Corporate Plan
2019–22

Legal Notice

Introduction

The Corporate Plan 2019–22 has been prepared by NBN Co Limited (NBN Co or the Company) for its shareholder ministers, Senator the Hon Mitch Fifield and Senator the Hon Mathias Cormann (Shareholder Ministers) as required by the *Public Governance, Performance and Accountability Act 2013 (Cth)* (PGPA Act) (in particular section 95(1)(b) of the PGPA Act), the *Public Governance, Performance and Accountability Rule 2014 (Cth)* (PGPA Rule), the Commonwealth Government Business Enterprise Governance and Oversight Guidelines (January 2018) (GBE Guidelines) and Australian Government policy as communicated to NBN Co by the Commonwealth from time to time (together, Reporting Obligations).

The reporting periods covered by this plan are FY19 to FY22 inclusive. The first reporting period covered by this plan is FY19. The fourth, and the last, reporting period covered by this plan is FY22.

Disclaimer

This plan contains various long-range plans, projections, high-level estimates and other forward-looking information (Estimates). Those Estimates are based on the 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 document, are expected to take place.

The Estimates involve known and unknown risks, uncertainties and other factors beyond 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 Estimates.

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

Other than required according to Reporting Obligations, NBN Co and its officers have no obligation to update the Estimates based on circumstances, developments or events occurring after the publication date of this document.

This plan also contains Estimates in respect to periods after 30 June 2022, including in section 2.4.9 (Long-term financial outlook). Management and the Board do not give any guarantee or assurance that the results, performance or achievements expressed or implied by such Estimates will actually occur.

Contents

Overview
01

Corporate Plan
02

Building and operating
Australia's broadband network

NBN Co is the Company helping Australia transition to a digital future by building and operating Australia's new high-speed, wholesale, local access broadband network.

NBN Co's purpose is to connect Australia and bridge the digital divide to ensure all Australians have access to a fast, reliable broadband network, as soon as possible, at affordable prices and at least possible cost.

NBN Co has a commitment to deliver access to peak wholesale download data rates of at least 25 megabits per second (Mbps) to all premises, and at least 50Mbps peak wholesale download data rates to 90 per cent of the fixed-line network[1].

As the network wholesaler, NBN Co provides wholesale broadband to all Retail Service Providers (RSPs) on a non-discriminatory basis. This approach is intended to level the playing field in the Australian telecommunications industry – enhancing competition and providing greater choice for consumers across the country. It is through RSPs that end users connect to the **nbn**™ access network for access to fast broadband.

Building the **nbn**™ access network remains one of the largest and most complex infrastructure initiatives in Australia's history, and one of the most ambitious in any telecommunications market around the world.

With our goal of eight million homes and businesses connected by 2020, the network will fundamentally enable Australia to become a more connected, competitive and innovative nation.

NBN Co has a commitment to deliver at least

25Mbps

Peak wholesale download data rates to all premises[1]

50Mbps

Peak wholesale download data rates to 90 per cent of the fixed-line network[1]

1   The **nbn**™ access network is being designed to provide these peak speeds to NBN Co Retail Service Providers at NBN Co's network boundary. The **nbn**™ wholesale speed tiers available to RSPs vary depending on the **nbn**™ access network technology in your area.

Delivering on
our commitment

1

NBN Co's purpose

To connect Australia and bridge the digital divide

2

What is NBN Co delivering?
Our goal

Eight million homes and businesses connected by 2020

The build of the network to homes and businesses across Australia remains on track for completion by June 2020, with 90 per cent of the fixed-line network set to be capable of achieving peak wholesale download data rates (and proportionate upload rates) of at least 50Mbps[1].

The NBN Co Corporate Plan delivers on the Statement of Expectations (SoE)[2] provided to the Company on 24 August 2016.

NBN Co
Corporate Plan 2019–22

3
How is NBN Co achieving it?
Our five strategic imperatives

1
A high-performing and
reliable network

2
Effective and efficient
processes and systems

3
United partnership with vendors,
Delivery Partners and Retail
Service Providers

4
Affordable wholesale
products and services

5
A great place
to work

4
Supported by

6,850
NBN Co staff

24,000
external
workforce

More than 100
Retail Service
Providers selling
services over the
nbn™ access
network

1   The **nbn**™ access network is being designed to provide these peak speeds to NBN Co's Retail Service Providers at
     NBN Co's network boundary. The **nbn**™ wholesale speed tiers available to RSPs vary depending on the **nbn**™ access
     network technology in your area.

2   Letter to NBN Co from its shareholder Ministers dated 24 August 2016 https://www.nbnco.com.au/content/dam/
     nbnco2/2018/documents/Policies/soe-shareholder-minister-letter.pdf

Board and management message

The rollout of the **nbn**™ access network remains one of the largest and most complex infrastructure initiatives undertaken in Australia.

The Corporate Plan 2019-22 is the blueprint for how we will complete the construction of the network, connect millions of end users, and help further improve the customer experience.

Progress on the corporate plan

In the past fiscal year NBN Co made significant progress towards achieving our long-term goals. Our priorities throughout the year were to improve customer experience, extend the network to as many premises as possible in the shortest possible time, and create an environment where our employees could perform at their best.

By end of FY18, construction progress was solid where the number of premises 'Ready For Service' (RFS) grew by 42 per cent to 8.1 million, and premises 'Ready To Connect' (RTC) grew by 29 per cent to 7.0 million. As a result of the increased footprint, the number of end-user premises grew by 65 per cent to 4.0 million. With end-user growth and the lift in average revenue per user, company revenue grew from $1.0 billion in FY17 to $2.0 billion in FY18.

Customer experience is a priority

While most end users were satisfied with the industry's level of service during this past year, there were still too many who were not. So NBN Co acted to improve the factors within our control. Some tough decisions with short-term implications were necessary, but we knew they were in the long-term interest of our overarching goals. Most importantly, they were in the interest of improved customer experience.

To help support a retail market that competes largely on price, we introduced new wholesale bundle discounts. We offered retail service providers better value plans for the higher speed tiers to help increase end-user data speed and bandwidth with the aim to reduce congestion. As a result, the number of customers on peak wholesale speed plans of 50Mbps or higher (download) has increased from 16 per cent in June 2017 to almost 45 per cent[1]. As retail service providers took advantage of lower prices and acquired more bandwidth,

1   This includes wholesale plans available to RSPs with download speeds of 50Mbps and 25–50Mbps.

NBN Co
Corporate Plan 2019–22

average network bandwidth congestion fell from more than five hours per week per service in June 2017 to 25 minutes per week as of June 2018[2] (excluding the Sky Muster™ satellite service). This initiative to lower prices has short-term impacts on our financials and is forecast to reduce our revenue expectations by $0.7 billion in the period leading up to the company becoming cash-flow positive. However, we know our pricing change has been a significant contributor to improving customer satisfaction.

We also paused new orders on our HFC network. This allowed us to conduct further optimisation to improve network quality, and thereby help improve customer experience when getting connected and while using the network. The change in performance has been material, with recently connected customers showing substantially higher levels of satisfaction.

In other network improvements, we have invested further in Fixed Wireless technology to increase wholesale capacity. This is important because we have seen higher-than-expected concurrency of use, data consumption, and a faster take-up rate. This resulted in congestion in some cells across the network, leading to slower speeds for some households during busy periods. We are reconfiguring the network and

increasing capacity to help accommodate this additional demand. NBN Co will continue to improve our internal customer processes. We are also working closely with our service providers to help ensure a seamless, simplified process for the end user. While we are committed to doing more, the improvements have helped us complete our installations of **nbn**™ equipment right the first time[3] and new standard connections within the agreed timeframes with RSPs[4] more than nine times out of 10.

These important initiatives have impacted our expectations on funding and we now forecast a need to draw on the allocated contingency to $51 billion, which remains within the peak funding range outlined in the previous Corporate Plan.

Our people are making the nbn™ access network a reality

What we have achieved and plan to achieve in the coming years is only possible with our capable and dedicated team. Approximately 31,000 people work on the **nbn**™ access network. Our Delivery Partners employ around 24,000 of those out in the field, completing the build, activating premises and maintaining the network. These people help ensure we build the network as quickly as possible, at the least possible cost, with a high-quality network service.

FY18 achievements

Improved customer experience

across key metrics

45%
of plans on 50Mbps or higher[1]
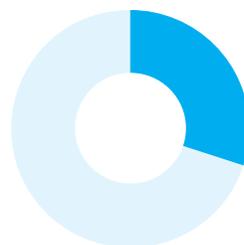
25 mins
Average network bandwidth congestion (per week)[2]

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2   The average number of minutes of bandwidth congestion per week/per service. Please refer to Average network bandwidth congestion (per week) footnote on page 75 for further details on how the performance against key metrics have been calculated.

3   Excluding things outside of NBN Co's control (such as reschedules and cancellations of appointments, premises 'shortfalls' and bad weather).

4   This measure excludes Priority Assistance connections and Accelerated Connections.

Board and management message

Creating the right culture, staffing for diversity, and working together as one team has been, and remains, a focus for NBN Co. The Company's measure of employee engagement has improved and is now at a record 74 per cent and approaching global benchmarks for best practice.

Contributing to Australia's economy and the lives of Australians

The **nbn**™ access network is making an enormous contribution to Australia's economy and the way people learn, live and connect.

New research – commissioned by NBN Co and conducted by leading economics firm AlphaBeta[1] – estimated that the **nbn**™ access network helped drive an additional $1.2 billion in economic activity in 2017 alone, helped create new jobs and businesses, and improved productivity. If this continues, the GDP impact is estimated to increase to $10.4 billion per year in 2021, a material contribution beyond the financial accounting returns that we report for NBN Co.

