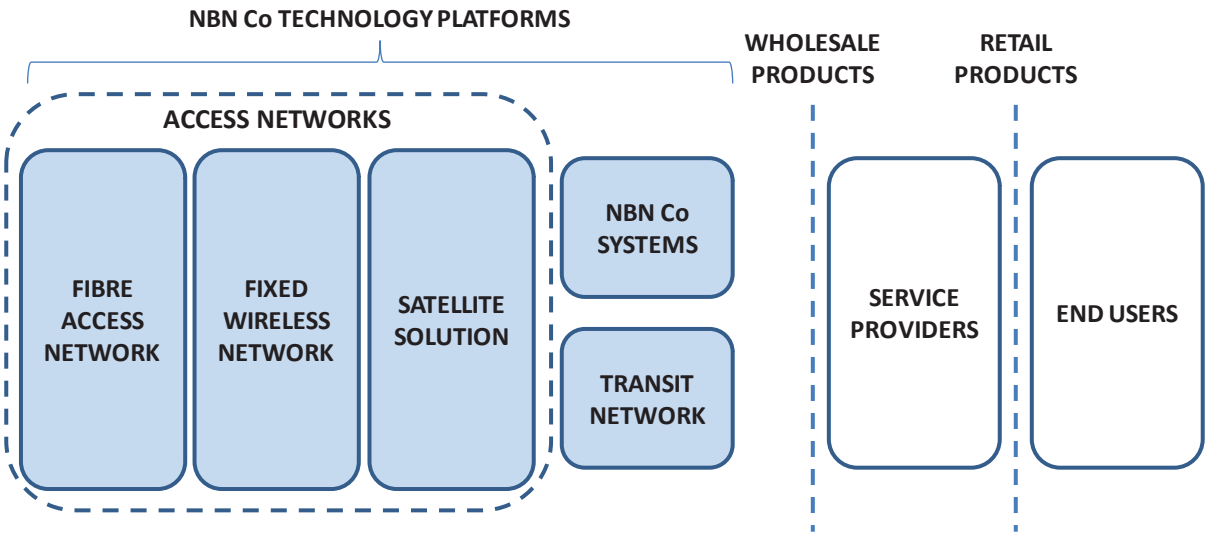
8.1 Components of the NBN

Depending on where an End-User is located, there are three possible ways in which they will be able to receive services over the NBN:

- Via the NBN Fibre-to-the-Premises (**FTTP**) Network, the NBN **FTTP Network**.
- Via the NBN **Fixed Wireless Network**.
- Via the NBN **Satellite Network**.

These three 'Access Networks' are all connected to a central 'Transit Network'. The Transit Network is the backbone of the NBN, providing connectivity between the access networks and the Points of Interconnect (**PoIs**), which is where Service Providers connect to the NBN. Overlaying the Access Networks and the Transit Network are the IT Systems by which NBN Co is able to manage the networks, as well as its business, customer service and enterprise end-to-end management processes.

Exhibit 8-1: Overview of NBN Co Technology Platforms



Source: NBN Co

The three Access Networks provide communication signalling and the media (fibre architecture or spectrum in the case of Fixed Wireless and Satellite) by which communications signals are carried from an End-User's premises to an NBN Co Fibre Access Node (**FAN**), Wireless Access Node (**WAN**) or Satellite Ground Station (**SGS**). The Transit Network provides the aggregation and long distance connectivity between these sites and a much smaller number of PoIs.

8.2 Determining the FTTP, Fixed Wireless and Satellite Footprints

Australia comprises a land area of about 7.692 million square kilometres.[31] It is estimated that 90% of the Australian population occupies less than 1% of this area – less than 80,000 square kilometres. The next 5% (90-95%) occupies 96,500 square kilometres, and the next 2% (95-97%) a further 148,500 square kilometres. The final 3% (97-100%) of the population occupy an area of over 500,000 square kilometres, still leaving almost 90% of the landmass unoccupied.[32]

NBN Co has been given the objective of providing Fibre-To-The-Premises (**FTTP**) to 93% of all premises in Australia, with a minimum obligation of 90%. The Commonwealth Government has also directed that all existing communities with over 1,000 premises and that all New Developments with over 100 premises should be served by FTTP infrastructure.[33] The balance of premises is to be served by a mixture of Fixed Wireless and Satellite technologies.

In order to determine which premises will receive FTTP (the '**Fibre Footprint**') NBN Co has followed a number of broad planning rules:

- Premises in areas that are currently classified as Telstra's Band 1 and Band 2 Exchange Service Areas.[34]
- Premises in existing communities with over 1,000 premises.
- Premises in New Developments with over 100 premises.
- Premises in communities of between 500 and 1,000 if that community is close to the Transit Network and can be connected with minimal additional cost.

Applying these rules is forecast to achieve the Government's minimum coverage target of 90%, and objective of 93% coverage, for the FTTP Network by the end of the rollout period (FY2021). The premises outside this area will be serviced by Fixed Wireless or Satellite and generally fall into one of the following categories:

- Premises in smaller remote communities.
- Premises on the geographic fringe of larger communities (i.e. as property density decreases on the edges of towns and cities).

For premises outside the long term Fibre Footprint NBN Co needs to determine whether they should be serviced by Fixed Wireless or Satellite. This is generally determined after taking into account:

- The relative costs of deploying Fixed Wireless compared with Satellite.
- The expected take-up and usage (in order to assess where 'hot spots' might appear).

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[31] http://australia.gov.au/about-australia/our-country/the-australian-continent

[32] Australian Bureau of Statistics, *Regional Population Growth Australia 2008-09 (Series 3218.0)*.

[33] For more details on the New Developments policy, refer to:
http://www.dbcde.gov.au/broadband/national_broadband_network/fibre_in_new_developments

[34] Telstra's Band 1 and Band 2 Exchange Service Areas (**ESAs**): **Band 1** are areas serviced by one of Telstra's telephone exchanges in the central business districts of Sydney, Melbourne, Brisbane, Perth and Adelaide; **Band 2** are areas serviced by one of Telstra's telephone exchanges in the metropolitan areas of Sydney, Melbourne, Brisbane, Perth, Adelaide plus the central business districts and metropolitan or urban areas of a number of cities in Australia. Overall Band 1 and Band 2 ESAs are estimated to represent close to 70% of the total addresses in Australia. As per the ACCC Determination June 2012, Band 2 are ESAs with more than 108.4 services in operation in a square kilometre area at the time this determination is made, which is not a Band 1 ESA. Refer to:
http://transition.accc.gov.au/content/item.phtml?itemId=1062619&nodeId=070c262152a987c1277355843cd76318&fn=Final%20access%20determinations%20as%20varied.pdf

- Physical issues – such as availability of existing infrastructure or line-of-site to Fixed Wireless towers.
- Other issues – such as ability to obtain planning consents or availability of spectrum for the Fixed Wireless service.

The above general planning rules are used to determine the approximate boundaries between the Fibre, Fixed Wireless and Satellite footprints. The precise boundaries are not known until NBN Co carries out detailed suburb-by-suburb designs for the network, which happens progressively during the construction period of the NBN.

8.3 Determining the Number of Total Premises (NBN Co's Addressable Market)

NBN Co has applied the following methodology in order to evaluate the number of total premises that the NBN will have to pass/cover over time:

- Classifying the market by first defining premises as being those NBN Co is required to connect, and those that NBN Co may, but is not required to connect.
- Sizing the total number of premises in existence (FY2010); this was estimated at approximately 10.9 million premises (across all technologies), broken down between approximately 9 million residential addresses and 1.9 million non-residential addresses.
- Applying a forecast growth of Greenfields premises over time, factoring in various sources on premises growth; this results in an estimate of premises growth of approximately 2.3 million premises in Australia over the period FY2011-FY2021 (across all technologies).
- Applying NBN Co's planned coverage demarcation and rollout profile to estimate the number of premises served by each technology.

The total premises for planning the deployment of NBN Co's FTTP, Fixed Wireless and Satellite Networks is based on the database of physical registered addresses in Australia. Each registered address is recorded in a Geo-coded National Address File (**GNAF**) based on its unique geo-code (specific latitude and longitude of the address). This database of GNAFs is based on existing address sources including the State and Territory Government land records,[35] as well as address data from Australia Post and the Australian Electoral Commission.[36]

8.4 Scheduling the Rollout

NBN Co is implementing the Commonwealth Government's policy to ensure that a balance is achieved between metropolitan and non metropolitan areas in the scheduling of the deployment of the FTTP Network.

NBN Co's Fibre Serving Areas (**FSAs**) scheduling is based upon the following principles:[37]

1. Policy Rules

- Balanced coverage of both rural and metropolitan areas.
- Balanced coverage across all States and Territories.

[35] Geospatial data has been provided by the Public Sector Mapping Authority Australia.

[36] During this process, the GNAF database is filtered to remove potentially duplicated addresses/phantom addresses, so as to estimate a count of 'best fit' addresses, that are then assumed to represent premises.

[37] Fibre Planning FSA Scheduling – 30 April 2013, http://www.nbnco.com.au/assets/documents/rollout-info-1-year-construction-plan.pdf.

- Tasmania to be completed by 2015.
- Prioritisation given to the Fixed Wireless deployment so that the network is as advanced as possible by 2015, subject to site availability, Transit Network rollout and spectrum availability.
- Coverage of New Developments as required under Commonwealth Government policy. This includes New Developments in the long term Fibre footprint within or adjacent to a planned FSA in which 100 or more premises are to be built within a 36-month period, commencing from January 2011.
- Every Federal electorate to be started within 3 years (by mid-2016).

2. Practical Rules

- Core Transit Network completed by FY2015.
- To the extent possible, Regional Construction Packages (**RCPs**) are levelled to ensure consistent workload for Delivery Partners.
- FSAs containing large numbers of New Development premises are given priority.
- Adjacent FSAs are built as a higher priority.
- Re-use of existing remediated infrastructure is given priority.
- In Metropolitan areas, FSAs are built outwards from the Aggregation Nodes (Aggregation Nodes generally contain the PoIs).

3. Strategic Rules

- Transit connectivity for First release sites, Second release sites and New Developments to be accelerated in order to minimise the costs of leased backhaul (Managed Services Links).

The NBN rollout across the access technologies (FTTP, Fixed Wireless and Satellite) and the Transit Network is managed through a series of integrated planning systems and processes. This ensures that resources and capability within NBN Co and within Delivery Partners are aligned around a common rollout schedule. Integrated planning across network technologies ensures cost optimised network deployment within the requirements of the Statement of Expectations and NBN Co's broader planning guidelines.

The rollout of the NBN has been planned so that individual regions can be activated progressively over the ten year construction period. This requires a large number of different components to come together in the right sequence in order to ensure that areas can be activated as quickly as possible and households and businesses can start using the NBN.

The delivery of the FTTP, Fixed Wireless and Satellite Access Networks has been sequenced taking into account the time at which the Transit Network will be available in different regions. It is sometimes necessary for NBN Co to make interim transit arrangements in order to accelerate network deployment in a region before the permanent Transit Network is completed – for example, in many early New Development sites.

8.5 Material Issues

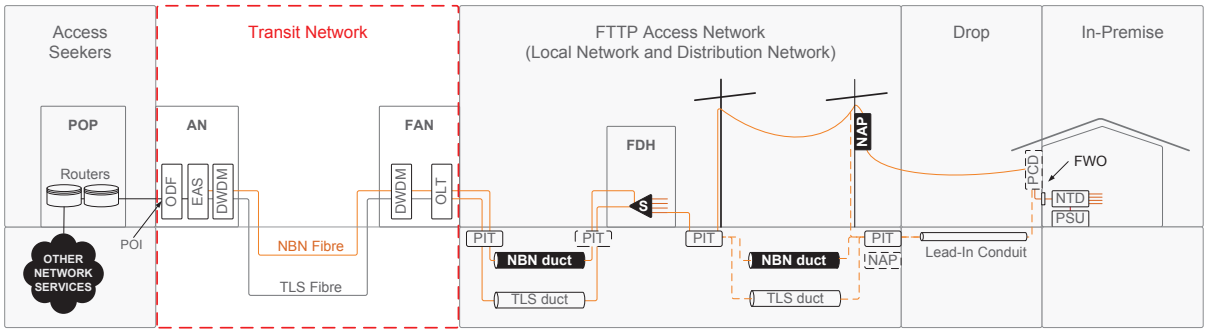
The addressable market, design and capacity, as well as deployment planning of the NBN is based on the Geo-coded National Address File (GNAF) for the estimated count and location of premises. Whilst this is the most robust database of physical addresses available in Australia, there are variances between the site inspection count of premises and the GNAF data.

- Detailed design of the NBN in Rollout Regions is updated based on walk out inspections in order to continually optimise construction and equipment costs. This ensures that the impact of GNAF variances is minimised.
- The GNAF database is improved with data based on experience, and this information is utilised in the network design process.
- The main variations are expected to relate to the number of End-Users premises in Multi-Dwelling Units and the number of Business premises, due to the difficulties in accurately capturing these types of premises.

9 Building the NBN – Transit Network

9.1 Summary

Exhibit 9-1: Overview of the Transit Network



AN: Aggregation Node
DWDM: Dense Wave Division Multiplexing
EAS: Ethernet Aggregation Switch
FAN: Fibre Access Node
FDH: Fibre Distribution Hub
FWO: Fibre Wall Outlet
NAP: Network Access Point
NTD: Network Termination Device
ODF: Optical Distribution Frame
OLT: Optical Line Terminal
PCD: Premise Connection Device
POI: Point of Interconnect
POP: Point of Presence
PSU: Power Supply Unit
S: Optical Splitter
TLS: Telstra

Source: NBN Co

Exhibit 9-2: Major Assumptions for the Transit Network

Major Assumptions	FY2013	FY2016	FY2021
Percentage of Connectivity Links	36%	95%	100%
Number of FANs	166	700*	940*
Number of PoIs	63	121	121
DWDM Rings Integrated	32	250	370

Source: NBN Co
Note: FY2013 reflects FANs where CNI Build is complete. FY2016 and FY2021 forecasts are rounded figures. *: FANs reflect the number of FANs handed over to NBN Co.

Note: The above table includes forecasts. Please refer to NBN Co's Legal Notice on Page 2 of the 2013-16 Corporate Plan for information about forecasts stated in this document.

Exhibit 9-3: NBN Co's Objectives and Strategies for the Transit Network

Objectives	Strategies
Build the core Transit Network by FY2015 to enable the efficient rollout of Fibre, Satellite and Fixed Wireless.	▪ The Transit Network provides connectivity between the three Access Networks (FTTP, Fixed Wireless and Satellite) and the PoIs where Service Providers connect to the NBN. ▪ NBN Co is prioritising the completion of the Transit Network: ○ To enable the FTTP Network to be built simultaneously across a wide range of regional areas. Without the Transit Network, the build of the FTTP Network would have to be focussed mainly on metropolitan areas and in towns that have Aggregation Nodes until Transit connectivity is in place (in order to avoid high costs of managed services backhaul links). ○ To support the earlier connection of New Developments ahead of the FTTP Network rollout. NBN Co has identified growth corridors with a high proportion of

	New Developments. This will avoid deploying temporary installations or using dedicated managed services backhaul links. ○ To provide connectivity for the Fixed Wireless Network and Satellite Network.
	▪ The delivery of the core Transit Network is currently on schedule to be substantially completed by FY2015. ▪ Forecast capital expenditure to FY2021 is $2.3 billion. This is lower than forecast in the 2012-15 Corporate Plan as a result of reduced amount reserved for Transit Fibre, reduced equipment costs, and improved capacity utilisation. ▪ Approximately 85% of the forecast capital expenditure of the Transit Network is equipment costs. The majority of the equipment to be provided for the Transit Network is already covered under existing contracts with suppliers. ▪ As the FTTP footprint expands and demand increases, additional equipment will be required to augment Transit capacity. The forecast cost for this equipment is included in the 2013-16 Corporate Plan.
To utilise existing infrastructure where it is efficient and economical to do so.	▪ Delivery of the Transit Network involves maximising the use of existing infrastructure such as Telstra exchanges and rack space, as well as Dark Fibre from Telstra and the Regional Backhaul Blackspot Program (**RBBP**). ▪ NBN Co is implementing the Telstra agreement as per the Exchange Rollout Plan (42 month programme from 1 August 2011).

Source: NBN Co

Note: The table above may include forecasts. Please refer to NBN Co's Legal Notice on Page 2 of the 2013-16 Corporate Plan for information about forecasts stated in this document.

9.2 Overview

The Transit Network is the backbone of the NBN, providing connectivity between the three Access Networks (FTTP, Fixed Wireless and Satellite) and the Points of Interconnect (**PoIs**), where Service Providers connect to the NBN. This connectivity is required predominantly in rural and remote regions to enable aggregation of traffic at each PoI to a scale required to provide effective and efficient economies for Service Providers.

The Transit Network includes planning for three elements: Fibre Links, Fibre Access Nodes (**FANs**) and Aggregation Nodes (which contain the PoIs).

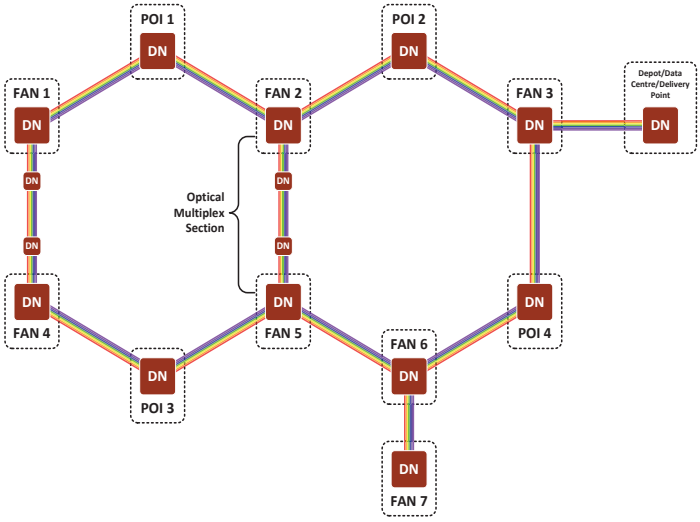
Wherever possible, NBN Co is utilising existing infrastructure to build the Transit Network. In practice this means utilising Telstra infrastructure in the form of Dark Fibre and Exchange Rack Space in Telstra Exchange buildings. In addition, NBN Co will be accessing Dark Fibre from the Regional Backhaul Blackspots Program (**RBBP**). Wherever NBN Co is unable to access existing infrastructure then it will build its own.

NBN Co is deploying Dense Wave Division Multiplexing (**DWDM**) implemented in a ring topology for the Transit Network. DWDM technology enables the transmission of several signals along the same fibre by assigning each a different wavelength of light. The DWDM platform chosen can transmit up to 96 wavelengths in a single fibre pair.

The Transit Network comprises DWDM Nodes (**DN**), which are located in the Aggregation Nodes and FANs, and the fibre which connects them. In addition, DWDM repeater nodes are installed at regular intervals along the fibre links to ensure that the signal is regenerated when the distance between

the FAN and the PoI is too great. The basic architecture adopted by NBN Co for the Transit Network is an overlapping physical ring topology in which adjacent DWDM rings share physical infrastructure and routes to optimise resources.

Exhibit 9-4: NBN Co Transit Ring Topology



Source: NBN Co

The DWDM network will predominantly provide physical connectivity and transit backhaul capacity between Aggregation Nodes and FAN sites. The network will also provide connectivity to centralised depots, data centres and delivery points for the specific transport services that require them.

The use of a ring topology means that wherever feasible a single FAN site will have at least two possible routes between itself and any other source/destination FAN or Aggregation Node. This topology provides resiliency in the event of a failure in one part of the network.

A critical decision in the design of the Transit Network was to determine the number and location of the initial PoIs in the network. The ACCC requirements for a semi-distributed model led to an initial number of 121 PoIs in application of the 'competition criteria' established by the ACCC for PoI locations.[38]

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

The building of the Transit Network consists of the deployment of approximately 1,500 sites including approximately 940 FAN sites, 121 PoI sites and 415 Intermediate Access Points (**IAPs**). In line with the 2012-15 Corporate Plan, NBN Co assumes that a total of approximately 65,500km of Transit Fibre will be required in order to connect the FAN sites back to the nearest PoI sites. The substantial majority of the Transit Fibre will be deployed by FY2015.[39]

[38] ACCC, *NBN Points of Interconnect* (March 2013): http://www.accc.gov.au/content/index.phtml/itemId/952292

[39] Statements in this section include forecasts. Please refer to NBN Co's Legal Notice on Page 2 of the 2013-16 Corporate Plan for information about forecasts stated in this document.

Exhibit 9-5: Overview of Transit Network

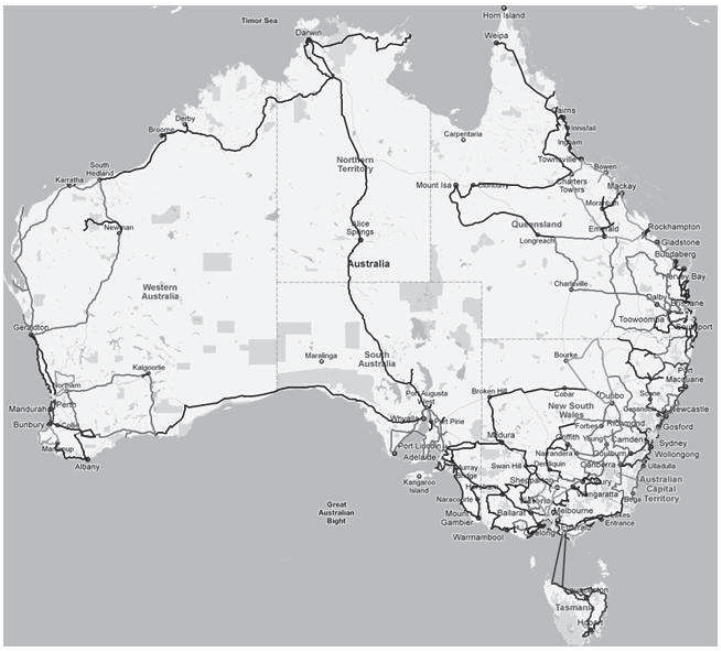


Exhibit 9-6: Example of Cabinet Install

Source: NBN Co

9.3 Constructing the Transit Network

9.3.1 FAN and Aggregation Node Sites

The majority of NBN Co's FAN sites (NBN Co plans for approximately 940 FAN sites) and 121 PoIs are to be located inside existing Telstra exchange buildings. These buildings provide the necessary physical environment (such as temperature control, security and access to uninterrupted power) for complex active equipment and are also the termination points for Telstra's Duct and Dark Fibre Networks which are being extensively used by NBN Co.

Telstra exchanges will generally require some remediation in order to make sure that they are 'fit for purpose' before NBN Co's equipment can be installed. Most of this remediation is carried out by Telstra before an exchange is handed over to NBN Co. Once the exchange is handed over, NBN Co carries out any additional site make ready works (such as installing additional power or cooling if required) and installs the basic Common Network Infrastructure (**CNI**) such as rack shelving, Optical Distribution Frames (**ODFs**), Fibre Termination Panels (**FTPs**) and patch cables.

CNI equipment is assembled by NBN Co at a central site in Rowville, Victoria and then shipped to the FAN site where it is to be installed.

Ten of the 121 PoIs are being constructed for NBN Co by Emerson. These ten facilities, referred to as Ten Aggregation Nodes and Depots (**TANDs**), will contain the same equipment as found in other PoI sites but are also being designed to house other NBN Co facilities (such as Networks Operations staff, Field staff for activations and/or restoration activities) and to act as central depots for essential network spares. NBN Co will have two such facilities in each of the major capital cities (Sydney, Melbourne, Brisbane, Perth and Adelaide).

9.3.2 Installation of GPON Equipment

The Passive Optical Network provides the fibre connectivity between the NTD in the End-User premises and the Optical Line Terminal (**OLT**) located in the FAN site. The FTTP Access Network

scales by adding more OLTs at the FAN site as the PON network is built out FSAM by FSAM. OLT equipment is housed in racks that have been pre-installed in each FAN building as part of the CNI build.

9.3.3 Delivery of the DWDM Network

The DWDM Network provides the connectivity to carry traffic from the PON network in regional and rural FSAs back to the nearest PoI. Given the complexity of the DWDM Network, NBN Co has engaged Nokia Siemens Networks (**NSN**) to provide a turn-key solution for its rollout, from design through pre-staging to installation and commissioning. The DWDM Network is designed and installed on a ring-by-ring basis, with each ring being brought into service once it is completed and tested.

9.3.4 Delivery of the Ethernet Aggregation Network

The Ethernet Aggregation Network aggregates traffic from each of the Access Networks connected via the DWDM onto fewer ports for presentation to Service Providers though the Network-to-Network Interface (**NNI**) at the PoI.

9.3.5 Delivery of Dark Fibre Links

A significant proportion of the fibre being used by NBN Co for the Transit Network is 'Dark Fibre' being provided by Telstra under the Definitive Agreements. Dark Fibre consists of a pair of fibres in an existing Telstra fibre optic cable, which is reserved exclusively for NBN Co's use. NBN Co's FANs and PoIs are predominantly located in Telstra exchanges, and Telstra often has already installed high capacity fibre links between these sites as part of its own core network. NBN Co can avoid having to install new fibre cables of its own by using spare fibres made available by Telstra. In addition to using Dark Fibre Links provided by Telstra, NBN Co has entered into agreements that will give it access to fibre built as part of the RBBP. NBN Co will complete the Transit Network by building its own fibre optic links where no existing infrastructure is available.

Exhibit 9-7: NBN Co Transit Network Delivery Partner Contracts

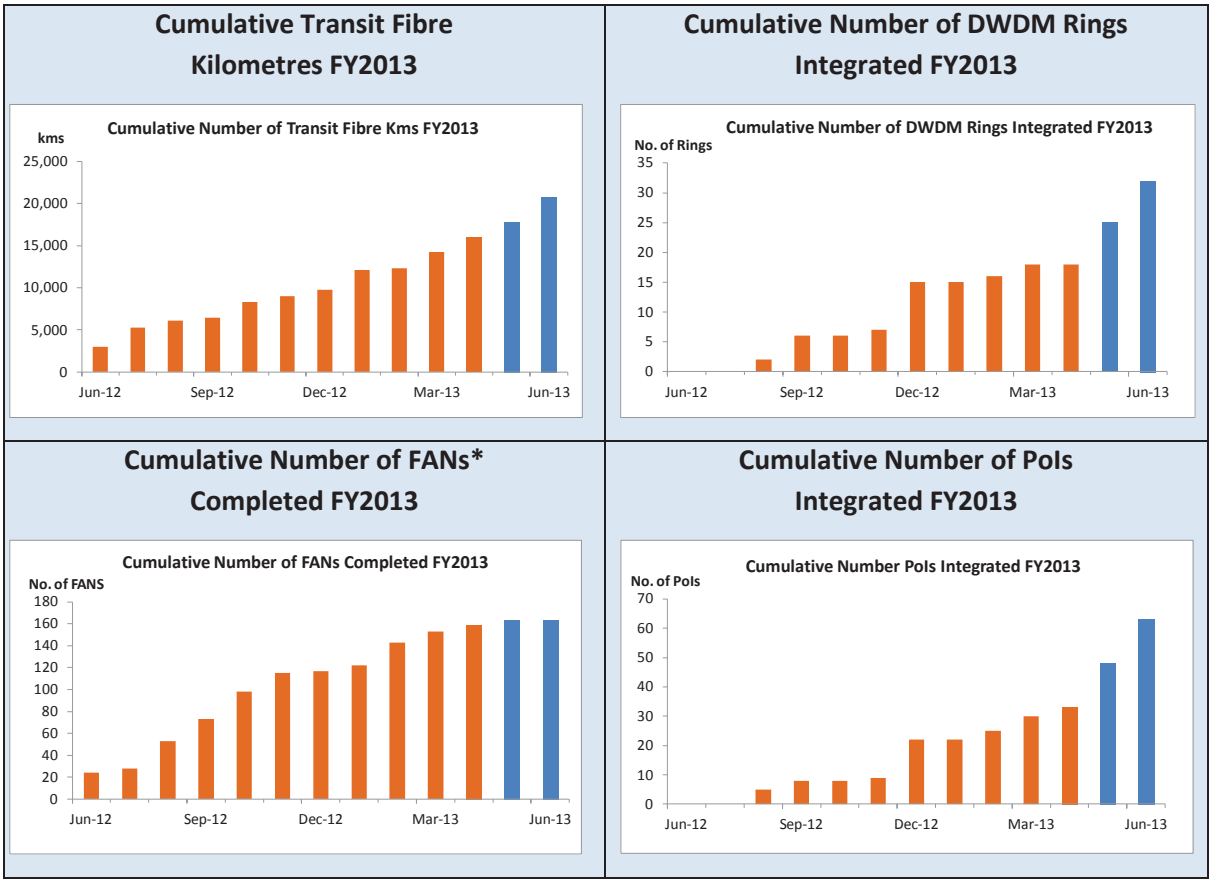
Supply Summary	Supplier	Date of Execution	Term	Estimated Value
DWDM equipment and systems	Nokia Siemens	October 2010	10 years*	$240 million
GPON & Aggregation equipment	Alcatel-Lucent	June 2010	10 years*	$1,500 million
ODFs and ODF sub-racks (Passive Equipment)	Warren & Brown Technologies	January 2011	5 Years*	$110 million
Install and commissioning services for CNI and Active Equipment	Visionstream	February 2013	1 Year	$35 million
Ten Aggregation Nodes/Depots (TANDs)	Emerson	February 2011	3 Years	$94 million
FAN space, Aggregation Node space and Dark Fibre	Telstra	June 2011	35 years**	N/A
Access to Dark Fibre and maintenance services (*: duration of maintenance services)	Nextgen/RBBP	April 2013	4 years**	$8 million

Source: NBN Co. Note: *: Option for additional renewal of two years. **: Option for additional renewal of 20 years.

Note: The table above may include forecasts. Please refer to NBN Co's Legal Notice on Page 2 of the 2013-16 Corporate Plan for information about forecasts stated in this document.

9.4 Progress to Date

Exhibit 9-8: Transit Network Progress and Key Performance Indicators



Source: NBN Co

Note: *: Where Common Network Infrastructure (**CNI**) Build Complete.

Note: The exhibits above may include forecasts. Please refer to NBN Co's Legal Notice on Page 2 of the 2013-16 Corporate Plan for information about forecasts stated in this document.

NBN Co and its Delivery Partners made significant progress during FY2013 in deploying the Transit Network. By 30 June 2013 NBN Co expects to have completed the following:

Exhibit 9-9: Transit Network Major Milestones

Aggregation Nodes	▪ 50% of Aggregation Nodes integrated.
FAN Sites	▪ Approximately 18% of FAN sites where CNI build complete.
Physical Racks	▪ 30% of physical racks installed in FAN/Aggregation Node sites.
Transit Fibre	▪ 32 out of a total of 370 Transit/DWDM Rings completed.
OLTs	▪ 5% of OLTs installed (OLT installations are phased to progressively augment capacity as the FTTP Network is rolled out).
TAND Sites	▪ 8 of the 10 sites to be completed and integrated.

Source: NBN Co

Note: The table above may include forecasts. Please refer to NBN Co's Legal Notice on Page 2 of the 2013-16 Corporate Plan for information about forecasts stated in this document.

9.5 Operational Targets for FY2013-16

By FY2015 NBN Co expects to have completed the build of the core Transit Network. This includes completion of all of the Aggregation Nodes/PoI sites and of approximately 650 FAN sites. The remaining FAN sites (approximately 290) are not required until the FTTP Access Network is rolled out in the relevant regions and will be built progressively through to FY2021. By FY2015 NBN Co also expects to have integrated over 90% of the total Transit fibre requirements, with the balance being delivered progressively to FY2021 in line with the FTTP Access Network rollout to more remote areas. The core active equipment (DWDM and GPON) required to operate the NBN will be installed by FY2015. The demand for this equipment is capacity driven, however, and the core equipment will be augmented progressively as the FTTP rollout progresses.

Exhibit 9-10: Transit Network Key Performance Indicators

(Nominal Dollars)	Actual	Forecast		
Item	**30 April 2013**	**FY2013**	**FY2016**	**FY2021**
Cumulative Capital Expenditure ($ billion)	**$0.5**	$0.6	$1.5	$2.3
FANs where CNI Build Complete (#)	**159**	166	700*	940*
PoIs Integrated (#) TANDs Integrated (#)	**32** **2**	63 8	111 10	111 10
Transit Fibre (%)	**25%**	35%	95%	100%
DWDM Rings Integrated (#)	**21**	30	250	370
OLTs Installed (#)	**89****	200	1,800	4,000

Source: NBN Co Note: FY2013 reflects FANs where CNI Build is complete. FY2016 and FY2021 are rounded figures. *: FANs reflect the number of FANs handed over to NBN Co. **: As at 31 March 2013.

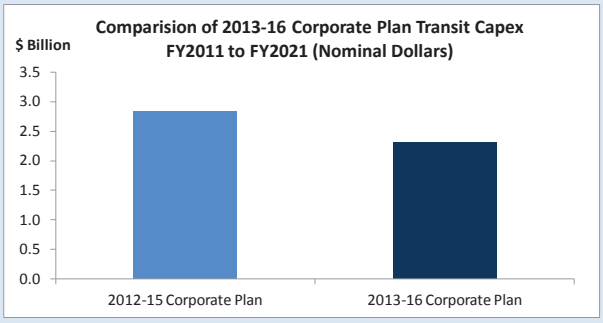
Note: The above table may include forecasts. Please refer to NBN Co's Legal Notice on Page 2 of the 2013-16 Corporate Plan for information about forecasts stated in this document.

9.6 Cost Metrics

9.6.1 Capital Expenditure

Transit Network capital expenditure is forecast to total $2.3 billion over the construction period FY2011 to FY2021. Relative to the previous 2012-15 Corporate Plan, this represents a reduction of $(0.5) billion in forecast capital expenditure.

Exhibit 9-11: Comparison of 2013-16 Corporate Plan Transit Capital Expenditure



Forecast reduction in Transit capital expenditure of $(0.5) billion reflects:

- Reduced amount reserved for building Transit Fibre.
- Reduced equipment costs.
- Improved capacity utilisation.

Source: NBN Co

Note: The exhibit above and discussion may include forecasts. Please refer to NBN Co's Legal Notice on Page 2 of the 2013-16 Corporate Plan for information about forecasts stated in this document.

Capital expenditure is primarily driven by equipment costs (approximately 85%) and labour (approximately 15%) in relation to the deployment of active equipment and connection of FAN sites to the Distribution Network (**DN**). The Distribution Network links the FAN equipment to the Local Network (**LN**) of the FTTP Access Network, FTTP Greenfield Network and Fixed Wireless and Satellite Network.

Capital expenditure includes the following:

- **CNI and Site Make Ready Works**: capital expenditure for FAN and PoI sites comprises of equipment and labour costs for the deployment of approximately 1,500 sites.[40] This includes forecast costs for approximately 940 FAN sites, 10 TANDs, 111 PoIs and approximately 415 Intermediate Access Points (**IAPs**). The capital expenditure includes: a) Equipment and labour costs for the deployment of Common Network Infrastructure (**CNI**), which includes Optical Distribution Frames (**ODFs**), connection cables, and splicing costs; and, b) FAN and PoI Site make ready labour and material costs for the preparation of floor space, power generation, switchboard and control systems and cooling.
- **Network Access:** capital expenditure comprises of equipment, labour and make-ready costs for the deployment of equipment and connections between the ODF and OLT. This includes the deployment of OLT active equipment based on demand for End-User connections.
- **Aggregation and DWDM:** capital expenditure comprises of equipment, labour and make-ready costs for the deployment of active Transit Network connectivity equipment. This relates to aggregation equipment (shelves/line cards) for connections between OLTs and DWDM backhaul transmission. Capital expenditure includes forecast additional line cards and DWDM transmission equipment muxponders and amplifiers based on forecast demand for End-User connections and network bandwidth requirements.
- **Transit backhaul**: capital expenditure comprises deployment, commissioning and integration of leased and new build transmission links between FAN and PoI sites. Capital expenditure includes planning, design and construction costs for approximately 5,000 kms of new build Transit fibre.