The research estimated that, we could see a cumulative impact of up to 80,000 new businesses as a result of the **nbn**™ access network at full rollout. It's also estimated we could see a net impact of 31,000 jobs in FY21.

We can already see the impact the network is having on Australia when it is halfway complete and can be confident it is delivering on its original policy aims, including quickly lifting Australia up the global internet speed rankings.

Looking forward to the year ahead

This new financial year will be another step toward us completing the network by June 2020 and observing the full potential of the benefits forecast by the AlphaBeta research.

During this year we plan to expand our network by another 2.7 million Ready to Connect premises, activate 1.5 million net new end-user services, and further help improve the customer experience.

The Board is confident this will be achieved under the leadership of newly appointed CEO Stephen Rue, our former Chief Financial Officer, who helped develop the four previous Corporate Plans, and is best-placed to help complete the build by 2020.

NBN Co continues to be led by a strong Executive team committed to maintaining the intensity of effort and focused on doing our part to help improve the customer experience while extending the network rollout at record pace.

There will inevitably be further challenges along the way, some known, some new. But our ability, in partnership with the telecommunications industry, to deploy the network at speed and scale is evident, and we're well positioned to help improve the end-user experience and deliver on the Government's expectations.

There will be challenges along the way. But our ability to deploy the network at speed and scale is evident, and we're well positioned to help continue improving the end-user experience and meet future demand.

Dr Ziggy Switkowski AO
Chairman

Bill Morrow
Chief Executive Officer

31 August 2018

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1   AlphaBeta Analysis (2017), Census (2006, 2011, 2016), ABS Business Counts. http://www.connectingaustralia.com.au/

Establishing world-class network technology

The **nbn**™ access network is designed to deliver access to **high-speed** broadband to all Australians as quickly as possible and at the least possible cost.

By 2020, 90 per cent of the fixed-line footprint is expected to be capable of achieving peak wholesale download speeds of at least 50Mbps[1].

NBN Co strives to deliver world-class technology to its customers and end users by continually pursuing innovation to implement potential upgrade paths as demand increases. With the introduction of a new technology (FTTC) into NBN Co's technology mix, alongside the implementation of the next generation of cable technology (DOCSIS 3.1), the company is deploying gigabit-capable network technologies that extend to approximately half of the total network footprint.

1   The **nbn**™ access network is being designed to provide these peak speeds to NBN Co's Retail Service Providers at NBN Co's network boundary. The **nbn**™ wholesale speed tiers available to RSPs vary depending on the **nbn**™ access network technology in your area.

		Current wholesale products	**Potential upgrade path** →	**Potential mid-term upgrade path-peak speed[2]**
Fibre-to-the-Premises (FTTP)	Deploys fibre optic cable all the way to premises. Available in a variety of existing locations as well as most large new developments, and to end users who can select FTTP through the Technology Choice program.	Up to 1Gbps/ 400Mbps	NG-PON2	Up to 10Gbps
Fibre-to-the-Node/ Basement/ Curb (FTTN[3]/B/C)	Deploys fibre into neighbourhoods and then makes use of the existing copper into the premises.	Up to 100/ 40Mbps	G.fast, G.mgfast	Up to 10Gbps
Hybrid Fibre Coaxial (HFC)	Leverages existing networks of fibre and coaxial cable to deliver broadband services into the premises.	Up to 100/ 40Mbps	DOCSIS 3.1 and Full Duplex DOCSIS 3.1	Up to 10Gbps
Fixed Wireless	Largely targeted at regional communities and provides the means for fast broadband to extend to Australians outside the reach of the fixed-line network.	Up to 50/ 20Mbps	Optimising utilisation of current spectrum holdings	Future capability being explored
Sky Muster™ satellite	Among the world's largest and most advanced communication satellites. The satellite service allows the **nbn**™ network to reach remote areas.	Up to 25/ 5Mbps	Next Gen VSAT	Future capability being explored

2   These speeds were achieved in the context of a trial and are not necessarily reflective of the speeds that will be experienced by end users. Your experience, including the speeds actually achieved over the **nbn**™ access network, depends on: the configuration over which services are delivered to your premises, whether you are using the internet during typical busy periods, such as evenings, when more people are online, and some factors outside our control (like how far away your premise is located from **nbn**™ network equipment, your equipment quality, software, broadband plans, signal reception, the plan you choose from your provider, the performance of your modem, Wi-Fi, cabling, other devices in your premises and how your service provider designs its network). Speeds may be impacted by network congestion on NBN Co's network, including during busy periods.

3   FTTN premises requiring G.fast or G.mgfast may need to be upgraded to FTTC architecture.

Establishing world-class
network technology

NBN Co is monitoring current and future consumer and business needs as technology evolves, to help ensure the nbn™ access network supports these coming changes.

FTTC

The flexibility of the Multi-Technology Mix (MTM) allows NBN Co to introduce new technologies into the footprint when demand arises and where commercially viable. In March 2018, the Company launched FTTC that delivers fibre all the way to the telecommunications pit, or footpath, outside a home. The fibre connects with a small distribution point unit (DPU), which is located in the pit of the street, then uses the existing copper line to deliver access to fast broadband to the premises. FTTC provides access to peak wholesale download speeds of up to 100Mbps[1] to RSPs, and has the potential to be upgraded with G.fast when required to provide access to potentially higher wholesale download speeds. NBN Co is one of the first mass deployments at scale of this technology in the world with 1.4 million FTTC premises forecast to be delivered by FY20.

DOCSIS 3.1

Australia is set to be one of the first markets outside America to provide the DOCSIS 3.1 technology as an upgrade path across parts of its telecommunications network. Lab testing has indicated that the planned DOCSIS 3.1 upgrade could enable HFC to provide access to the same wholesale speeds as FTTP technology. The Company began deployment of DOCSIS 3.1 in August 2018.

The next generation of cable technology, Full Duplex DOCSIS 3.1, is expected to enable the HFC network to deliver up to 10Gbps symmetrical wholesale speeds[2].

G.fast

G.fast is a potential upgrade technology that could help NBN Co provide access to ultra-fast broadband on FTTB and FTTC networks. It is expected to allow for potentially higher speeds over existing copper lines by extending the range of the spectrum that is used to deliver VDSL2 today.

NBN Co is evaluating the next generation of G.fast, G.mgfast, which has achieved speeds of 5Gbps over 50m copper lines in lab trials[3].

Using new technologies like G.fast and DOCSIS 3.1 on the network can enable NBN Co to provide access to Gigabit wholesale speeds far more cost-effectively and much sooner than under a universal FTTP build.

NBN Co is also testing and monitoring NG-PON2, G.mgfast and 4.9/5G as possible upgrade paths.

1   The **nbn**™ access network is being designed to provide these peak speeds to NBN Co's Retail Service Providers at NBN Co's network boundary. The **nbn**™ wholesale speed tiers available to RSPs vary depending on the **nbn**™ access network technology in your area.

2, 3   These speeds were achieved in the context of a trial and are not necessarily reflective of the speeds that will be experienced by end users. Your experience, including the speeds actually achieved over the **nbn**™ access network, depends on: the configuration over which services are delivered to your premises, whether you are using the internet during typical busy periods, such as evenings, when more people are online, and some factors outside our control (like how far away your premise is located from **nbn**™ network equipment, your equipment quality, software, broadband plans, signal reception, the plan you choose from your provider, the performance of your modem, Wi-Fi, cabling, other devices in your premises and how your service provider designs its network). Speeds may be impacted by network congestion on NBN Co's network, including during busy periods.

Maintaining progress and performance

NBN Co's focus on customer experience and commitment to **raising the standard** of network quality has led management to make some important decisions.

While the building of the HFC network has not been disrupted, HFC orders were paused and an optimisation program was put in place to help improve the experience of end users, which has impacted the phasing of the deployment profile, with full recovery planned in FY20. Wholesale pricing bundle discounts have been introduced to encourage RSPs to move to higher-speed tiers and improve congestion, impacting NBN Co's revenue forecast. In addition, investments in the Fixed Wireless network are being made to upgrade capacity, impacting cost. These decisions have led to adjustments to financial year actuals and forecasts.

NBN Co's commitment to complete the build by June 2020 remains unchanged.

Performance to date

Despite the pause in HFC orders, NBN Co still completed a record number of activations for the financial year, with 1.6 million new end users added.

RTC

> More than 60[1] per cent of Australian premises are RTC, meaning they can order a retail service over the **nbn**™ access network through their RSPs

> 1.6 million premises became RTC in FY18

Activations

> Four million premises are now connected to the **nbn**™ access network, meaning one-third of Australian homes and businesses are using a service over the **nbn**™ access network today

> 1.6 million premises were activated in FY18, an average of more than 30,000 connected per week

Revenue

> Annual revenue doubled to $2 billion from FY17 to FY18

1   Total premises RTC as a proportion of FY20 total RTC footprint, excluding incremental Greenfields growth.

2   Number of RFS premises; RTC premises not reported in FY16.

Outlook

NBN Co remains on track to complete the rollout of high-speed broadband for Australians by June 2020. While decisions targeting customer experience impacted RTC phasing in FY18 and FY19 and have flow-on impacts to the activations and financial forecasts, the plan continues to forecast significant scale in RTC and activations to meet 2020 goals.