Over the period to FY2015, approximately $1.4 billion, or 60% of the total cumulative construction period capital expenditure is forecast to be incurred. Forecast capital expenditure from FY2016 onwards reflects the deployment of additional FAN sites and their associated equipment, together with capacity augmentation at existing FAN sites as demand increases.

9.6.2 Direct Operating Expenditure

The Transit Network accounts for approximately $3.0 billion of NBN Co's total forecast direct operating expenditure of $19.4 billion to FY2021.[41] This expenditure relates predominantly to costs paid to Telstra and other infrastructure owners for access to Dark Fibre and exchange space. The operating expenditure components of Transit Network costs are all covered by existing long term (on average up to 35 years, 55 years with option for renewals) contracts with fixed prices (some of which contain escalation clauses for CPI) and the quantities are either confirmed or well defined through NBN Co's planning and design processes.

[40] The total sites, FAN sites and Intermediate Access Points are rounded figures.

[41] Statements in this section may include forecasts. Please refer to NBN Co's Legal Notice on Page 2 of the 2013-16 Corporate Plan for information about forecasts stated in this document.

9.7 Material Issues

The construction of the Transit Network occurs ahead of the FTTP Access Network rollout. There is a risk that provisioned capacity and actual demand take longer to align than planned, or conversely that demand is higher than installed capacity to service this traffic.

- NBN Co uses demand-driven forecasting which caters for additional End-Users coming onto the network and traffic increasing over time. A portion of the Transit Network capital expenditure after FY2015 relates to increases in Access and Passive equipment to meet this additional demand.
- Planning rules specify the timing in which active equipment such as OLTs should be installed, which is generally 12 months ahead of the FSAMs being deployed.

Delivery Partners and Equipment suppliers are used to complete the construction and rollout of the Transit Network. There is a risk that Delivery Partners' and Equipment suppliers' performance will not meet demand and service level requirements.

- NBN Co is actively monitoring and managing the capacity and capability of Delivery Partners and Equipment Suppliers to meet demand and service level requirements.

The risk that the costs required to complete and operate the Transit Network are greater than forecast.

- The largest cost of operating the Transit Network is the cost of using Dark Fibre and Exchange Rack Space. Where available NBN Co is leveraging existing infrastructure, the majority of which is already subject to contracts.
- NBN Co has entered into long term supply contracts with Alcatel-Lucent (10 year term) for Access & Aggregation equipment, Nokia Siemens (10 year term) for DWDM equipment and Warren & Brown (5 year term) for Passive CNI equipment.
- Uncontracted running costs (e.g. electricity costs of FAN and PoI sites) are a relatively small proportion of the total operational costs and amounts have been included in the 2013-16 Corporate Plan to cover these costs.

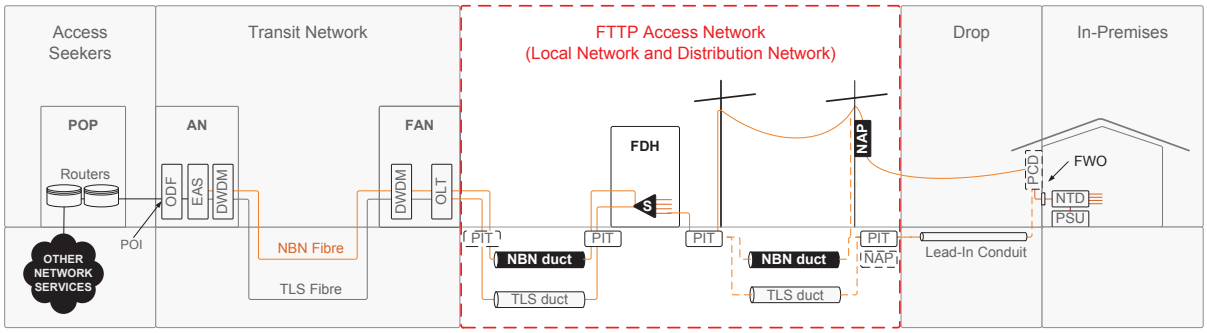
The level of maintenance required during the operation of the Transit Network.

- Transit Network active equipment has a shorter useful life than passive equipment, and will need to be replaced and upgraded progressively. These costs have been allowed for in the forecasts for Replacement Capital Expenditure in the 2013-16 Corporate Plan.

10 Building the NBN – FTTP Access Network

10.1 Summary

Exhibit 10-1: Overview of the FTTP Access Network



AN: Aggregation Node
DWDM: Dense Wave Division Multiplexing
EAS: Ethernet Aggregation Switch
FAN: Fibre Access Node
FDH: Fibre Distribution Hub
FWO: Fibre Wall Outlet
NAP: Network Access Point
NTD: Network Termination Device
ODF: Optical Distribution Frame
OLT: Optical Line Terminal
PCD: Premise Connection Device
POI: Point of Interconnect
POP: Point of Presence
PSU: Power Supply Unit
S: Optical Splitter
TLS: Telstra

Source: NBN Co

Exhibit 10-2: Major Assumptions for the FTTP Access Network

Major Assumptions	FY2013	FY2016	FY2021
Brownfields Premises Passed	155–175 thousand	3.5 million	10 million
Physical Distances (kms)	>4 thousand kms	>70 thousand kms	>200 thousand kms
Number of FDHs (#)	Approx. 900	Approx. 20 thousand	Approx. 56 thousand

Source: NBN Co
Note: Rounded to the nearest thousand.

Note: The above table may include forecasts. Please refer to NBN Co's Legal Notice on Page 2 of the 2013-16 Corporate Plan for information about forecasts stated in this document.

Exhibit 10-3: NBN Co's Objectives and Strategies for the FTTP Access Network

Objectives	Strategies
To build additional footprint to pass a minimum coverage requirement of 90% of Australian premises, with an objective of passing 93% of Australian premises.	▪ The FTTP Access Network provides the fibre pathway that connects the Optical Line Terminals (**OLTs**) located in NBN Co's Fibre Access Nodes (**FANs**) to the Network Access Point (**NAP**) located in the street outside an End-Users premises. ▪ Approximately 10 million Brownfields premises are forecast to be passed by the FTTP Access Network by FY2021, covering approximately 200,000 kilometres of network deployment physical distance. ▪ As at 9 May 2013, NBN Co had passed 72,700 FTTP Brownfields premises. ▪ NBN Co has awarded Design & Build contracts to third party contractors for the detailed design and build of the FTTP Access Network.

	▪ In March 2013, NBN Co revised its forecasts for the rollout of the FTTP Access Network to June 2013 to 155,000 to 175,000 Premises Passed. These forecasts have been factored into the 2013-16 Corporate Plan deployment forecasts. The projected completion for the FTTP Access Network remains unchanged at FY2021. ▪ NBN Co is implementing a number of remediation activities so as to deliver the 2013-16 Corporate Plan deployment targets. This may require NBN Co to undertake more direct project management and scheduling of work; for example, managing the deployment of the FTTP Access Network in the Northern Territory.
	▪ The FTTP Access Network represents 30% of total NBN Co forecast capital expenditure to FY2021. Forecast capital expenditure to FY2021 has been increased from the 2012-15 Corporate Plan by $0.1 billion to approximately $11.4 billion, allowing for increased provisions related to deployment challenges. ▪ NBN Co has contracted approximately $5.9 billion or 27% of forecast FTTP Access Network and FTTP Customer Connect capital expenditure to FY2021 to date.
To utilise existing infrastructure where it is efficient and economical to do so.	▪ NBN Co is implementing the Telstra Definitive Agreements to help deliver the FTTP Access Network; this involves maximising the use of existing Telstra duct infrastructure. ▪ NBN Co is also implementing contracts for access to poles infrastructure with a number of utilities as well as other providers of infrastructure across the Fibre Footprint.

Source: NBN Co

Note: The above table may include forecasts. Please refer to NBN Co's Legal Notice on Page 2 of the 2013-16 Corporate Plan for information about forecasts stated in this document.

10.2 Overview

The FTTP Access Network encompasses all network elements between the Fibre Access Node (**FAN**) site and the Network Access Point (**NAP**) located in the street outside an End-Users premises.

Wherever possible, NBN Co will re-use existing infrastructure rather than build new infrastructure. Only where no other infrastructure already exists, or where it is uneconomic to access it, will NBN Co build its own infrastructure.

A substantial part of the FTTP Access Network will be installed in ducts and pits owned by Telstra under commercial terms granted to NBN Co in the Definitive Agreements.

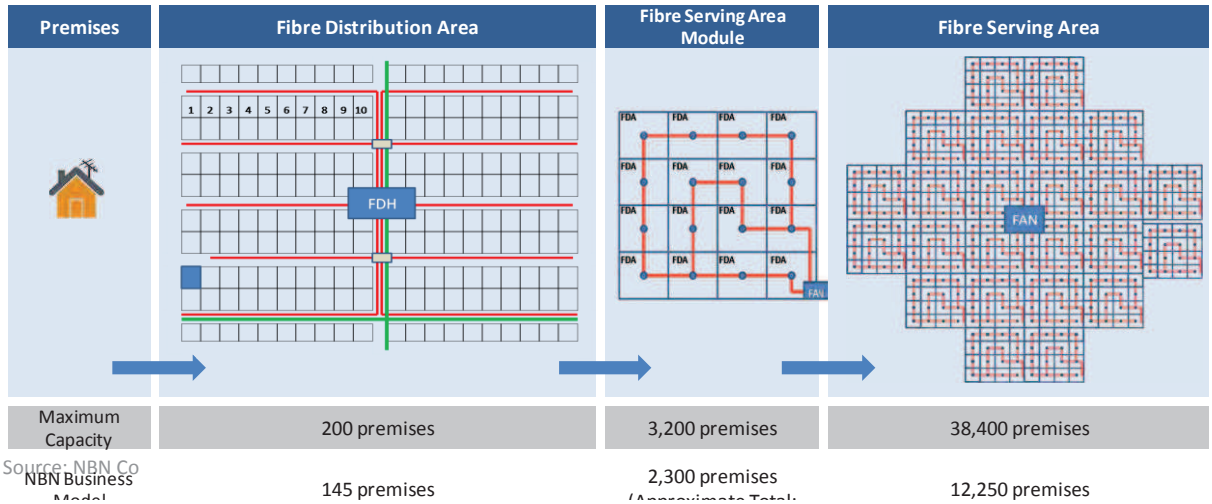
NBN Co has also entered into Facilities Access Agreements (**FAAs**) with a number of utilities across Australia in order to gain access to poles and other infrastructure where Telstra does not have suitable infrastructure available. These FAAs enable achievement of the forecast of 25% aerial deployment in the Local Network. NBN Co continues to explore the option for additional FAAs.

From a planning and construction perspective the FTTP Access Network, referred to as the Local Network and Distribution Network (**LNDN**) is a large number of replicating modules that combine to make up the overall network.

The construction of the LNDN represents the single largest component of the rollout of the NBN. Over the ten years of the rollout NBN Co plans to build the LNDN past over 10 million premises in

around 4,200 FSAMs, completing at an average rate of around 5,450 premises per day during the peak construction period from FY2016 to FY2018.[42]

Exhibit 10-4: Planning and Construction Summary of LNDN



Source: NBN Co

The basic building blocks of the LNDN are:

- Fibre Distribution Areas (**FDAs**) – a collection of up to 200 premises served by a single Fibre Distribution Hub (**FDH**).
- Fibre Serving Area Modules (**FSAMs**) – a collection of up to 16 FDAs, serving up to 3,200 premises (the number of premises contained in an FSAM is typically 2,000-3,000, depending on location and network planning/topology), connected to the Fibre Access Node (**FAN**) through the Distribution Network. (Generally delivered into service as a block in certain circumstances NBN Co may release individual FDAs into active service ahead of the completion of an entire FSAM if all the network elements for that FDA are in place).
- Fibre Serving Areas (**FSAs**) – a collection of up to 12 FSAMs linked to a single FAN site, serving up to 38,400 premises (but approximately 12,000-14,000 premises on average).

10.3 Constructing the FTTP Access Network

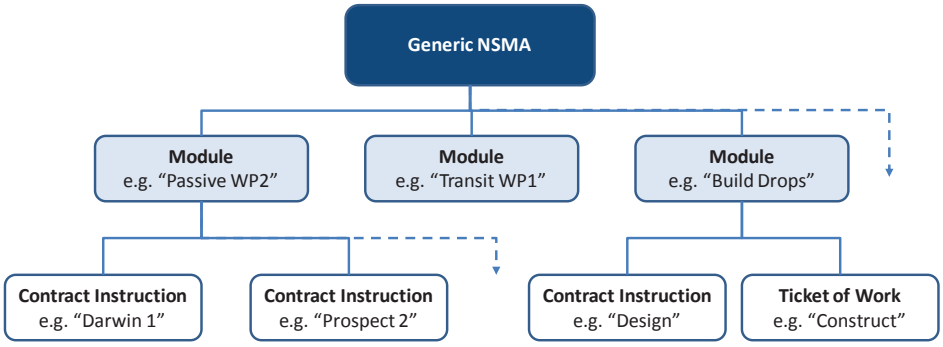
The scale and speed required for the LNDN rollout means that this portion of the network build is expected to engage 10,000 to 15,000 workers at its peak (out of a total of 15,000 to 20,000 workers across the entire NBN build). In order to achieve this level of scale, NBN Co expects to contract a significant proportion of the build to construction companies (**Delivery Partners**) with ready access to a skilled workforce and the project management skills to deliver the rollout program.

NBN Co's Delivery Partner engagement model consists of a hierarchical agreement structure providing NBN Co with flexibility in terms of geographic deployment and scheduling, while providing longer term visibility and some certainty of commitments and volumes to the Delivery Partners. As Exhibit 10-5 shows, NBN Co contracts under a Network Services Master Agreement (**NSMA**), which generally comprises a 2-4 year term. The Modules or 'Work Packages' are specific service agreements for each Deployment Program, typically for a 2-year initial term with two 1-year extensions by agreement between NBN Co and its Delivery Partner. The contracting for one unit of

[42] Statements in this section include may forecasts. Please refer to NBN Co's Legal Notice on Page 2 of the 2013-16 Corporate Plan for information about forecasts stated in this document.

work, such as the construction of a single FSAM awarded under a Work Package, is executed under individual Contract Instructions.

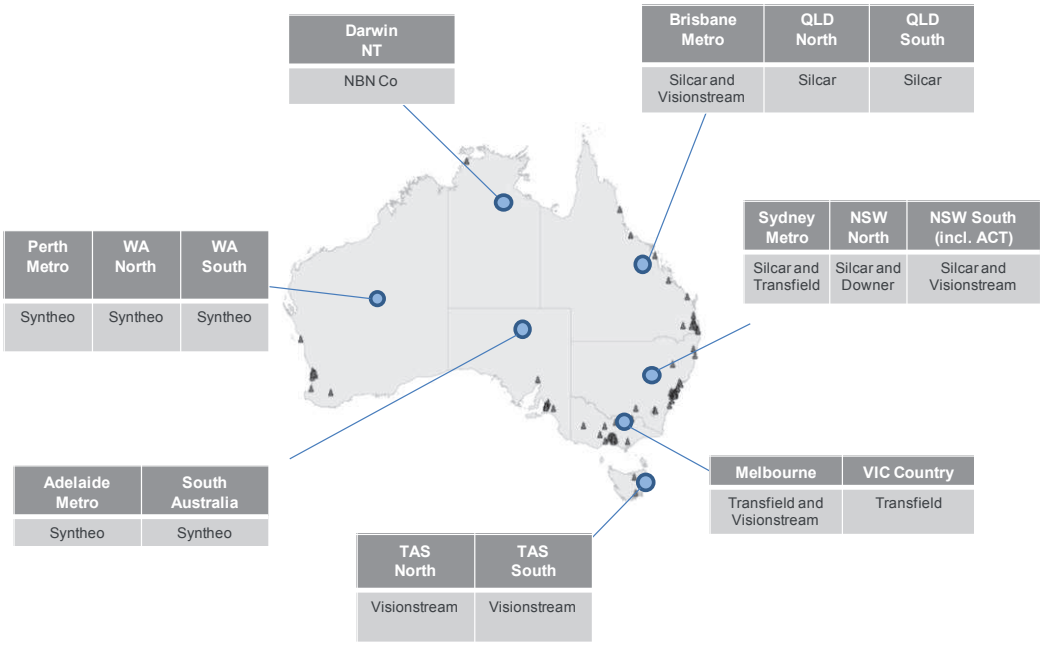
Exhibit 10-5: NBN Co Hierarchical Contract Structure



Source: NBN Co

The planning and construction of the LNDN is divided into 16 geographic regions encompassing the whole of Australia. The work in these regions is then further divided into a number of Work Packages that NBN Co awards to Delivery Partners based on a competitive tender process.

Exhibit 10-6: Planning and Construction Summary of LNDN



Source: NBN Co

Deployment of the LNDN is planned to take place concurrently across all construction regions in order to optimise workforce utilisation and avoid large peaks and troughs in labour requirements both nationally and regionally. For the larger construction regions NBN Co plans to have more than one Delivery Partner in each region to create a degree of competition and to allow NBN Co to balance the workload according to the performance of individual contractors.

Once a Delivery Partner has been awarded an umbrella Work Package for a specific region NBN Co will then release Design and Build work under that Work Package on an FSAM by FSAM basis under individual Contract Instructions. This gives NBN Co control over the amount of work awarded to each Delivery Partner. It is assumed that each FSAM will take 12-15 months to complete from the time

that NBN Co issues the first Design Contract Instruction for that FSAM (the time taken is expected to be longer in the early years of the rollout and reduce over time). Section 18.1 provides a detailed overview of the assumed lifecycle for an FSAM from the time that NBN Co issues the first Contract Instruction.

Within the overall outsourced construction model, NBN has retained flexibility to explore alternative delivery models to address any rollout issues. In March 2013, NBN Co announced that it had assumed direct control of the rollout of the LNDN in the Northern Territory from Syntheo. As well as reducing the demand on one of NBN Co's Delivery Partners to allow focus in other areas, this initiative provides NBN Co with valuable insights into the challenges facing its Delivery Partners in other regions and the options available to the company to define new contracting models.

To date NBN Co has released 9 Work Packages relating to the LNDN:[43]

- Work Packages 1-4 covering Access Fibre (**LNDN**) and Demand Drops.
- Work Packages 5-9 covering Access Fibre (**LNDN**) and Build and Bulk Drops.

NBN Co has negotiated an extension to Work Package 2 with Transfield Services Limited which includes the addition of Build Drop delivery.

Over time NBN Co will increase construction capacity as appropriate through the release and award of further construction Work Packages. NBN Co is also considering evolution of the current contracting model.

Exhibit 10-7: NBN Co LNDN Delivery Partner Contracts (LNDN and Single Dwelling Units Drops only)

Work Package Release	State/Territory	Delivery Partner	Date of Execution	Initial Term[(a)]	Estimated Value[(b)]
WP1	Queensland, New South Wales, ACT	Silcar	June 2011	2 years	$380 million
WP2A	Victoria	Transfield Services	September 2011	2 years	$133 million
WP2 Extension	Victoria	Transfield Services	June 2013	2 years[(d)]	$300 million
WP2B	Western Australia	Syntheo	September 2011	2 years	$174 million
WP3[(c)]	South Australia, Northern Territory	Syntheo	November 2011	2 years	$141 million
WP4	Tasmania	Visionstream Australia	March 2012	4 years	$300 million
WP5	Sydney Metropolitan and Suburban Areas	Transfield Services	March 2013	2 years	$170 million
WP6	Northern New South Wales	Downer EDI	February 2013	2 Years	$94 million
WP7,8 & 9	Southern New South Wales, Brisbane, Melbourne	Visionstream Australia	March 2013	2 Years	$334 million

Source: NBN Co. Note: All suppliers are contracted for detailed design and construction, except WP4 that also includes Network Augmentation, maintenance & field services; and, WP5-9 which also include operational services.

a) Work package contracts have an option to extend for a further two years by agreement between NBN Co and the Delivery Partner.

b) Estimated value reflects initial contact length.

c) Premises of WP3 allocated to the Northern Territory were handed over to NBN Co during March 2013.[44]

d) The term of extension of the contract with Transfield Services.

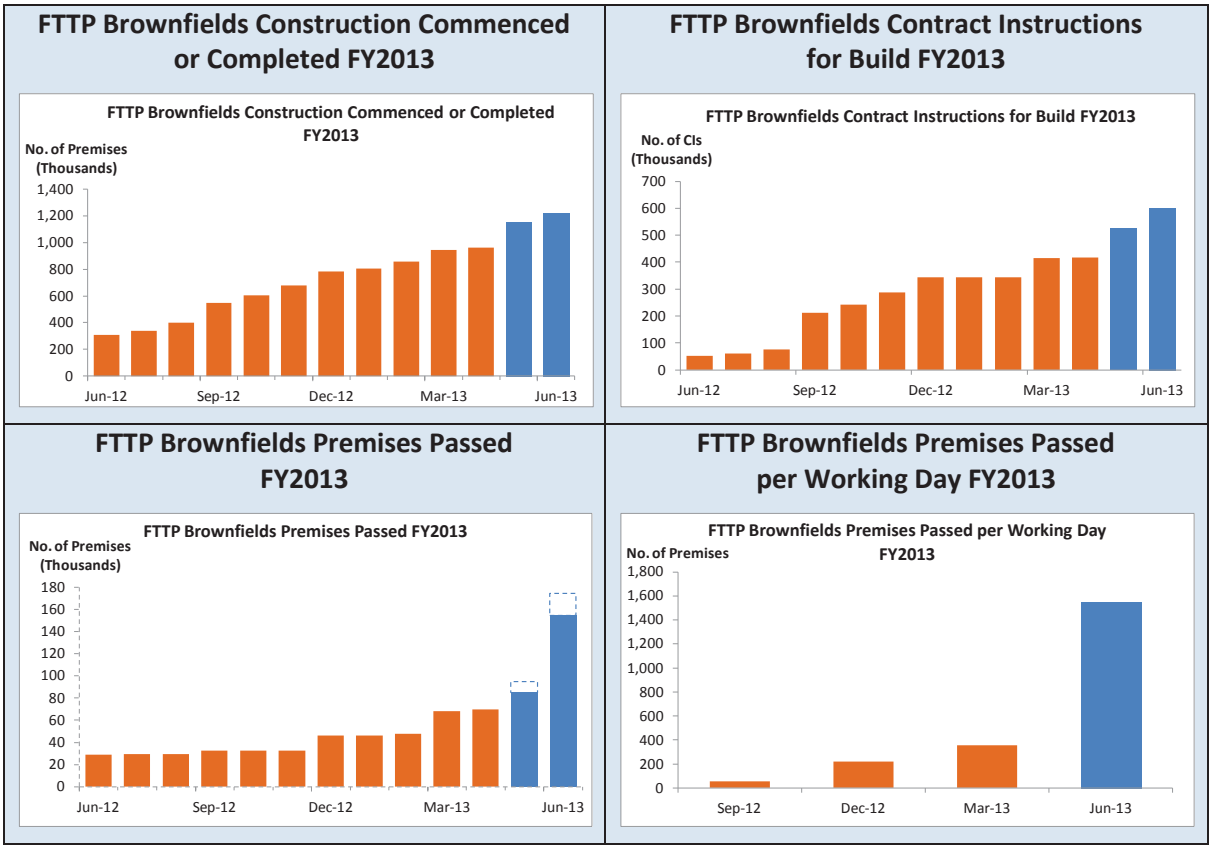
Note: The above table may include forecasts. Please refer to NBN Co's Legal Notice on Page 2 of the 2013-16 Corporate Plan for information about forecasts stated in this document.

[43] Note: these Work Packages also include Demand Drops and Build Drops elements which are further described in Section 11, *Connecting Premises to the FTTP Network*.

[44] NBN Co announced direct management of the network rollout in NT on 21 March 2013. http://www.nbnco.com.au/assets/media-releases/2013/nbn-co-updates-short-term-fibre-rollout-timeline.pdf

10.4 Progress to Date

Exhibit 10-8: FTTP Brownfields Progress and Key Performance Indicators



Source: NBN Co

Note: The exhibits above and discussion below may include forecasts. Please refer to NBN Co's Legal Notice on Page 2 of the 2013-16 Corporate Plan for information about forecasts stated in this document.

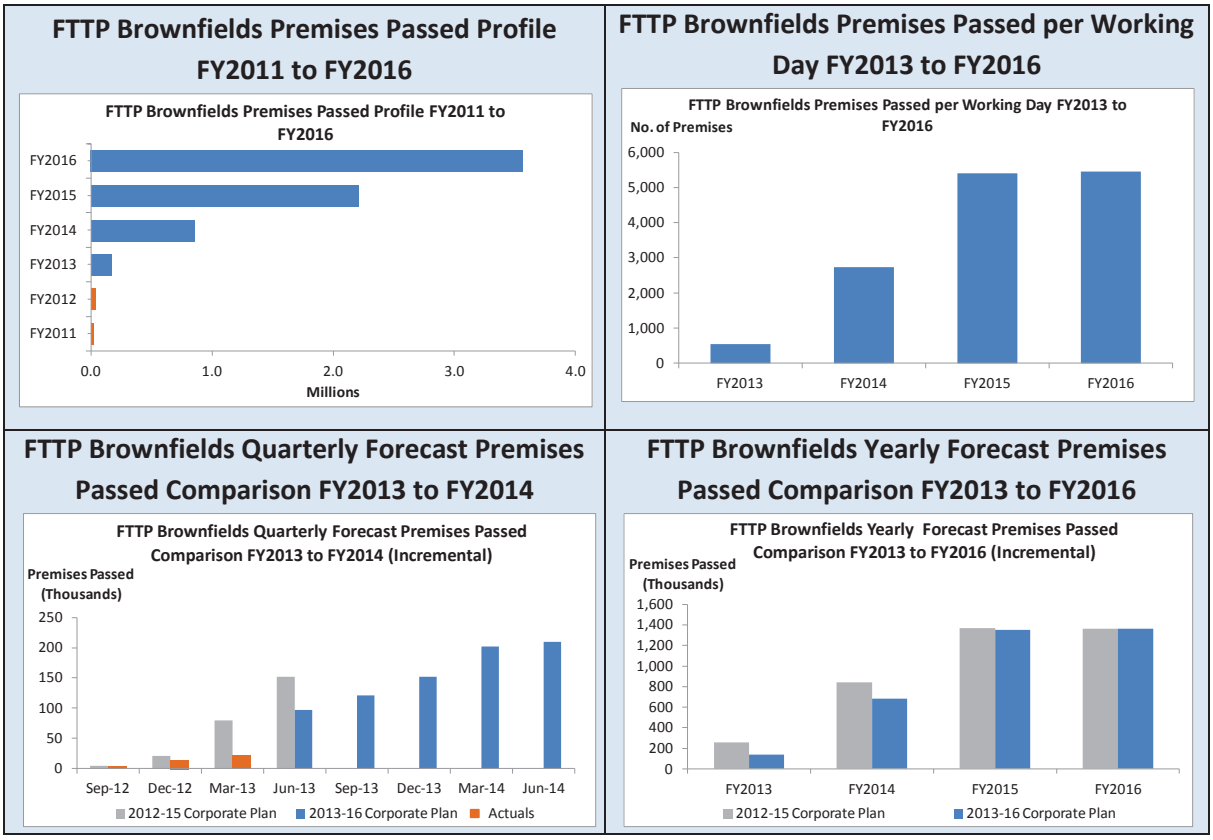
During FY2013 the average number of premises passed per day by the FTTP Access Network has increased quarter-by-quarter. However, the rate of increase has been slower than forecast in the 2012-15 Corporate Plan, resulting in a revised estimate of 155,000 to 175,000 Premises Passed by 30 June 2013, representing an expected shortfall of approximately 111,000 to 131,000 premises passed to 30 June 2013, which NBN Co expects to recover before FY2021.[45]

Construction ramp-up challenges have been experienced to varying degrees by each of NBN Co's Delivery Partners and reflect a combination of factors that NBN Co is reviewing in collaboration with partners.

[45] Statements in this section may include forecasts. Please refer to NBN Co's Legal Notice on Page 2 of the 2013-16 Corporate Plan for information about forecasts stated in this document.

10.5 Operational Targets for FY2013-16

Exhibit 10-9: FTTP Brownfields Operational Targets for FY2013-16



Source: NBN Co

Note: The exhibits above and discussion below may include forecasts. Please refer to NBN Co's Legal Notice on Page 2 of the 2013-16 Corporate Plan for information about forecasts stated in this document.

The 2013-16 Corporate Plan reflects lower premises passed in the period FY2013 to FY2016 compared with the 2012-15 Corporate Plan, with recovery through FY2017 to FY2021.

The number of Brownfields Premises Passed per day is projected to increase from an expected 545 in FY2013 to a forecast peak of approximately 5,450 Brownfields premises per day on average by FY2016. The FY2013 number of 545 Brownfields Premises Passed per day is calculated over a twelve months period, from 1 July 2012 to 30 June 2013 (using the mid-range of the 155,000-175,000 Premises Passed projection revised in April 2013) and an average number of 250 working days per financial year. During the course of FY2013 the activity level will have increased materially, by a projected multiple factor of 28 between the first quarter (55 Brownfields Premises Passed per day on average during that quarter) and the last quarter (expected number of 1,550 Brownfields Premises Passed per day on average during that quarter).

The FY2013 fourth quarter expected level of 1,550 Brownfields Premises Passed per day, if achieved, will provide the entry run rate on which to achieve the FY2014 projected activity levels. NBN Co's objective is to maintain this momentum into FY2014, and increase this run rate by 25% during the period between 1 July 2013 and 30 September 2013, from 1,550 Brownfields Premises Passed per day to over 1,900 Brownfields Premises Passed per day during the first quarter of FY2014.

This higher level of activity at the beginning FY2014 is expected to continue to ramp up during FY2014, to an annual average of 2,740 Brownfields Premises Passed per day, and FY2015, to an

annual average of 5,400 Brownfields Premises Passed per day, to achieve the peak activity level in FY2016. Forecast peak activity levels under the 2013-16 Corporate Plan do not exceed the previously forecast peak rate in FY2016. However, the revised targets assume that this peak rate is maintained over a longer period than under the 2012-15 Corporate Plan, to maintain the objective of the FTTP Access Network completion by passing the 10 million Brownfields Premises Passed in FY2021.

To improve the probability of achieving the FY2013 forecast of 155,000 to 175,000 Premises Passed, and the long term forecast of FTTP Access Network completion by FY2021, NBN Co:

- Proactively monitors the scheduling of the build by Delivery Partners and their sub contractors.
- Proactively monitors the resources being deployed 'on the ground' by Delivery Partners in each FSAM.
- Has assumed direct management of the rollout of the FTTP Brownfields Network in the Northern Territory and is actively considering alternate construction models and delivery partners.
- Has built an in-house splicing and testing capability to provide immediate support to all Delivery Partners when splicing or testing availability hinders completion of an FSAM. (NBN Co Field Services staff are currently managing approximately 40 splicers who have been provided to assist Delivery Partners.)
- Provides resources to complete certain critical tasks (such as design, field inspection reports and loading of as-built data to accelerate practical completion).
- Has built an in-house detailed design capability to ensure the forward program and to relieve 'hot spots' for Delivery Partners.

10.6 Cost Metrics

10.6.1 Capital Expenditure

The 2013-16 Corporate Plan forecasts a total of $11.4 billion in FTTP Access capital expenditure over the period to FY2021, which compares to $11.3 billion previously forecast in the 2012-15 Corporate Plan.[46]

The change in forecast capital expenditure is driven by additional provisions for the FTTP Access Network relating to resourcing challenges.

NBN Co has approximately $5.4 billion or 25% of the FTTP Access Network and FTTP Customer Connect capex contracted to date. The contracts relate to construction and equipment costs and contracted civil works covering approximately 1.8 million Brownfields premises.

10.6.2 Cost per Premises

The key drivers of capital expenditure for the FTTP Access Network include distance per premises, build mix (aerial and underground), the level of civil works required and labour and equipment quantities, which affect the key performance indicator, cost per premises. The cost per premises is calculated and validated at a number of stages throughout Design and Construction.

[46] Statements in this section may include forecasts. Please refer to NBN Co's Legal Notice on Page 2 of the 2013-16 Corporate Plan for information about forecasts stated in this document.

The Modelled per Premises Cost (**MPPC**) is prescribed in the contract for each Work Package. An initial cost estimate for an FSAM build is calculated based on an initial desktop design, and the Network Design Document (**NDD**) created for each FSAM. The calculation is based on pit and pipe data provided by Telstra, pole data provided by utilities, geo-coded address files and standard equipment and rate assumptions. The initial estimate for an FSAM is then validated at the Detailed Design Document (**DDD**) stage, and also compared to the MPPC, when the Delivery Partner conducts a field inspection to confirm distances, quantities, the number of premises and the availability of existing infrastructure. The Designed per Premises Cost (**DPPC**) is fixed once NBN Co accepts the DDD for the FSAM, after which the Delivery Partner bears the risk in relation to any variance in the mix of infrastructure, and the level of boring and trenching that is required.

The Completed per Premises Cost (**CPPC**) is determined at Practical Completion of the FSAM. There may be variances to DPPC in relation to Provisional Sum elements included in the DPPC calculations, for example, variations in scope, the level of rock encountered and traffic management required.

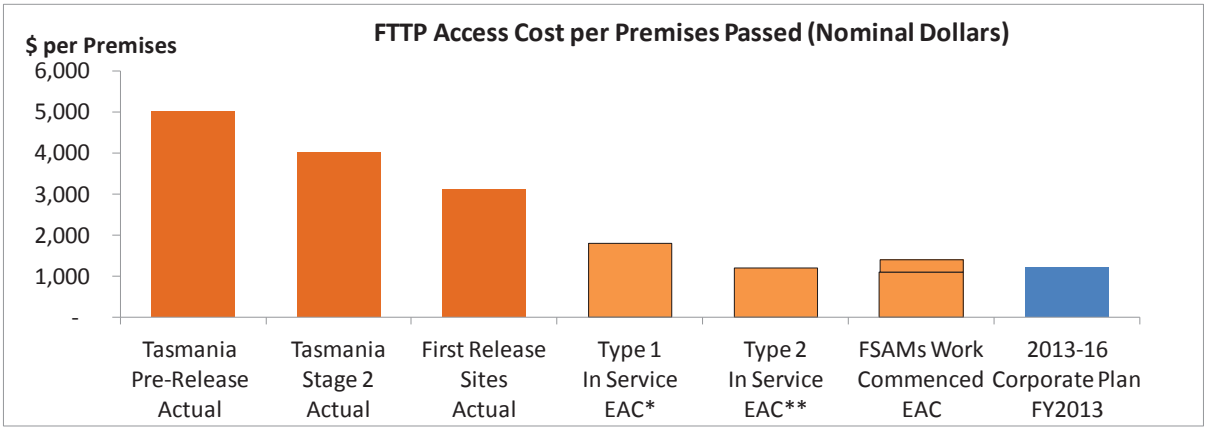
Exhibit 10-10: Explanation of Cost per Premises by Phase

Cost per Premises	MPPC (Modelled per Premises Cost)	DPPC (Designed per Premises Cost)	CPPC (Completed per Premises Cost)
Phase	▪ Network Design Document	▪ Detailed Design Document	▪ Practical Completion
Process	▪ Desktop design based on Telstra and Utility infrastructure	▪ Field inspection and validation of NDD	▪ Bill of Quantities and Bill of Materials
Cost Per Premises Risk	▪ Number of Premises ▪ Build mix (Aerial, Underground New/Existing) ▪ Civil work mix (Trenching/Boring)	▪ Number of Premises ▪ Build mix (Aerial, Underground New/Existing) ▪ Civil work mix (Trenching/Boring)	▪ Build mix (Aerial, Underground New/Existing) ▪ Civil work mix (Trenching/Boring) ▪ Provisional Sums including traffic management and rock

Source: NBN Co

FTTP Access Network cost per premises passed has decreased from an average of $5,000 for the Tasmanian Pre-Release sites to an Estimate at Completion (**EAC**) average cost of between $1,100 and $1,400 per premises passed for FSAMs currently under construction for which DDDs are available.

Exhibit 10-11: FTTP Access Cost per Premises Passed ($ per Premises) (Nominal Dollars)



Source: NBN Co

Note:*: Fibre Serving Area Modules (**FSAMs**) in service: Estimate at Completion using Type 1 design. **: FSAMs in service: Estimate at Completion using Type 2 design. All Cost per Premises estimates are rounded to nearest $100. Actual costs are based on information available at 31 March 2013.