Cumulative RTC Premises (million)

FY16[2]: 2.9
FY17: 5.4
FY18: 7.0 / 8.3

FY18: 7.0
FY19: 9.7
FY20: 11.6
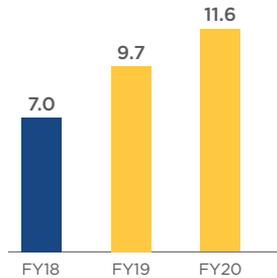
> FY19 is forecast to be NBN Co's most significant release of footprint year yet with an additional 2.7 million premises forecast to be made RTC

> More than 80 per cent of Australian premises are predicted to be able to order a service over the **nbn**™ access network by end of FY19

> The build will be completed by June 2020

Cumulative Activations Premises (million)

FY16: 1.1
FY17: 2.4
FY18: 4.0 / 4.4

FY18: 4.0
FY19: 5.5
FY20: 7.5
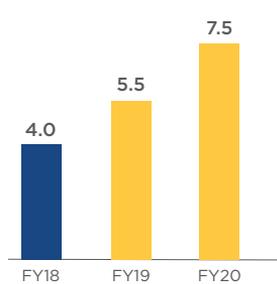
> FY20 is forecast to be NBN Co's most significant activation year with an additional two million premises to be activated on the **nbn**™ access network; 1.5 million are forecast to be activated in FY19

> Eight million homes and businesses are predicted to be connected by 2020, with 7.5 million forecast by June 2020

Annual Revenue ($ billion)

FY16: 0.4
FY17: 1.0
FY18: 2.0 / 1.9

FY18: 2.0
FY19: 2.6
FY20: 3.9
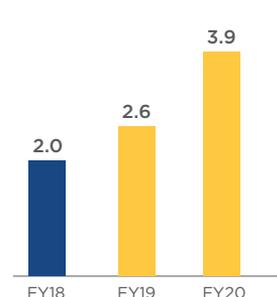
> Revenue is forecast to increase by 30 per cent in FY19 and 50 per cent in FY20

- ■ Actual
- ■ Corporate Plan 2018–21
- ■ Forecast

Improving customer experience together with RSPs

NBN Co is dedicated to helping ensure all Australians have a **positive experience** when connecting to and using services on the **nbn**™ access network.

The Company has spearheaded the industry effort to improve customer experience by implementing a comprehensive program over the past year. This has targeted areas within NBN Co's control, including HFC network optimisation, introduction of wholesale pricing bundle discounts, network capacity upgrades, and process improvements. With consideration of the short-term impact on its financials and activation targets as a result of these initiatives, NBN Co has made the conscious decision to prioritise the improvement of customer experience in collaboration with the industry. This comprehensive program is targeted at the four stages throughout the customer journey.

Aware

Focus areas

Initiatives

Raise end-user awareness about how to connect to the nbn™ access network, the role of NBN Co, RSPs and Delivery Partners, and educate end users about issues that can impact their broadband experience
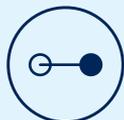
FY18 progress

> The first national integrated campaign was launched to raise awareness about what Australians need to do before signing up for services across the **nbn**™ access network

> A new dedicated team, **nbn**™ Local, was established to educate and resolve issues for regional and remote Australians

1   The percentage of homes and businesses that have their **nbn**™ equipment installed without additional work from NBN Co the first time the installation is attempted. Please refer to Right first time installations of **nbn**™ equipment footnote on page 75 for further details on how the metric is calculated.

2   'Mean Time To Connect' (MTTC) is the time in calendar days from the receipt of an NBN Co order via an RSP to when the NBN Co order has been completed. It includes installation of any NBN Co equipment as required to complete the order. It does not include any additional time it may take for the RSP to complete their activity, such as install an RSP modem or gateway.

NBN Co
Corporate Plan 2019–22

Connect

Reduce delays and improve support when end users are connecting to services over the **nbn**™ access network

Use

Improve the experience of internet access when customers need it most

Fix

Improve the time to resolve issues and ensure issues are fixed as quickly as possible

> 'Right First Time' installation of **nbn**™ equipment[1], measured across all access technologies, has increased. This measure excludes things outside NBN Co's control, such as reschedules and cancellations of appointments, premises 'shortfalls' and bad weather

> 'Mean Time to Connect'[2] a premises to the **nbn**™ access network has decreased and completion of the NBN Co portion of work within agreed time frames with RSPs has improved
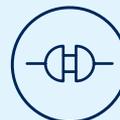
> New wholesale pricing bundle discounts were introduced to help RSPs improve broadband speeds and reduce congestion for end users

> The HFC network optimisation program was launched to improve the experience for RSPs and their end users

> Fixed Wireless network upgrades commenced to expand network capacity to help address congestion and improve end-user experience[3]

> 'Mean Time to Resolve' incident[4] reduced during FY18

> 'Right First Time' fault restoration[5] improved

3   Your experience, including the speeds actually achieved over the **nbn**™ Fixed Wireless network, depends on: the configuration over which services are delivered to your premises, whether you are using the internet during typical busy periods, such as evenings, when more people are online, and some factors outside our control (like how far away your premise is located from the transmission tower, your equipment quality, software, broadband plans, signal reception, the plan you choose from your provider, the performance of your modem, Wi-Fi, cabling, other devices in your premises and how your service provider designs its network). Speeds may be impacted by network congestion on NBN Co's Fixed Wireless network, including during busy periods.

4   'Mean Time To Resolve' (MTTR) is the time from when an incident is reported to NBN Co to when the incident is resolved to the customer's satisfaction. The MTTR measure currently excludes contributions due to customer caused delays, weather, force majeure, network incidents and remediation, and is measured in calendar hours.

5   Measures whether a service was restored on the first appointment date associated with Incident and whether the associated NBN Co resolution was accepted by the RSP (i.e, no RSP Rejection of NBN Co's resolution). The RFT measure excludes misses due to network outages/ incidents, weather, force majeure and customer caused reschedules/ cancellations. It also excludes 'Not In Attendance' scenarios, when the end user is not present at the premises, and is considered to be a customer-caused miss.
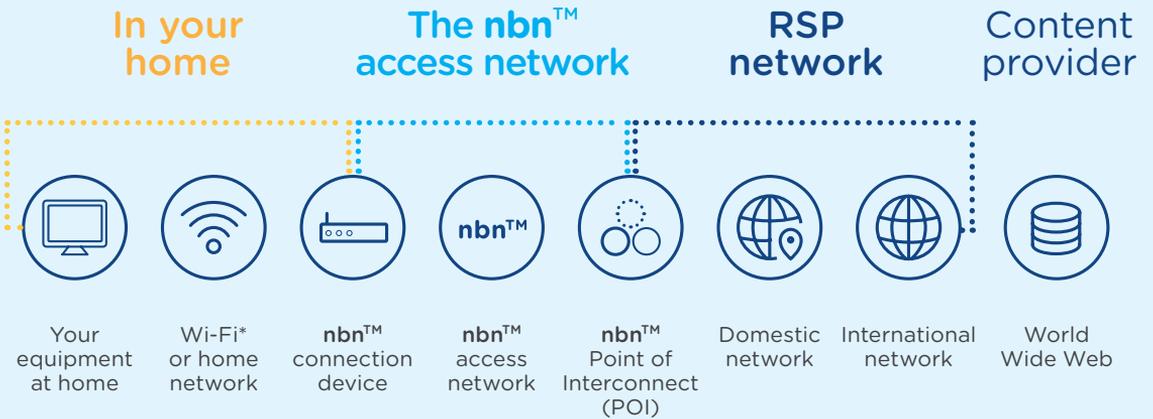
Improving customer experience together with RSPs

Improving the experience of all end users on the **nbn**™ access network must be managed in collaboration with RSPs and other industry stakeholders, as NBN Co is only one link in the internet value chain. The customer experience of end users can be impacted by other factors outside NBN Co's control, including the RSPs' network or customer-owned equipment.

NBN Co's customer experience program assists RSPs and the rest of the industry to deliver outcomes across this value chain. A new Wholesale Broadband Agreement (WBA) contract, designed to improve the quality and timeliness of the wholesale services offered between NBN Co and phone and internet providers, was signed in November 2017. Various programs were launched to collaborate with RSPs and other industry stakeholders. The principles of an end-to-end communication program have been agreed with the aim of addressing end users' pain points resulting from a misalignment in industry communications.

NBN Co is also collaborating with the industry to address unresolved issues faced by end users to identify ways to work together to resolve them more efficiently.

In addition, the industry is taking action to improve customer experience, with the Australian Communications and Media Authority (ACMA) recently releasing a suite of new rules for the industry that includes steps to ensure continuity of service during the migration process, revised standards on complaints-handling and enhanced testing capabilities. These rules will gradually come into effect between July and September 2018.

NBN Co's place in the value chain

In your home	The nbn™ access network	RSP network	Content provider

Your equipment at home

Wi-Fi* or home network

nbn™ connection device

nbn™ access network

nbn™ Point of Interconnect (POI)

Domestic network

International network

World Wide Web

Managed by you   Managed by NBN Co   Managed by Retail Service Provider (RSP)

* Your Wi-Fi device may be provided by your RSP or you can choose to purchase your own. The quality or type of device may affect your experience.

Demonstrating our progress on customer experience

NBN Co's **commitment** to customer experience is showing significant progress.

To give the public a clear understanding, NBN Co is reporting key metrics publicly through a monthly progress report. Compared against 30 June 2017, recently reported metrics show that NBN Co has made strong progress in the following areas during the period to 30 June 2018[1]:

> Increased 'Right First Time' installations[2] of **nbn**™ equipment by five percentage points from 87 to 92 per cent

> Reduced average network bandwidth congestion[3] from five hours and 23 minutes to 25 minutes per week per service (excluding **nbn**™ Sky Muster™ satellite)

> Increased the percentage of faults resolved within agreed timeframes[4] from 70 per cent to 90 per cent

> Increased end-user take-up of 50Mbps or higher peak wholesale speed plans from 16 per cent to 45 per cent[5]

In addition, the Australian Competition and Consumer Commission broadband speed testing program published in March 2018 showed that:

> NBN Co broadband services delivered by major RSPs are now reaching up to more than 90 per cent of the maximum plan speeds in the evening busy hours

> NBN Co's 25/5Mbps plans significantly outperformed ADSL services, with average of 22-23Mbps speeds on **nbn**™ access network (25/5Mbps plan) as compared with average ADSL speed of 8Mbps

There is still work to do, and the Company will continue to provide monthly updates as it strives for better performance.

1 Derived from the Monthly Progress Report https://www1.nbnco.com.au/corporate-information/about-nbn-co/updates/dashboard-june.html

2 The percentage of homes and businesses that have their **nbn**™ equipment installed without additional work from NBN Co the first time the installation is attempted. Please, refer to Right first time installations of **nbn**™ equipment footnote on page 75 for further details on how the performance against key metrics has been calculated.

3 The average number of minutes of bandwidth congestion per week/ per service. Please, refer to average network bandwidth congestion (per week) footnote on page 75 for further details on how the metric is calculated.

4 The percentage of time NBN Co resolves faults within its agreed service levels with phone and internet providers. Please, refer to meeting agreed fault restoration time footnote on page 75 for further details on how the metric is calculated.

5 This includes wholesale plans available to RSPs with download speeds of 50Mbps and 25–50Mbps. Please, refer to uptake to higher peak wholesale speed plans footnote on page 75 for further details on how the metric is calculated.
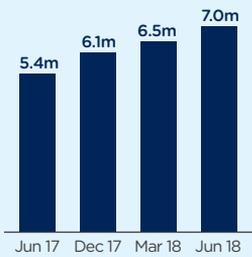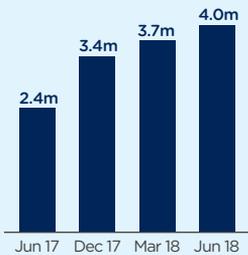
Demonstrating our progress on customer experience

Progress

Connect

Use

Ready to connect[1]

Jun 17	Dec 17	Mar 18	Jun 18
5.4m	6.1m	6.5m	7.0m
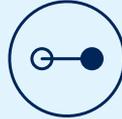
Right first time installations of nbn™ equipment[3]

Jun 17	Dec 17	Mar 18	Jun 18
87%	86%	87%	92%
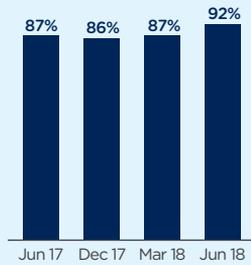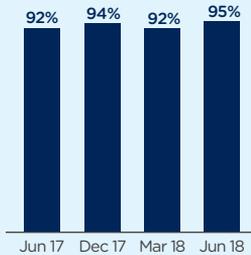
Fixed-line network congestion[5]

Jun 17	Dec 17	Mar 18	Jun 18
0.04%	0.10%	0.07%	0.08%

Connected homes and businesses[2]

Jun 17	Dec 17	Mar 18	Jun 18
2.4m	3.4m	3.7m	4.0m

Meeting agreed installation times[4]

Jun 17	Dec 17	Mar 18	Jun 18
92%	94%	92%	95%

Network availability[6]

Jun 17	Dec 17	Mar 18	Jun 18
100%	99.9%	99.9%	100%
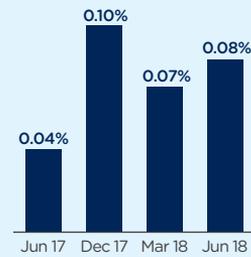
1,2 Cumulative number of premises ready to connect and connected homes and businesses.

3,4,5,6,7,8,9,10 Please, refer to page 75 for further details on how the performance against key metrics has been calculated.

Fix

Meeting agreed fault restoration times[7]

			90%
70%	82%	83%	
Jun 17	Dec 17	Mar 18	Jun 18

Faults per 100 connected homes and businesses[8]
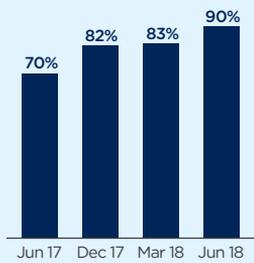
	1.1		
1.0		1.0	0.9
Jun 17	Dec 17	Mar 18	Jun 18
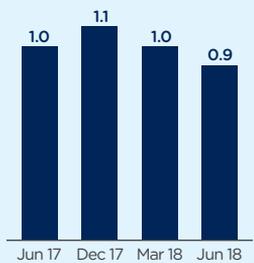
Average network bandwidth congestion (per week)[9]

25 mins
Jun 18

Jun 18	25 mins
Mar 18	18 mins
Dec 17	1 hr : 30 mins
Jun 17	5 hrs : 23 mins

Uptake to higher peak wholesale speed plans[10]

45%
50Mbps or higher plans
Jun 18

Jun 18	45%
Mar 18	37%
Dec 17	16%
Jun 17	16%

Enhancing Australia's economy

In FY17
NBN Co is estimated
to have delivered

With more than 70[1] per cent of the build complete, the benefits of connectivity are readily apparent.

The **nbn**™ access network enriches the lives of today's Australians and enables Australia's future economic growth and the workplace evolution for tomorrow.

The first comprehensive impact study of areas with and without access to the **nbn**™ access network indicates that the **nbn**™ access network is paying dividends through a significant boost to Australia's economy. The study, conducted by leading economists at AlphaBeta[2] and commissioned by NBN Co, indicates that industries are enjoying the productivity gains that come from higher internet speeds and a more digitally-connected workforce.

GDP Impact

$1.2b

p.a. of additional GDP in FY17

0.04 %pts

contributing percentage points to FY17 GDP growth

Employment Impact

2,900 jobs

additional jobs enabled as of end–FY17

1   Total premises RFS as a proportion of FY20 total RFS footprint, excluding incremental Greenfields growth.

2   AlphaBeta Analysis (2017), Census (2006, 2011, 2016), ABS Business Counts. The estimation is based on 2017 statistics. http://www.connectingaustralia.com.au/

In FY21
NBN Co is estimated
to deliver

$10.4b

p.a. of additional
GDP in FY21

0.07
%pts

contributing
percentage points
to FY21 GDP growth

31,000
jobs

additional jobs enabled
as of end–FY21

During FY17, the 'nbn™ effect', helped drive an estimated $1.2 billion in additional economic activity by helping create new jobs, new business and improving productivity. The 'nbn™ effect' is estimated to drive an additional $10.4 billion GDP per annum in FY21. It is expected to add an estimated $122 billion to Australia's GDP on a net-present-value basis[3].

Business in nbn™ access network-connected areas has grown at twice the annual rate compared to the national average since 2011. NBN Co's estimated GDP impact today is driven by productivity improvements across industries, as well as through labour force impacts such as teleworking, job search and online education.

Nationally, productivity gains are expected across a range of industries from 2017 to 2021, with anticipated benefits varying by industry due to the different levels of reliance on Information Technology (IT). For example, the healthcare industry is expected to experience productivity gains through telehealth and hospital applications, while financial and professional services industries will experience productivity gains due to their heavy reliance on IT. Labour force effects of the nbn™ access network, such as teleworking and remote education, are expected to become significant in future years as people's behaviours shift in response to improved broadband.

3   Net present value (NPV) has been calculated for the period 2017 – 2035.

Changing the lives
of Australians

Fast broadband is helping reshape the way Australians work, educate themselves and stay connected with family and friends.

The **nbn**™ access network helps enable Australia to be more productive, more creative and more efficient than ever before. Research by AlphaBeta[1] indicated that the benefits of the **nbn**™ access network are taking hold across connected areas.

1 AlphaBeta Analysis (2017), Census (2006, 2011, 2016), ABS Business Counts. The estimation is based on 2017 statistics. http://www.connectingaustralia.com.au/

NBN Co
Corporate Plan 2019–22

1
Working flexibly and remotely

By 2017, the '**nbn**™ effect' in connected regions is estimated to have helped enable:

Up to 3,000
additional people to work from home

Up to 6,400
additional people to be self-employed

Up to 3,500
additional Australian women to launch their own business last year in **nbn**™ regions. If this trend continues, it is estimated that up to 52,000 additional Australian women could be self-employed by 2021

2
Harnessing education opportunities

Close to 80%
of older Australians, aged 65 years and above, in **nbn**™ regions are using the internet for online learning, compared to 52 per cent of older Australians in non-**nbn**™ regions

Aged 16–24
Younger Australians, aged 16–24 years, remain the highest users of both **nbn**™ and non-**nbn**™ access network based internet for non-formal online learning

60%
nbn™ access network users are 60 per cent more likely to spend more than one hour a day on the internet to engage in non-formal learning

2x
nbn™ access network users are twice as likely to be enrolled in an online course than non-**nbn**™ access network users

Changing the lives
of Australians

Case
studies

Jarryd
Townson

Jarryd Townson is the founder of a
not-for-profit co-working space in
Mackay, Split Spaces, offering local
start-ups a flexible office space running
over the **nbn**™ access network. This hub
offers state-of-the-art facilities for local
start-ups to reduce overheads by working
flexibly, while providing them with access
to video conferencing and collaboration
tools to connect them with mentors and
advisors around the world.

"To have that connectivity, the security
of the internet connection and bandwidth
that the **nbn**™ access network provides
is so important to our customers – it
enables small businesses to get on with
what they need to do."

Airlie
Trescowthick

Airlie Trescowthick is the founder of
Farm Table, an online platform that
connects modern farmers with the latest
research and resources, and each other,
to help them to navigate the complexities
of farming.

While on the farm outside Deniliquin,
she put her farming passion together with
her business skills to help farmers
overcome isolation and the barriers to
learning using the **nbn**™ access network.
Farm Table helps bridge the digital divide,
connecting farmers across generations
and across the country.