The exhibit above and discussion may include forecasts. Please refer to NBN Co's Legal Notice on Page 2 of the 2013-16 Corporate Plan for information about forecasts stated in this document.

10.6.3 Operating Expenditure

The FTTP Access Network accounts for approximately $2.7 billion of NBN Co's forecast direct operating expenditure of $19.4 billion to FY2021. This expenditure relates predominantly to costs paid to Telstra and other infrastructure owners for access to ducts and poles.

The majority of the operating expenditure components of the FTTP Access Network costs is covered by existing long term (on average 35 years, and up to 55 years including renewal options) contracts with fixed prices (some of which contain escalation clauses for CPI). NBN Co has yet to conclude Facilities Access Agreements (**FAAs**) in all areas for access to poles owned by utility companies. Where no FAA has been entered into, NBN Co has estimated the expected costs in the 2013-16 Corporate Plan.

The precise quantities of infrastructure to be accessed under the Definitive Agreements with Telstra, FAAs with utility companies and under other infrastructure access arrangements will not be known until NBN Co has completed detailed designs for every FSAM and New Development site in Australia. However, the financial model underpinning the 2013-16 Corporate Plan contains detailed assumptions for the expected mix of infrastructure in each FSAM and these assumptions are continuously validated against the actual mix as soon as detailed designs are available.

10.7 Material Issues

Delivery Partner Capability: ability to scale operations to the level required to achieve NBN Co's deployment and activations forecasts (project management, scheduling of construction activities, recruitment and training of skilled labour).

- NBN Co is actively monitoring the capacity and capability of its Delivery Partners as they ramp up. This includes engaging with Delivery Partners regularly to address issues as they arise, as well as defining incentives to encourage achievement of forecast rollout targets.

- NBN Co is reviewing its operating model regarding programme planning and management control. Where required, NBN Co will take action to assist Delivery Partners in meeting their commitments or may change the delivery model, e.g. Building additional capabilities in-house for larger geographies
- NBN Co continues to evaluate alternative contracting models, including the potential for NBN Co to manage sub-contractors directly. For example, NBN Co has assumed direct responsibility for deployment of the FTTP Access Network in the Northern Territory.

Lack of appropriately qualified skilled resource: industry ability to attract and retain the necessary level of qualified resource over the NBN Co Fibre construction period to achieve forecast rollout targets.

- NBN Co is working closely with Delivery Partners to provide the necessary up-skilling and training of resources to achieve forecast rollout targets.
- NBN Co has developed a short term program which is currently providing approximately 40 trained splicing technicians to assist with splicing activity in areas where there is a shortage.

Construction Cost Risk: quantities risk in equipment, distances of cable, mix of construction type (between use of existing infrastructure, aerial deployment, and civil works build) being greater than forecast, with subsequent impact on the cost per premises.

- NBN Co monitors the mix of existing infrastructure, aerial deployment and civil costs, as well as equipment costs on an FSAM-by-FSAM basis and across Delivery Partners.
- Approximately 40% of the forecast FTTP Access Network costs relate to equipment costs[47]. Equipment has been procured under long term supply contracts with agreed unit pricing.
- To date, the quantities costs are in line with estimates in the 2012-15 Corporate Plan, and have not materially changed for the 2013-16 Corporate Plan.

Construction Cost Risk: the risk that labour costs (rates, overheads) increase substantially above gains in productivity during the Fibre construction period.

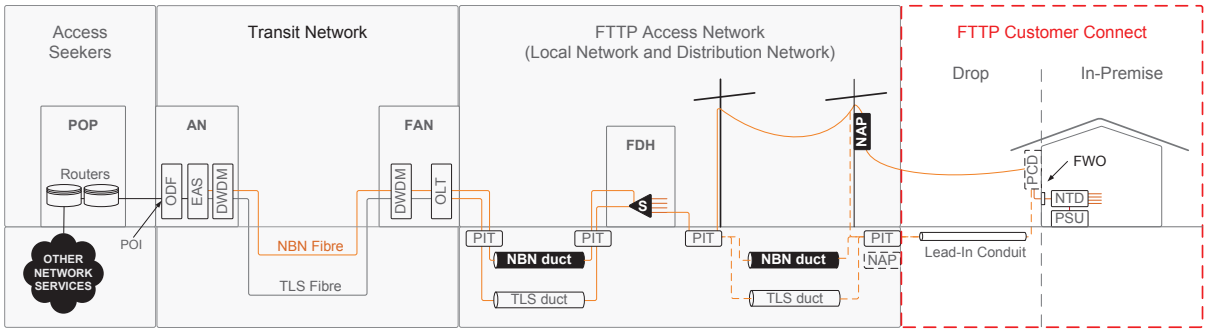
- The FTTP Access Network design is a series of replicating modules that combine to make up the overall network. In line with this design the 2013-16 Corporate Plan assumes that Delivery Partner productivity improves as the volume rollout progresses and Delivery Partners gain experience.
- Delivery Partner overheads, which represent the Delivery Partner costs of organising and managing the construction process, are assumed to scale with increasing activity. It is assumed that overhead costs will remain relatively stable after Delivery Partners have established regional and national operations, and will not substantially increase as activity ramps up.
- NBN Co continues to work closely with Delivery Partners to monitor overhead and labour costs.

[47] This may include forecasts. Please refer to NBN Co's Legal Notice on Page 2 of the 2013-16 Corporate Plan for information about forecasts stated in this document.

11 Connecting Premises to the FTTP Network

11.1 Summary

Exhibit 11-1: Overview of FTTP Customer Connect



AN: Aggregation Node
DWDM: Dense Wave Division Multiplexing
EAS: Ethernet Aggregation Switch
FAN: Fibre Access Node
FDH: Fibre Distribution Hub
FWO: Fibre Wall Outlet
NAP: Network Access Point
NTD: Network Termination Device
ODF: Optical Distribution Frame
OLT: Optical Line Terminal
PCD: Premise Connection Device
POI: Point of Interconnect
POP: Point of Presence
PSU: Power Supply Unit
S: Optical Splitter
TLS: Telstra

Source: NBN Co

Exhibit 11-2: Major Assumptions for FTTP Customer Connect

Major Assumptions	FY2013	FY2016	FY2021
FTTP Brownfields Premises Activated	20 thousand	2 million	7 million

Source: NBN Co. Note: All numbers rounded figures

The above table and discussion below may include forecasts. Please refer to NBN Co's Legal Notice on Page 2 of the 2013-16 Corporate Plan for information about forecasts stated in this document.

Exhibit 11-3: NBN Co's Objectives and Strategies for Connecting Premises to the FTTP Network

Objectives	Strategies
To service the demand for connections to the FTTP Network.	▪ 'Connecting Premises' covers the part of the network from the Network Access Point (**NAP**) in the street to the Network Termination Device (**NTD**) in an End-User premises. ▪ Approximately 7 million FTTP Brownfields premises are forecast to be activated by FY2021, representing a penetration rate of 70%. ▪ As at 9 May 2013, 15,000 FTTP Brownfields premises had been activated. ▪ Compared with the 2012-15 Corporate Plan, the 2013-16 Corporate Plan assumes a slower take-up of FTTP services during the period FY2013-16 as a consequence of the revised FTTP deployment targets for premises passed. In line with the premises passed forecasts, the FTTP premises connected forecasts are fully recovered by FY2021.
	▪ NBN Co is ramping up Delivery Partners' resources to meet the Service Providers' requests for connections through the award of Field Service Delivery contracts. ▪ NBN Co is implementing a 'Build Drop' strategy that consists of installing the Drop from street to premise at (or around) the time of building an FSAM. The commencement of Build Drops in FY2013/FY2014 is expected to significantly improve NBN Co's capacity to fulfil activation orders. ▪ NBN Co is also deploying a 'Bulk Drop' programme to install large volumes of Drops in

	FSAMs which are Ready for Service and that could not benefit from the implementation of the 'Build Drop' programme. This will prepare these FSAMs for the Disconnection Date in these FSAMs (except in limited circumstances, the date falling 18 months after a Rollout Region is declared Ready for Service).
	▪ Connecting FTTP Brownfields premises represents approximately 26% of total NBN Co forecast capital expenditure to FY2021. ▪ Forecast capital expenditure to FY2021 remains in line with the 2012-15 Corporate Plan forecast of $9.8 billion.
To connect Multi Dwelling Units, Public Interest Premises and Commercial premises to the FTTP Network.	▪ Multiple Dwelling Units (**MDUs**) present challenges for NBN Co that are being addressed through a separate deployment model. ▪ NBN Co is liaising directly with Body Corporate entities and Strata Community Australia to gain entry to MDUs. ▪ Public Interest Premises (**PIPs**) (such as universities or hospitals) and complex commercial premises (such as shopping centres) also present a range of challenges. NBN Co will commence connecting these premises during FY2014. ▪ NBN Co has awarded a number of Design & Build contracts to Delivery Partners for the detailed design and build of MDUs.

Source: NBN Co

Note: The above table may include forecasts. Please refer to NBN Co's Legal Notice on Page 2 of the 2013-16 Corporate Plan for information about forecasts stated in this document.

11.2 Overview

Once the FTTP Access Network is complete (i.e. once there is fibre running in the street past the premises), the final step to connecting an End-User is completed in two phases:

- **Drop** - Running fibre from the NAP in the street to a Premises Connection Device (**PCD**) located on the outside of the premises.
- **In-Premises** - Running fibre from the PCD to an NTD inside the premises.

NBN Co's preferred model is to install the Drop at the same time as building the LNDN portion of the FTTP Access Network in an FSAM (referred to as a '**Build Drop**'). This is a change of approach from the initial 'Demand Drop' approach taken by NBN Co, whereby the Drop is installed only when an End-User places an order for an NBN service. The move to Build Drops was foreshadowed in the 2012-15 Corporate Plan. The first FSAMs with Build Drops included in the design are expected to come into service in mid 2013. The 2013-16 Corporate Plan assumes NBN Co will complete Build Drops for 90% of SDU premises (assuming 10% non-consent or vacant homes).

11.3 Installing the Drop

The installation of the Drop varies significantly according to the premises type. NBN Co has developed four distinct operating models to cater for these differences:

- Single Dwelling Units (**SDUs**).
- Multiple Dwelling Units (**MDUs**).
- Public Interest Premises (**PIPs**).
- Commercial premises.

11.3.1 Single Dwelling Units (SDUs)

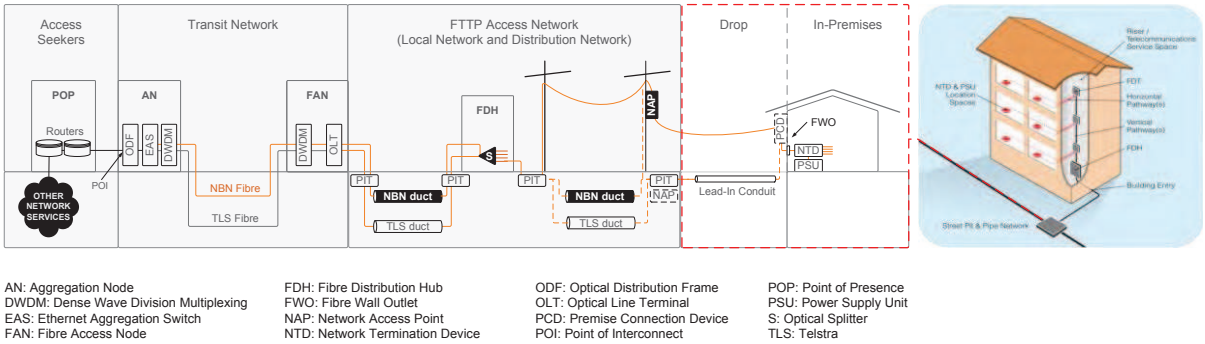
The 2013-16 Corporate Plan assumes that approximately 70% of Australian premises can be treated as SDUs (including duplexes/small apartment complexes).

Where the Local Network is underground the Drop will generally also be installed underground, either in an existing Telstra Lead-in Conduit (**Telstra LIC**) or in a new LIC built by NBN Co where no Telstra LIC is available. Areas where the Local Network is deployed aerially will generally receive an aerial Drop. The 2013-16 Corporate Plan forecasts approximately 25% of SDU premises will receive an aerial Drop, approximately 39% will receive an underground Drop using an existing Telstra LIC and approximately 36% will require NBN Co to install a new underground LIC.

NBN Co is in the process of negotiating extensions to its existing LNDN contracts to encompass Build Drops so that this work can be carried out by the same Delivery Partners as LNDN in each region.

11.3.2 Multi-Dwelling Units (MDUs)

*Exhibit 11-4: Diagram of a Multiple Dwelling Unit (**MDU**) in the Fibre Access Network*



AN: Aggregation Node
DWDM: Dense Wave Division Multiplexing
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NAP: Network Access Point
NTD: Network Termination Device
ODF: Optical Distribution Frame
OLT: Optical Line Terminal
PCD: Premise Connection Device
POI: Point of Interconnect
POP: Point of Presence
PSU: Power Supply Unit
S: Optical Splitter
TLS: Telstra

Source: NBN Co

In accordance with the Statement of Expectations, NBN Co is providing FTTP connections to each individual premises (e.g. to each apartment in an apartment block), including the in-building wiring. MDUs present particular challenges as each building is unique and the installation of fibre in the building needs to be specifically designed for that building.

The equipment required for MDU in-building work comprises the standard lead-in plus in-building fibre and for larger MDUs a Fibre Distribution Hub (**FDH**) is installed inside the building.

Gaining access to MDUs presents access challenges because NBN Co's engagement generally needs to be co-ordinated through the Body Corporate.

As a result of these factors NBN Co has developed a deployment program specifically to address MDUs. NBN Co has engaged sub-contractors to design and install in-building fibre to all MDUs in an FSAM at the same time as the LNDN Network is being built in the FSAM. The aim is to complete in-building work for all MDUs in the FSAM by the time the LNDN work in that FSAM is completed. Once fully operational, this model will ensure that all End-Users in an FSAM are able to obtain NBN services within the same Service Level Agreement (**SLA**) timeframes, regardless of whether they are located in an SDU or MDU.

NBN Co has entered into agreements with an initial four MDU Delivery Partners in order to commence MDU work at volume. It is anticipated that additional Delivery Partners will be added over time in areas of high volume.

Exhibit 11-5: NBN Co MDUs Delivery Partner Contracts

State/ Territory	Delivery Partner	Date of Execution	Initial Term*	Estimated value**
New South Wales, Victoria and the ACT	Downer EDI	December 2012	2 Years	$66 million
Metro Sydney & Tasmania	Universal Communications Group	December 2012	2 Years	$21 million
Western Australia, Brisbane and the Gold Coast	Daly International	March 2013	2 Years	$28 million
Northern Territory, Queensland	ISG Management	April 2013	1 Year	$18 million

Source: NBN Co

Note: *: All contracts have an option to extend for a further two years with the exception of ISG Management which has a one year extension option.

**: Initial value reflects initial contact length.

The table above and discussion below may include forecasts. Please refer to NBN Co's Legal Notice on Page 2 of the 2013-16 Corporate Plan for information about forecasts stated in this document.

11.3.3 Public Interest Premises (PIPs)

The SoE contains specific requirements relating to the provision of services to PIPs (such as schools, hospitals, universities and aged care facilities) as part of NBN Co's rollout. There are an estimated 11,500 PIP locations in NBN Co's long term Fibre Footprint, many of which will require a tailored solution to meet their requirements.

PIP connections are forecast to be more expensive than standard SDU connections, with longer average lead-ins than other premises types and multiple termination points. The 2013-16 Corporate Plan, consistent with the 2012-15 Corporate Plan, includes provisions for the estimated additional costs that will be required to service PIPs in accordance with the SoE.

11.3.4 Commercial Premises

Approximately 1.1 million of the total 10 million premises in the long term Fibre Footprint are considered to be commercial premises.

Connecting commercial premises to the NBN is expected to often be significantly more complex than connecting residential premises. Additional work may be required to accommodate a wide variety of building sizes and the varying service requirements of different businesses.

NBN Co is currently evaluating different solutions to suit a range of building types and the associated network and communications infrastructure for businesses wanting to connect to the NBN.

Commencing in mid 2013, NBN Co will be introducing a classification process that will assist in determining how each type of commercial premises will be treated. This is illustrated in the exhibit below.

Exhibit 11-6: Types of Commercial Premises

Simplex	▪ Single premises sites with single owners, such as a doctor's surgery.
Midplex low end	▪ Commercial building with mixed tenancy.
Midplex high end	▪ Commercial building with mixed tenancy and complex solution requirements, such as shopping centres.
Complex	▪ Large scale premises such as airports, and high rise commercial buildings.

Source: NBN Co

From June 2013 most Simplex and Midplex Low End commercial premises in active FSAMs will be connected to the NBN on a 'Build Drop' basis.

The physical premises topology, the solution architecture and design rules for Simplex and Midplex Low End premises is the same as SDU and MDU residential sites. Current planning rules and solutions gaps are being assessed for both Midplex High End and Complex premises, for which bespoke solutions may need to be developed on a case-by-case basis.

11.4 In-Premises

Once the Drop is in place (including in-building wiring for MDUs), the completion of an FTTP activation is relatively standard across the different premises types. This work involves the connection of the PCD on the outside of the premises to the NTD inside the premises, the connection to a permanent power supply and the installation, if required, of a battery back-up unit.

11.5 Field Service Delivery Contracts

NBN Co has awarded a series of contracts for activations activities and network maintenance. These relate to Field Service Delivery (**FSD**) and Network Augmentation & Remediation Activities (**NARA**). FSD contracts include activation and assurance activities:

- **Activation** - For premises with an existing fibre connection from the street to the End-User premises, the activation includes cabling a connection from the Premises Connection Device (**PCD**) outside the premises to the inside of the premises and installing the Network Terminating Device (**NTD**). For premises without an existing fibre connection the activation also includes completing the connection from the street to the outside of the premises.
- **Assurance** – FSD Delivery Partners provide service or fault repair to an End-User with activated services.

Exhibit 11-7: NBN Co Fibre Rollout Delivery Partner Contracts

Contracted Activity	Work Package Release	State/Territory	Delivery Partner	Date of Execution	Initial Term*	Estimated Value**
Field Services	Module 1 FSD	Queensland, New South Wales and ACT	Silcar	August 2012	2 Years	$69 million
Field Services	Module 3 FSD	Western Australia, Northern Territory, South Australia and Victoria	Service Stream	August 2012	2 Years	$57 million

Source: NBN Co. Note: *: Contracts have an option to extend for a further two years. **: Estimated value reflects initial contact length.

Note: The above table may include forecasts. Please refer to NBN Co's Legal Notice on Page 2 of the 2013-16 Corporate Plan for information about forecasts stated in this document.

11.6 Network Augmentation and Restoration Activities

Network Augmentation and Restoration Activities (**NARA**) include works carried out to repair the network (e.g. where a fibre is cut or damaged), restore the network in the case of accidents or natural disasters, and augment the network if additional capacity is required over time. These activities are demand-driven and operate using a Tickets of Work (**ToW**) system that issues instructions for discrete activities.

NARA activities require an available workforce in all areas where the NBN is active. Because the rollout of the FTTP Network is occurring concurrently in geographically dispersed areas across the country this means that NBN already requires national coverage in both metropolitan and rural areas to fulfil its NARA responsibilities. Accordingly, initial contracts have been awarded to Silcar and Service Stream to provide NARA services.

Exhibit 11-8: NBN Co NARA Delivery Partner Contracts

Contracted Activity	Work Package Release	State/ Territory	Delivery Partner	Date of Execution	Initial Term*	Estimated Value**
NARA	Module 2 NARA	Queensland, New South Wales, ACT	Silcar	August 2012	2 Years	$9 million
NARA	Module 4 NARA	Western Australia, Northern Territory, South Australia and Victoria	Service Stream	August 2012	2 Years	$7 million

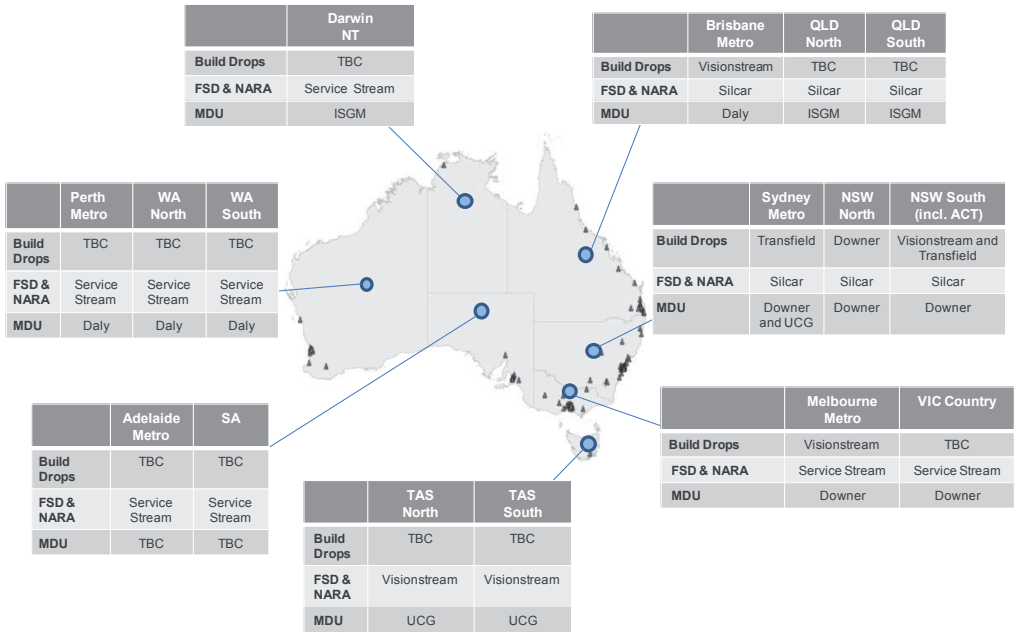
Source: NBN Co

Note: *: Contracts have an option to extend for a further two years. **: Estimated value reflects initial contact length.

Note: The above table may include forecasts. Please refer to NBN Co's Legal Notice on Page 2 of the 2013-16 Corporate Plan for information about forecasts stated in this document.

11.7 Summary of Delivery Partners

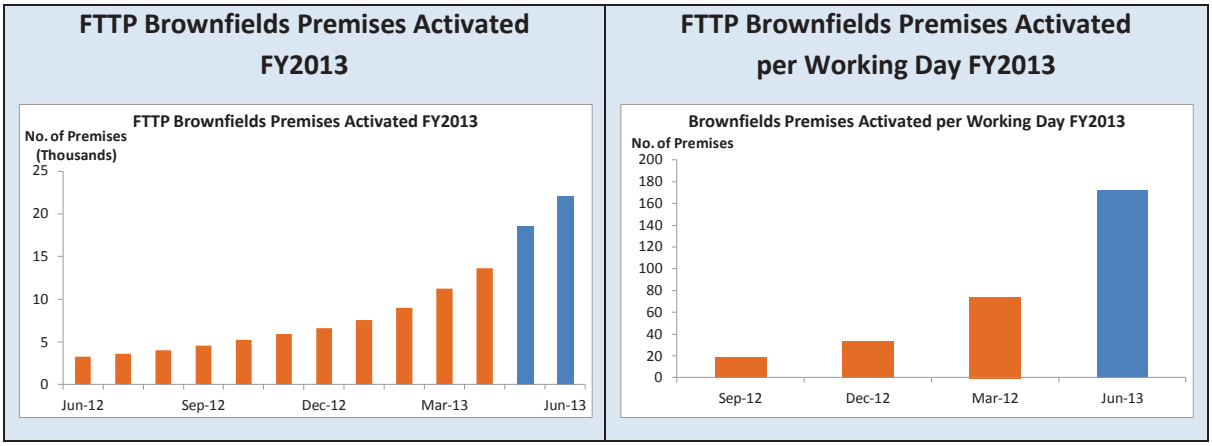
Exhibit 11-9: NBN Co Build Drop, FSD & NARA, and MDU Delivery Partner Contracts



Source: NBN Co

11.8 Progress to Date

Exhibit 11-10: FTTP Brownfields Premises Activated Progress to Date



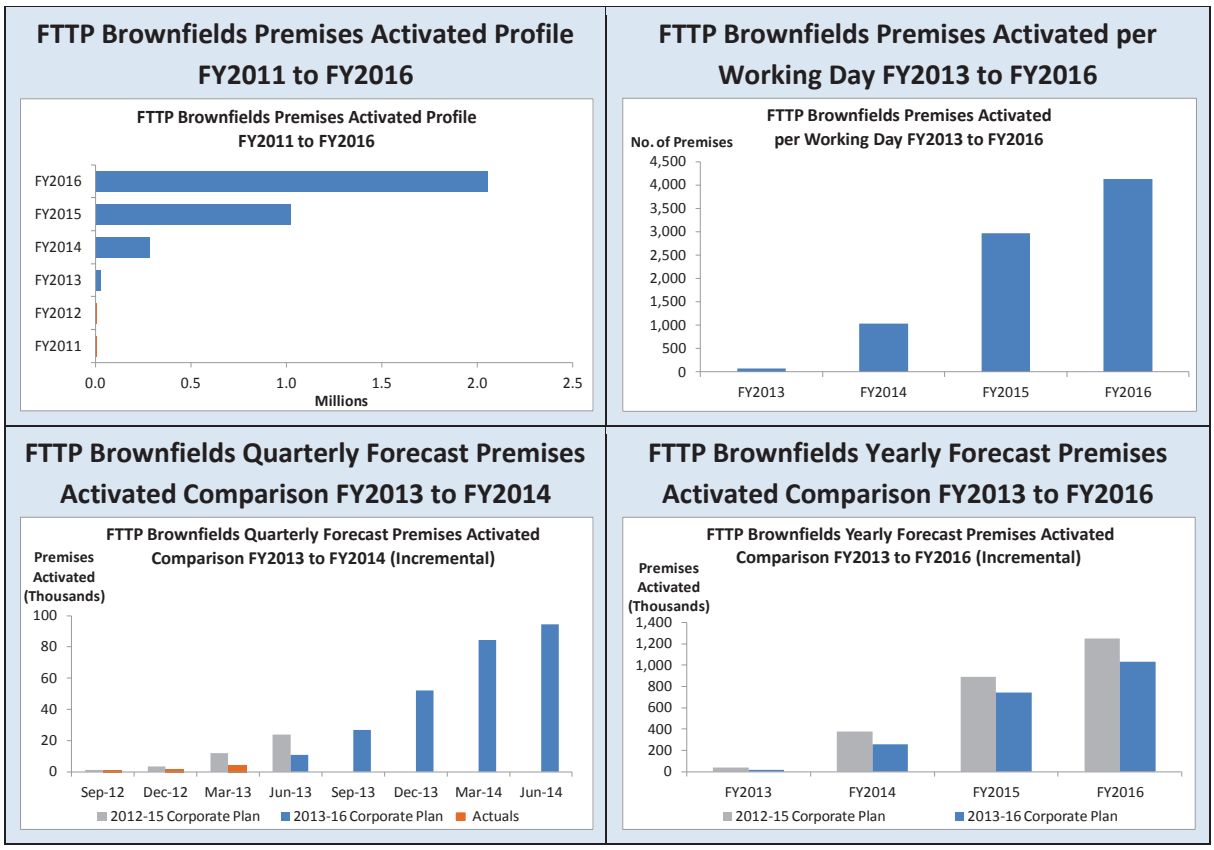
Source: NBN Co

Note: The exhibit above and discussion below may include forecasts. Please refer to NBN Co's Legal Notice on Page 2 of the 2013-16 Corporate Plan for information about forecasts stated in this document.

The average daily number of FTTP Brownfields activations has increased quarter-by-quarter during FY2013. The revised forecasts for deployment of the FTTP Access Network have, however, resulted in a smaller Fibre Footprint than originally anticipated, which is reflected in lower volumes of FTTP activations to May 2013. The introduction of 'Build Drops' in mid 2013, and the acceleration of in-building wiring for MDUs, is expected to significantly improve the efficiency of the activation process in FY2014 and beyond.

11.9 Operational Targets for FY2013-16

Exhibit 11-11: FTTP Brownfields Operational Targets for FY2013-16



Source: NBN Co

Note: The exhibit above and discussion below may include forecasts. Please refer to NBN Co's Legal Notice on Page 2 of the 2013-16 Corporate Plan for information about forecasts stated in this document.

11.10 Cost Metrics

11.10.1 Capital Expenditure

Total FTTP Customer Connect capital expenditure to FY2021 is forecast to be $9.8 billion, in line with the 2012-15 Corporate Plan and representing approximately 26% of total NBN Co capital expenditure.

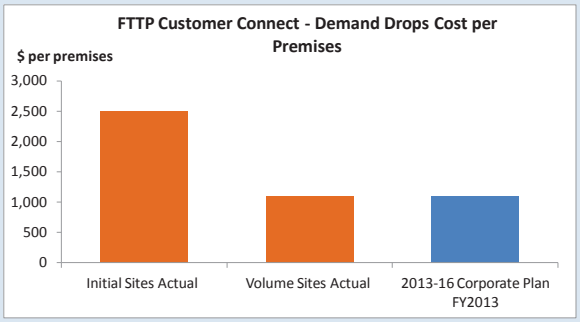
11.10.2 Cost Per Premises

FTTP Customer Connect costs have decreased from an average of $2,400 per premises during the Initial Site releases to an average of $1,100 for more recent sites completed under the volume rollout.

These costs are based on the Demand Drop model, where Delivery Partners install the Drop and complete the In-Premises work at the same time.

Exhibit 11-12: FTTP Customer Connect – Demand Drops Cost per Premise for Single Dwelling Units ($ per Premise) (Nominal Dollars)

FTTP Customer Connect
Demand Drops Cost per Premises



- Whilst NBN Co has not yet completed activities separating 'Build Drops' and In-premises work at volume, the contracted rates agreed with Delivery Partners are consistent with the assumptions in the 2013-16 Corporate Plan.

Source: NBN Co

Note: Demand Drop Cost per Premise in FY2013 includes the installation of Battery Backup units to all of these premises and Telstra Lead-In acquisition costs. All Cost per Premise rounded to nearest $100. Actual Cost per Premise is based on information available at 30 March 2013.

Note: The exhibit above and discussion below may include forecasts. Please refer to NBN Co's Legal Notice on Page 2 of the 2013-16 Corporate Plan for information about forecasts stated in this document.

11.10.3 Direct Operating Expenditure

Customer Connect Direct Operating Expenditure totals approximately $12.3 billion over the FY2011 to FY2021 period. Customer Connect expenditure is driven by:

- Subscriber-Related Costs: relating to the Per Service Address Amount (**PSAA**) Disconnection Payments to Telstra and migration payments to Optus (from existing Copper and HFC based services to the NBN).
- Field Service Delivery (**FSD**) which relates to the install of Drops and NTDs as wells as outsourced operations and maintenance.
- Network Augmentation and Restoration Activities (**NARA**).

11.11 Material Issues

Delivery Partners Capability: ability to scale operations to the level required to achieve NBN Co's activations forecasts (project management, scheduling of Build Drop and MDU activities, recruitment and training of skilled labour).

- NBN Co is actively monitoring the capacity and capability of its Delivery Partners as they ramp up. This includes engaging with Delivery Partners regularly to address issues as they arise.
- Moving to a Build Drop model is expected to improve efficiency and productivity for the activation process. In early FSAMs where Build Drops were not completed, NBN Co is undertaking selective 'Bulk Drop' programmes to complete Drops ahead of activations demand.
- NBN Co will add capacity in areas where activations demand is highest.

MDUs, PIPs and some commercial premises require a high degree of customisation that is more complex and time consuming than for SDUs.

- NBN Co is evaluating different models for pre-installing fibre in-building before (or at the same time as) completing the FTTP Access Network in a region. This will de-risk the activation process significantly.

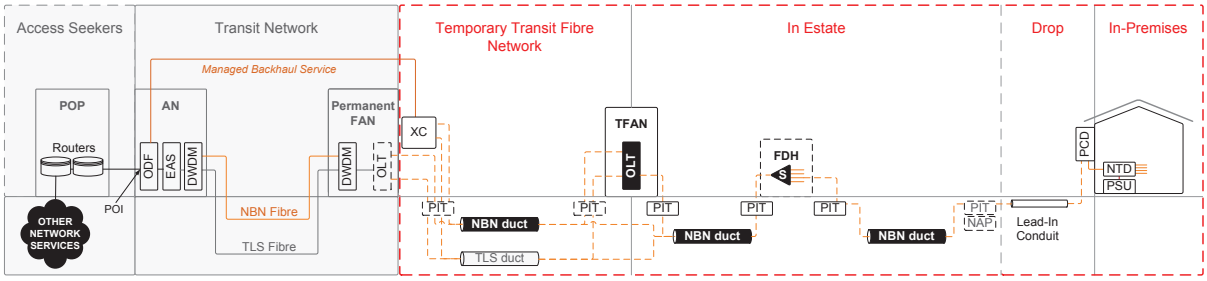
NBN Co's internal systems: ability to scale to handle Ticket-of-Work installation orders and End-User activations at scale.

- NBN Co has designed its Operational Support Services (**OSS**)/Business Support Services (**BSS**) systems to handle high volumes of activity commensurate with the expected ramp-up in installations and activations between FY2013 and FY2016.

12 Building the NBN - FTTP Greenfields

12.1 Summary

Exhibit 12-1: Components for FTTP Greenfields



AN: Aggregation Node
DWDM: Dense Wave Division Multiplexing
EAS: Ethernet Aggregation Switch
FAN: Fibre Access Node
FDH: Fibre Distribution Hub
NAP: Network Access Point
NTD: Network Termination Device
ODF: Optical Distribution Frame
OLT: Optical Line Terminal
PCD: Premise Connection Device
POI: Point of Interconnect
POP: Point of Presence
PSU: Power Supply Unit
S: Optical Splitter
TFAN: Temporary FAN
TLS: Telstra
XC: Cross Connect Point

Source: NBN Co

Exhibit 12-2: Major Assumptions for FTTP Greenfields

Key Assumptions	FY2013	FY2016	FY2021
FTTP Greenfields Lots/Premises Passed*/*	40 thousand	380 thousand	2.1 million
FTTP Greenfields Premises Activated**	10 thousand	230 thousand	1.5 million

Source: NBN Co. Note: All numbers rounded to the nearest ten or hundred as appropriate. FTTP Greenfields includes both New Development estates and Infills. *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 table above may include forecasts. Please refer to NBN Co's Legal Notice on Page 2 of the 2013-16 Corporate Plan for information about forecasts stated in this document.

Exhibit 12-3: NBN Co's Objectives and Strategies for FTTP Greenfields

Objectives	Strategies
To Service the demand for Fibre services from Greenfields premises in the Fibre Footprint.	▪ FTTP Greenfields include New Development estates and Infills (Brownfield Redevelopments) **New Developments** — Commercial, industrial and residential comprising more than 100 lots to be released within a 3 year period located in NBN Co's long term Fibre Footprint. **Brownfields Redevelopments** — New developments of any size inside NBN Co's existing Fibre Footprint (i.e. within FSAMs already completed). ▪ Approximately 2.1 million New Development and Brownfield Redevelopment lots are forecast to be Passed by FY2021. As at 9 May 2013 NBN Co had passed 33,800 lots/premises.[48]

[48] Timing for a Lot Passed to become a Premises Passed is dependent upon the developer's timeframe to build.

	▪ Passing and connecting FTTP Greenfields premises represents approximately 9% of the total NBN Co capital expenditure to FY2021. Forecast capital expenditure to FY2021 of $3.3 billion is consistent with the 2012-15 Corporate Plan.
To install FTTP infrastructure in New Development estates that meet the criteria set in the Commonwealth Government's New Developments policy.	▪ From 1 January 2011, NBN Co was given the responsibility for delivering a fully NBN compliant wholesale-only, open access FTTP Network to all New Developments inside the long term Fibre Footprint. This responsibility applies to commercial, industrial and residential developments. Selected smaller developments can be included at NBN Co's discretion.
	▪ In the early years of the rollout, the delivery of FTTP to many New Developments needs to occur prior to the Transit Network and the Distribution Network being deployed in that region. Interim solutions have been developed by NBN Co to provide connectivity to the core NBN Network whilst the Transit Network is being constructed.
	▪ NBN Co is working closely with Developers and Builders to ensure that pits and pipes are built to NBN Co specifications, and that premises are serviced when occupied. ▪ This activity is demand-driven and is subject to a number of uncertainties, including the timing of development applications, estate construction and premises construction and occupancy in completed estates.
To connect Infill premises that will be built in the long term Fibre Footprint.	▪ Approximately 50% of FTTP Greenfields demand is expected to come from Infills/Brownfields Redevelopments over time. ▪ The forecast for Brownfields Redevelopment Lots Passed has reduced in the FY2013-FY2016 period to reflect the revised profile of FTTP Brownfields premises passed and also the current low levels of housing construction activity. ▪ NBN Co will use its existing Field Service Delivery (**FSD**) contractors and (when required) Network Augmentation and Remediation Activities (**NARA**) contractors to connect Brownfields Redevelopments premises.

Source: NBN Co

Note: The table above may include forecasts. Please refer to NBN Co's Legal Notice on Page 2 of the 2013-16 Corporate Plan for information about forecasts stated in this document.

12.2 Overview

From 1 January 2011, NBN Co has had responsibility for delivering Fibre-to-the-Premises (**FTTP**) services to all New Developments above a certain size inside the long term Fibre Footprint.

In the early years of the rollout of the NBN, the construction and delivery of FTTP to many New Developments needs to occur before NBN Co has had the opportunity to complete the Transit Network in that region. For this reason NBN Co has developed interim arrangements that can provide connectivity to the core NBN whilst the Transit Network is being constructed. These arrangements include:

- Designing and constructing Temporary Transit Fibre Network (**TTFN**) as well as extensions to the Distribution Network in order to connect estates to the nearest Telstra exchange.
- Providing 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.

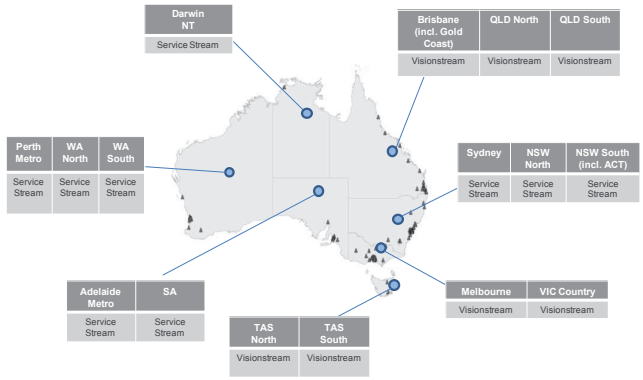
The architecture used for FTTP New Developments has been designed to ensure that passive and active assets can be re-used in the permanent network. The interim Fibre build from the estate

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. 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.

12.3 Constructing FTTP Greenfields

In order to provide FTTP services to all New Developments anywhere in Australia, NBN Co requires an established workforce with national coverage. NBN Co has therefore sought Delivery Partners who can fulfil these requirements to assist with the design and build of the FTTP Network.

Exhibit 12-4– NBN Co FTTP Greenfields Delivery Partners



- In May 2011, NBN Co appointed Fujitsu Australia as its prime partner to deliver FTTP infrastructure to New Developments. The agreement with Fujitsu covered the design, management, construction and associated works for the deployment of Fibre to New Developments across the country.
- In June 2012, NBN Co announced a further two contracts had been awarded to Visionstream (covering Victoria and Queensland) and Service Stream (covering New South Wales, South Australia, the Northern Territory and Western Australia).

Source: NBN Co

NBN Co's Delivery Partners are responsible for providing the in-estate works (i.e. from temporary Transit connection such as a T-FAN, to the lead-in conduit) and for the build of the T-FAN and TTFN, where needed. NBN Co is responsible for acquiring managed backhaul services where needed in order to transport signals from the nearest Telstra exchange back to where it can connect to NBN Co's Transit Network.

Exhibit 12-5: NBN Co FTTP Greenfields Delivery Partner Contracts

Contracted Activity	State/Territory	Supplier	Date of Execution	Initial Term	Estimated Value**
Design and construct infrastructure for Greenfields Fibre deployment	Australia wide	Fujitsu	May 2011	12 months*	$100 million
	Victoria, Queensland	Visionstream	June 2012	19 months	$102 million
	New South Wales, South Australia, Northern Territory, Western Australia	Service Stream	June 2012	19 months	$81 million

Source: NBN Co

Note: *On February 2012 this contract was extended for a further 12 months.

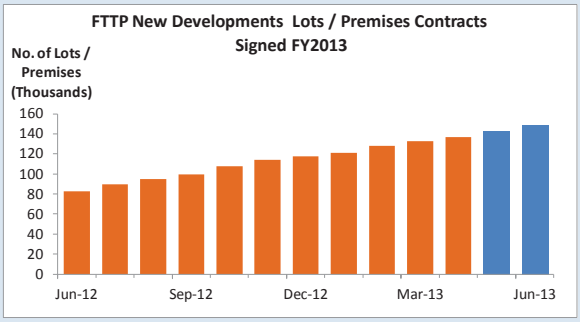
**Initial value reflects initial contact length.

Note: The above table may include forecasts. Please refer to NBN Co's Legal Notice on Page 2 of the 2013-16 Corporate Plan for information about forecasts stated in this document.

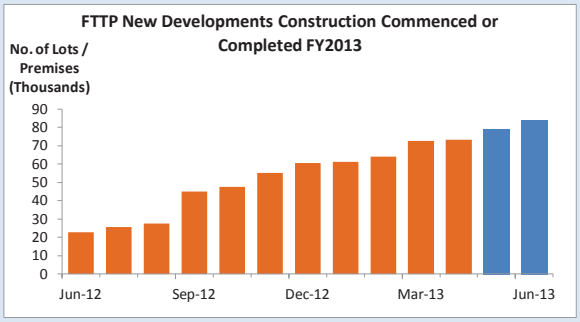
12.4 Progress to Date

Exhibit 12-6: FTTP New Developments Progress and Key Performance Indicators

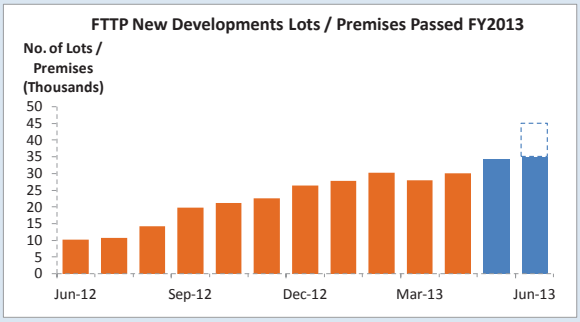
FTTP New Developments Premises Contracts Signed FY2013



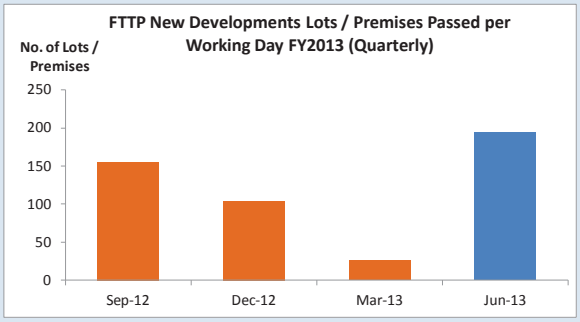
FTTP New Developments Construction Commenced or Completed FY2013



FTTP New Developments Lots/Premises Passed FY2013*



FTTP New Developments Lots/Premises Passed per Working Day FY2013*



Source: NBN Co

*March quarter for FTTP New Developments Lots/Premises Passed: data impacted by change in definition from 'passed by passive infrastructure' to 'active infrastructure in place and ready for order'.

The exhibits above may include forecasts. Please refer to NBN Co's Legal Notice on Page 2 of the 2013-16 Corporate Plan for information about forecasts stated in this document.

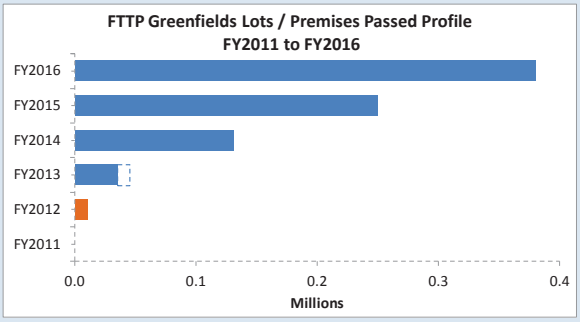
As at 9 May 2013, NBN Co had:

- Close to 3,100 Developers contracts signed, representing 140,000 FTTP Greenfields Lots/Premises.
- Construction Commenced or Completed on 74,500 FTTP Greenfields Lots/Premises.
- Passed 33,800 FTTP Greenfields Lots/Premises Ready for Service.

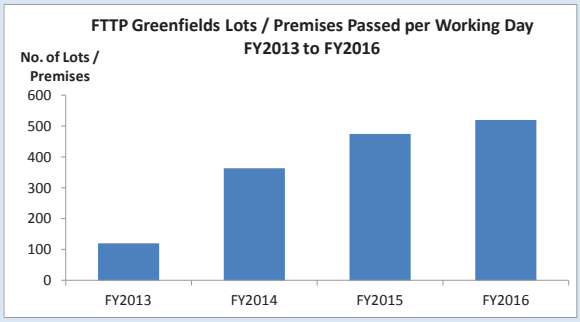
12.5 Operational Targets for FY2013-16

Exhibit 12-7: FTTP Greenfields Operational Targets for 2013-16 Corporate Plan

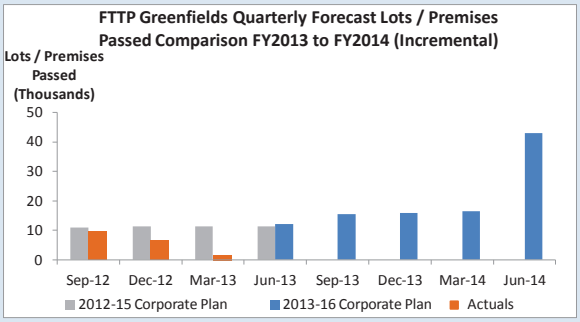
FTTP Greenfields Lots/Premises Passed Profile FY2011 to FY2016



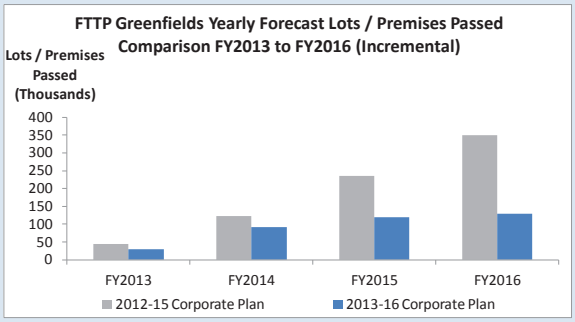
FTTP Greenfields Lots/Premises Passed per Working Day FY2013 to FY2016



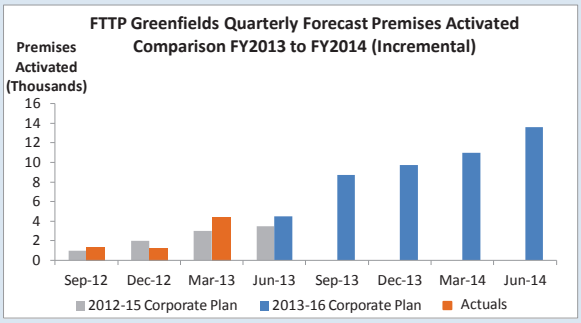
FTTP Greenfields Quarterly Forecast Lots/ Premises Passed Comparison FY2013-FY2014



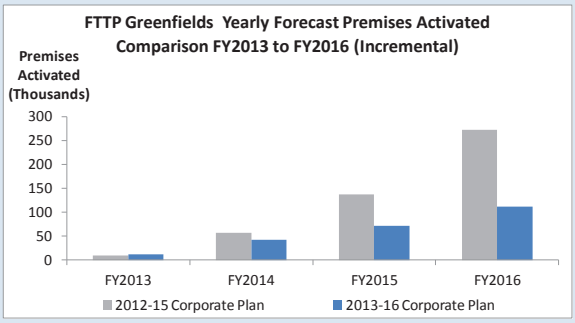
FTTP Greenfields Yearly Forecast Lots/ Premises Passed Comparison FY2013-FY2016



FTTP Greenfields Quarterly Forecast Premises Activated Comparison FY2013-FY2014



FTTP Greenfields Yearly Forecast Premises Activated Comparison FY2013-FY2016



Source: NBN Co

The exhibits above may include forecasts. Please refer to NBN Co's Legal Notice on Page 2 of the 2013-16 Corporate Plan for information about forecasts stated in this document.

NBN Co expects to pass 35,000 to 45,000 FTTP New Developments Lots/Premises in FY2013. In order to achieve this forecast as well as the long term projection to FY2021, NBN Co has taken the following key steps:

- Proactively monitoring the scheduling of the build by Delivery Partners and their sub contractors.
- Proactively monitoring the resources being deployed 'on the ground' by Delivery Partners in each estate.

Approximately 50% of the Greenfields demand is expected to come from Infills/Brownfields Redevelopments over time. These premises encompass a variety of situations, such as small New Developments estates, or individual premises; these could be residential or commercial. The forecast for Brownfields Redevelopment Premises Passed has reduced in the FY2013-FY2016 period to reflect the revised profile of Brownfields Premises Passed and also the current low levels of construction activity.

12.6 Cost Metrics

12.6.1 Capital Expenditure

Total forecast FTTP Greenfields Capex to FY2021 is approximately $3.3 billion, which represents 9% of the total forecast NBN Co capital expenditure. NBN Co has approximately $0.3 billion or 9% of the Greenfields Capex contracted to date. The contracts relate to construction and equipment costs.

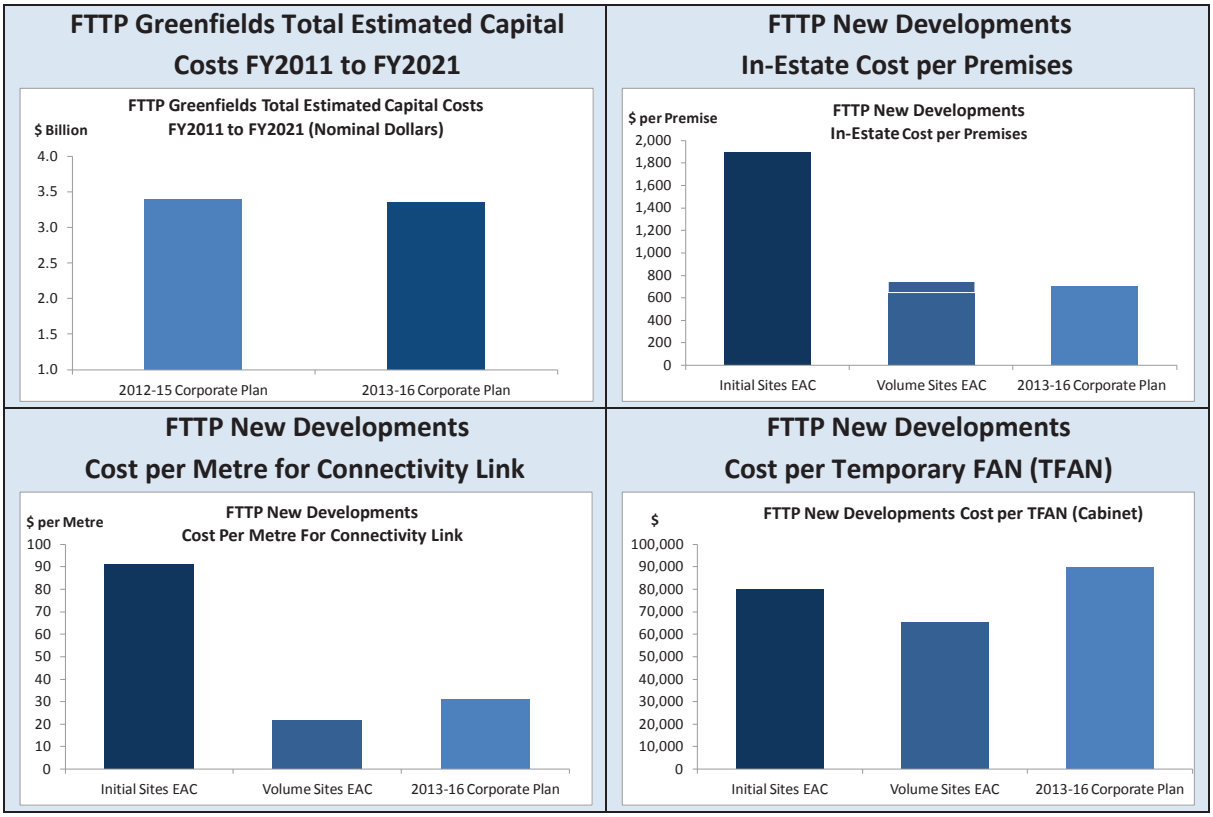
FTTP New Developments capital expenditure includes the cost of Fibre deployment in existing conduits within estates, the cost of providing Transit and Distribution connectivity to the FTTP Access Network and End-User connection costs. Brownfield Redevelopments capital expenditure includes End-User connection costs and the cost of fibre deployment from the Local Network to the premises.

The key drivers of capital expenditure include distance per premises, build mix, the level of civil works required and labour and equipment quantities.

FTTP Greenfields are deployed on a demand basis and are subject to a number of uncertainties including development applications, timing of construction, the number of premises per lot and the level of equipment required (such as **T-FANs** and **TTFNs**).

FTTP Greenfields In-Estate cost per premises has decreased from $1,900 during the Initial Site Release to an Estimate at Completion (**EAC**) cost of $750 for FSAMs currently under construction. The cost per New Development T-FAN has also decreased from $80,000 during the Initial Site Release to an EAC cost of $65,000-$70,000 for FSAMs currently under construction.

Exhibit 12-8: FTTP Greenfields Key Performance Indicators



Source: NBN Co

Note: FTTP Greenfields includes FTTP New Developments and FTTP Infills.

Estimate at Completion (**EAC**) and actual information is based on information available at 31 March 2013. Based on the assumption that Lots will become Premises over time.

The exhibits above may include forecasts. Please refer to NBN Co's Legal Notice on Page 2 of the 2013-16 Corporate Plan for information about forecasts stated in this document.

12.6.2 Operating Expenditure

FTTP Greenfields forecast direct operating expenditure of approximately $0.1 billion to FY2021 mainly relates to costs for Managed Services Backhaul (**MSB**) required to provide connectivity prior to the rollout of the Transit Network.

12.7 Material Issues

Demand driven construction: New Developments are deployed on a demand basis and are subject to a number of uncertainties including development applications, timing of construction and the number of premises per lot.

- NBN Co tracks all applications from developers in order to provide up-to-date forecasts of expected construction activity in each estate.

Premises occupied not Ready for Service: The number of premises that are occupied where NBN Co is unable to provide a service.

- NBN Co schedules New Developments work to take into account when services are first expected to be required.
- NBN Co encourages property developers to provide as much notice as possible so that NBN Co can ensure all the necessary network elements are in place on time.

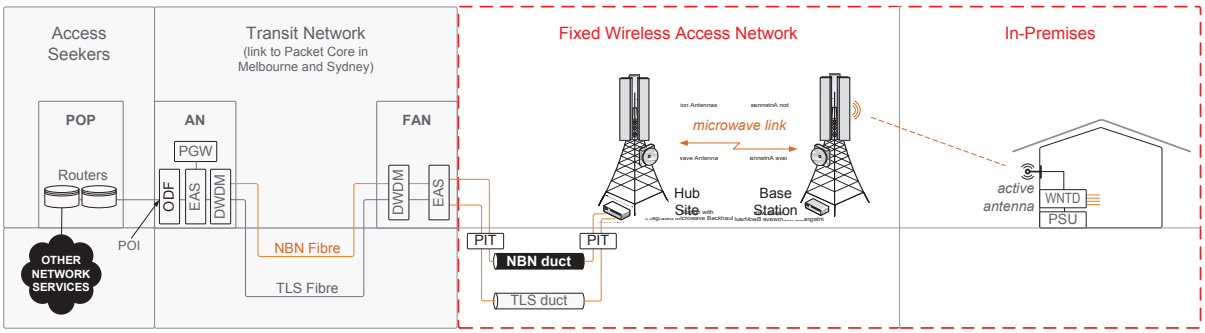
- This issue is expected to lessen over time as NBN Co builds more temporary and permanent Transit infrastructure in New Developments growth corridors.

Developers are responsible for meeting the cost of pit and pipe infrastructure; this includes the availability of 'fit for purpose' lead-in conduits.

- Before NBN Co will deploy fibre in FTTP Greenfields estates of more than 100 lots/premises, developers will need to transfer ownership of the pit and pipe to NBN Co pursuant to an agreement with NBN Co to provide fibre in the new estate. Third-party providers can install pit and pipe for use by NBN Co, but must meet NBN Co specifications/industry code or Australian Communications and Media Authority standard.
- In some cases, the pits and lead-in conduits are not installed at the time of the development being constructed. This has impacted NBN Co's ability to perform installations and connect End-Users. This may lead to an increase in NBN Co's costs to connect FTTP Greenfields End-Users.

13 Building the NBN – Fixed Wireless and Satellite

Exhibit 13-1: Overview of Fixed Wireless & Satellite Networks

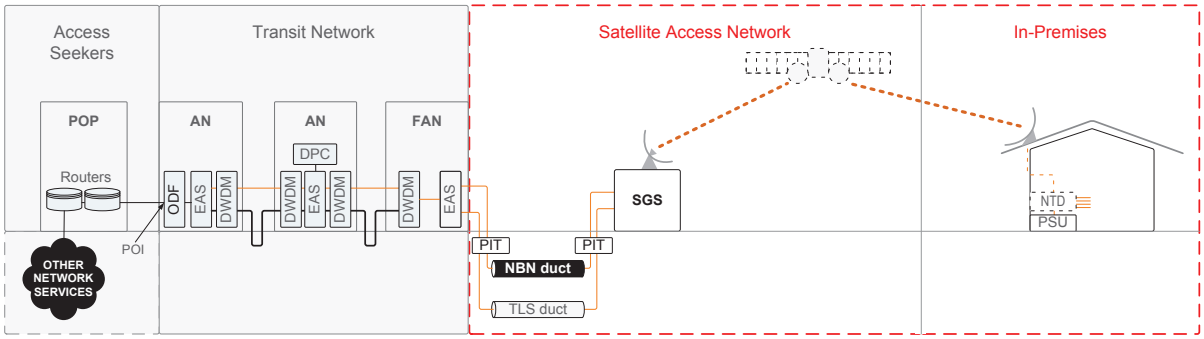


AN: Aggregation Node
DWDM: Dense Wave Division Multiplexing
EAS: Ethernet Aggregation Switch

FAN: Fibre Access Node
FDH: Fibre Distribution Hub
ODF: Optical Distribution Frame

PGW: Packet Gateway
POI: Point of Interconnect
POP: Point of Presence

PSU: Power Supply Unit
WNTD: Wireless Network Termination Device



AN: Aggregation Node
DPC: Data Processing Centre
DWDM: Dense Wave Division Multiplexing

EAS: Ethernet Aggregation Switch
FAN: Fibre Access Node
NTD: Network Termination Device

ODF: Optical Distribution Frame
POI: Point of Interconnect
POP: Point of Presence

PSU: Power Supply Unit
SGS: Satellite Ground Station

Source: NBN Co

Exhibit 13-2: Major Assumptions for the Fixed Wireless and Satellite Networks

Major Assumptions	FY2013	FY2016	FY2021
Premises Covered	285 thousand	820 thousand	970 thousand
Premises Activated[49]	35 thousand	135 thousand	230 thousand

Source: NBN Co

Note: All numbers are rounded to the nearest thousand.

The above table may include forecasts. Please refer to NBN Co's Legal Notice on Page 2 of the 2013-16 Corporate Plan for information about forecasts stated in this document.

[49] End-Users on the ISS will be transitioned to the Long Term Satellite Service (LTSS) subsequent to service commencement. The transition period is expected to take two years.

Exhibit 13-3: NBN Co's Objectives and Strategies for the Fixed Wireless and Satellite Networks

Objectives	Strategies
To provide high speed broadband services outside the footprint of the FTTP Network through a combination of Fixed Wireless and Satellite Network capacity.	▪ Both Fixed Wireless and the Long Term Satellite Service (**LTSS**) will provide a wholesale entry level 12/1 Mbps service and a higher wholesale speed tier of 25/5 Mbps.
	▪ **For the Fixed Wireless Network** - to provide access services in regions not covered by NBN Co's FTTP Network and Satellite Network. ▪ **For the Satellite Network** - a) to provide coverage for rural and remote Australian regions and for premises located on Australian populated islands; b) to provide coverage for premises notionally within the footprints of the FTTP Network and Fixed Wireless Network but which are unable to access these services due to geographical or other technical limitations.[50]
	▪ The major components required for delivery of the Fixed Wireless Network have been contracted. NBN Co's main Delivery Partner, Ericsson, is providing network deployment, technology operational services and equipment.
	▪ The major components required for delivery of the LTSS have been contracted. This includes contracts with Delivery Partners for the design and construction of two Ka-band satellites, launch of satellites, construction of ground facilities, ground station equipment, telemetry tracking & control systems and network systems.
	▪ The forecast capital cost of approximately $3.5 billion for the Fixed Wireless and Satellite Networks includes an allowance for the uncertainties of demand in regions outside the long term Fibre Footprint.
To provide an interim satellite service prior to the launch of long term capacity to ensure availability of improved broadband services for regional Australia.	▪ NBN Co has deployed the Interim Satellite Service (**ISS**) to provide services prior to launch of LTSS infrastructure. ISS currently provides broadband services to 31,075 End-Users (9 May 2013). ▪ This service provides a standard 6/1 Mbps wholesale service for eligible premises where 3G networks are not available and provides improved broadband services replacing the previous Australian Broadband Guarantee.
For Satellite to provide coverage when Fixed Wireless is unavailable due to spectrum rights, Transit Network rollout, and/or timeframe required for the acquisition of Fixed Wireless sites.	▪ Delivery of the Fixed Wireless Network in some regions is dependent on NBN Co acquiring additional spectrum rights. ▪ The timing and scheduling of delivery of the Fixed Wireless Network in certain regions is dependent upon delivery of the Transit Network and the acquisition of ground and co-location site leases.

[50] The criteria for eligibility of access to NBN Co's LTSS network is to be published on commencement of service.

To allow for the uncertainty of demand in terms of volumes and geographic location.	▪ One of the major network trade-offs in deploying the Fixed Wireless and Satellite Networks is to accommodate uncertainties around the volume of End-User demand, particularly as these networks need to be optimised on a region-by-region basis. ▪ NBN Co has designed the Fixed Wireless Network to complement coverage provided by the Long Term Satellite Solution. As capacity on the LTSS is used up in particular regions (LTSS 'hot spots'), NBN Co will augment the Fixed Wireless Network to provide additional capacity in those areas.
To utilise existing infrastructure where it is efficient and economical to do so.	▪ The Fixed Wireless Network will be deployed by co-locating on existing tower infrastructure where it is efficient and economical to do so. ▪ The network capacity for the ISS is provided from existing satellites in service under lease arrangements with satellite operators.
To provide a reliable service on the Satellite Network with redundant in-orbit capacity and ground systems.	▪ The LTSS Network is to be deployed with the launch of two satellites. This provides a level of in-orbit redundancy. ▪ A total of 10 ground stations are being constructed, providing redundancy of ground systems. ▪ Telemetry, tracking and control systems are located at two separate ground facilities.

Source: NBN Co

The above table may include forecasts. Please refer to NBN Co's Legal Notice on Page 2 of the 2013-16 Corporate Plan for information about forecasts stated in this document.

13.1 Overview

The most geographically dispersed 5% of the Australian population – or around 600,000 premises – occupy a landmass covering approximately 650,000 square kilometres. These regions are characterised by low premises density and fragmented population settlements and would be prohibitively expensive to cover with FTTP.

The cost of the Satellite service incorporates a high fixed cost component (i.e. the cost of building and launching the satellites), and it is therefore desirable to maximise use of Satellite capacity before investing in additional Fixed Wireless infrastructure. This is the approach that NBN Co has taken in planning the Satellite and Fixed Wireless Networks.

The Long Term Satellite Service has been designed to provide nationwide coverage, but also has capacity reserved for specific geographic areas (spot beams) where NBN Co expects higher demand.

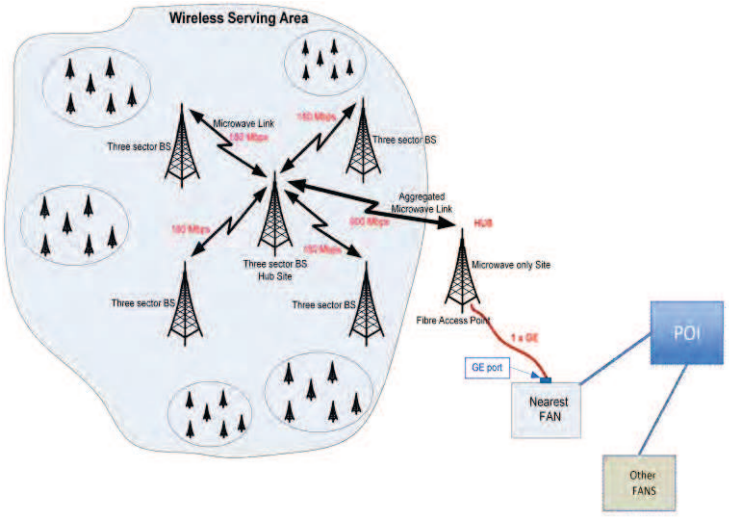
13.2 Fixed Wireless Network

NBN Co's Fixed Wireless Network is being implemented using TD-LTE (Release 9) architecture, which is part of the GSM Association family of standards. These standards are currently the most widely used standards for wireless telephone access in the world, with development supported by the 3rd-Generation Partnership Project (**3GPP**).

The Fixed Wireless Network connects to End-User premises through wireless signals between active equipment on a Base Transmission Station (**BTS**) and active equipment in End-User premises. Network traffic is connected from BTS to the edge of the Transit Network through underground fibre.

A typical BTS will serve approximately up to 200 premises concurrently. BTS sites are generally grouped in a Wireless Serving Area (**WSA**) comprising up to eight BTS that are linked via microwave back to a BTS Hub site, which is connected by fibre to the nearest Fibre Area Node (**FAN**). A single FAN site can support up to 24 WSAs, or approximately 38,400 End-User premises.

Exhibit 13-4: Typical Wireless Cluster

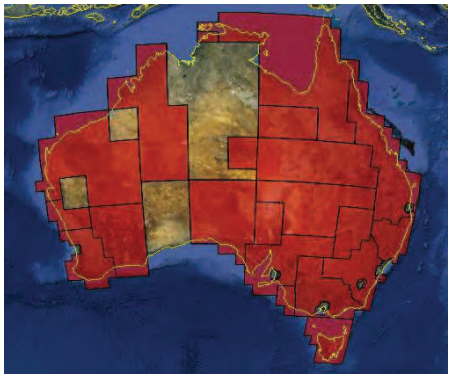


- BTS must be located within 14 kilometres of each other in a WSA to ensure optimised microwave backhaul connectivity.
- Greater intervals can be achieved through the use of a repeater site, which regenerates the original signal.

Source: NBN Co

13.2.1 Spectrum

Exhibit 13-5: Overview of NBN Co's holdings of 2.3 GHz Spectrum Licensed Areas



- NBN Co holds spectrum licences to operate in both the 2.3 Ghz and 3.4 Ghz spectrum bands.
- The amount of spectrum available in each band varies by region:
  - Between 28 Mhz and 98 Mhz for the 2.3 Ghz spectrum band.
  - Between 32.5 Mhz and 100 Mhz for the 3.4 Ghz spectrum band.

Source: NBN Co

NBN Co's current Fixed Wireless architecture is based on utilising 2.3 GHz spectrum. However as can be seen from Exhibit 13-5 there are certain areas where NBN Co does not hold 2.3 GHz spectrum – including areas on the outer metropolitan fringes of Sydney, Melbourne, Brisbane, Adelaide, Perth and Canberra. NBN Co is exploring options for providing services to these areas, including the possibility of acquiring additional spectrum, covering the areas by Satellite, and extending the FTTP Access Network in some regions.

13.2.2 Deployment and Build Process

The build process for delivery of the Fixed Wireless Network includes the design, acquisition, construction, integration and commissioning of BTS and the installation of equipment in End-User

Premises. This process is generally undertaken for a cluster of sites within a specific Wireless Serving Area (**WSA**). NBN Co has outsourced the main functions associated with deployment of the Fixed Wireless Network to Ericsson, including technical deployment services, equipment services and operational services. Wherever there are existing towers and it is economic to use them, NBN Co will co-locate its equipment on those existing towers. However, where no existing infrastructure is available then NBN Co will build its own towers.

13.3 Interim Satellite Service (ISS)

NBN Co's Long Term Satellite Service will not be available until mid 2015, given the long lead-time in designing, building, testing and launching satellites. In the meantime, NBN Co is offering an interim service – the Interim Satellite Service (**ISS**) – that replaces the previous Australian Broadband Guarantee scheme. The ISS is provided as a managed service through satellites operated by Optus and IPStar and is operated on behalf of NBN Co by Optus.

The ISS will run from its launch in 2011 until all End-Users have been migrated to the LTSS, which is expected to be within 2 years of the LTSS service becoming available. The ISS uses available capacity on existing satellites, with total contracted capacity able to provide wholesale peak speeds of 6 Mbps download and 1 Mbps upload for up to approximately 48,000 End-Users.

13.4 Long Term Satellite Solution (LTSS)

NBN Co's LTSS will deliver the NBN Co Satellite Access Service (**NSAS**) as an 'emulated Layer 2' service based wholesale Ethernet access utilising Third Generation broadband satellite technology.

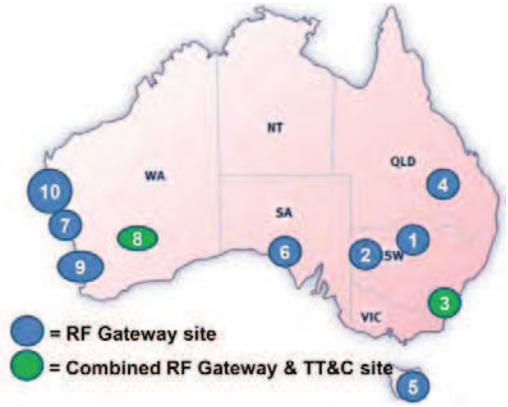
The LTSS will cover 100% of the Australian landmass (and nominated territories). However, within this coverage area each spot beam will be configured to ensure that the satellites utilise their finite capacity whilst delivering the best possible service to each specific geographic region. Therefore, irrespective of premises location, the LTSS will have the capacity to provide services anywhere in Australia where FTTP or Fixed Wireless services are not available.

NBN Co's two Ka-band satellites will be placed in geostationary orbit that allows for communication to be maintained with the satellite via a fixed antenna on the ground, whereas tracking satellites in other orbits requires the use of motorised antennas and tracking systems. The 'bent-pipe' design of NBN Co's satellite means that the satellite is an Radio Frequency (RF) transceiver for the network-to-user traffic and user-to-network traffic. This has the advantage of providing broadband services to a greater number of premises with minimum mass and cost of the spacecraft.

13.4.1 Delivery and Build Process

NBN Co's satellites are being designed and built by Space Systems Loral (**SSL**) and will be launched using Arianespace rockets. The use of two satellites provides additional capacity as well as a level of redundancy in the unlikely event that one of the satellites was to fail on launch or once in orbit. In the event of a full or partial satellite failure it would be possible to re-allocate End-Users between satellites to continue to provide services.

Exhibit 13-6: LTSS Network Planned Ground Stations



- A total of ten Satellite Ground Stations (**SGS**) are planned for the LTSS Network, comprising two telemetry, tracking & control stations and a further eight ground stations which connect satellite traffic to the Transit Network.
- SGS equipment includes RF Gateway equipment, which includes RF subsystem and VSAT baseband systems.