"Building the Farm Table from our farm
in rural NSW has allowed me to pursue
my professional, personal and farming
dreams in an industry I love and owe
so much," Airlie says.

Faezeh Parkes

Faezeh Parkes is a 67-year-old Melbourne-based woman who describes herself as a citizen of the world. Having worked within the education system for a number of years, Faezeh has seen firsthand the impact the **nbn**™ access network can have on a person's learning, no matter what age they are.

When she was 62, Faezeh decided to become an actor, which now allows her to travel the world. Using the **nbn**™ access network, she was able to upskill herself through online acting classes, as well as learn scripts and apply for roles. Through this new challenge, Faezeh is able to live in the moment, go with the journey and connect with people worldwide.

Bridging the digital divide

The rollout of the **nbn**™ access network covers regional and remote Australia, helping bridge the divide between city and country, young and old, Australia and the rest of the world.

NBN Co has prioritised regions where internet quality and availability is the lowest (classified as 'underserved') where commercially and operationally feasible as per the 2016 SoE. The 'Broadband Availability and Quality Report', published by the Department of Communications and the Arts in February 2014, identified approximately 1.8 million underserved premises.

NBN Co has made significant advancement in upgrading internet services nationwide, including in underserved areas. As of 30 June 2018:

1.3 million premises

previously identified as underserved, now have access to broadband.

Progression of the rollout in underserved vs. non-underserved areas (per cent)

■ Underserved RFS
□ Non-underserved RFS
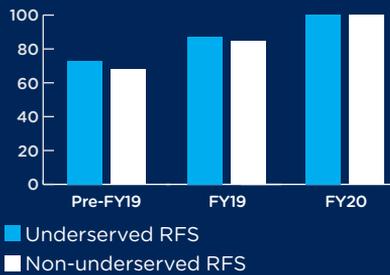
The graph above shows that NBN Co is rolling out its network faster in underserved areas relative to the rest of the market.

86 per cent

of premises in non-metropolitan areas, or 4.5 million, have access to **nbn**™ access network, with 77 per cent of non-metropolitan areas covered by fixed-line technologies.

□ % of premises in non-metropolitan areas with access to the **nbn**™ access network

■ % of premises in non-metropolitan areas with access to the fixed-line **nbn**™ access network

People making the **nbn**™ access network a reality

Diversity and inclusion at NBN Co

**Strength in diversity
Opportunity through inclusion**

Gender Balance

Accessibility

Culture

LGBTI Pride

First People
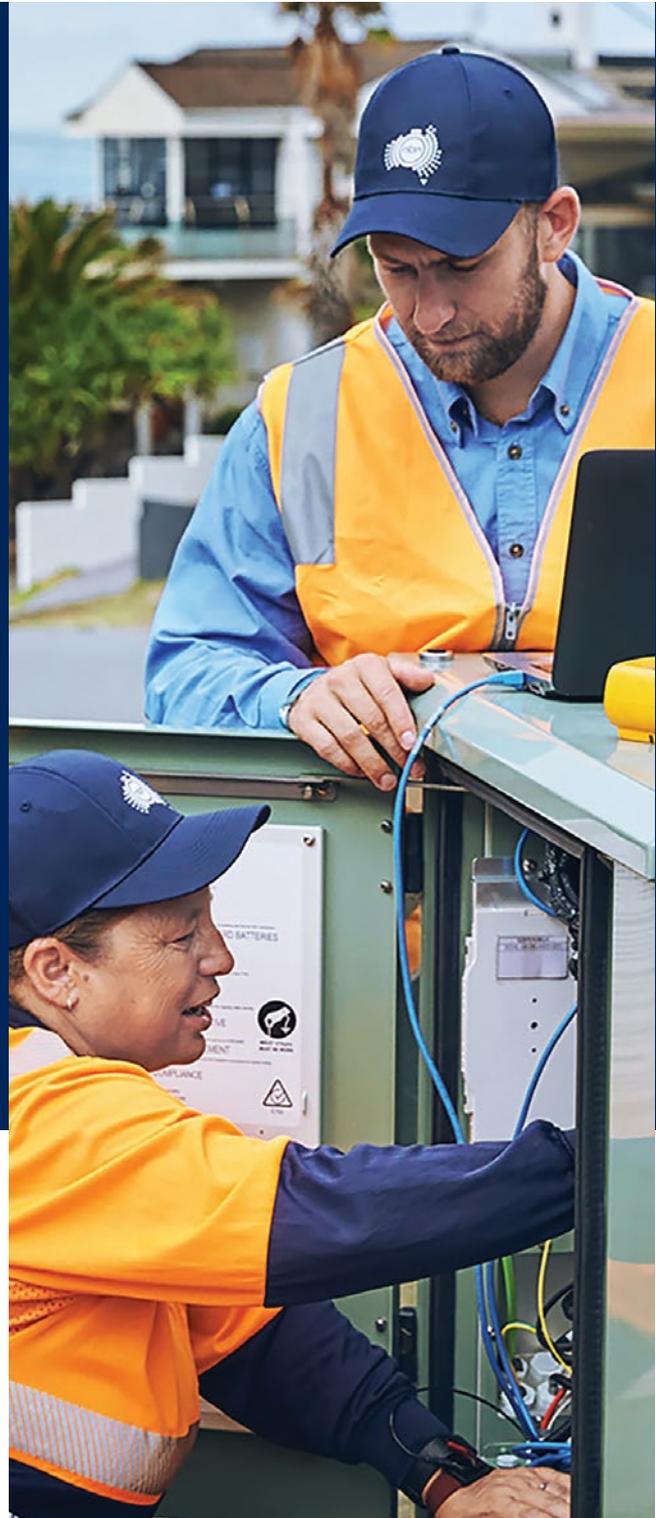
6,850
NBN Co employees

24,000
external field workforce
through NBN Co partners

NBN Co's ability to deploy and operate the **nbn**™ access network and to help enhance customer experience is underpinned by its employees.

The Company is committed to making NBN Co a great place to work and to attract and retain talent that can help deliver the company's vision. Opportunities for continued development and performance stimulate success throughout the workforce. Teams are further strengthened by embracing a culture of diversity and inclusion to represent a wide range of backgrounds, talents and experience.

These commitments have translated into an engaged workforce, which has improved year-on-year.

**Employee
Engagement
Score**

74%
FY18

FY17	70%
FY16	68%
FY15	51%
FY14	44%

Board of Directors and
NBN Co management team

The experienced Board behind NBN Co

1. Dr Ziggy Switkowski AO
Chairman/Non-Executive Director
Appointed in October 2013

2. Drew Clarke AO PSM
Non-Executive Director
Appointed in August 2017

3. Patrick Flannigan
Non-Executive Director
Appointed in November 2013

4. Shirley In't Veld
Non-Executive Director
Appointed in December 2015

5. Michael Malone
Non-Executive Director
Appointed in April 2016

6. Zoe McKenzie
Non-Executive Director
Appointed 1 July 2018

7. Justin Milne
Non-Executive Director
Appointed in November 2013

8. Bill Morrow
Chief Executive Officer/Managing Director
Appointed in December 2013

9. Kerry Schott AO
Non-Executive Director
Appointed in September 2012

A dedicated management team

1. Bill Morrow

Chief Executive Officer/
Managing Director
Joined NBN Co in April 2014

2. Stephen Rue

Appointed as Chief Executive Officer on
1 September 2018
Chief Financial Officer
Joined NBN Co in July 2014

3. Kathrine Dyer

Chief Network Deployment Officer
Joined NBN Co in November 2010

4. Justin Forsell

Chief Legal Counsel
Joined NBN Co in March 2010

5. John McInerney

Chief Systems Engineering Officer
Joined NBN Co in December 2012

6. Felicity Ross

Chief Corporate Affairs Officer
Joined NBN Co in July 2018

7. JB Rousselot

Chief Strategy Officer
Joined NBN Co in October 2013

8. Peter Ryan

Chief Network Engineering Officer
Joined NBN Co in January 2013

9. Maree Taylor

Chief People and Culture Officer
Joined NBN Co in May 2014

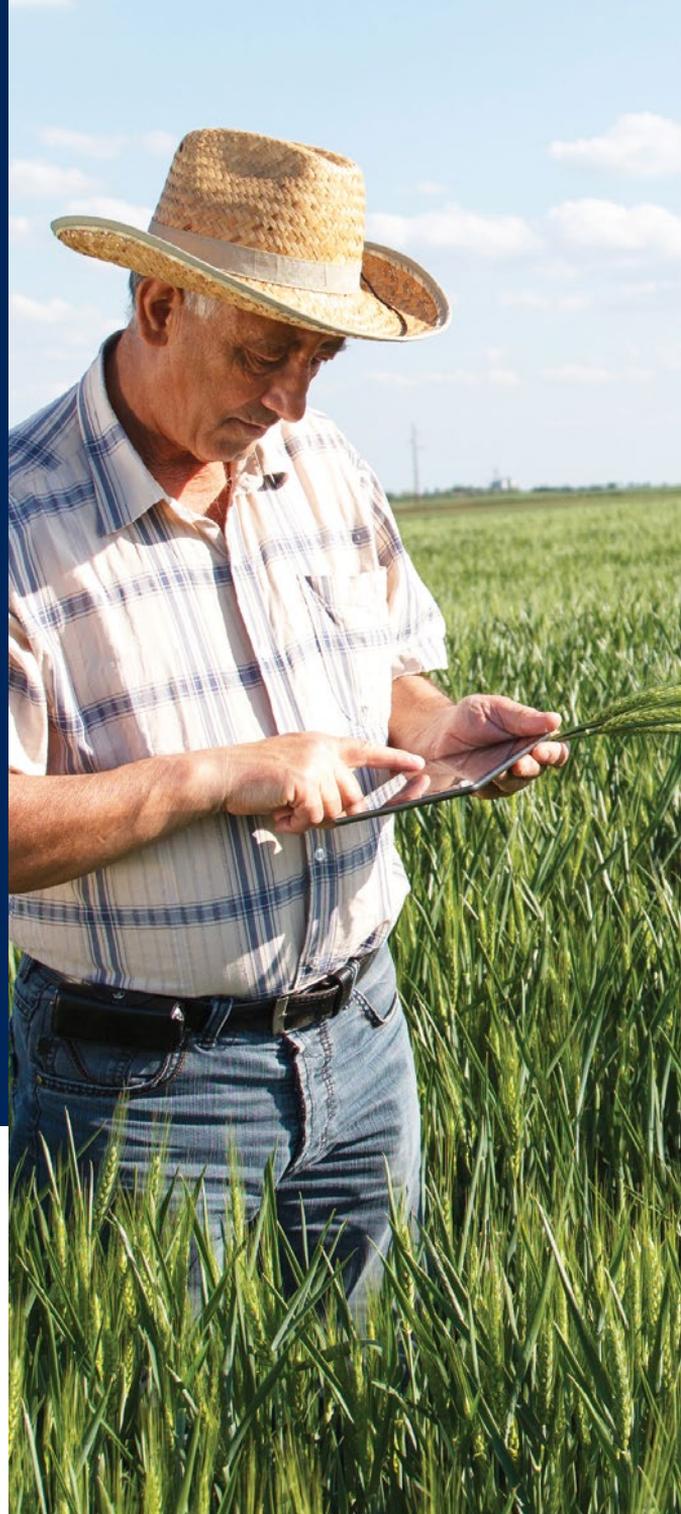## 10. Paul Tyler

Chief Customer Officer (Business)
Joined NBN Co in February 2018

11. Brad Whitcomb

Chief Customer Officer (Residential)
Joined NBN Co in May 2014

Corporate Plan

2.1
Plan summary

The Corporate Plan 2019-22 sets out how NBN Co will achieve its 2020 target of providing access to high-speed broadband in Australia and how it will put customer experience first as it delivers on its goals.

On 30 June 2018, more than 60[1] per cent of the **nbn**™ access network was RTC with more than four million premises connected to a service over the **nbn**™ access network. By end of FY19, more than 80 per cent of the network is forecast to be RTC, with 5.5 million premises predicted to be connected to **nbn**™ services.

FY18 has been a pivotal year for the Company. NBN Co has continued to scale its build and activations while also incorporating critical decisions to help improve customer experience, including the HFC pause and optimisation, the introduction of new wholesale pricing bundle discounts, further investment in Fixed Wireless capacity and overall process improvement by NBN Co and RSPs. These commitments are translating to an enhanced experience for RSPs and end users are a core feature of this plan.

The key achievements in FY18 are a result of enhancements to the wholesale broadband network and customer experience for RSPs and end users. These include:

- Completion of pilot testing and the scaled re-launch of the HFC network

- Successful trial and launch of FTTC technology, which is NBN Co's latest addition to the MTM toolkit, building fibre deeper into the network in what is one of the world's first mass deployments of this technology

- Further investment in the upgrade of Fixed Wireless network capacity

- Release of new wholesale pricing bundle discounts for a range of internet access plans, aimed to help RSPs improve services over the **nbn**™ access network during peak hours and promote higher speed tier take-up

- Release of monthly progress reports to allow Australians to track the performance and rollout of the **nbn**™ access network

- Release of larger capacity wholesale plans over the **nbn**™ Sky Muster™ service for rural and regional Australians

- Launch of a number of wholesale products and services designed to support business and government customers, and a dedicated team to support the needs of Australian businesses

During the last 12 months, NBN Co expanded the RTC footprint from 5.4 million premises to 7.0 million premises – an increase of 29 per cent – and substantially increased connected retail services over the **nbn**™ access network, from 2.4 million to four million premises – an increase of 65 per cent.

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1   Total premises RTC as a proportion of FY20 total RTC footprint, excluding incremental Greenfields growth.

The customer experience satisfaction measure across all technologies during the connect, use or fix stage, showed an improvement of 0.5 over the past 12 months, from 6.1 in June 2017 to 6.6 in June 2018, as a result of concerted effort by NBN Co in collaboration with the industry. Monthly Progress Reports have revealed improvements in key performance metrics at the wholesale level.

FY19 will be NBN Co's biggest year yet for release of footprint, as it moves towards its goals of completing the build by June 2020 and connecting eight million homes and businesses by 2020, while continuing to improve customer experience.

Three decisions taken in FY18 have changed the shape of the forecast plan by consciously prioritising customer experience. The impact of the HFC pause on deployment profiles, combined with new wholesale pricing bundle discounts, will delay a portion of revenue growth, while further planned investment in Fixed Wireless capacity has led to increased forecast capex.

As a result, the peak funding has increased to the top of the forecast range at $51 billion, including $1 billion contingency. Upon completion of the build, NBN Co will source the additional $2 billion from private sector debt.

Post FY20, this plan forecasts a reduction in capex alongside the completion of the build and an increase in annual revenue to more than $5 billion with the increased footprint and activated premises. The Internal Rate of Return (IRR) forecast is 3.2 per cent.

The Corporate Plan 2019-22 continues to forecast the completion of the build by June 2020.

Table 1: Key operational and financial metrics

$ billions (unless otherwise stated)	FY18	FY19	FY20	FY21	FY22
Premises RFS (millions)	8.1	9.9	11.6	11.7	11.9
Premises RTC (millions)	7.0	9.7	11.6	11.7	11.9
Premises activated (millions)	4.0	5.5	7.5	8.4	8.7
Revenue	2.0	2.6	3.9	5.2	5.6
EBITDA before subscriber payments	(0.4)	0.0	1.3	2.4	2.9
EBITDA	**(2.3)**	**(1.7)**	**(1.4)**	**1.3**	**2.5**
Capital Expenditure	(5.7)	(6.0)	(3.6)	(1.5)	(1.2)
Cash Flow	**(7.6)**	**(7.9)**	**(5.8)**	**(2.2)**	**0.1**

Note: The numbers presented in this table may vary significantly over time. Operating expenses and EBITDA are non Generally Accepted Accounting Principles (GAAP) measures. For corporate planning and internal reporting purposes, Management treats certain payments for leasing assets as operating expenses. For statutory reporting purposes in quarterly and annual reporting, these payments are treated as finance leases and accordingly are capitalised and amortised over a 35 year lease period. Due to rounding, numbers presented may not add up precisely to the totals.

NBN Co
Corporate Plan 2019–22

The plan is based on operational and financial forecasts that represent the best estimates and information available as of 30 June 2018. A diverse set of dependencies and risks could impact the plan. These include the changing market environment, competitive landscape and the ever-increasing demand for improved internet access.

The risk profile of the Company is reshaping from a build to operation focus. FY19, however, remains a big build year for NBN Co, particularly with increased civil build requirements associated with FTTC. The ability to achieve deployment, activation and revenue targets remains critical to the success of this plan.

Short-term and long-term financials are sensitive to take-up assumptions and forecast ARPU growth. With mobile operators continuing to focus on the development and deployment of 5G, mobile substitution could impact long-term revenues. In preparing the Corporate Plan 2019-22, Management has analysed and assessed possible challenges and, where appropriate, incorporated respective impacts to NBN Co's operational and financial forecasts.

Risks to this plan are categorised into the following general themes:

- **Rollout of new technologies:** with the relaunch of HFC and the deployment of FTTC
- **Customer and end-user experience**: which can impact revenue generation
- **Operating model transformation:** evolving from a company building the network to an operating platform
- **Market disruption:** from wireless substitution and business segment competitors

Where feasible, these risks have been assessed and reflected in the delivery timing and forecast peak funding. Management will continue to evaluate the plan and forecasts, particularly in FY21 and onwards, as the market and technological innovation continue to rapidly evolve.

2.2
Market overview

2.2.1
Australia's consumer demand

Consumer demand for data grew significantly throughout FY18. Australia's fixed-line broadband users downloaded an average of 153 GB per month in December 2017[1], a year-on-year increase of 30 per cent, with **nbn**™ users downloading an average of 205 GB per month[2]. Fixed-line broadband accounts for 92 per cent of total internet downloads in Australia[3].

NBN Co analysis and industry research suggest demand for data is expected to grow by 20–30 per cent annually through to 2025[2]. Consumer usage growth will be driven by technological trends such as the Internet of Things (IoT), artificial intelligence (AI) and robotics, as well as more data-intensive technology mediums such as 4K and 8K TV, and augmented reality and virtual reality technologies.

As technological trends continue to evolve and the use of technology increases, end users will progressively demand connectivity that is ubiquitous and seamlessly available. A shared effort between NBN Co and RSPs will be required to satisfy end-user demand for this premium network experience.

2.2.2
Australia's retail broadband market

There are more than 100 RSPs offering services over the **nbn**™ access network in Australia, with some RSPs using multiple brands to target different market segments. In addition to basic broadband plans, many RSPs are attracting new customers by offering bundled packages, which include features such as voice calling, mobile services, energy and over the top (OTT) entertainment services such as subscription television and video on demand.

In December 2017, NBN Co introduced new wholesale pricing bundle discounts to RSPs to help drive take-up of higher speed plans and incentivise higher capacity provisioning by RSPs to reduce the levels of bandwidth congestion experienced by some end users. Take-up of fixed-line wholesale peak download speed plans of 50Mbps and above grew from 16 per cent in June 2017 to 45 per cent in June 2018[4]. These new wholesale pricing bundle discounts helped drive down average network bandwidth congestion from more than five hours and 23 minutes per week as of June 2017 to 25 minutes per week as of June 2018[5].