Source: NBN Co

Customer Premises Equipment consists of an outdoor unit, including a parabolic satellite terminal antenna and a Very Small Aperture Terminal (**VSAT**) transceiver unit, and an indoor unit, including a NTD, interface equipment and power supply.

Exhibit 13-7: Summary of LTSS Supply Contracts

Satellite Contracts	Suppliers & Delivery Partners	Date of Execution	Initial Term	Estimated Value
Interim Satellite	Optus and IP Star	May 11	6 years	$320 million
Satellite Design and Construction, Telemetry, Tracking & Control Equipment	Space Systems/Loral	Feb 12	5 years	$620 million
Ground Station equipment, VSATs and modems	ViaSat	Jul 12	20 years	$280 million
Ground Station Construction	Cockram Corp. (NSW, QLD, TAS, SA) Perkins Pty Ltd (WA)	Oct 12	3 years	$180 million
Rocket construction and launch	Arianespace	Mar 13	3 years	$300 million

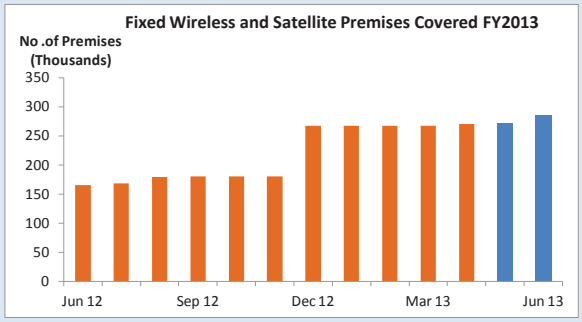
Source: NBN Co

The above table may include forecasts. Please refer to NBN Co's Legal Notice on Page 2 of the 2013-16 Corporate Plan for information about forecasts stated in this document.

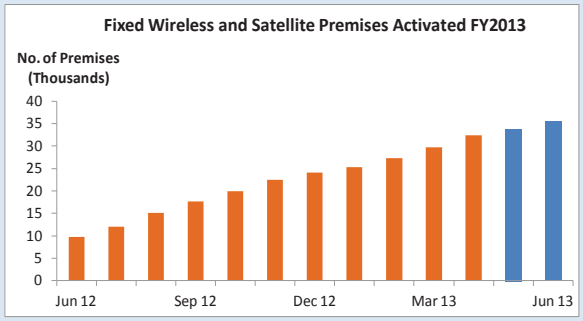
13.5 Progress to Date

Exhibit 13-8: Fixed Wireless and Satellite Network Progress and Key Performance Indicators

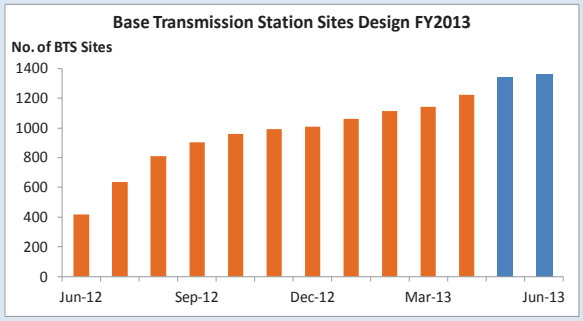
Fixed Wireless and Satellite Premises Covered FY2013



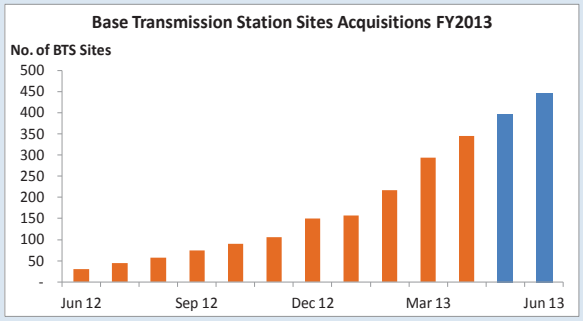
Fixed Wireless and Satellite Premises Activated FY2013



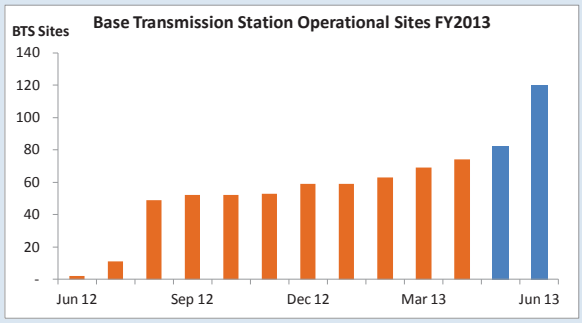
Fixed Wireless Network BTS Sites Design FY2013



Fixed Wireless Network BTS Sites Acquired FY2013



Fixed Wireless Network BTS Sites Operational



The deployment process for the Fixed Wireless Network:

- **Site Design** - the design of Radio Frequency (**RF**) coverage and microwave links.
- **Site Acquisition** - the acquisition of ground leases for new build sites.
- **Operational Sites** - sites that have been commissioned and integrated into NBN Co's network and are Ready for Service (**RFS**).

Source: NBN Co

Note: Base Transmission Station has been abbreviated as BTS.

The exhibits above may include forecasts. Please refer to NBN Co's Legal Notice on Page 2 of the 2013-16 Corporate Plan for information about forecasts stated in this document.

Key progress to date (as at 9 May 2013) includes a total of 267,300 premises covered and 32,750 active End-Users.

Exhibit 13-9: Fixed Wireless and Satellite Network Major Milestones

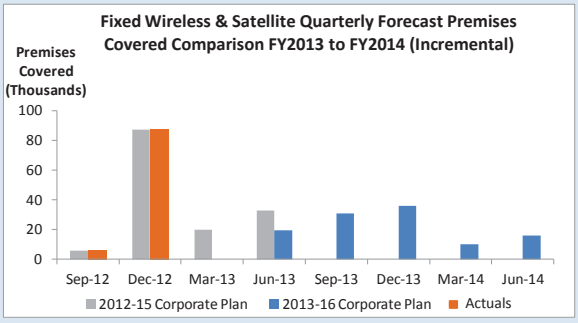
Fixed Wireless	Long Term Satellite
As at 31 March 2013, NBN Co had: ▪ 1,141 BTS for which design has been completed.[51] ▪ 294 planned BTS where sites have been acquired. ▪ 69 BTS operational and in service. ▪ Commenced commercial services.	▪ All major capital components are now contracted. ▪ Critical Design Review with Space Systems Loral completed. ▪ Arianespace contracted to launch both Ka-band satellites in 2015. ▪ Ground Preliminary Design Review was conducted with ViaSat in December 2012. ▪ Ground Critical Design Review was conducted with ViaSat in May 2013. ▪ Telemetry, Tracking & Control Critical Design Review was conducted with Space Systems Loral in April 2013. ▪ The first 13.5 metre SGS dish has been manufactured and is being tested by ViaSat. ▪ Construction of SGS has commenced in Bourke, Broken Hill and Roma.

Source: NBN Co

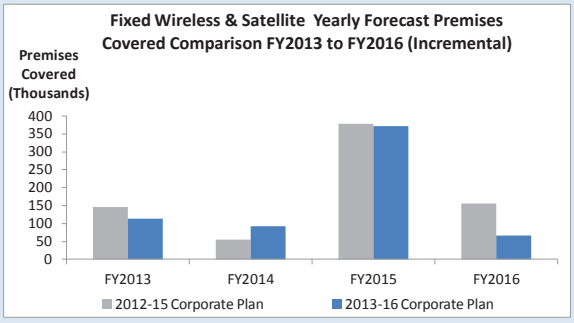
13.6 Operational Targets for FY2013-16

Exhibit 13-10: Fixed Wireless and Satellite Operational Targets for 2013-16 Corporate Plan

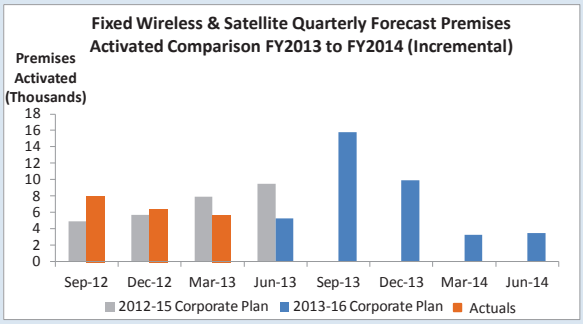
Fixed Wireless & Satellite Quarterly Forecast Premises Covered Comparison FY2013-FY2014



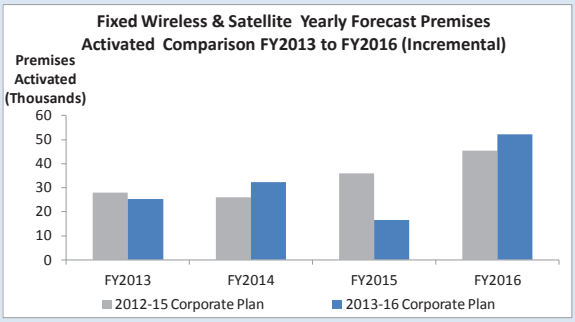
Fixed Wireless & Satellite Yearly Forecast Premises Covered Comparison FY2013-FY2016



Fixed Wireless & Satellite Quarterly Forecast Premises Activated Comparison FY2013-FY2014



Fixed Wireless & Satellite Yearly Forecast Premises Activated Comparison FY2013-FY2016



Source: NBN Co

The exhibits above may include forecasts. Please refer to NBN Co's Legal Notice on Page 2 of the 2013-16 Corporate Plan for information about forecasts stated in this document.

[51] NBN Co has the right under contracts held with its Delivery Partners to review all sites for which design has been completed, where sites have not been acquired.

Fixed Wireless

By the end of FY2016 the core Fixed Wireless Network will be completed. The focus for the period FY2013-16 will be to integrate the deployment of BTS sites with the planned Transit Network rollout, thereby ensuring that communities have access to Fixed Wireless services over the NBN as early as possible.

Long Term Satellite Service

NBN Co expects to launch two Ka-band satellites in calendar year 2015. The key remaining milestones for the delivery of LTSS include:

- **Satellites** - The integration of Satellite payload and bus components is scheduled to occur during 2013, with completion of review and testing to occur during 2014/2015 prior to launch.
- **Launch Vehicles** - The construction of the Ariane 5 launch vehicles is to commence during 2013 with completion in 2015.
- **Telemetry, Tracking & Control** - Systems manufacturing is to commence subsequent to completion of Factory Acceptance Review scheduled by mid 2013. Review and testing of systems is to be completed by early 2015. A supplier for outsourced ongoing flight operations of the spacecraft will be selected during 2013.
- **Ground Systems** - Following the completion of the ground systems design with the Critical Design review, the systems will proceed into development and manufacturing ahead of Factory Acceptance Testing for each RF Gateway scheduled during 2013 and 2014.
- **Ground Facilities** - Construction of the 10 Satellite Ground Stations (**SGS**) is scheduled to be completed by June 2014.
    - **Transit** – The build of the Transit Network providing connectivity for the 10 SGS to the data processing centres and the PoIs is scheduled for completion during 2014.
    - **IT Systems** – The deployment of the IT systems integrating the Satellite Network into NBN Co's Fibre and Fixed Wireless Operational and Business Support Systems is scheduled for deployment in 2014.

13.7 Cost Metrics

13.7.1 Capital Expenditure

Capital Expenditure for the Fixed Wireless and Satellite Networks is forecast to total approximately $3.5 billion to FY2021, representing 9% of NBN Co's total capital expenditure.

Fixed Wireless Network capital expenditure is driven by contracted milestone payments to Delivery Partners for deployment of BTS sites, customer premises equipment, core network sites, backhaul network equipment and installation costs. The timing of capital expenditure is driven by contracted milestone payments by deployment stage for BTS sites and customer activations for customer connection costs.

ISS capital expenditure is driven by customer premises equipment and installation costs, routers, hubs, capitalised infrastructure lease payments and capitalised labour. Customer premises connection costs include equipment and labour installation costs of satellite transmission antennas, transceivers (Very Small Aperture Terminal (**VSATs**)) and NTDs. Satellite infrastructure for the ISS is provided through managed satellite services contracts with Optus and IPStar.

LTSS capital expenditure is driven by contracted payments for the design, construction and launch of satellites and delivery of ground equipment and systems for the deployment of the LTSS Network. This includes contracted milestone payments for the design and construction of satellites and telemetry, tracking and command systems; design and construction of ground facilities; supply of ground systems and customer premises equipment. The timing of capital expenditure reflects the timing of contracted milestone payments with Delivery Partners and customer activations for customer connection costs.

13.7.2 Operating Expenditure

Fixed Wireless operating expenditure is driven by network operations and maintenance, co-location tower leases and ground leases inclusive of provisions. This includes network and tower site maintenance and monitoring, equipment support, network operations and maintenance, network fault and systems costs.

ISS operating expenditure is driven by contracted infrastructure lease payments, operations and maintenance services payments for managed services provided by delivery partners.

LTSS operating expenditure is driven by network operations and maintenance costs, telemetry, tracking & control services costs, ground facilities operations and systems costs. This includes costs for network management, monitoring and fault rectification and network systems, backhaul network and customer premises service costs.

13.8 Material Issues

The availability of spectrum in areas planned to be covered by the Fixed Wireless Network.

- NBN Co's spectrum licences permit NBN Co to operate a Fixed Wireless Network in the majority, but not all areas planned to be covered. If additional spectrum is not obtained to serve these areas then coverage will need to be provided either through the Satellite Network or by extending the FTTP Network to meet the requirement to cover 100% of Australian premises.

NBN Co holds spectrum in areas adjacent to the boundary of other operators and is required to limit interference with these operators.[52]

- NBN Co is not able to build the Fixed Wireless Network to the edge of spectrum boundaries due to the requirement to limit interference. This issue potentially prevents the deployment of a small proportion of sites currently planned. NBN Co has incorporated this limitation in planning for deployment of Fixed Wireless sites.

The Fixed Wireless Network requires the acquisition of a large number of Greenfield sites, where existing sites (co-location towers) are not available. These sites also require environmental and other development approvals from local authorities.

- The planned rollout of the Fixed Wireless Network may be limited by the inability to acquire new sites.
- NBN Co is required to obtain environmental and development approvals to proceed with new build sites that can influence timing for construction activities.

[52] The requirements to limit interference are detailed in Section 145 of the Radiocommunications Act 1992 (Cth).

The deployment of the Transit Network needs to be matched with the deployment of the Fixed Wireless Serving Areas, so as to provide connectivity to these sites.

- NBN Co has established an integrated team to align the deployment of the Transit Network and the deployment of the Fixed Wireless Network.

The risk of failure in satellite launch and failure in orbit, with subsequent impact on timing for new satellite capacity.

- Launch insurance to cover the risk of financial loss due to launch failure.
- NBN Co is launching two in-orbit satellites, to provide a level of redundancy.

The geographic location of demand, and the volume of demand, given that Satellite design is completed and proceeding to manufacturing.

- In the areas covered by Fixed Wireless and Satellite, there is no disconnection process in place for services provided by the existing Copper Network. The level of demand will depend on End-User choices and preferences.
- NBN Co is prioritising Fixed Wireless rollout in areas of projected high demand, where Satellite capacity will not be sufficient to cover that projected demand.

Limited leased satellite capacity available for the ISS.

- NBN Co's leased capacity for the ISS is forecast to be sufficient for approximately 48,000 End-Users.
- In the event that 48,000 End-Users are activated for the ISS, NBN Co will not be able to connect further End-Users without either acquiring additional capacity or reducing service levels to all End-Users until deployment of the LTSS. NBN Co is investigating alternative sources of additional capacity.

14 Operating the NBN

14.1 Summary

Exhibit 14-1: Objectives and Strategies for Operating the NBN

Objectives	Strategies
To develop sophisticated interlocked systems required to build, operate and maintain the NBN.	▪ NBN Co will continue to develop both Operational Support Systems (**OSS**) and Business Support Systems (**BSS**) to support the network deployment profile. ▪ Continuous improvement in the network to deliver new products, quality improvements or efficiency gains, is driven through a program of Active Network and Passive Network Releases. ▪ NBN Co's IT Systems are being developed to drive as much automation as possible into core tasks such as activations, service qualifications and product ordering. ▪ Powerful B2B interfaces will allow Service Providers to self-serve on the NBN as far as possible.
	▪ A key challenge for NBN Co will be to ensure that IT Systems are able to scale in line with NBN Co's forecast ramp in activity during the period to FY2016.
	▪ IT Systems development (including Network and Service Operations Centre (NSOC), National Test Facility (NTF) and support of Active and Passive Network Releases) represents approximately $2.2 billion of NBN Co's forecast capital expenditure to FY2021.

Source: NBN Co

14.2 Systems Overview

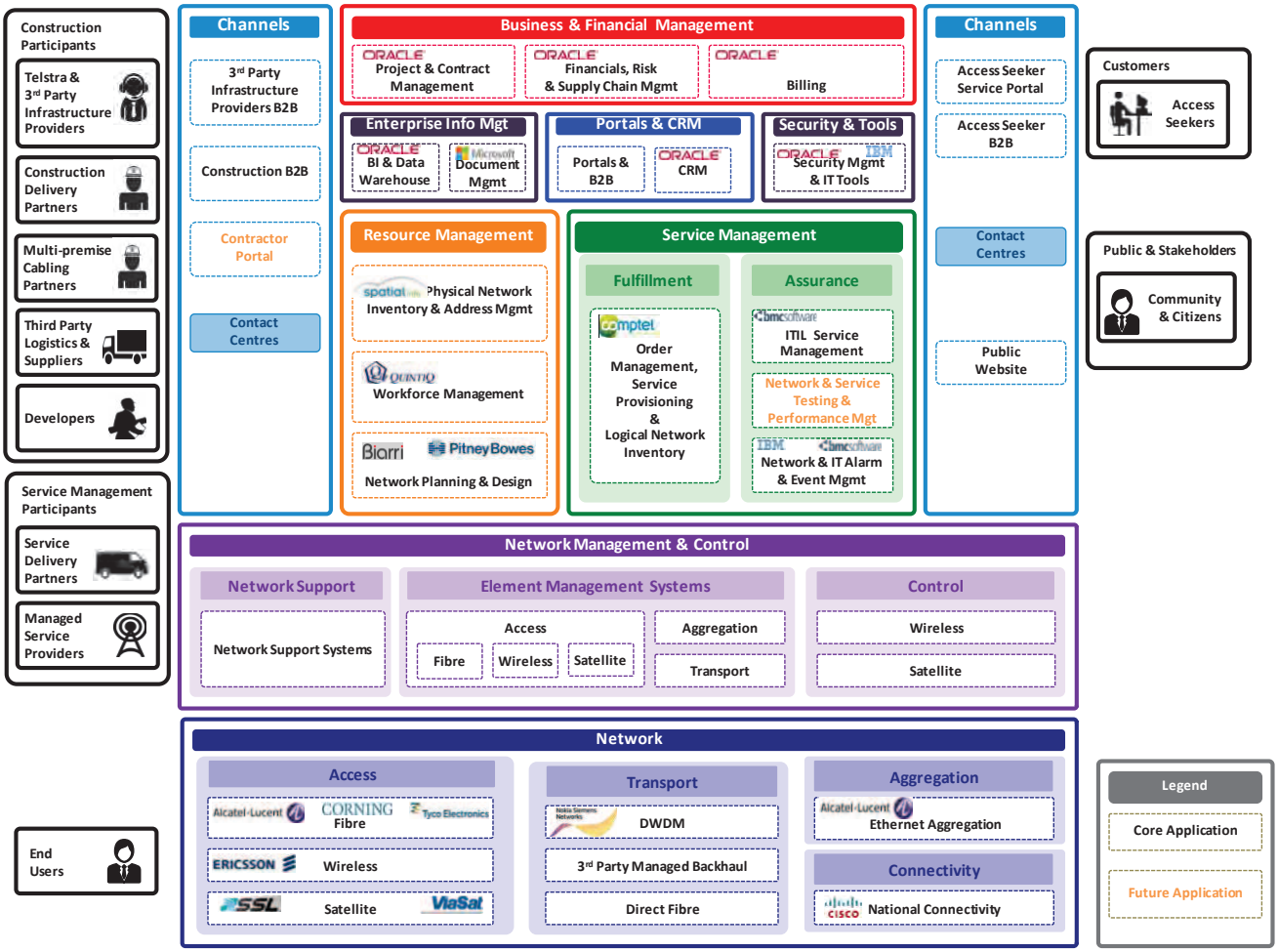
NBN Co requires sophisticated interlocked systems in order to simultaneously construct, operate and maintain the NBN. These systems are being delivered progressively over time as the network and the business grow and mature.

The Operational Support Systems (**OSS**) and the Business Support Systems (**BSS**) provide critical capabilities to ensure that NBN Co is able to build, operate and maintain the network and to activate, assure and bill for services provided. NBN Co's objective is to enable its wholesale customers to be able to perform these tasks in the most efficient and effective way possible with the maximum use of automation and self-serve processes.

NBN Co's systems are being designed to provide an experience for Service Providers that is as close as possible to owning their own network. This 'virtualised' network concept depends on heavy automation of routine processes (such as ordering, provisioning, service management, billing, deactivation) that are effected through Business-to-Business (**B2B**) operational interfaces.

Exhibit 14-2 provides a high level overview of the target network architecture and the IT platforms that must be interfaced in order to achieve a complete working solution.

Exhibit 14-2: Target High Level Systems Architecture



Source: NBN Co

14.3 Network and Service Operations

Day-to-day management of the NBN network is handled by the Network and Service Operations Centre (**NSOC**), which has been operational since June 2011 and incorporates the National Test Facility (**NTF**) and the Service Activation Centre (**SAC**).

The NSOC provides network monitoring of the NBN and a physical control location to house operations and systems to assist with:

- Connecting and activating services.
- Managing and operating the network.
- Maintaining the network including rectifying network disruptions to facilitate Service Providers' delivery of services to their customers.

Through NBN Co's end-to-end process development, the OSS is being developed to allow Service Providers to submit tickets directly from their own systems via a B2B gateway. This will enable Service Providers to fully automate the End-User activations process in the majority of instances.

For ongoing maintenance of the NBN, automated Event Management and Alarm systems notify NBN Co of faults in the network. For routine faults and maintenance, tickets of work will automatically be issued to NBN Co's NARA Delivery Partners.

14.4 Designing the Active and Passive Network

NBN Co has approached the challenge of designing and testing new releases of network capability using a phased approach. Starting with the FTTP Network, NBN Co has created 'packages' of network capability that are designed and tested as integrated solutions at the NTF prior to deploying to the live network. Progressively, the network releases will deliver the full range of NBN Co network capability across the FTTP, 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 operationally ready for commercial services in September 2011. ANR1 delivered a range of foundation product capability to support broadband data and voice services 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 introduced broadband data services for Fixed Wireless and an Access Seeker trial of Multicast. This release enabled Long Term Evolution (**LTE**) for the Fixed Wireless Network and Dense Wavelength Division Multiplexing (**DWDM**) capability for the Transit Network.
- **Active Network Release 3 (ANR3)** delivered enhancements for voice and multicast products, as well as network and system upgrades. Operational readiness was achieved on 30 September 2012 for the first phase of deployment. Lawful Interception system upgrades took place during October 2012.
- **Active Network Release 4 (ANR4)** was released in January 2013 and delivered operational network enhancements. These included implementing a redesign of the Quality of Service (**QoS**) functionality to enable automation of Customer Virtual Circuit (**CVC**) provisioning. ANR4 also provided shared bandwidth pooling and multiplexing functionality.
- **Active Network Release 5 (ANR5),** which is scheduled for release in late 2013**,** will deliver an additional Traffic Class 4 speed tier and the network design of the Traffic Class 2 solution for medium businesses. ANR5 will also include a hardware augmentation solution for increased capacity at Aggregation Nodes, Fixed Wireless system upgrades and the test and deployment of the National Connectivity Network (**NCN**) the design of which was enabled in ANR4.

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 delivered passive FTTP Network architecture from Optical Distribution Frame (**ODF**) to premises drop.
- **Passive Network Release 2** (**PNR2**), which was released in November 2012, integrated the long term solution for Premises Install Equipment (**PIE**) into the end-to-end passive network. It covered products which enable connectivity from the Local Access Network to the Network Termination Device (**NTD**) in the End-User premises.

14.5 Cost Metrics

14.5.1 Capital Expenditure

Capital expenditure is forecast to total approximately $2.2 billion over FY2011 to FY2021 and comprises the cost of development and implementation IT systems projects, network technology development, End-User technology and data centre costs. Relative to the 2012-15 Corporate Plan capital expenditure has increased by $0.6 billion. The increase in forecast costs for IT projects reflects revised forecasts for the three year IT roadmap which identified and prioritised IT solutions. The increase for network technology development reflects an increase in forecast releases for the ANR project and related NTF costs. Capital expenditure is driven by the timing of development of IT projects and network technology development.

Capitalised development costs for IT Projects are forecast to total approximately $1.3 billion over the period FY2011 to FY2021 inclusive of development provisions. This includes development costs for Operational Support Systems (**OSS**), Business Support Systems (**BSS**), SSS and other support systems.

Active Network Release (**ANR**) development costs are forecast to total approximately $0.2 billion over the period FY2011 to FY2021. The ANR program includes projects associated with the delivery of network capability to implement new or enhance active network equipment in Fibre, Wireless and Satellite Networks.

Other capital expenditure includes Network Operations, NTF, Data Centre and Service Delivery and is forecast to total approximately $0.7 billion from FY2011 to FY2021.

14.5.2 Operating Expenditure

Common direct operating expenditure accounts for approximately $0.1 billion of NBN Co's total forecast direct operating expenditure to FY2021. This expenditure relates to common network operations and maintenance costs including equipment and testing costs and other managed services.

14.6 Material Issues

Workforce management, resource management, billing systems and processes are required ahead of demand, in order for NBN Co to meet activation targets.

- NBN Co is investing and developing systems for workflow management, resource management and address availability systems with dedicated B2B functionality to enable Service Providers to be directly engaged in activating customers.
- A forward schedule of developments is planned in order to meet NBN Co's ongoing and increasing system requirements.

NBN Co is targeting a 95% automation rate of activations and 98% right first time activations.

- NBN Co is developing a suite of systems that are aimed at achieving straight-through processing and are targeted at increasing 'right first time' activations.

Systems have to be developed on schedule, be fit-for-purpose and must be closely monitored in order to ensure system integrity.

- NBN Co has started to invest resources, working internally and closely with Delivery Partners, to develop systems for the effective operation, maintenance and build of the NBN.

Ability of IT Systems to scale.

- NBN Co has conducted a detailed review of its medium term IT needs and developed an IT roadmap to ensure critical functionality is delivered ahead of the expected increases in volumes in different parts of the business. Management will continue to closely monitor delivery of IT capability and conduct regular reviews to ensure IT delivery is prioritised to meet critical business needs.
- In addition, the risk of software configuration errors causing network outages will increase as the network adds more users and operators. NBN Co regularly reviews testing practices for new software releases for all active network and IT systems and is reviewing options to automate configuration management controls across critical network and IT infrastructure.

Ability of processes to scale.

- As the rollout gathers momentum, NBN Co is implementing a consistent centralised approach to Business Process Management (**BPM**) to drive innovation and standardisation across the business. The BPM function has been moved from IT to the Quality Office to ensure a business-led approach and stronger alignment to corporate objectives. A review of BPM is underway with the objective of strengthening business process practices and ensuring a strong focus on deriving the benefits of standardisation.

Serious latent equipment failure.

- NBN Co currently tests all critical equipment in a laboratory environment, with reliance on vendors' warranty conditions and supply capability. In addition, NBN Co is evaluating the merits of establishing a team of experts to monitor failure data for trends that would provide early warning of potential equipment issues.

Serious security breach.

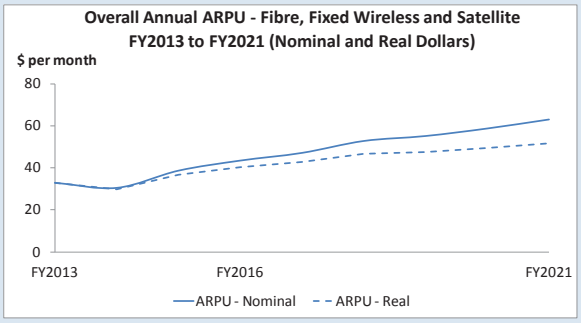
- NBN Co has established a comprehensive security platform to minimise this risk.

15 Revenues

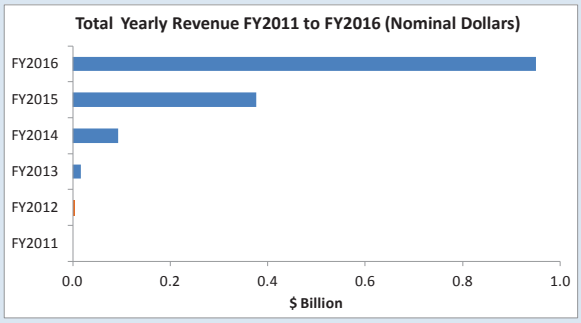
15.1 Summary

Exhibit 15-1: Revenues Summary

Overall ARPU - Fibre, Fixed Wireless and Satellite FY2013 to FY2021



Total Yearly Revenue FY2021 to FY2016



Source: NBN Co

The exhibits above may include forecasts. Please refer to NBN Co's Legal Notice on Page 2 of the 2013-16 Corporate Plan for information about forecasts stated in this document.

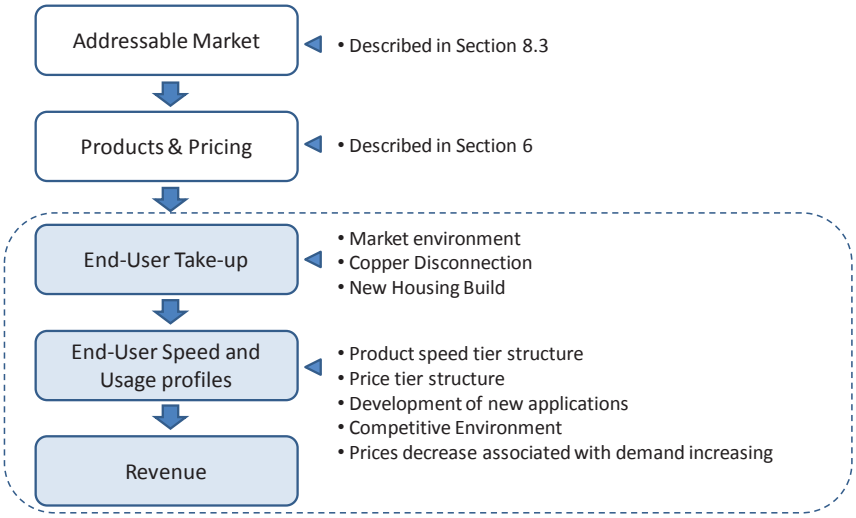
- The 2013-16 Corporate Plan forecasts total revenue of $21.7 billion to FY2021, compared to $23.1 billion in the 2012-15 Corporate Plan.
- The reduction in forecast revenue to FY2021 is a direct consequence of slower growth in activations in the period to FY2016 given the revised FTTP Access Network deployment profile.
- Long term take-up assumption for FTTP services is unchanged at 74% by FY2023 (end of the Disconnection Period).
- Nominal Fibre ARPU is forecast to increase from $42 per month in FY2013 to approximately $64 per month by FY2021 (CAGR of 5.4%).
- Real Fibre ARPU is forecast to increase from $42 per month in FY2013 to approximately $52 per month by FY2021 (CAGR of 2.8%).

15.2 Overview

NBN Co's Revenue model is described in Exhibit 15.2. The key drivers of the Revenue model are NBN Co's addressable market, product and pricing, End-User take-up and End-User speed and usage profiles.

The addressable market as well as the products and pricing are further detailed in previous sections of the Corporate Plan. The assumptions for End-User take-up and End-User speed and usage profiles are detailed in this Section.

Exhibit 15-2: Components of Revenue



Source: NBN Co

15.3 Take-up of NBN Co Products

The forecast take-up of NBN Co's services is largely driven by the migration of households and businesses from the existing Copper and HFC Networks. This migration is underpinned by the Telstra Definitive Agreements and the Optus HFC Subscriber Agreement, under which both Telstra and Optus have agreed to disconnect/decommission their existing fixed-line networks and to use the NBN exclusively for a period of 20 years to provide fixed-line telephony and broadband services (subject to certain exceptions that are specified in those agreements).

NBN Co is making services available progressively as soon as the network is completed in a region. For FTTP services the basic region unit is an FSAM (comprising between 2,000-3,000 premises on average), although NBN Co may 'switch on' individual FDAs (comprising around 200 premises on average) if this will make services available to End-Users faster. When a region within the Fibre Footprint is declared 'Ready for Service', NBN Co issues Telstra a 'Disconnection Date Notice'. All Telstra's existing Copper and HFC broadband and telephony services will be disconnected at the end of an 18 month migration period following the issuing of the Disconnection Date Notice (subject to certain limited exceptions).

Take-up of NBN Co services is expected to vary from region to region depending on a range of factors, including:

- Whether the region is served by FTTP, Fixed Wireless or Satellite. In general, take-up is expected to be lower in Fixed Wireless and Satellite regions as many of these regions will still be able to receive fixed-line services on Telstra's Copper Network which will compete with services on the NBN.
- Demographics of the region.
- The degree of competition between Service Providers in the region.
- The extent of competition from mobile services.
- The length of time since the region was declared Ready for Service, with take-up forecast to increase month-by-month as End-Users migrate progressively to the new NBN.

15.3.1 Take-up Experience to Date

The overall FTTP Brownfields take-up rate of 21% represents 15,000 Premises Activated from a base of 72,650 Premises Passed as at 9 May 2013. As illustrated on page 13, the take-up of NBN services continues to increase across all FSAMs, with eight FSAMs now at over 40% penetration and two FSAMs at over 60%.

This take-up has been achieved prior to Disconnection of the Telstra Copper/HFC Networks and Optus HFC network. Take-up rates on the NBN compare favourably with the take-up of previous technologies in Australia, and with FTTP take-up rates seen in other countries.

Exhibit 15-3: Comparable Internet Service Take Up Rates

Comparable Australian experiences for other internet technologies	▪ Dial Up: 13% take-up after four years. ▪ ADSL: 28% take-up after six years. ▪ HFC: 34% take-up after six years.
International experience with FTTP rollouts	▪ Verizon, the leading FTTP provider in the USA achieved 38% fibre-based broadband penetration in nine years.

Source: NBN Co

15.3.2 Forecast Take-up in FTTP Rollout Regions

The demand across the FTTP Network (especially in FSAMs released in the past twelve months), as well as the pending disconnection and migration of End-Users from the Copper Network and HFC Networks of Telstra and Optus, provides support for the achievability of NBN Co's long term take-up rate assumption of 74% in the Fibre Footprint, consistent with the 2012-15 Corporate Plan.

The approximately 26% of premises in the Fibre Footprint that are assumed not to take up a NBN service fall into two main categories.

Exhibit 15-4: NBN FTTP Network Services Premise Market Assumptions

Mobile-only premises	Consistent with the prior Corporate Plan, the 2013-16 Corporate Plan assumes that the proportion of mobile-only premises will trend to 13% (equivalent to 16% of occupied residential premises).
Unoccupied premises/Non-Applicable	Consistent with the prior Corporate Plan, the 2013-16 Corporate Plan assumes that approximately 13% of premises will be vacant or non-applicable and will not take a service.

Source: NBN Co

15.3.3 Take-up in Fixed Wireless and Satellite Regions

Take-up rates in the Fixed Wireless and Satellite footprints are forecast to be lower than for FTTP, reaching approximately 24% by FY2021. The lower take-up rate reflects the expectation that NBN Co's Fixed Wireless and Satellite services will face competition from other access technologies, including Telstra's existing Copper Network in many regions.[53] This is because in regions outside NBN

[53] Fixed line networks cover an estimated 97% of premises in Australia, as a proportion of total residential and business premises during 2010. Source: NBN Co analysis based on Australian Communication and Media Authority, *Communications Report 2011-12* (November 2012).