Competition in the mobile sector is intensifying with the entry of TPG as the fourth major mobile operator in the Australian market. NBN Co is aware that Australia's mobile operators have announced plans to offer 5G services. To ensure it continues to offer a competitive value proposition for both RSPs and end users, NBN Co closely monitors developments.

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1   Derived from ABS 8153.0 Internet Activity Australia. Based on subscribers using DSL, Cable, Fibre & Other.

2   Estimate based on **nbn**™ analysis and industry research.

3   Derived from ABS 8153.0 Internet Activity Australia.

4   Based on the June 2018 Monthly Progress Report. This includes wholesale plans available to RSPs with download speeds of 50Mbps and 25–50Mbps. The **nbn**™ access network is being designed to provide these peak speeds to **nbn**'s Retail Service Providers at **nbn**'s network boundary. The **nbn**™ wholesale speed tiers available to RSPs vary depending on the **nbn**™ access network technology in your area.

5   This excludes the Sky Muster™ satellite service. This is calculated across all bandwidth purchased by all RSPs across the entire network (CVC congestion). Please note that while bandwidth congestion is caused by the level of provisioning of capacity by the RSP, there are also other types of congestion that may occur on the **nbn**™ access network.

2.2.3
Australia's business broadband market

The demand from medium to large enterprise and government businesses for high speed broadband is increasing, both in terms of download and upload speeds, driven by the increasing reliance on cloud services, video conferencing and custom business applications.

While historically focused on the retail broadband market, NBN Co recently increased its efforts to meet business requirements. In the early stage of the rollout, NBN Co developed wholesale products and services for residential and small to medium-sized businesses. Recently, it has launched updates to help phone and internet providers meet the market demand for medium to large, enterprise and government businesses migrating to the **nbn**™ access network. Now that this suite of products has been released, NBN Co can better support Australia's business segment and will continue to enhance business offerings with tailored wholesale products.

NBN Co is supporting the needs of Australian business with the establishment of a dedicated team. This new team works with RSPs and the broader industry to create purpose-built wholesale products and services to allow service providers to better support medium and large organisations. By providing open-access connectivity on non-discriminatory terms to all RSPs, NBN Co intends to help create a level-playing field fostering a competitive business market that has historically been dominated by a very small number of players.

2.2.4
International broadband trends

Consumers across the world are expecting higher network performance to support the quality of experience when using applications.

Telecommunications operators are trialling a range of technologies to cater to the growing demand for bandwidth in a cost-effective manner.

G.fast technology deployment continues to grow globally. This technology is designed to enable operators to upgrade broadband speeds over copper networks. In the UK, BT Group has used G.fast to offer broadband services with speeds of up to 330Mbps, while in Switzerland, Swisscom has deployed G.fast to support speeds up to 500Mbps.

International operators are also evaluating the opportunity of deployment of 5G wireless networks as a wireless broadband solution. In the USA, AT&T and Verizon have announced plans to launch 5G broadband in a number of US cities by the end of 2018. Trials of 5G are also underway in other international markets, with 2019 likely to see the launch of 5G services. As is often the case with the introduction of new technologies, scale rollout is likely to take some time to reach the mass market.

2.3
Operating plan

2.3.1
Product and pricing strategy

NBN Co aims to provide access to high-speed broadband across Australia as quickly as possible and at the least possible cost. This is achieved by providing a wholesale network and wholesale broadband products and services on a non-discriminatory basis to RSPs that sell broadband services directly to the public.

NBN Co's collaboration with the industry to deliver a positive end-user experience underpins the success of this strategy. The process of providing connectivity from the content provider to the end user requires multiple touch points and coordination throughout the value chain. NBN Co acts as one link in the process, providing wholesale-only, open-access broadband on a non-discriminatory basis to all access seekers across 121 Points of Interconnect (POIs). The collaboration between RSPs and NBN Co is critical as RSPs are ultimately delivering the customer experience to end users.

In addition to servicing residential customers, NBN Co is committed to providing access to high-speed broadband to Australian businesses. NBN Co is helping improve business connectivity and provide a considerable economic benefit to Australia through the 'nbn™-effect' (estimated to have already added an estimated $1.2 billion in economic activity in FY17)[1]. However, NBN Co will continue to review its product and pricing strategy in order to provide access to long-term benefits to businesses across all geographies.

Wholesale product construct

NBN Co's core product offering is based on the **nbn**™ Ethernet product. The components of this construct allow RSPs to build differentiated products.

Irrespective of the underlying technology, NBN Co's wholesale product construct consists of two key components:

- **Access Virtual Circuit (AVC):** a virtual network element that provides RSPs with the connection to end-user premises via a suitable User Network Interface (UNI) element. An AVC is provisioned and dimensioned for each premises based on wholesale peak speeds ranging from 12Mbps to 1Gbps downstream and 1Mbps to 400Mbps upstream, depending on the access technology available at that premises

- **Connectivity Virtual Circuit (CVC):** AVCs are routed through the **nbn**™ access network to the POI where the RSP connects to the network. CVC provides the capacity for multiple AVCs to connect to the **nbn**™ access network. CVC is provisioned on an aggregate basis across all premises per RSP for a specific Connectivity Serving Area and dimensioned by the RSP based on their network contention strategy

NBN Co continues to expand its capabilities and offerings to help RSPs support business and government segments. Underpinning this is a tailored network delivery model to support their specific needs and to bring the benefits of the network to micro, small, medium and large enterprises, including government entities. NBN Co provides product features that RSPs can combine with the core **nbn**™ Ethernet product (i.e. by AVC and CVC), including:

- **Higher wholesale speed Traffic Class 1 and Traffic Class 2 for multi-line voice and symmetric data applications:** a range of symmetric Committed Information Rate (CIR) product features that support business applications such as video conferencing, virtual private networks (VPN) and other business connectivity solutions

1   AlphaBeta Analysis (2017), Census (2017, 2011, 2016), ABS Business Counts. http://www.connectingaustralia. com.au/

- **Enhanced service levels:** a range of enhanced service levels options

Businesses that request Direct Fibre or multi-site services are determined on a case-by-case basis.

Within the next 12 months, NBN Co plans to offer the following products for businesses:

- **Enterprise Ethernet:** A new fibre product providing enterprise-grade network capability of up to 1Gbps[1]; **nbn**™ Enterprise Ethernet is intended to offer a wholesale layer 2 Ethernet access service, supplied by means of the **nbn**™ fibre infrastructure. It is designed to meet the Metro Ethernet Forum (MEF) standards:

  - **Operator Virtual Connection (OVC):** Key component of the **nbn**™ Enterprise Ethernet product construct, replacing the AVC and CVC construct. The OVC is the logical service infrastructure delivering connections from an UNI (User Network Interface) at the end-user premises to the NNI (Network to Network Interface) at the **nbn**™ POIs

  - The product includes three Classes of Service designed to allow service providers to prioritise traffic on the **nbn**™ access network

- **Business Satellite Services:** Business satellite services are intended to provide access to wholesale, reliable and flexible high-bandwidth and internet access SLA-based products to support eligible business customers of all sizes

The Integrated Product Roadmap provides the industry with a view of the upcoming releases in NBN Co's product portfolio for the next few years and is regularly updated. NBN Co operates a Product Development Forum as an avenue for consultation with RSPs and relevant consumer advocacy groups on NBN Co's product development pipeline. It also continues to work with businesses to enhance its product offering and keep pace with their needs from both a product and economic perspective.

Focus on 50

50/20Mbps

Peak wholesale

speed tiers at the same price as 25/5Mbps wholesale speed tier combined with a 50 per cent CVC boost until October 2018

Wholesale pricing strategy

NBN Co's wholesale product construct forms the foundation for its pricing strategy. Prices are determined by a combination of the number and features of AVCs acquired by RSPs alongside the amount of CVC requested by RSPs. NBN Co periodically reviews how AVC and CVC are reflected in its pricing strategy in conjunction with RSPs and industry consultation, ensuring market and economic changes are taken into account.

Through FY18, NBN Co evolved its pricing to provide a bundled discount on its products that includes a minimum CVC at a discounted price. This has been introduced to the market in two phases. The initial temporary phase was the 'Focus on 50' campaign, under which NBN Co provides eligible RSPs the 50/20Mbps peak wholesale speed tiers at the same price as the 25/5Mbps wholesale speed tier combined with a 50 per cent CVC boost until October 2018. This was designed to bridge the economics of this promotion to the longer term discount bundles and encourage RSPs to offer higher speeds and more capacity to improve their service for end users.

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1   The **nbn**™ access network is being designed to provide these peak speeds to NBN Co's Retail Service Providers at NBN Co's network boundary. The **nbn**™ wholesale speed tiers available to RSPs vary depending on the **nbn**™ access network technology in your area.

On 1 May 2018, NBN Co launched the second stage of changes, primarily for the 100Mbps and 50Mbps fixed-line products, which makes available a discount bundle that includes a minimum CVC allowance. These discount options are expected to follow on from the success of the 'Focus on 50' campaign and enable RSPs to continue to deliver on customer experience given current demand for bandwidth. NBN Co will continue to consult with RSPs to implement these new bundle discounts.

These discounts contributed to the reduction of bandwidth congestion on the network and increased take-up of the peak wholesale speed tiers of 50Mbps, or higher, download wholesale speed tier by RSPs (from 16 per cent of end users in June 2017 to 45 per cent)[1]. Beyond FY18, NBN Co will continue to evolve its pricing and product strategy, in consultation with the industry, based on growth in applications, and changes in the industry and the market. This will include tailoring the value proposition to RSPs for business customers.