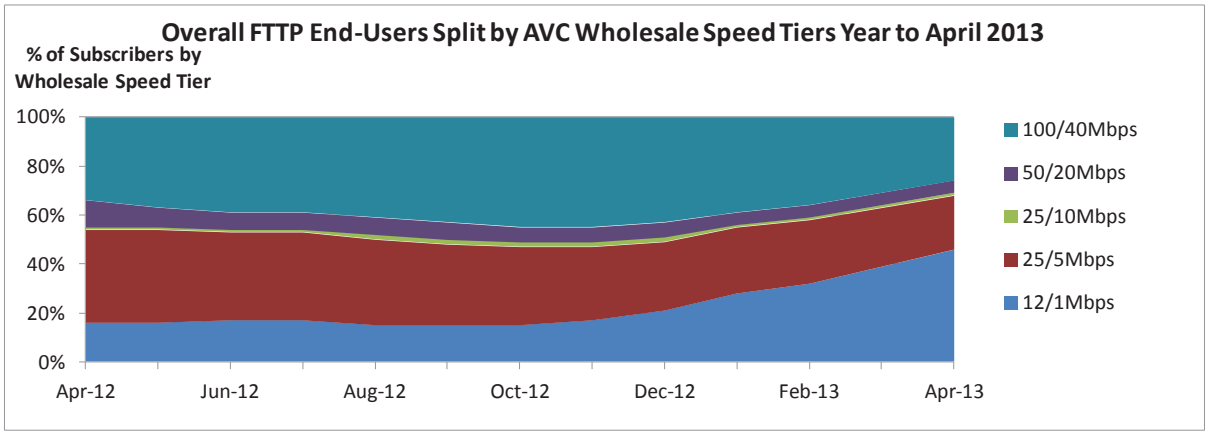
Co's long term Fibre Footprint there is no obligation for Telstra to cease providing services over its Copper Network.

The introduction of NBN Co's 25/5 Mbps wholesale speed tiers is, however, expected to underpin the long term take-up of services in the Fixed Wireless and Satellite footprints.

15.4 End-User Speed Profiles

The mix of Access Virtual Circuit (**AVC**) wholesale speed tiers seen to date provides early support for NBN Co's long term Corporate Plan assumptions. As at 30 April 2013, 26% of NBN Co's FTTP End-Users were on the highest available wholesale speed tier (100/40 Mbps), whilst 47% were on the entry-level wholesale speed tier (12/1 Mbps). These compare with 18% and 49% respectively forecast for FY2013 in the 2012-15 Corporate Plan.

Exhibit 15-5: Overall FTTP End-Users Split by AVC Wholesale Speed Tiers Year to April 2013



Source: NBN Co

Exhibit 15-5 illustrates that the proportion of 12/1 Mbps End-Users has increased progressively each month since December 2012. This largely reflects the impact of some Service Providers launching retail voice services on the NBN in late 2012 and the approach being taken by a number of Service Providers to migrate their existing customers across to the NBN on a 'default' 12/1 Mbps service initially.

The weighted average peak speed across all FTTP End-Users on the NBN was 40 Mbps in April 2013. This is approximately 2.2 times the Australian average peak of 18 Mbps reported by the ABS in December 2012.[54]

The long term profile of FTTP speed tiers forecast to be purchased by End-Users remains unchanged from the 2012-15 Corporate Plan. Initial experience in the early NBN Co sites has been that a higher than expected proportion of End-Users have purchased higher speed tiers. However, the 2013-16 Corporate Plan assumes that these early trends diminish and start to align with the previous Corporate Plan assumptions by FY2015.

15.5 End User Data Usage Profiles

In Australia and other markets there is evidence of a strong relationship between the broadband speed available to End-Users and the volume of traffic they generate. Improvements in access

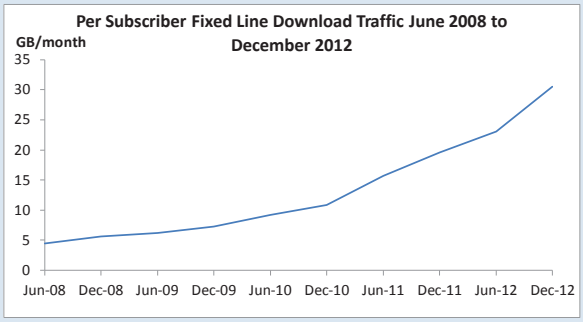
[54] ABS, 8153.0 - Internet Activity, Australia, December 2012. Based on average of 'advertised' peak speed range reported.

speeds allow improvements and innovations in applications and services, which in turn result in increased demand for data consumption. As data consumption increases and existing and new applications require additional bandwidth, End-Users will look for faster access speeds to ensure their service experience matches their requirements.

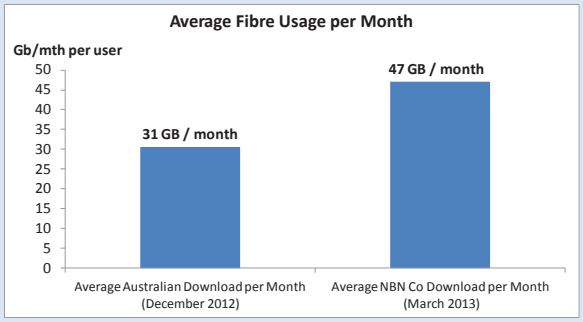
Data usage on the NBN is in line with the 2012-15 Corporate Plan forecasts. As at 31 March 2013, NBN Co's average download was 47 GB per month. This is approximately 50% higher than the ABS reported national average.

Exhibit 15-7: Australian Fixed Line and NBN Co FTTP Network Monthly Download Data Usage

Per Subscriber Fixed Line Download Traffic June 2008 to December 2012



Average Fibre Usage Per User Per Month



Source: Australian Bureau of Statistics, *Internet Activity, Australia* (series 8153.0) December 2012. NBN Co Data as at 31 March 2013.

The long term assumptions used for forecasting CVC demand (i.e. data usage) have largely been retained from the 2012-15 Corporate Plan.

15.6 Residential and Business Services

The NBN Co product construct and pricing allows Service Providers to tailor services to both residential and business market segments. The business segment is broadly defined to include all non-residential premises and includes small, medium and large enterprises, government and non-for-profit organisations, representing approximately 12% of the total addressable market of premises.

Broadband take-up in the business market is high, with over 90% of businesses utilising a broadband service, with many larger businesses requiring multiple services.[55]

Whilst businesses represent a relatively small proportion of the addressable premises market, they are forecast to contribute a more significant proportion of overall revenue because of their requirement for faster services, enhanced service levels and prioritised traffic class circuits to manage traffic quality and applications.

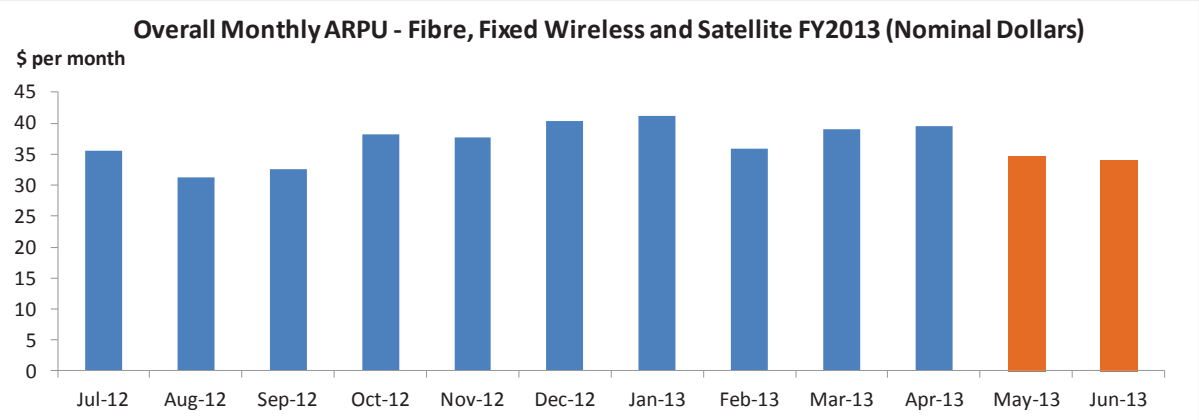
15.7 Average Revenue Per User

NBN Co's actual monthly ARPU for FY2013 has exceeded the 2012-15 Corporate Plan forecast. This has largely been driven by higher Connectivity Virtual Circuit (**CVC**) Revenues, as Service Providers have purchased greater initial blocks of capacity than forecast, and a higher proportion of End-Users are on higher Access Virtual Circuit (**AVC**) speed tiers. These trends are expected to reduce in the

[55] ABS, 8166.0 - Summary of IT Use and Innovation in Australian Business.

course of FY2014 as Service Providers utilise existing CVC capacity purchases and apply this capacity on a growing NBN customer base.

Exhibit 15-6: Overall ARPU All Services Fibre, Fixed Wireless and Satellite FY2013 (Nominal Dollars)



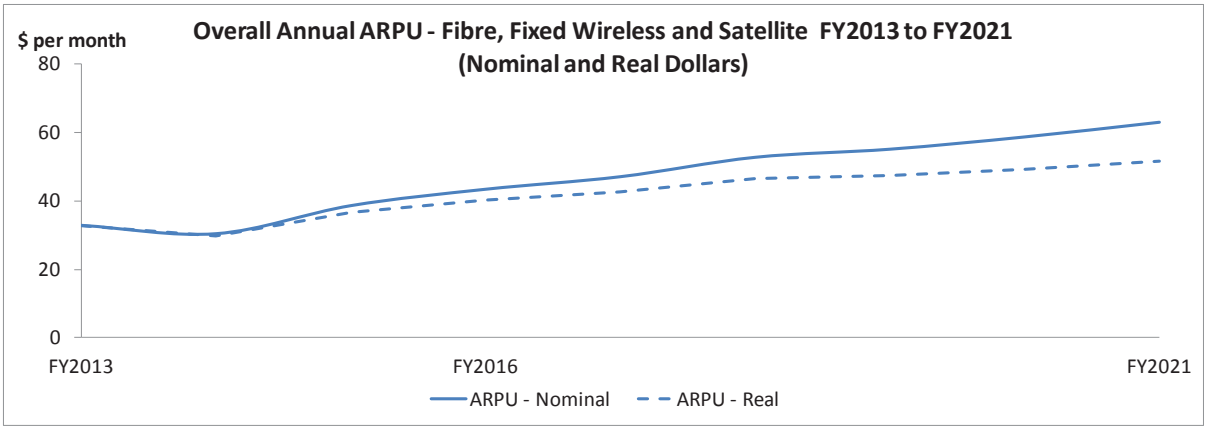
Source: NBN Co

Note: Based on total monthly revenues divided by the average Premises Activated for the month, across the FTTP, Fixed Wireless and Satellite Networks.

The exhibit above and discussion may include forecasts. Please refer to NBN Co's Legal Notice on Page 2 of the 2013-16 Corporate Plan for information about forecasts stated in this document.

From 1 July 2013 onwards, forecast Average Revenue Per User (**ARPU**) in the 2013-16 Corporate Plan is broadly in line with the 2012–15 Corporate Plan. Overall Nominal ARPU comprising Fibre, Fixed Wireless and Satellite services is forecast to grow from $33 per month in FY2013 to approximately $63 per month by FY2021, a 8.5% Compound Annual Growth Rate (**CAGR**) in nominal terms. In real terms, overall ARPU is forecast to grow to approximately $52 per month by FY2040, a 5.8% CAGR.

Exhibit 15-7: Overall ARPU Fibre, Fixed Wireless and Satellite FY2013 to FY2028 (Nominal and Real)



Source: NBN Co

Note: Based on total revenues divided by the average of total opening and closing connections by financial year, across the FTTP, Fixed Wireless and Satellite Networks.

The exhibit above and discussion may include forecasts. Please refer to NBN Co's Legal Notice on Page 2 of the 2013-16 Corporate Plan for information about forecasts stated in this document.

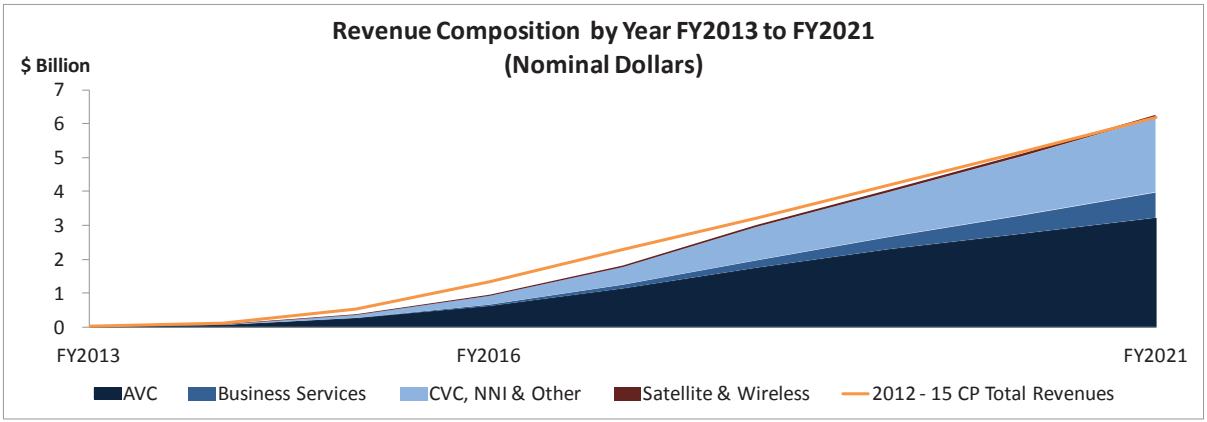
Within Overall ARPU, FTTP residential ARPU is forecast to grow at 3% CAGR in nominal terms and 0.5% CAGR real terms over the period of FY2013-FY2040, whilst FTTP business ARPU forecast to grow at 4.3% CAGR nominal and 1.8% real over the same period, respectively.

Growth in forecast business ARPU to FY2023 is driven by:

- Progressive release of enhanced, higher value business products by NBN Co in the period FY2013-16.
- Increasing penetration of NBN Co products into the business market.
- Increasing take-up of business enhanced service levels and Committed Information Rate (**CIR**) traffic classes.

15.8 Revenue Summary

Exhibit 15-8: Revenue Composition by Year FY2013 to FY2021 (Nominal Dollars)



Source: NBN Co

The exhibit above and discussion may include forecasts. Please refer to NBN Co's Legal Notice on Page 2 of the 2013-16 Corporate Plan for information about forecasts stated in this document.

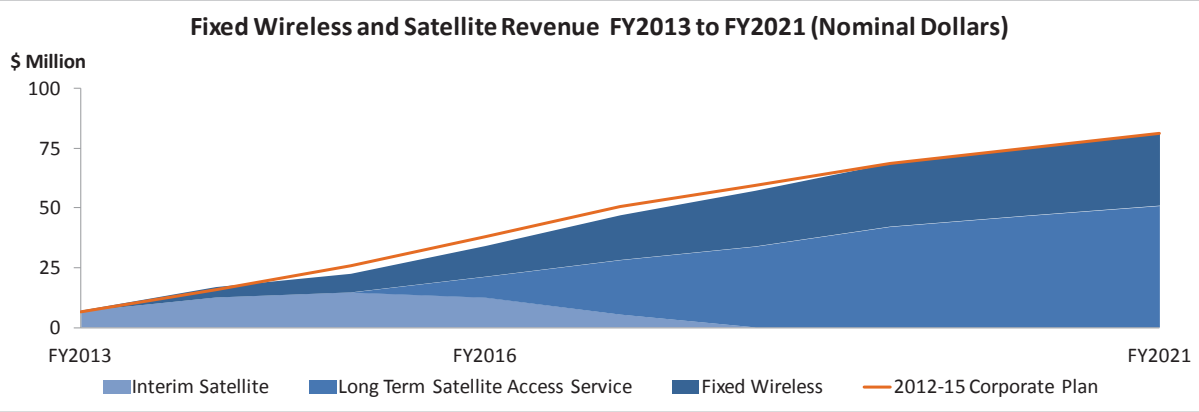
The overall composition of NBN Co revenues remains broadly unchanged from the 2012-15 Corporate Plan. The mix of forecast revenues in FY2021 is as follows:

- Fibre AVC 52%
- CVC and NNI 26%
- Business Services (excluding AVC, CVC and NNI) 12%
- Multicast & Other 9%
- Fixed Wireless & Satellite 1%

15.8.1 Fixed Wireless and Satellite

Forecast revenue from the Fixed Wireless and Satellite Networks remains largely unchanged from the 2012-15 Corporate Plan.

Exhibit 15-9: Forecast Fixed Wireless and Satellite Revenues ($ million) (Nominal Dollars)



Source: NBN Co

The exhibit above and discussion may include forecasts. Please refer to NBN Co's Legal Notice on Page 2 of the 2013-16 Corporate Plan for information about forecasts stated in this document.

15.8.2 Other Potential Revenues

NBN Co continues to evaluate the potential for additional revenue from sources such as community services.

It is envisioned that Federal, State and Local governments, in addition to private providers, will look to improve service delivery and drive cost reductions by using the NBN to deliver services such as e-health, aged care and e-education to End-Users. No assumptions have been made in the 2013-16 Corporate Plan in relation to potential revenues that may be delivered by such services.

15.9 Material Issues

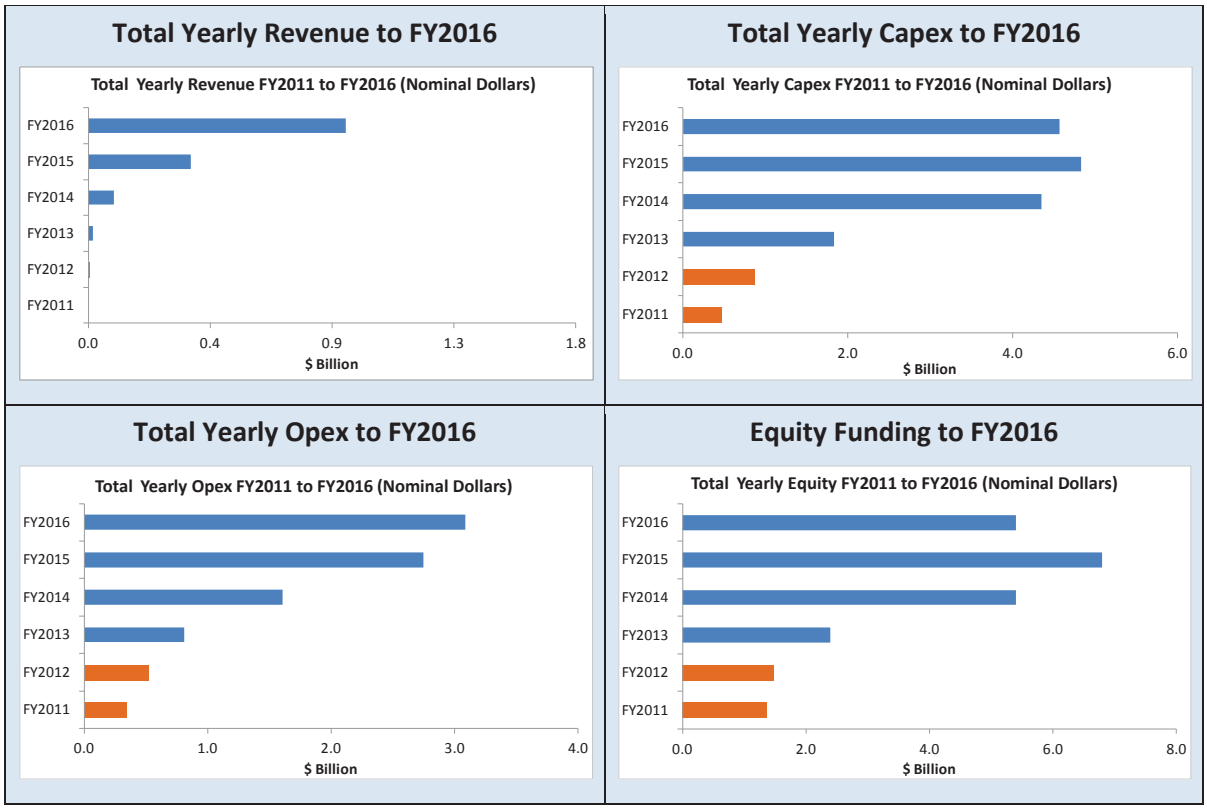
Ability to meet revenues targets.

- Disconnection of the existing fixed line Copper and HFC Networks is central to driving the take-up assumptions. NBN Co has contractual arrangements in place under the Telstra Definitive Agreements and the Optus HFC Subscriber Agreement. Should these contractual arrangements be undermined by commercial or other activity, then revenue projections could be at risk.
- Assessing the extent of wireless substitution and likely growth in data usage requires NBN Co to make assumptions about future events that are, by their nature, uncertain.

16 Financial Forecasts

16.1 Financial Summary

Exhibit 16-1: 2013-16 Corporate Plan Financial Summary (Nominal Dollars)



Source: NBN Co

The exhibit above and discussion may include forecasts. Please refer to NBN Co's Legal Notice on Page 2 of the 2013-16 Corporate Plan for information about forecasts stated in this document.

16.2 Major Corporate Plan Assumptions

The 2013-16 Corporate Plan major assumptions over the period of construction between FY2011 and FY2021 are detailed in Exhibit 16-2 and Exhibit 16-3.

Exhibit 16-2: Selected Forecasts and Projections for the FTTP Network Construction Period (FY2011 – FY2021)

Forecasts and Projections	FTTP Network Construction Period Key Metrics (Rounded) (Nominal Dollars)
Coverage	▪ 13 million premises covered by FY2021 in line with the coverage obligations set out in the Statement of Expectations.
FTTP Deployment Metrics	▪ Approximately 150,000 kms of covered road distance. ▪ Over 200,000 kms of Gigabit-capable Passive Optical Network (**GPON**) (physical distances). ▪ 25% of premises in the Local Network to be passed aerially.
Premises Passed/Covered	▪ End of Fibre construction period is June 2021. ▪ 12 million Fibre premises passed by FY2021. ▪ 1 million Fixed Wireless and Satellite premises covered by FY2021.
Premises Activated	▪ End of Copper/HFC broadband services Disconnection Dates is FY2023. ▪ 8.5 million Fibre premises activated by FY2021. ▪ 0.2 million Fixed Wireless and Satellite premises activated by FY2021.
Greenfields*	▪ NBN Co to pass all Greenfields Premises by the end of the deployment, representing an estimated 2 million premises in the Fibre Footprint.
End-User Connection Model	▪ 'Build Drops' approach.
Capital Expenditure	▪ Approximately $37.4 billion total forecast Capital Expenditure to the end of the FTTP Network Construction period (to Jun'21).
Revenues	▪ Approximately $21.7 billion total forecast Revenues to FY2021.
Operating Expenditure	▪ Approximately $26.4 billion total forecast Operating Expenditure to FY2021.
Cumulative EBITDA	▪ Approximately $(4.7) billion of cumulative forecast EBITDA to be funded prior to the end of the FTTP Network Construction period (to Jun'21).
Levered Funding (to FY2021)	▪ Forecast of $30.4 billion of Peak Government Equity. ▪ Forecast of $15.2 billion of Peak Debt Funding. ▪ Together, a forecast Total Peak Funding requirement of $45.6 billion (including funding costs).
Unlevered Internal Rate of Return (IRR)	▪ Forecast of 7.1%.

Source: NBN Co

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

The above table and discussion may include forecasts. Please refer to NBN Co's Legal Notice on Page 2 of the 2013-16 Corporate Plan for information about forecasts stated in this document.

Exhibit 16-3: Forecast Summary Financials (Nominal Dollars)

Summary Financials								
June YE	Total (To End of FY2021)	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2021
Total Premises Passed - Fibre ('000s)	**12,202**	**18**	**39**	**205**	**981**	**2,450**	**3,943**	**12,202**
Total Premises Activated - Fibre ('000s)	**8,525**	**1**	**4**	**34**	**335**	**1,147**	**2,290**	**8,525**
Premises Covered - Fixed Wireless & Satellite ('000s)	**974**	**165**	**174**	**287**	**380**	**752**	**819**	**974**
Total Premises Activated - Fixed Wireless & Satellite ('000s)	**232**	**0**	**10**	**35**	**67**	**84**	**136**	**232**
Total Premises Activated ('000s)	**8,757**	**1**	**14**	**69**	**402**	**1,231**	**2,426**	**8,757**
Total Revenue	**21,660**	**-**	**2**	**17**	**94**	**377**	**951**	**6,250**
Total Operating Expenditure	(26,383)	(337)	(512)	(812)	(1,608)	(2,746)	(3,089)	(3,244)
EBITDA	**(4,723)**	**(337)**	**(510)**	**(795)**	**(1,514)**	**(2,369)**	**(2,138)**	**3,006**
EBITDA Margin	(22)%	NM	NM	NM	NM	NM	(225)%	48%
EBIT	(13,676)	(356)	(583)	(921)	(1,926)	(3,003)	(2,977)	1,376
Net Cash Interest (Funding Costs)	(2,608)	33	60	50	53	36	(0)	(1,082)
EBT	**(16,284)**	**(323)**	**(522)**	**(871)**	**(1,872)**	**(2,968)**	**(2,977)**	**294**
Total Capital Expenditure	(37,423)	(463)	(863)	(1,836)	(4,353)	(4,829)	(4,591)	(2,919)
Movement in Working Capital	(118)	38	183	461	843	233	(236)	(166)
Cash Tax	-	-	-	-	-	-	-	-
Levered Free Cash Flow	**(44,873)**	**(729)**	**(1,130)**	**(2,120)**	**(4,971)**	**(6,929)**	**(6,965)**	**(1,162)**
Government Funding		1,362	2,832	5,229	10,629	17,429	22,829	30,400
Debt Funding		-	-	-	-	590	1,613	15,246
Total Funding		**1,362**	**2,832**	**5,229**	**10,629**	**18,019**	**24,442**	**45,646**
Debt / EBITDA		0.0 x	0.0 x	0.0 x	0.0 x	(0.2)x	(0.8)x	5.1 x
Debt / Total Funding		0.0%	0.0%	0.0%	0.0%	3.3%	6.6%	33.4%

Source: NBN Co

For the purpose of the Corporate Plan, Operating Expenditure forecasts include all nominal payments, such as obligations under finance lease agreements and infrastructure licences. This nominal view of costs incurred may differ from the accounting treatment under the statutory accounting rules. This is consistent with prior Corporate Plans and is intended to provide Opex and Earnings metrics (EBITDA, EBIT) on an incurred basis.

The above table and discussion may include forecasts. Please refer to NBN Co's Legal Notice on Page 2 of the 2013-16 Corporate Plan for information about forecasts stated in this document.

16.3 Deployment and Activations Forecasts

Exhibit 16.4 illustrates NBN Co's forecast of Premises/Lots Passed or Covered for FTTP Brownfields, FTTP Greenfields, Fixed Wireless and Satellite Networks.

Exhibit 16-4: Premises/Lots Passed or Covered Forecast (Cumulative)

2013-16 Corporate Plan Premises or Lots Passed*/Covered YoY (Thousand)				
	FTTP Brownfields	FTTP Greenfields**	Fixed Wireless & Satellite	Total
FY2011	18	-	165	183
FY2012	29	10	174	213
FY2013	165	40	287	492
FY2014	850	131	380	1,361
FY2015	2,200	250	752	3,202
FY2016	3,563	380	819	4,762
FY2021	10.1 million	2.1 million	0.97 million	13.2 million

Source: NBN Co

FY2013: FTTP Brownfields cumulative Premises Passed is forecast within the range of 155 thousand to 175 thousand. FTTP Greenfields is forecast within the range of 35 thousand to 45 thousand Premises/Lots Passed.

Premises or Lots Passed/Covered are stated as rounded figures.

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 Service Provider.

* Greenfields in New Developments: lots passed may not equal Premises Passed depending on developers' timeframe to build.

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

The above table may include forecasts. Please refer to NBN Co's Legal Notice on Page 2 of the 2013-16 Corporate Plan for information about forecasts stated in this document.

Exhibit 16.5 illustrates NBN Co's forecast of Premises Activated for FTTP Brownfields, FTTP Greenfields, Fixed Wireless and Satellite Networks.

Exhibit 16-5: Premises Activated Forecast (Cumulative)

2013-16 Corporate Plan Premises Activated YoY (Thousand)				
	FTTP Brownfields	FTTP Greenfields**	Fixed Wireless & Satellite	Total
FY2011	0.6	-	0.2	0.8
FY2012	3	0.5	10	13.5
FY2013	22	12	35	69
FY2014	280	55	67	402
FY2015	1,021	126	84	1,231
FY2016	2,052	238	136	2,426
FY2021	7.0 million	1.5 million	0.2 million	8.8 million

Source: NBN Co

Premises Activated are stated as rounded figures.

Premises are Activated after receiving and provisioning a service order from a Service Provider to install a new service at the premises.

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

The above table may include forecasts. Please refer to NBN Co's Legal Notice on Page 2 of the 2013-16 Corporate Plan for information about forecasts stated in this document.

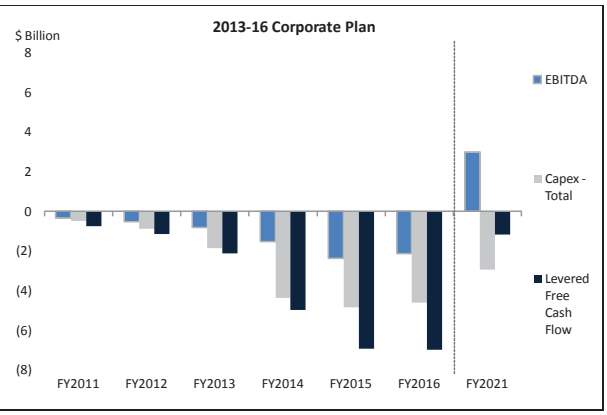
16.4 Key Financial Indicators

Exhibit 16-6 illustrates the forecast key financial indicators for NBN Co, including the project forecast unlevered Internal Rate of Return (**IRR**).

The 2013-16 Corporate Plan forecast return of 7.1% is similar to the forecast return in the 2012-15 Corporate Plan and the 2011-13 Corporate Plan.

Exhibit 16-6: Forecast Key Financial Indicators for the 2012-15 Corporate Plan and 2013-16 Corporate Plan (Nominal Dollars)

Key Financial Indicators	2012-15 Corporate Plan	2013-16 Corporate Plan
IRR	7.1%	7.1%
Payback Year	FY2033	FY2033
Total Revenues (to end of FY2021)	$23.1 bn	$21.7 bn
Total Capex (to end of FY2021)	$37.4 bn	$37.4 bn
Opex (to end of FY2021)	$26.4 bn	$26.4 bn
Peak Funding	$44.1 bn	$45.6 bn
Peak Government Equity	$30.4 bn	$30.4 bn
Peak Debt	$13.7 bn	$15.2 bn
EBITDA Positive	FY2019	FY2019
EBIT Positive	FY2020	FY2020
EBT Positive	FY2021	FY2021
Levered Free Cash Flow Positive	FY2022	FY2022



Source: NBN Co

The above table may include forecasts. Please refer to NBN Co's Legal Notice on Page 2 of the 2013-16 Corporate Plan for information about forecasts stated in this document.

The financial forecasts of the Corporate Plan can be summarised in the following simplified profit and loss accounts and applications and sources of funds for the periods to FY2016 and to FY2021, respectively.

Exhibit 16-7: Profit and Loss (Cumulative, $ Billion) (Nominal Dollars)

To the End of the Corporate Plan (July 2010 to June 2016) (Cumulative $ Billion – Nominal Dollars)	To the End of the FTTP Network Construction Period in June 2021 (Cumulative $ Billion – Nominal Dollars)

Profit & Loss (Cumulative, July 2010 to June 2016)

	($bn)		($bn)
Total Operating Expenses	9.1	Total Revenues	1.4
Cumulative EBITDA	**(7.7)**		

Profit & Loss (Cumulative, July 2010 to June 2021)

	($bn)		($bn)
Total Operating Expenses	26.4	Total Revenues	21.7
Cumulative EBITDA	**(4.7)**		

Source: NBN Co

Note: For the table To the End of the Corporate Plan: term is for 6 years.

The above tables may include forecasts. Please refer to NBN Co's Legal Notice on Page 2 of the 2013-16 Corporate Plan for information about forecasts stated in this document.

Exhibit 16-8: Funding Summary (Cumulative, $ Billion) (Nominal Dollars)

To the End of the Corporate Plan (July 2010 to June 2016) (Cumulative $ Billion – Nominal Dollars)	To the End of the FTTP Network Construction Period in June 2021 (Cumulative $ Billion – Nominal Dollars)

Funding Summary (Cumulative, July 2010 to June 2016)

	($bn)		($bn)
FY2010 Cash Flow	0.1	Equity	22.8
Cumulative EBITDA *(July 2010 to June 2016)*	7.7	Debt	1.6
Total Capex	16.9		
Working Capital	(1.5)		
Net Debt Funding Costs	(0.2)		
Tax	-		
Cash at Bank	1.5		
Total Applications	**24.4**	**Total Sources**	**24.4**

Funding Summary (Cumulative, July 2010 to June 2021)

	($bn)		($bn)
FY2010 Cash Flow	0.1	Equity	30.4
Cumulative EBITDA *(July 2010 to June 2021)*	4.7	Debt	15.2
Total Capex	37.4		
Working Capital	0.1		
Net Debt Funding Costs	2.6		
Tax	-		
Cash at Bank	0.7		
Total Applications	**45.6**	**Total Sources**	**45.6**

Source: NBN Co

Note: 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 FTTP Network Construction period.

Debt Funding: it has been assumed that peak Debt Funding equivalent to 33% 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.

The above tables may include forecasts. Please refer to NBN Co's Legal Notice on Page 2 of the 2013-16 Corporate Plan for information about forecasts stated in this document.

16.5 Comparison to 2012-15 Corporate Plan

Exhibit 16-9: Comparison of 2012-15 Corporate Plan vs. 2013-16 Corporate Plan for the FTTP Network Construction Period ($ Billion) (Nominal Dollars)

Major Assumptions and Forecast Financial Metrics	2012-15 Corporate Plan	2013-16 Corporate Plan	Change
Forecast Return (30 year Unlevered IRR)	7.1%	7.1%	-
Capital Expenditure (to End Construction)	$37.4 billion (to Jun'21)	$37.4 billion (to Jun'21)	-
Revenues (to FY2021)	$23.1 billion	$21.7 billion	$(1.4) billion
Operating Expenditure (to FY2021)	$26.4 billion	$26.4 billion	-

Source: NBN Co

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

The above table may include forecasts. Please refer to NBN Co's Legal Notice on Page 2 of the 2013-16 Corporate Plan for information about forecasts stated in this document.

The key drivers of the variances to the 2012-15 Corporate Plan include:

- Slower deployment and activations profile (Revenue $(1.4) billion, Opex +$0.4 billion).
- Reductions in Transit estimates of $(0.5) billion linked to Transit Fibre, equipment and capacity utilisation.
- Increased provisioning of Common Capex totalling +$0.6 billion in relation to IT systems and product development (Active and Passive Network Releases, National Test Facility).
- Provisioning of costs for Fixed Wireless and Satellite totalling +$0.2 billion in Capex and +$0.1 billion in Opex to cover areas outside the FTTP Network.
- The net impact of other changes totalling $(0.3) billion of capex and $(0.5) billion of Opex. The other movements relate mostly to the reforecast for FY2013 and FY2014, as well as the latest estimates for IT Systems operating expenditure and overheads costs.
- The contingency remains at approximately 10% of the forward looking capex between FY2014 and FY2021 of $34.3 billion.

Exhibit 16-10: Reconciliation of 2013-16 Corporate Plan vs. 2012-15 Corporate Plan for the FTTP Network Construction Period ($ Billion) (Nominal Dollars)

Type of Changes To FY2021	Forecast Capital Expenditure	Forecast Revenues	Forecast Operating Expenditure
2012-15 CP	**$37.4 billion**	**$23.1 billion**	**$26.4 billion**
Deployment/Activations	-	$(1.4) billion	$0.4 billion
Transit Network	$(0.5) billion	-	-
Common Capex (IT Systems, Data Centres, ANRs, NTF)	$0.6 billion	-	-
Fixed Wireless & Satellite	$0.2 billion		$0.1 billion
Net Other Movements	$(0.3) billion		$(0.5) billion
Total Net Changes	**$0.0 billion**	**$(1.4) billion**	**$0.0 billion**
2013-16 CP	**$37.4 billion**	**$21.7 billion**	**$26.4 billion**

Source: NBN Co

The above table may include forecasts. Please refer to NBN Co's Legal Notice on Page 2 of the 2013-16 Corporate Plan for information about forecasts stated in this document.

16.5.1 Revenue - Comparison to the 2012-15 Corporate Plan

The 2013-16 Corporate Plan forecasts a total of approximately $21.7 billion in revenue during the construction of the FTTP Network (to pass/cover 100% of Australian premises by FY2021) between FY2011 and FY2021. This compares to $23.1 billion previously forecast in the 2012-15 Corporate Plan. The change in forecast revenue is primarily driven by a revised forecast deployment profile and its flow on effect on Activations. The penetration rates and APRU assumed in the 2013-16 Corporate Plan remain broadly in line with the 2012-15 Corporate Plan with total FTTP Activations forecast to be 8.5 million in FY2021 (Brownfields plus Greenfields 70% penetration rate) and Fixed Wireless and Satellite forecast at 232,000 Activations (24% penetration rate); Total Activations by FY2021 and forecast to be 8.76 million (66% penetration rate).

16.5.2 Capital Expenditure - Comparison to the 2012-15 Corporate Plan

The 2013-16 Corporate Plan forecasts a total of approximately $37.4 billion in Capital Expenditure during the construction of the FTTP Network between FY2011 and FY2021. This is in line with the 2012-15 Corporate Plan.

Non-allocated contingencies comprise 10% of forward looking capital expenditure (FY2014 to FY2021) in line with the previous Corporate Plan.

A total of approximately $16.9 billion in capital expenditure is forecast for the FY2011-FY2016 period. This is a reduction in forecast capital expenditure of $(1.5) billion over this period compared to the 2012-15 Corporate Plan, reflecting a shift in time of spend from the revised network deployment forecasts.

16.5.3 Operating Expenditure - Comparison to the 2012-15 Corporate Plan

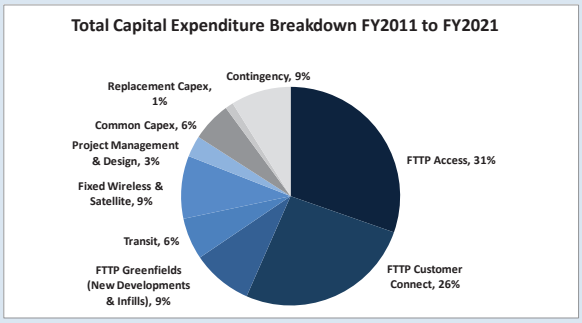
Operating expenditure for NBN Co's FTTP, Fixed Wireless and Satellite Networks is forecast to total approximately $26.4 billion over the Construction Period FY2011 to FY2021. This forecast is unchanged compared to the 2012-15 Corporate Plan forecast.

The 2013-16 Corporate Plan forecasts a total of approximately $9.1 billion in operating expenditure over the period FY2011 to FY2016, representing a reduction of $(1.2) billion relative to the 2012-15 Corporate Plan.

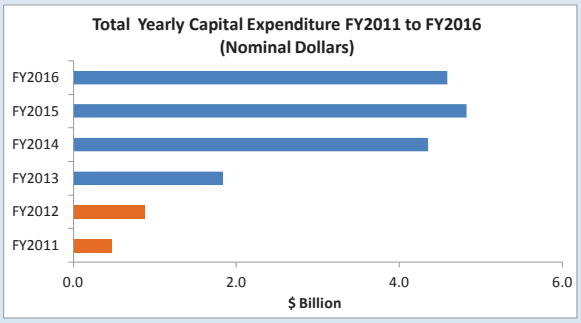
16.6 Capital Expenditure

Exhibit 16-11: Total Capital Expenditure Breakdown FY2011 to FY2021 (Nominal Dollars)

Total Capital Expenditure Breakdown FY2011 to FY2021 (Nominal Dollars)



Total Capital Expenditure by Year FY2011 to FY2016 (Nominal Dollars)



Source: NBN Co

The exhibits above may include forecasts. Please refer to NBN Co's Legal Notice on Page 2 of the 2013-16 Corporate Plan for information about forecasts stated in this document.

NBN Co's FTTP, Fixed Wireless and Satellite Networks are forecast to Pass/Cover 100% of Australian Premises by FY2021 for a total Capital Expenditure of approximately $37.4 billion. These capital costs include construction costs for the FTTP, Transit, Fixed Wireless and Satellite Networks, replacement and maintenance costs, development costs for operational and business support systems, capitalised project management and design costs, as well as contingencies.

The forecast timing of capital expenditure over the period FY2011 to FY2021 and components of expenditure are driven by network deployment. The construction elements of Capital Expenditure including Transit, FTTP Access, FTTP Customer Connect, FTTP Greenfields, Fixed Wireless and Satellite, are discussed in further detail in Sections 9 to 13.

16.6.1 Replacement Capital Expenditure

Replacement capital expenditure is forecast to total $0.4 billion (or 1% of total Forecast Capital Expenditure over FY2011 to FY2021) and is in line with the 2012-15 Corporate Plan. Replacement capital expenditure for the Fibre, Transit Network, IT Systems, data centre, and other facilities make up approximately 90% of the total forecast amount over this period and comprises replacement costs for active equipment which reach the end of service life during this period.

Replacement capital expenditure expected for the Fibre, Fixed Wireless and Satellite Networks is insignificant over the period to FY2021.

- **FTTP Network** – Limited Replacement Capex expected for period to FY2021. Initial Replacement Capex is expected to relate to active equipment, including Network Termination Devices (**NTDs**) which typically have forecast service life of six to eight years.
- **Fixed Wireless Network** – Replacement capex is driven by active network equipment including NTDs, Antenna equipment, Core servers and BTS hardware which typically have a forecast service life of between five and seven years.

- **Satellite Network** – Satellites typically have a forecast service life of 15 years. A four year construction period is typically required to ensure operational timeframes are achieved. The 2013-16 Corporate Plan assumes the replacement of customer premises equipment for the LTSS Network which has a forecast service life of six to seven years.

16.6.2 Project Management & Design

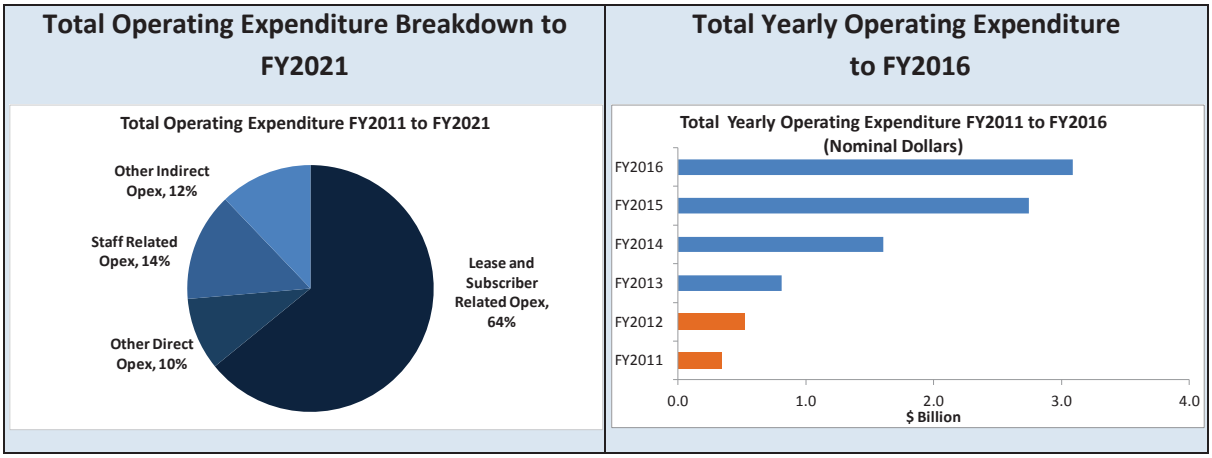
Project Management & Design Capital Expenditure is forecast to total approximately $1.2 billion or 3% of Total Capital Expenditure over the period FY2011 to FY2021 and is in line with the 2012-15 Corporate Plan. This cost represents the capitalised amounts of NBN Co's employees who are participating in the project management and design of the NBN.

16.6.3 Contingency

Contingency is included in capital expenditure to cover for operational risks, financial risks and business risks. The 2013-16 Corporate Plan includes a total of approximately $3.3 billion or 10% of the forward looking capital expenditure over the period FY2014 to FY2021.

16.7 Operating Expenditure

Exhibit 16-12: Total Operating Expenditure Breakdown (Nominal Dollars)



Source: NBN Co

The exhibits above may include forecasts. Please refer to NBN Co's Legal Notice on Page 2 of the 2013-16 Corporate Plan for information about forecasts stated in this document.

Consistent with the prior Corporate Plans, the 2013-16 Corporate Plan has been prepared on a nominal basis (costs incurred) rather than an accounting basis. The main difference relates to the treatment of finance lease payments which under accounting rules are capitalised and amortised over an average of 35 years.

Operating expenditure for NBN Co's FTTP, Fixed Wireless and Satellite Networks is forecast to total approximately $26.4 billion over the FTTP Network Construction Period FY2011 to FY2021, which is consistent with the amount forecast in the 2012-15 Corporate Plan.

Excluding PSAA payments for Disconnections and HFC migrations, the operating expenses are forecast to grow in line with the expansion of NBN Co's activities. Payments for disconnections of Copper/HFC services to Telstra and Optus are forecast to increase in the later years of the Corporate Plan as the disconnection process takes place and services are migrated onto the FTTP Network. These payments are forecast to last until FY2023, after which all End-Users are expected to be transferred onto the FTTP Network.

16.7.1 Lease and Subscriber Related Expenditure

Lease and Subscriber Related expenditure accounts for a total of approximately $16.9 billion over the FY2011 to FY2021 period, representing approximately 64% of total operating expenditure.

16.7.2 Other Direct Operating Expenditure

Other direct operating expenditure accounts for a total of approximately $2.5 billion over the FY2011 to FY2021 period, representing approximately 10% of total operating expenditure. This expenditure includes Managed Backhaul Services, power, operational systems and maintenance.

16.7.3 Staff Related Opex

Staff related expenditure accounts for a total of approximately $3.7 billion over the FY2011 to FY2021 period, representing approximately 14% of total operating expenditure. Headcount is forecast to be approximately 3,300 FTEs in FY2014.

16.7.4 Other Indirect Operating Expenditure

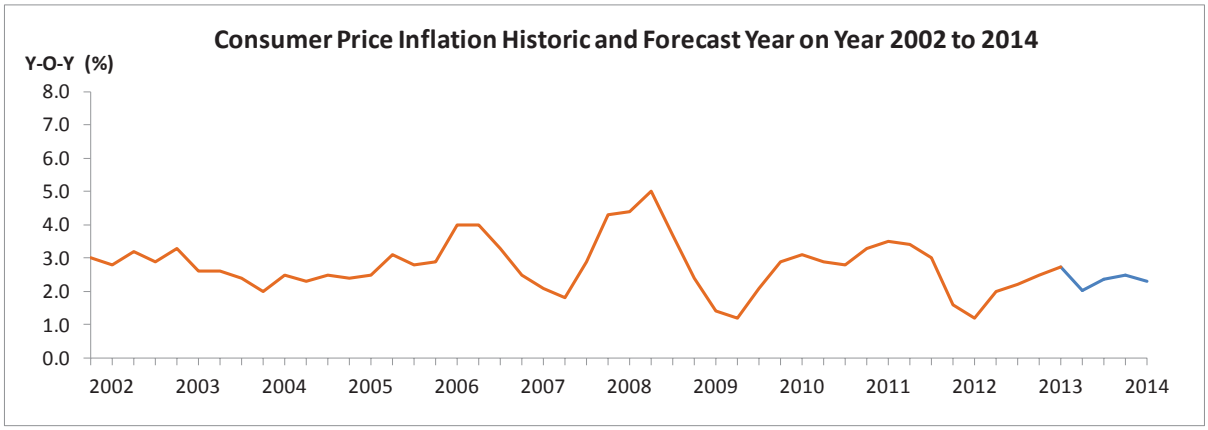
Other indirect operating expenditure accounts for a total of approximately $3.2 billion over the FY2011 to FY2021 period, representing approximately 12% of total operating expenditure. Indirect costs include IT, telecommunications, facilities, outsourced operations and maintenance, advertising, licenses and product development, insurance, recruitment and training, external consulting and business advisory, legal and negotiation support, and selling, general and administration costs.

16.8 Consumer Price Inflation (CPI)

The 2013-16 Corporate Plan assumes a 2.5% Consumer Price Inflation (**CPI**) which compares with:

- The long term 2-3% average CPI target set by the Reserve Bank of Australia.[56]
- Consensus short term inflation forecasts which average 2.4% over the next 4 quarters.[57]
- 5 year average historic CPI rates of 2.5%.

Exhibit 16-13: Consumer Price Inflation Historic and Forecast Year on Year



Source: RBA, Bloomberg Consensus data

56 RBA Website, http://www.rba.gov.au/statistics/tables/index.html#prices_inflation

57 CPI forecasts from CBA, NAB, Deutsche, WBA, Barclays, HSBC, ANZ and UBS.

16.9 Working Capital

Working capital is forecast to be negative in the initial years of the rollout as accounts payable exceeds accounts receivable and inventory. Over time, this relationship is forecast to reverse and working capital requirements emerge towards the second half of the rollout in FY2018. However, over the full FTTP Network construction period, the annual net movements in working capital are forecast to represent $(0.1) billion on a cumulative basis.

16.10 Taxation

16.10.1 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 tax losses carried forward 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 has assumed a corporate income tax rate of 30% throughout the forecast period.

16.10.2 Other Taxes and Related Charges

GST is not expected to create material costs for NBN Co, other than general cost of compliance. All unit costs and product pricing referenced within the 2013-16 Corporate Plan are ex-GST. The cost of other significant taxes (e.g. payroll tax, superannuation guarantee contributions) has been factored into the financial model using the rates currently legislated.

16.11 Funding NBN Co

16.11.1 Equity Funding Agreement

To date NBN Co has been funded by successive equity injections from the Commonwealth totalling $5.3 billion, including $2.4 billion in FY2013.

It is expected that NBN Co will continue to be funded with Commonwealth equity until NBN Co has sufficient cash flows and track record to support private sector debt without explicit Commonwealth support. It is assumed that NBN Co will start to raise private sector debt to complement Commonwealth equity during the rollout period. Following completion of the rollout, NBN Co's Board, in conjunction with the Commonwealth, will consider the optimal capital structure for NBN Co. This may include applying private sector debt to repaying the Commonwealth's investment.

NBN Co's equity funding arrangements are governed by an agreement between NBN Co and the Commonwealth (**Equity Funding Agreement**). The Equity Funding Agreement was entered into on 22 June 2011 and was subsequently amended on 8 August 2012. The Equity Funding Agreement formalises the Commonwealth's commitment to provide equity to fund the rollout of the NBN, with such funding being reviewed annually through the approval of the Corporate Plan and conditional on the annual Parliamentary appropriation process. The Equity Funding Agreement as of 8 August 2012 is based on the expected $30.4 billion equity funding requirement projected in Corporate Plan 2012-15.

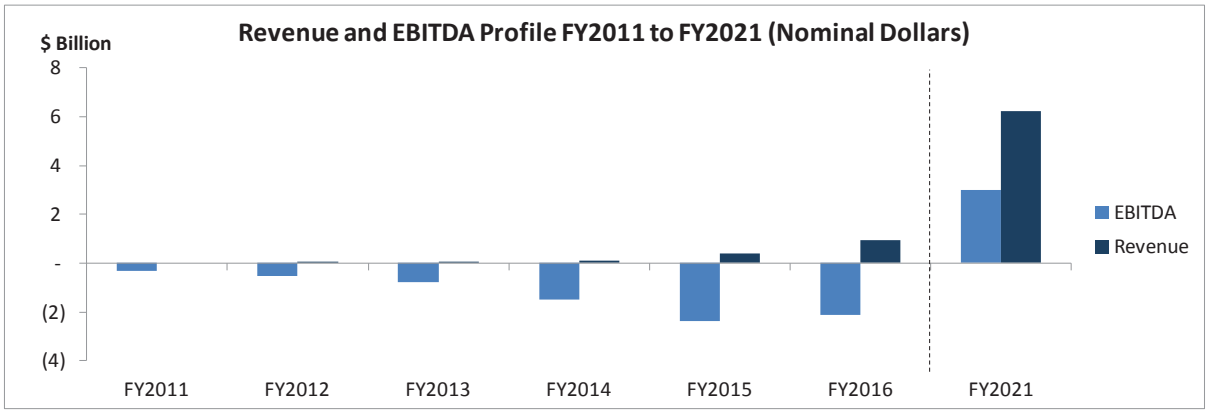
The Equity Funding Agreement provides NBN Co with the confidence and the financial stability required to enter into the long term commercial contracts needed to achieve the Commonwealth's policy objectives, as set out in the SoE and as supplemented by the Government from time to time.

In the event of the termination of the Equity Funding Agreement or the NBN rollout being terminated or materially reduced in scope, the Commonwealth has agreed to provide sufficient funding to NBN Co to enable NBN Co to meet its direct costs of that termination. NBN Co currently estimates cost of termination to be $3.7 billion.

16.11.2 Determining NBN Co's Funding Requirement

NBN Co's funding profile is typical of a large-scale infrastructure operator, with expenditure required upfront to build and operate the network and revenues subsequently growing over time to achieve profitability. NBN Co forecasts EBITDA on a nominal basis (costs incurred) to be positive in FY2019.[58]

Exhibit 16-14: NBN Co's Revenues and EBITDA Profile ($ Billion) (Nominal Dollars)



Source: NBN Co

The exhibit above and discussion may include forecasts. Please refer to NBN Co's Legal Notice on Page 2 of the 2013-16 Corporate Plan for information about forecasts stated in this document.

NBN Co's unlevered funding requirement is determined by the forecast EBITDA (Nominal Dollars) and Capital Expenditure profiles, allowing for movements in working capital. The total unlevered funding requirement over the period covered by the Corporate Plan is forecast to peak at $42.1 billion in FY2021.

16.11.3 Part of a Long Term Funding Plan

NBN Co is planning to meet part of its funding requirement by raising debt over time. Raising debt implies that NBN Co will also need to fund interest payments on that debt, which increases the forecast Peak Total Funding Requirement from approximately $42.1 billion (unlevered) to approximately $45.6 billion (levered) in FY2021.

For the purpose of the 2013-16 Corporate Plan, it is assumed that access to private sector debt will occur during the course of FY2015. This is consistent with previous Corporate Plans. Under this scenario, Peak Government Equity will be approximately $30.4 billion. It is expected that debt funding will contribute up to 33% of the total funding requirement in FY2021.

[58] For the purpose of the Corporate Plan, Operating Expenditure forecasts include all nominal payments, such as obligations under finance lease agreements. This nominal view of costs incurred may differ from the accounting treatment under the statutory accounting rules. This is consistent with prior Corporate Plans and is intended to provide Opex and Earnings metrics (EBITDA, EBIT) on an incurred basis. A reconciliation to statutory accounting treatment is provided later in this Section, *Financial Forecasts*.

16.11.4 NBN Co's Ability to Raise Debt

Critical to NBN Co's ability to raise external funding without explicit support by the Commonwealth will be the opinions of debt providers on NBN Co's performance in achieving major Corporate Plan targets such as rollout timeliness, connections take-up and cost discipline, which will form the key metrics of credit quality.

Since the publication of 2012-15 Corporate Plan, NBN Co has continued to review its debt funding assumptions and to hold discussions with a number of major domestic and international financial institutions to assess NBN Co's future debt funding options. The assumptions for the quantum and the costs of debt funding embedded in this Corporate Plan are consistent with these discussions.

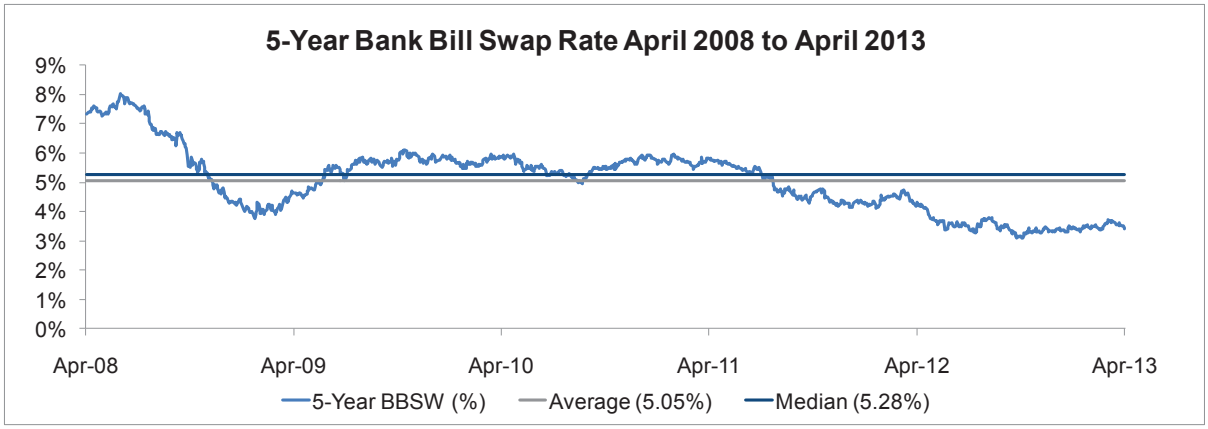
Market capacity, and the risk appetite of debt investors from time to time, may limit or increase the amount of debt that NBN Co can actually raise. Any such variation would require revising the funding plan at the time and may require a different level of Government equity than forecast.

16.11.5 Cost of Debt

Debt funding costs are a function of an underlying base rate (or 'reference rate') plus a margin and other debt fees associated with raising debt facilities.

Consistent with previous Corporate Plans, the 2013-16 Corporate Plan uses the 5-year Bank Bill Swap Rate (**BBSW**) as the underlying reference rate. As a result of general economic conditions, the 5-year historical average BBSW has fallen from 5.90% in December 2010 to 5.53% in August 2012, and to 5.05% in April 2013.

Exhibit 16-15: 5-Year Bank Bill Swap Rate (%)



Source: Bloomberg

The assumed margin on NBN Co debt is derived from a combination of factors, both in terms of Company specific factors and also other external factors, such as the debt providers' appetite for risk at that particular point in time. NBN Co's standalone credit profile will take into account factors such as NBN Co's underlying cash flows, profitability and performance against the Corporate Plan operational and financial targets. The level of implied support provided by the Commonwealth Government is expected to lift NBN Co's overall rating to investment grade well before the underlying cash flows would normally support such a rating. A high level of implied Government support is expected to significantly reduce NBN Co's debt margins in the early years, particularly prior to turning EBITDA (Nominal Dollars) positive in FY2019.

For the purpose of the 2013-16 Corporate Plan, debt funding costs have been adjusted downwards compared to 2012-15 Corporate Plan. This reflects the recent positive conditions of debt markets and indicative pricing from a number of financial institutions based on a number of comparable benchmarks.

16.11.6 Funding the FY2013 to FY2016 Period

Exhibit 16-16 provides a forecast equity funding drawdown profile (cash-based).

*Exhibit 16-16: NBN Co's Forecast Equity Funding Requirement ($ Million) (Nominal Dollars)**

	2012 - 15 CP	2013 - 16 CP	
Year Ending 30 June	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)	1,362	1,050	1,362
2012 (Actual)	2,832	1,470	2,832
2013	7,504	2,397	5,229
2014	13,623	5,400	10,629
2015	20,287	6,800	17,429
2016	25,047	5,400	22,829

Source: NBN Co

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

The exhibit above and discussion may include forecasts. Please refer to NBN Co's Legal Notice on Page 2 of the 2013-16 Corporate Plan for information about forecasts stated in this document.

The anticipated total funding requirements (debt and equity) amount to $21,610 million for the Corporate Plan period from July 2012 to June 2016 (FY2013-FY2016), of which equity is forecast to represent $19,997 million.

16.12 Forecast High Level Financial Statements (Statutory Format)

Exhibit 16-17 below provides forecast high level financial statements in a statutory reporting format. For statutory accounting purposes certain items treated as Operating Costs above the EBITDA line in the 2013-16 Corporate Plan are required to be capitalised and recorded under Fixed Assets. These include payments made under financial lease or finance lease equivalent arrangements.

Exhibit 16-17: Forecast Summary Financials (Nominal Dollars)

P&L Statement		FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2021
Operating Revenues	[$M]	-	2	17	94	377	951	6,250
Operating Costs	[$M]	(337)	(509)	(745)	(1,377)	(2,299)	(2,573)	(2,519)
Accounting EBITDA	[$M]	(337)	(507)	(728)	(1,284)	(1,922)	(1,622)	3,731
Depreciation & Amortisation	[$M]	(19)	(74)	(156)	(523)	(842)	(1,094)	(1,946)
Accounting EBIT	[$M]	(356)	(581)	(884)	(1,807)	(2,764)	(2,716)	1,785
Net Interest Income (Expense)	[$M]	33	54	(14)	(154)	(268)	(376)	(1,712)
Accounting EBT	[$M]	(323)	(527)	(898)	(1,961)	(3,033)	(3,092)	72
Tax Credit/(Tax Expense)	[$M]	-	7	-	-	-	-	-
Other Comprehensive Income/(Loss)	[$M]	-	16	-	-	-	-	-
Income/(Loss) after Tax	**[$M]**	**(323)**	**(504)**	**(898)**	**(1,961)**	**(3,033)**	**(3,092)**	**72**

Balance Sheet		FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2021
Current Assets	[$M]	595	916	1,131	1,582	2,099	1,633	1,259
Non-Current Assets	[$M]	488	1,552	4,362	10,205	15,334	19,641	35,243
Total Assets		1,083	2,467	5,494	11,787	17,432	21,274	36,503
Current Liabilities	[$M]	116	298	821	1,859	2,239	2,141	1,252
Non-Current Liabilities	[$M]	7	245	1,272	3,088	4,587	6,217	22,544
Total Liabilities		124	543	2,093	4,947	6,825	8,359	23,796
Net Assets	[$M]	959	1,924	3,400	6,840	10,607	12,915	12,706
Total Shareholders Equity	[$M]	959	1,924	3,400	6,840	10,607	12,915	12,706

Cashflow Statement		FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2021
Net Cash (Used in) Operating Activities	[$M]	(317)	(377)	(282)	(595)	(1,957)	(2,234)	1,852
Net Cash (Used in) Investing Activities	[$M]	(407)	(851)	(1,836)	(4,287)	(4,909)	(4,690)	(2,919)
Net Cash Provided by Financing Activities	[$M]	1,050	1,469	2,395	5,386	7,327	6,383	1,078
Net Increase in Cash and Cash Equivalents	[$M]	326	241	277	504	460	(542)	11
Cash position at the End of the Financial Year	[$M]	538	779	1,056	1,560	2,021	1,479	654

Source: NBN Co

The exhibit above and discussion may include forecasts. Please refer to NBN Co's Legal Notice on Page 2 of the 2013-16 Corporate Plan for information about forecasts stated in this document.

17 Risks

17.1 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 premises that all employees have responsibility for risk management in their job areas.

The Board monitors NBN Co's risk profile, risks and the mitigating strategies primarily through the Audit Committee. NBN Co established a system of risk oversight, management and internal control to identify, assess and manage risks that affect NBN Co. NBN Co's risk management covers all potentially significant business risks and strategic considerations, ensuring the Board has a clear understanding of the organisation's risk profile with an emphasis on potentially significant risks. This allows the Board to influence and monitor the effectiveness and adequacy of risk mitigation strategies.

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.

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. The Risk Management Policy was last reviewed by the Board of NBN Co in December 2012.

17.2 Corporate Plan Risks

The Board and Management of NBN Co have identified the following key risks to achieving the 2013-16 Corporate Plan objectives:

- Serious injury or fatality.
- Change of Government policy in relation to the NBN.
- Failure of a key Delivery Partner.
- Failure of key equipment supplier.
- Ability to attract and retain high quality people.
- Ability of IT systems to scale.
- Ability of processes to scale.
- Ability to meet revenues forecasts.
- Costs to connect end-user premises.
- Serious latent equipment failure.
- Serious security breach.
- Serious misconduct or fraud.

Serious injury or fatality.

The construction and operation of the NBN will involve thousands of people employed directly by NBN Co and by its suppliers and contractors. Many of these people will be working in potentially hazardous environments (for example, in traffic exposed locations, in confined spaces, using heavy

machinery, at height or working close to power lines and underground infrastructure such as gas mains).

Change of Government policy in relation to the NBN.

The 2013-16 Corporate Plan is based on delivering the NBN in accordance with the policy directions currently provided to NBN Co, as summarised in Section 4.1, *Objectives of NBN Co*. In the event of a significant change to these policy directions it would be necessary to revise the Corporate Plan.

Failure of a key construction partner.

The majority of the 'in field' work of building the NBN is contracted out to external construction partners. NBN Co is therefore dependent on the performance of these partners to deliver major elements of the network on time and on budget. Failure to perform by one or more of NBN Co's construction partners is a critical risk to the delivery of the Corporate Plan objectives.

Failure of a key equipment supplier.

The operation of the NBN involves the integration of complex fibre optic 'active' equipment (i.e. equipment that requires electrical power) for which, in some instances, there is a limited number of suppliers around the world.

Should an NBN Co key supplier cease to provide or support network-critical equipment, NBN Co's objectives would be at risk.

Ability to attract and retain high quality people.

NBN Co is completing its transition from 'start up', focused on planning and network design, to an established business undertaking volume rollout and operating an ever-growing wholesale telecommunications network. As in any organisation, attracting and retaining the right people is critical to NBN Co's ability to deliver on its Corporate Plan objectives.

Ability of IT systems to scale.

The volume of transactions that will need to be processed through NBN Co's core IT systems will increase significantly as the construction of the network gathers pace. Failure of the IT systems to handle this increased level of activity could significantly disrupt the pace of the rollout and/or result in the need to implement costly manual workarounds.

Ability of processes to scale.

The modular approach to construction of the NBN, and the repetitiveness of other major operational processes such as product development, order fulfilment, service activation and fault rectification lends itself to Business Process Management (**BPM**) methodologies. NBN Co's ability to scale its activities is dependent upon NBN Co's aptitude to define and improve processes to the point where they are efficient, highly repeatable and subject to minimum variation. This requires adherence to standardised procedures, training methods, change management and an appropriate degree of automation. This approach to BPM provides the opportunity to realise significant benefits through the adoption of 'fit for purpose' processes that can be incrementally improved over time to shorten cycle times, lower costs and improve quality. However, failure to ensure processes scale with the business could result in significant cost, quality and schedule implications.

Ability to meet revenue forecasts.

NBN Co has identified three risk areas that are critical to achieving its revenue forecasts:

- Disconnection of existing Copper and HFC Networks in accordance with the Telstra Definitive Agreements and the Optus HFC Subscriber Agreement.
- The extent of 'wireless substitution'.
- The rate of growth of data usage.

Costs to connect End-User premises.

The cost of connecting End-User premises (from the multiport in the street to the NTD in the home/business) is the area of the network where NBN Co has the least level of experience to date, given the early stage of the rollout.

For Single Dwelling Units - the risks relate predominantly to the mix of aerial and underground lead-ins that will be required and the availability of Telstra Lead-In Conduits.

For Multi Dwelling Units - the risks relate to the nature of each MDU and the need to engage with bodies corporate.

Serious latent equipment failure.

NBN Co and its suppliers conduct rigorous equipment testing. However, a serious latent equipment failure could cause significant disruption to services across the network.

Serious security breach.

Because of the scale of the project and the criticality of the network to Australia's economic infrastructure, the NBN is a likely target for malicious cyber attack. A serious security breach through a successful attack on NBN Co's network or corporate systems could result in significant disruptions to network service and/or financial loss.

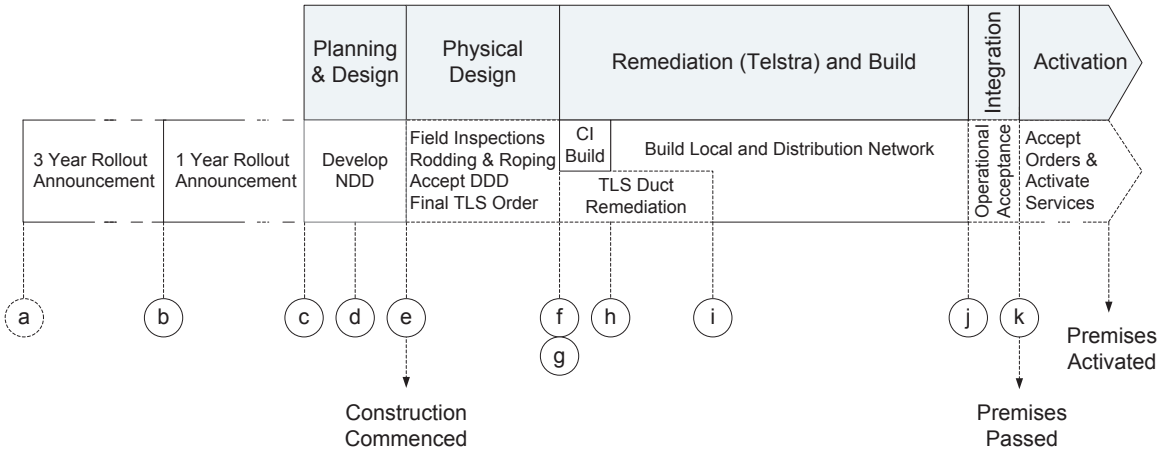
Serious misconduct or fraud.

As the construction of the NBN expands, the volume and value of transactions passing through NBN Co will increase significantly, increasing the risk of serious misconduct or fraud.

18 Appendices

18.1 FSAM Standard Lifecycle

Exhibit 18-1: Standard Lifecycle of a typical Brownfields FSAM

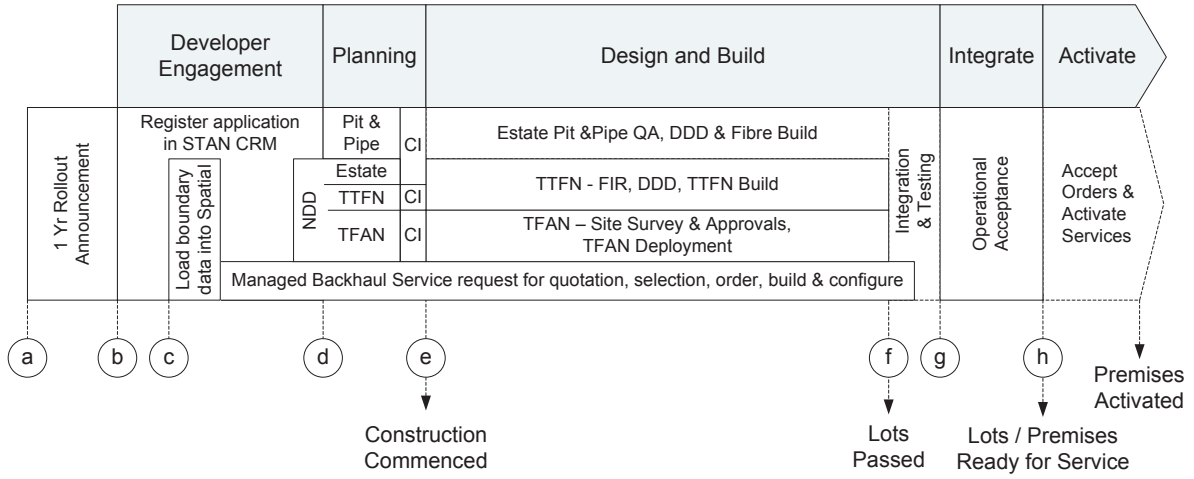


Source: NBN Co

a. The FSAM appears as part of NBN Co's annual 3 year Fibre rollout plan.
b. One year from the expected commencement of construction the FSAM will also appear in the quarterly 12 month Fibre rollout plan.
c. NBN Co's internal Network Planning & Design team will commence work on the Network Design Document (**NDD**) before construction is due to commence. This is a preliminary technical design based on desktop studies of the FSAM and Telstra's duct and pit infrastructure information
d. When available, NBN Co will reserve existing infrastructure expected to be used in the FSAM.
e. When NBN Co issue a Contract Instruction (**CI)** for activities to the Delivery Partner as it is satisfied with the NDD. This is the trigger for Construction Commenced.
f. The Delivery Partner validates the network design, conducts detailed fieldwork, and the address matching in order to provide a final Detailed Design Document (**DDD**).
g. NBN Co forwards the DDD and when required a notice to begin remediation to Telstra. The Telstra infrastructure required to complete the FSAM is specified in the DDD.
h. At the same time, NBN Co will issue the CI to the Delivery Partner to build the FSAM in accordance with the DDD. NBN Co and the Delivery Partner will continue to refine the design and cost before a certificate of accuracy is issued by NBN Co.
i. Telstra undertakes remediation activities to 'provide fit for purpose' infrastructure.
j. NBN Co's Delivery Partner will commence building the FSAM as Telstra completes the remediation. NBN Co' Operational Acceptance begins after the FSAM is built.
k. Once construction is complete, Network Operations to conducts quality control procedures. This is required for NBN Co to accept and commission the FSAM into the NBN. The final task is for Network Operations to load the addresses of the premises in the FSAM onto the NBN service portal.

Once an address is visible on the service portal, Service Providers are able to place orders against that address. At this point, the Premises is deemed to be 'passed'.

Exhibit 18-2: Typical lifecycle of a Greenfields Estate



Source: NBN Co

The typical initial phase (parent) in an FTTP new developments estate as shown in Exhibit 7, above, will follow the lifecycle below:

a. Due to the demand driven nature of new housing estates, it is not possible to announce FTTP new development sites within the 3 year rollout plan. FTTP new developments sites will be included in the 1 year rollout announcement and updated quarterly based on the construction commenced milestone.
b. The developer application is entered online via the STAN CRM portal. The application is then assessed to ensure it is consistent with NBN Co's responsibility as the 'Infrastructure Provider of Last Resort' in accordance with the Government's Fibre in New Developments Policy.
c. The engagement process with developers begins with the approval of the developer application. Interaction commences with the developer on the pit and pipe requirements, and the acquisition of a managed backhaul service.
d. The developer contract is then signed and the proposed pit and pipe design is provided to NBN Co by the developer.
e. Construction commenced signifies the issuing of the CI with the estate NDD.
f. Construction of passive elements is completed. Integration and testing of these passive elements with the managed backhaul and TFAN active components follows.
g. Network practical completion has been achieved and all network segments have been integrated and tested. The construction partners handover to NBN Co Network Operations for Quality Assurance (**QA**) activities.
h. QA activities by NBN Co Network Operations are completed with all major defects rectified and addresses are uploaded into the service portal.

Once an address is visible in the service portal the Service Providers are able to place an order against the address. At this point, the premises is deemed to be Ready For Service (**RFS**).

18.2 Market Environment

18.2.1 Summary

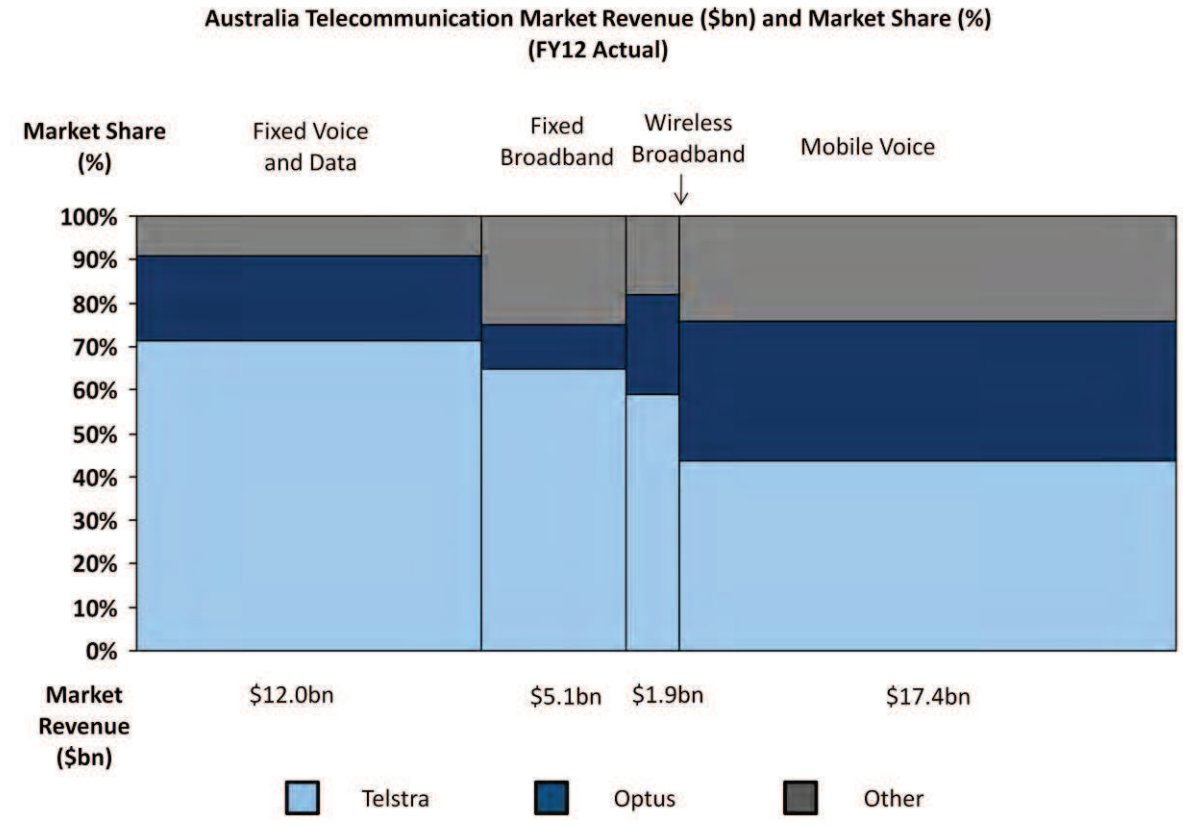
Market developments and trends during the past year have been in line with, or ahead of, expectations, supporting the revenue assumptions contained in the 2013-16 Corporate Plan. Key sector trends, observed both in Australia and overseas, during the past year include:

- An acceleration in fixed broadband take-up.
- Strong growth in data usage and demand for higher speeds.
- Steady decline in voice services over fixed-lines.
- Continued consolidation amongst market players.
- Flat industry revenues, but improving margins from fixed line services.

18.2.2 Australian Telecommunications Industry Overview

The Australian telecommunications market generated revenues of approximately $36 billion in FY2012.

Exhibit 18-3: Telecom Industry Revenue Share FY2012 ($ Billion)



Source: Service Provider Company Reporting

The fixed and wireless broadband markets have been the primary growth segments for the industry over the past four years, contributing 68% of net industry revenue growth. This has offset the continuing decline in Public Switched Telephone Network (**PSTN**) voice and access revenues.

The take-up and usage of voice over internet protocol Voice over Internet Protocol (**VoIP**) in its various forms continues to grow, but still accounts for less than 2% of total fixed-voice revenues, with the remaining 98% coming from traditional PSTN/ISDN services.

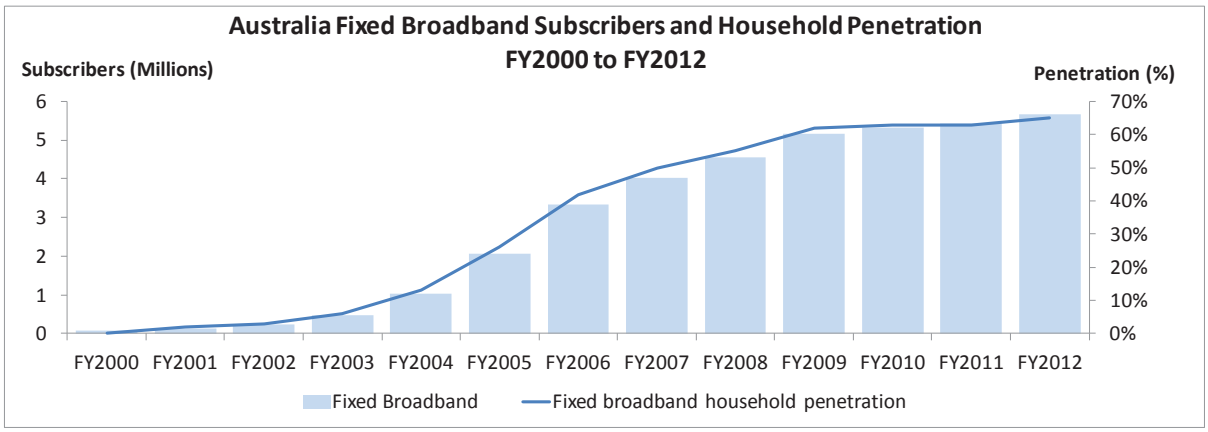
Margins in the fixed line market have improved, with Telstra reporting in its December 2012 financial results that PSTN EBITDA margin increased two percentage points to 62% and fixed broadband margin was steady at 39%. For the same period iiNet saw underlying EBITDA margin up 4% to 19% and TPG up 2% to 43%.

NBN Co has the potential to support continued growth in industry broadband revenues by enabling faster services in many areas where service availability is currently limited. Voice revenues may continue to be placed under pressure, as voice services increasingly become an application using NBN bandwidth, rather than being a separate service. This is an extension of the current trend to bundling voice and broadband services into a single customer package.

18.2.3 Australian Broadband Market

The fixed line broadband market in Australia had grown to 5.65 million subscribers by June 2012 (4.4% year-on-year growth), with annual revenues of $3.3 billion. Fixed broadband household penetration has now reached 65%.[59]

Exhibit 18-4: Australia Fixed Broadband Subscribers and Household Penetration FY2000 to FY2012



Source: NBN Co and Service Provider Company Reporting

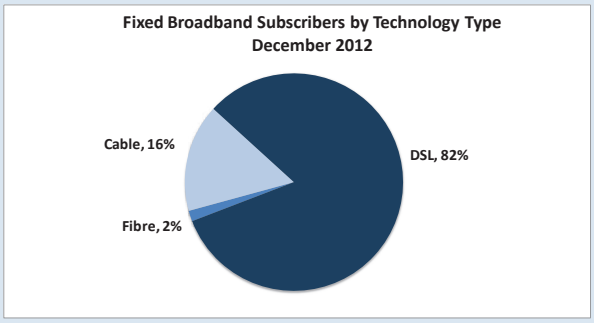
Fixed broadband subscriber growth of 4.7% in the first six months of FY2013 was the strongest level observed since FY2009. This was coupled with 4.3% revenue growth, compared to an average growth rate of 9.5% over the past five years.

The majority of Australians receive their broadband services through Copper-based ADSL services, which accounted for 82% of subscribers in December 2012. HFC networks accounted for a further 16%, with Fibre-based services accounting for only 2%.

[59] Total fixed broadband subscribers divided by number of homes.

Exhibit 18-5: Fixed Broadband Subscribers by Technology Type December 2012[60]

Fixed Broadband Subscribers by Technology Type December 2012



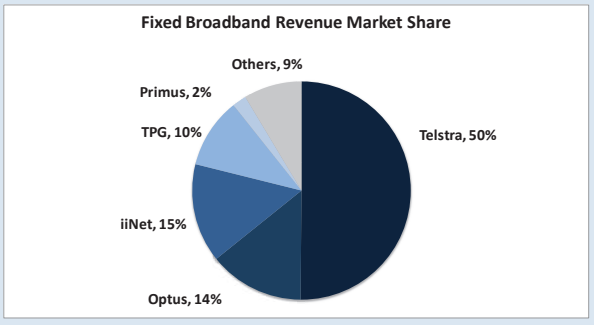
DSL	Provided over Telstra's existing copper network
HFC	Provided by Telstra, Optus and iiNet
Fibre	Provided by NBN Co, TransACT (iiNet) and a range of smaller providers (e.g. Opticomm)

Source: NBN Co based on Service Provider Company Reporting

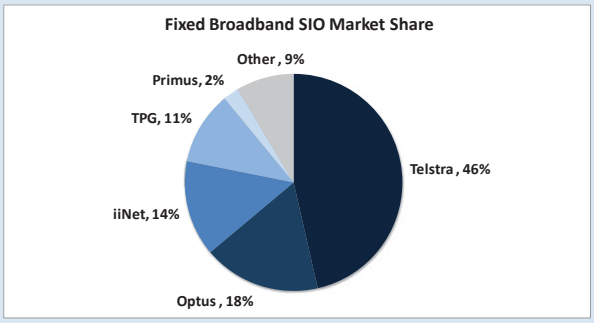
Currently there are over 600 internet service providers in Australia, although the market is relatively concentrated with the top 5 service providers controlling over 90% of the retail market. Smaller service providers rely on a small number of wholesalers (with Telstra, as the primary infrastructure operator, leading this segment).

Exhibit 18-6: Fixed Broadband Market Shares by Revenue and by Subscribers as at December 2012

Fixed Broadband Revenue Market Share



Fixed Broadband Subscriber (SIO) Market Share



Source: NBN Co based on Service Provider Company Reporting

The market for fixed voice services is further concentrated, with Telstra retaining over 70% of voice access lines, with the remainder shared by around 170 other licensed carriers. Application based voice services (such as VoIP) are now widely available, from 212 providers.

As it has matured, the broadband market has undergone progressive consolidation. Smaller operators have found lack of scale challenging and leading providers, such as iiNet and M2, have used consolidation as a growth strategy.

While NBN Co's model is open access, allowing opportunity for any service provider to connect and sell NBN services, industry economics still mean that scale remains an important factor in service provider success. As NBN Co's Fibre Footprint expands it is anticipated that wholesale service providers will emerge, as they have done on Telstra's copper network, in order to provide this scale

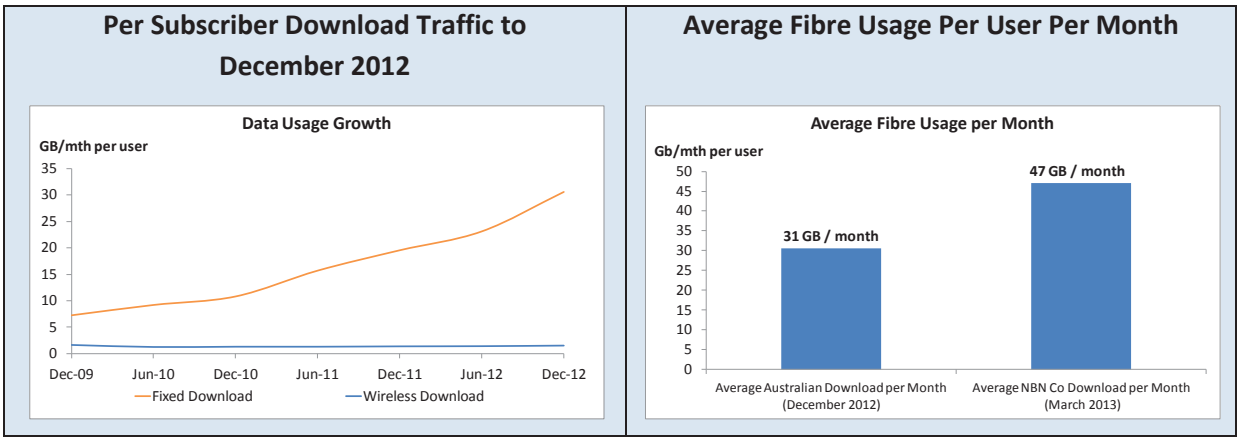
[60] Australian Bureau of Statistics, Internet Activity, Australia (series 8153.0) December 2012

to smaller retail service providers. This will be an important development to ensure that smaller scale, niche and innovate business models can be supported.

18.2.4 Australian Data Usage

Broadband data usage in Australia has continued to grow, with average fixed-line downloads per month increasing at 56% year-on-year to 30.6 GB per month in December 2012. Whilst fixed-line data usage per subscriber has been growing, data usage for mobile broadband has remained relatively flat, at approximately 1.5 GB per month. This reflects the increasing use of WiFi to offload data traffic from mobile networks to fixed-line networks.

Exhibit 18-7: Australian Fixed Line and NBN Co FTTP Network Monthly Download Data Usage



Source: NBN Co, Australian Bureau of Statistics, *Internet Activity, Australia* (series 8153.0) (December 2012)

In the year to December 2012 fixed-line networks carried 95% of all data traffic in Australia, compared with 93% twelve months earlier.

The early indications of data usage on the NBN have seen a 50% increase in average monthly data downloads by NBN Co's End-Users compared with fixed-line users on other networks (predominantly copper and HFC). Whilst no information is published on upload speeds for other networks, NBN Co estimates that average monthly uploads by NBN Co's End-Users are currently three to four times higher than on existing networks.

18.2.5 Video and Audio Services

Bundling of video services is playing an increasing role in service differentiation. Telstra for example reported first half 2013 revenues of $333 million from TV services, predominately Internet Protocol Television (**IPTV**) content (BigPond Movies and Foxtel on T-Box).

Subscription video services in Australia remains dominated by FOXTEL, a position enhanced with the acquisition of Austar, which was approved by the ACCC in April 2012. Foxtel had 2.27 million residential subscribers at the end of 2012. With the launch of Foxtel Play in March 2013, Foxtel has expanded into IPTV. Other IPTV based services include Quickflix (113,000 paying customers) and the wholesale service FetchTV.

Streaming audio and video services consume considerable bandwidth and will drive continued growth in data usage in the residential market segment. As streaming services expand their high definition offerings and penetrate beyond their prominently youth-oriented market, this will be a driver of demand for capacity on the NBN.

18.2.6 International Developments

As seen in Australia, fixed-line data usage continues to grow in other markets, for example:

- Average data traffic per fixed-line broadband subscriber in New Zealand rose from around 10GB per month in 2010/11 to 19GB per month in 2011/12.
- Average per user fixed broadband traffic in Hong Kong was 85.5GB in February 2013, up 21% from the previous year.
- Average per user fixed broadband traffic in Portugal was 39.7GB in 4Q 2012, up 19% over the previous year.
- Total peak fixed broadband traffic on BT's network was up over tenfold since April 2006, a CAGR of approximately 40%.

The long term growth in peak network traffic volumes presented by BT importantly illustrates that the growth in average data usage is being translated into increased network capacity. Consistent growth of both End-User average traffic and peak capacity provides support for NBN Co's CVC revenue forecasting assumptions.

Whilst the technical approach to solving the issue may vary, telecommunications companies around the globe are experiencing rapidly increasing demand for speed and increased data usage capacity over their networks.

18.3 Regulatory

18.3.1 Background

In early 2009, the Federal Government commenced a process of reform to significantly improve all Australians' access to broadband, and make changes to the telecommunications regulatory framework required to facilitate the rollout and operation of the NBN and the structural separation of Telstra.

The regulatory reforms have now been largely implemented.

18.3.2 Ownership and Operation of NBN Co

NBN Co is a wholly-owned Commonwealth company that has been prescribed as a Government Business Enterprise (**GBE**) and is represented by "Shareholder Ministers" - the Minister for Broadband, Communications and the Digital Economy and the Minister of Finance and Deregulation. The Commonwealth must retain ownership of NBN Co until at least:

- The Communications Minister has declared that the NBN is built and fully operational
- A Productivity Commission report has been tabled in both Houses of Parliament and examined by the Parliamentary Joint Committee on the Ownership of NBN Co
- A declaration by the Finance Minister that conditions are suitable for an NBN Co sale scheme has taken effect.

NBN Co must ensure that an unacceptable private ownership or control situation does not exist.

NBN Co can only supply eligible services to carriers, service providers and exempt bodies and authorities. NBN Co cannot supply content services, non-communications services or goods that have no connection to NBN Co's supply of eligible services.

18.3.3 NBN Migration and Competition

In June 2010, the Government announced that Telstra had agreed that it would undergo structural separation via progressive decommissioning of Telstra's copper and broadband HFC network capabilities. The regulatory regime was amended to allow Telstra to lodge a structural separation undertaking (**SSU**) and migration plan, containing effective measures for equivalent supply of Telstra's regulated copper services during transition to the NBN.

The ACCC accepted Telstra's SSU, and approved its migration plan, in February 2012. Certain aspects of Telstra and NBN Co's conduct in connection with the SSU and migration plan have been formally authorised from a competition perspective. Telstra is now in the process of implementing the SSU and migration plan requirements.

18.3.4 Access to Services

Section 4.4, *Regulated Products and Pricing* describes the key elements of the access regime applying to NBN Co's products and services and the pricing of those products and services. Under this regime NBN Co has 'standard access obligations' to provide its services, once they are 'declared', upon request by access seekers (subject to specified limitations). 'Eligible services' (as defined by the regulatory framework) are 'declared' by inclusion in a 'Standard Form of Access Agreement' (**SFAAs**) published by NBN Co, or in an accepted SAU, or by the ACCC after a public inquiry process.

NBN Co has published a number of SFAAs that relate to the supply of products and services to its wholesale customers, the main one being the Wholesale Broadband Agreement. As described in section 4.4 above, NBN Co intends to have a Special Access Undertaking (**SAU**) operating in conjunction with its access agreements (entered into with individual customers on the basis of an SFAA).

So as to be able to effectively implement government policy in relation to uniform national wholesale pricing and points of interconnect (**PoIs**), NBN Co is formally authorised to:

- refuse interconnection with its network at any point other than a listed PoI
- require customers to acquire a 'bundle' of product components (i.e. the AVC, CVC, NNI and UNI)
- engage in cross-subsidisation where this is reasonably necessary to achieve uniform national pricing.

The Communications Minister must review the operation of the authorisation provisions after 2 years and the ACCC must review the policies and procedures relating to the identification of listed PoIs before 30 June 2013.

18.3.5 Non-Discrimination

NBN Co cannot discriminate between access seekers in:

- Complying with its Category B SAOs.
- Preparing for, developing or enhancing services.
- Extending or enhancing facility or network capabilities.
- Planning facilities or networks.

- Carrying on ancillary or incidental activities, or giving information to service providers, in connection with any of the above activities.

The discrimination rule does not apply where NBN Co engages in authorised conduct (eg refusing interconnection, 'bundling' and cross-subsidisation for the purposes of uniform national pricing.

NBN Co may discriminate where it believes that an access seeker would not comply with NBN Co's terms of access (e.g. not creditworthy or repeated failures to comply with terms).

18.3.6 NBN Rollout

Following a public consultation process, amendments were also made allowing NBN Co to more readily deploy fibre in streets, connect premises and locate equipment in multi-unit buildings, subject to compliance with requirements about giving notice to land owners and occupiers, land restoration and good engineering practice when undertaking the permitted activities. The changes facilitate the rollout of broadband infrastructure by adding some equipment used in optical fibre networks to the existing regime allowing carriers to install on a nationally-uniform basis under Commonwealth law, rather than state and territory legislation.

18.3.7 Fibre in New Developments

Subject to exemptions determined by the Communications Minister:

- Only fibre-ready fixed-line facilities are to be installed in real estate development projects areas (unless NBN Co has formally advised that it will not be installing fibre in the project area).
- Most developers must not, in the course of carrying out a project, sell or lease any building lots or units unless fibre-ready facilities are installed in proximity to them, (unless NBN Co has formally advised that it will not be installing fibre in the project area).
- Only optical fibre lines, and no other, can be installed in any development projects specified by the Minister.
- A regime allowing third party access applies to all fixed-line facilities owned or operated by non-carriers.

The making of industry codes and standards in relation to fibre infrastructure and services has been simplified to facilitate the development of codes and standards based on NBN Co specifications to ensure new FTTP Networks are consistent with NBN Co technical specifications. ACMA can make technical standards relating to Layer 2 bitstream services and these services are subject to access rules based on those applying to NBN Co.

NBN Co is responsible as provider of last resort for the installation of fibre in:

- Developments of 100 or more premises approved after 1 January 2011.
- Developments that have fibre that is ready for service and capable of connection.
- New Developments within areas where NBN Co has announced it will roll out fibre within the coming 12 months.

NBN Co may also provide fibre infrastructure in smaller developments where it is practicable for it to do so.

18.3.8 Level Playing Field

Local access lines in networks that came into existence, or are altered or upgraded, after 2010 and that are used to supply "superfast" carriage services principally to residential or small business customers cannot be used to supply fixed-line carriage services unless a Layer 2 bitstream service is available to those customers. The controllers of such networks can also only use local access lines in the networks to supply eligible services to carriers or service providers. In 2012 the ACCC declared a Layer 2 bitstream service in connection with these requirements; the Local Bitstream Access Service (**LBAS**). This declaration does not expire and cannot be varied or revoked.

These requirements do not apply to:

- Extensions to networks in real estate development projects to another area developed as another stage of the same project;
- Extensions to networks within 1 km from the original network; or
- Lines installed to connect premises in close proximity to a network that came into existence before 2011.

18.3.9 Spectrum

NBN Co has utilised the existing, unchanged, regulatory framework to acquire spectrum access rights for its wireless and satellite solutions, both commercially and through ACMA spectrum allocations.

18.3.10 Universal Service Obligations

A new entity, the Telecommunications Universal Service Management Agency (**TUSMA**) has been established to implement and administer service agreements and grants to deliver universal service and other public policy outcomes (such as programs to support the continuity of supply of services during NBN transition and the provision of payphones, the emergency call service and the National Relay Service). After an initial period, the Minister may permit Universal Service Obligation (**USO**) regulatory obligations to be progressively lifted from Telstra, and replaced by the contractual arrangements, linked to the progress of the NBN rollout and Telstra' structural separation. NBN Co will be required to contribute to the industry levy in respect of the cost of the universal service regime once NBN Co's eligible revenue meets the threshold (currently $25 million).

18.3.11 Other Regulation

NBN Co's activities are also regulated by the Australian Communications and Media Authority (including as a licensed carrier). NBN Co is a member of the Telecommunications Industry Ombudsman Scheme and also of the industry body Communications Alliance.

19 Glossary of Terms

Access Aggregation Region (AAR)	The area served by a Point of Interconnect (**PoI**) 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 (**Service Providers**) 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 (**PoI**) to Service Providers/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 average number of subscribers.
Basis Points (bps)	One Basis Point is equal to 1/100th of 1%.
Brownfields	Pre-existing premises that will be covered by either FTTP, Fixed Wireless or Satellite services.
Brownfields FTTP	Pre-existing premises that will be covered by FTTP.
'Build Drop'	Where the connection from the street to the premises is carried out when the distribution and local segments of the FTTP 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	FTTP Brownfields: Contract Instructions (**CI**) have been issued together with the initial Network Design Documents (**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 website showing the coverage area for that FSAM and the estimated number of premises to be passed. FTTP New Developments (Greenfields Estates): A CI has been issued together with the initial Network Design Documents (**NDD**) for the detailed design, fibre installation and commissioning activity for the Local Network supporting an estate. Fixed Wireless: CI have been issued following site acquisition, leases, permits, licences, planning/development approvals and construction drawings.
Construction Completed	When the premises in an FSAM are defined as Premises Passed.
Construction Commenced or Completed	When Construction Commenced or when Construction Completed.
Customers	A customer to NBN Co, also defined as an Access Seeker or a Retail Service Provider.
Dark Fibre	Optical fibre with no active electronics attached. The optical fibre is not connected to electronic equipment used to manage the physical transfer of data over an optical fibre link.
Dark Fibre Links	Length of Dark Fibre between certain points.

'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.
Dense Wavelength-Division Multiplexing (DWDM)	A form of technology which multiplexes a number of optical carrier signals onto a single optical fibre by using different wavelengths (i.e. colours) of laser light. This technique enables bidirectional communications over one strand of fibre, as well as multiplication of capacity.
Disconnection Date	Except in limited circumstances, the date falling 18 months after a Rollout Region is declared Ready for Service.
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.
Duct Network	A tubular structure usually underground used to house communications cables and equipment owned or controlled by Telstra or a related entity of Telstra (but does not include a pit, manhole or Lead-In Conduit).
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 Bargaining Agreements (EBA)	Enterprise Bargaining Agreements are agreements made at an enterprise level between employers and employees (or their Union representatives) about terms and conditions of employment
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.
Estimate At Completion (EAC)	Estimated Cost at Completion
Ethernet	A frame based transport protocol for forwarding traffic across Local Area Networks (**LANs**).
Exchange Building	A building (or any part of a building) owned or leased by, or licensed to, Telstra or a related entity of Telstra that houses telecommunications equipment or a particular building or enclosure nominated by Telstra as an Exchange Building.
Exchange Rack Space	A rack space in an Exchange building.
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 2009(Cth)* 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**).
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 (**FDA**) 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 Network, also defined as the **NBN FTTP Network** or the **FTTP Network**	The optical fibre telecommunications network that is owned or controlled by, or operated by or on behalf of, NBN Co or a related entity of NBN Co (and which has been accepted into service, ready for the provision of commercial (non-trial) NBN services). The NBN Fibre Network is based on a Fibre-to-the-Premises (**FTTP**) architecture.
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-Premises.
Fibre-To-The-Premises (FTTP)	The network design in which the Fibre Network is deployed to each premises. It involves connecting homes and businesses with an optical fibre cable which can be used to provide a range of high speed broadband services and phone services.
Field Service Delivery (FSD)	FSD provides Activation and Assurance services. Activation services cover the activities of connection and activation of End-Users in cases both where existing fibre is present to the side of the premises and also where no existing fibre connectivity exists. Assurance activities cover assurance services to provide fault repair services to customers with activated services.
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.
Gigabit-capable Passive Optical Network (GPON)	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. The GPON active layer technology uses electronics that are designed to be compatible with a fibre that is subsequently split into multiple downstream fibres.
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 NBN Co'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.
Intermediate Access Points (IAP)	An Intermediate Access Point is a site where Dense Wavelength Division Multiplexing (**DWDM**) amplifiers are installed. The number of IAPs required is dependent on the detailed planning assessment of requirements in conjunction with Telstra as to the quality of the Dark Fibre and distance between NBN Co's FAN sites. IAPs are a point within but not at the end of a Dark Fibre link and are different to a FAN or a Fixed Wireless interconnect point. An IAP typically consists of 1 rack with either a simple patch (Glassthrough) or a DWDM amplifier (OLR).
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 premises.
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.
Lawful Intercept (LI)	Lawful Interception functions to support the delivery of replicated customer traffic to Law Enforcement Agencies as legally required by the *Telecommunications (Interception and Access) Act 1979 (Cth)*. Lawful Interception System composes of a number for sub systems which include: Ethernet Fan-out Switch (EFS); LI Ethernet Handoff Node (LI-EHN); Lawful Interception Management Server; Lawful Interception Mediation Device (LI-MED) and LI Backhaul Encryption.
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.
Telstra Lead-In Conduit (Telstra LIC)	A pipe owned or leased by, or licensed to, Telstra or a related entity of Telstra that runs from a pit, manhole or pole to the premises, or nearby to that premises, and is typically underground.
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 3rd Generation Partnership Project (**3GPP**) to define a new high-speed performance air interface for mobile communication systems. Commonly regarded as a 4G technology.
Lots Passed	All passive infrastructure has been installed and commissioned including the fibre link to the permanent FAN site such that the only outstanding step is to initiate the managed backhaul and install active equipment necessary to achieve the first premises ready for service date.
Lots/Premises Ready For Service (RFS)	Lots/premises are 'ready for service' 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 (**Service Provider**).
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 Augmentation and Restoration Activities (NARA)	Network Augmentations are typically small infill capital projects such as sub divisions or infill housing developments and network relocations typically due to pole changes or road works in an existing Fibre Footprint. Network Restorations are typically passive network fault repair services such as repair of broken or damaged fibre and restoration of the network in the case of accidental or natural disasters.
Network Extension Programme	NBN Co will consider applications to extend the FTTP Network to properties outside the Fibre Footprint or to extend Fixed Wireless Network to towns or communities that will otherwise be covered by Satellite services. The Government expects that applicants will cover the incremental cost of the design and construction of Network Extensions. In other words, the extra cost of building a different network technology to a premises than was planned in NBN Co's national rollout.
Network Termination Device (NTD)	NBN Co's termination point on each premises, 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.

New Developments (Greenfields Estates)	A New Development is defined as an estate that complies with the New Development Policy statements released by the Government (for developments over 100 lots over 3 years)
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 – *Premises Definition*, 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. For the purpose of this Corporate Plan, Opex forecasts include all nominal payments, such as nominal payments under finance lease agreements. This nominal view of costs incurred may differ from the accounting treatment under statutory accounting rules.
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 Subscriber Agreement	The agreement between NBN Co and various entities in the SingTel Optus corporate group (**Optus**) which was executed on 23 June 2011. The Optus HFC Subscriber 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.
Optus HFC Cable Network	Optus's hybrid fibre coaxial cable network, which delivers high speed broadband services and Pay TV services.
Per Subscriber Address Amount (PSAA)	Per Subscriber Address Amount (**PSAA**) as defined in the Telstra Definitive Agreements.
PoI/Aggregation Nodes Integrated	A network integrated PoI/Aggregation Node is one which has been accepted by Operations, that is ready for service and in the case of a PoI, one that Access Seekers can connect End-Users. A PoI is the location where Access Seekers connect to the NBN and an Aggregation Node is a point in the network where a quantity of sites are aggregated. In a majority of cases the PoIs and Aggregation Nodes are co-located.
Point of Interconnect (PoI)	The connection point that allows Service Providers 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 PoI, 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 – *Premises Definition*, 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 (**Service Provider**) to install a new service at the premises.
Premises Passed/Covered	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.
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 (Cth)*. 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 Service Providers. A Rollout Region is Ready for Service when NBN Co is ready to connect premises in that Rollout Region to the FTTP Network, which will generally be when the FTTP Network has passed at least 90% of the premises in the NBN Fibre Footprint in that Rollout Region.
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	A third party provider of retail broadband services to End–Users.
Rollout Region	A region served by the Fibre Network. A Rollout Region is typically, but not always, an FSAM.
Service Providers	A third party provider of broadband services whether to End-Users and/or Retail Service Providers (See also Retail Service Providers and Wholesale Service Providers).
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 Access Network 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.
TANDs	Ten Aggregation Nodes and Depots.
Telecommunications Industry Levy	The consolidated industry levy, which in July 2012 replaced the former Universal Service Obligation and National Relay Service levies, to which all telecommunications carriers with at least $25 million of eligible revenue per annum must make a contribution in proportion to their share of eligible revenue of all participating carriers in that year, which funds are used by the Telecommunications Universal Service Management Agency to administer contracts and grants ensuring access to basic voice services and other public interest telecommunications services.
Telstra Copper Network	Telstra's copper-based customer access network, which is used to deliver standard voice telephony and broadband services.
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.
Telstra HFC Cable Network	Telstra's hybrid fibre coaxial cable network, which delivers high speed broadband services and Pay TV services.
T-FAN	A temporary Fibre Access Node (**FAN**) to serve New Developments (Greenfields estates).
Transit Nodes	A transit node is used to interconnect more than 2 links or to interconnect a Telstra or Non-Telstra link. Equipment deployed in those sites is typically with no more than 2 racks.
Transit Fibre	Connection between Points of Interconnect (**PoIs**) 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 PoIs if required.
Transit Network	The fibre rings which connect the regional FAN sites and the nearest PoI, served by Transit Fibre.
Transit Rings	A grouping of Dark Fibre Links and Exchange Rack Spaces that are identified as being part of the same transit ring in the Initial Rollout Plan or any subsequent rollout plan agreed under the Telstra Infrastructure Services Agreement. This grouping is based on the design of NBN Co's Transit Network, which typically involves a series of related Dark Fibre Links and Equipment Rack Spaces forming all or part of a ring-like pattern.
Transport Network Management System (TNMS)	The TNMS is used to manage Dense Wavelength-Division Multiplexing (**DWDM**) equipment which is supplied to NBN Co by Nokia Siemens Networks. TNMS carries out all common management functions in the element, network and service layers of the network. The TNMS provides a uniform fault, configuration and security and performance management environment for all managed equipment.

'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.
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 – *Premises Definition*, 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 *Telecommunications Legislation Amendment (National Broadband Network Measures - Access Arrangements) Act 2011 (Cth)*.
Wholesale Service Provider (WSP)	A provider of wholesale services to Service Providers.
Wireless Serving Area (WSA)	A series of Base Transceiver Stations (**BTS**) linked in a geographic cluster configuration.

20 TABLE OF EXHIBITS