Uptake to higher peak wholesale speed plans

45% on
50Mbps
or higher plans
up from 16%
June 2017

1   This includes wholesale plans available to RSPs with download speeds of 50Mbps and 25–50Mbps. Please, refer to uptake to higher peak wholesale speed plans footnote on page 75 for further details on how the metric is calculated.

NBN Co
Corporate Plan 2019–22

Scale migration to the nbn™ access network

This plan reflects progress towards the completion of the large-scale migration of users to the **nbn**™ access network from legacy phone and internet services. Once an area is declared RFS, there is an 18-month migration window for most end users to migrate to the **nbn**™ access network before legacy phone and internet services are disconnected in the fixed-line footprint. Business-grade special services are generally disconnected on a different timetable, usually beginning three years after the release of an NBN Co product white paper. The majority of affected business services will reach the end of the disconnection window by end of FY19.

By FY22, NBN Co expects that this migration will be mostly complete with 73–75 per cent of premises forecast to take up services over the **nbn**™ access network. Assumptions are consistent with actual take-up rates observed in areas that have already reached the end of the 18-month migration window. Take-up of services over the **nbn**™ access network may be constrained by several factors, including non-connected homes, homes served by competitors' infrastructure and homes that only use wireless services that may experience an increased potential risk of mobile substitution with the development of 4.9/5G.

As a component of the scale migration, there are some Special Services that may be disconnected (e.g. ATMs). These are business telecommunication products delivered on copper, other than the standard phone and internet services. Depending on location and **nbn**™ access technology, there may be a different Special Services disconnection date. Businesses are required to manage these through their internet service providers, with support from NBN Co.

Other niche products also need to be migrated to the **nbn**™ access network. For example, NBN Co remains committed to working with the healthcare industry, as well as phone and internet service providers, to help ensure users of medical alarms are aware of the steps required to switch to services over the **nbn**™ broadband access network.

The Company is providing enhanced assistance to medical alarm users during their household's migration. This year, the Company implemented a trial with participating providers to assist users of unmonitored medical alarms (auto dialling devices) with the cost of upgrading their alarm to modern technology that will be suitable when their household moves to the **nbn**™ access network. The trial commenced in April 2018.

Wholesale supply arrangements

Product and pricing strategy, NBN Co's commitment to customer experience and current stage of the scale migration requires ongoing updates to supply provisions. To enable this, NBN Co finalised the third iteration of the WBA, its contract with service providers, which will last until November 2019. The fundamental changes to NBN Co's WBA aim to further improve the experience of consumers on the **nbn**™ access network, and include:

- A new service level for hand-offs from NBN Co to RSPs that requires NBN Co to acknowledge or respond within two hours of end-user issues being raised by the RSP

- A new rebate for providers where NBN Co does not meet target service fault restoration timeframes[1]

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1   New commercial rebate ($25) for assurance performance available to all RSPs when NBN Co does not meet the 90 per cent Performance Objective for service fault resolution. This performance objective is calculated across all technologies with the 'Actual Performance' being NBN Co's aggregate performance for all RSPs. For more information, please see the **nbn**™ Ethernet Service Levels Schedule of the WBA.

2.3.2
Customer experience strategy

At the core of NBN Co's strategy is the Company's intent to do its part in enhancing customer experience.

With an unprecedented volume of households and businesses migrating to services on the **nbn**™ access network, NBN Co has faced challenges meeting service performance expectations while maintaining its network deployment schedule. NBN Co has responded to these challenges by establishing a comprehensive customer program covering four key stages of an end user's experience: Aware, Connect, Use and Fix.

Aware

NBN Co raises end-user awareness and focuses on reducing negative sentiment through targeted communication initiatives. These aim to help Australians better understand what they need to do before signing up to retail services, clarify the role of NBN Co and RSPs, and support end users to get the best out of their broadband service, including education in relation to factors such as speed. NBN Co will remain focused on implementing education and information initiatives to counter negative sentiment and improve end users' understanding about the **nbn**™ access network.

Connect

NBN Co aims to minimise delays to get a working service when end users connect to the **nbn**™ access network. To improve the **nbn**™ equipment installation experience for end users, NBN Co is working with Delivery Partners to improve the performance of the extended workforce. As a result of these changes, installations of **nbn**™ equipment are aimed at achieving 'Right First Time' and minimising Aged Orders[1] and rescheduled appointments. Case management activities with RSPs are in place that aim to respond as efficiently as possible when end users experience issues during the installation process.

Use

NBN Co helps to address end-user experience issues when using the **nbn**™ access network – the journey stage that determines the majority of overall customer satisfaction – by targeting the key drivers behind end-user dissatisfaction (speed and reliability). The focus is on rehabilitation, remediation and augmentation of existing infrastructure.

NBN Co will continue its focus on helping improve customer experience through pricing discount options with bundled CVC to help reduce busy-hour congestion, HFC network optimisation, investment in capacity upgrades on the Fixed Wireless network, continuous implementation of stringent network engineering standards, and partnership with the industry.

Fix

NBN Co commits to reducing the time to resolve issues and seeks to fix them within agreed time frames with RSPs. NBN Co is focused on reducing fault rates and repeat faults, as well as exploring more advanced fault detection technology to determine whether faults can be resolved remotely and immediately, or whether a field technician is required to visit a home.

NBN Co publishes a Monthly Progress Report to share details about its performance against key metrics including network rollout, congestion, installations and fault restoration. As of 30 June 2018, notable improvements have been realised. Please refer to page 20 to 23 for more detail.

NBN Co continues to invest in collaborative partnerships with its industry partners to strategically support and enable RSPs to effectively own and manage the end-user communications and servicing across the end user journey.

NBN Co is also driving a dedicated Business Customer Experience program to achieve its revenue objectives while helping RSPs deliver a great customer experience.

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1   An Aged Order is any order greater than 28 calendar days from the receipt of the **nbn**™ order from an RSP. NBN Co measures the number of Aged Orders at a given point in time. Basically it is a service activation order that has not been closed more than 28 days after being placed.

2.3.3
Network build strategy

Network planning and technology mix

To complete the construction of the **nbn**™ access network as quickly as possible and at least possible cost, the MTM approach allows NBN Co to flexibly determine which technologies are used on an area-by-area basis, using existing infrastructure wherever possible, to minimise deployment cost and accelerate the speed of rollout.

As technologies, processes and new information evolve, the rollout plan is refined, and the anticipated technology for a particular area may change during the design and construction phase.

The nbn™ access network and the MTM consist of seven access technologies deployed across six programs.

In March 2018, NBN Co expanded its technology mix with the launch of its seventh access technology, FTTC. This was a significant milestone for NBN Co and the world-first mass deployment of this new technology. In this plan, NBN Co has increased the forecast number of premises served by FTTC to 1.4 million premises by FY20. To reflect this shift to FTTC, the number of premises forecast to be served by HFC has decreased to 2.5 million, with higher-cost premises in the HFC footprint now able to be served with the new FTTC technology.

Network deployment

NBN Co has shown its ability to scale in one of the most significant deployment periods in the Company's history, with more than 70[1] per cent of the build completed and more than 99 per cent of first designs issued. During the last year, an additional 1.6 million premises were declared RTC with an additional 1.6 million activations.

The following six programs across NBN Co's network provide different capabilities over various infrastructures and geographies.

FTTP

FTTP is now primarily deployed in Greenfield locations or through the Technology Choice program. This is a program that provides eligible individual or groups of premises with the option to pay for a switch to FTTP. The FTTP program consists of two sub-programs for Greenfields and Brownfields developments.

The Brownfields program is almost completed while the Greenfields program continues to grow with the expansion of new developments. As of 30 June 2018, the Brownfields program has delivered 1.1 million premises RTC and the Greenfields program 0.5 million premises RTC. FTTP has also been deployed to some business premises.

FTTN/B/C

FTTB was the first technology to launch as an alternative fixed broadband technology to FTTP in March 2015 with FTTN starting in the following September and scaling substantially through FY16 and FY17.

FTTC is the latest addition to the FTTX family and was launched successfully in March 2018 following positive results from the first customer trials.

FTTC was launched with the objective to provide access to 25-100/5-40Mbps wholesale speeds more cost-effectively compared to the time and cost associated with digging a new lead-in conduit for FTTP. A total of 1.4 million premises are forecast to have access to FTTC at the end of the build phase.

As of June 2018, 3.8 million FTTN/B/C premises were RTC.

1   Total premises RFS as a proportion of FY20 total RFS footprint, excluding incremental Greenfields growth.

HFC

The HFC program mostly comprises the augmentation and expansion of the Telstra HFC network. The HFC product was commercially launched in June 2016, and has reached a footprint of 0.5 million premises that are RTC as of end June 2018.

With customer experience a top priority, NBN Co decided in November 2017 to temporarily pause all activations on the HFC network to conduct remediation and optimisation to improve network quality before declaring the network RTC. To meet a higher level of network quality and help drive better customer experience, NBN Co has performed advanced network testing and remediation on the HFC network where needed, including connector replacements, signal amplification calibration, and lead-in work. As of 27 April 2018, NBN Co has again released wholesale HFC services to retail providers.

During the HFC pause, NBN Co has continued to rollout the network in anticipation of new HFC footprint release.

Fixed Wireless

The Fixed Wireless program extends the **nbn**™ access network beyond the reach of the fixed-line footprint. Operational since 2011, the program is managed through a turn-key delivery contract with Ericsson as the primary vendor. Network deployment is almost completed, with approximately 0.6 million RTC as of 30 June 2018.

The top priority for the Fixed Wireless program this year is to focus on capacity upgrades, spectrum optimisation and technology evolution investments. A capacity management program is adding more capacity at the wholesale level to existing sites with a focus on supporting RSPs to help deliver a consistent customer experience during the busy hour. As part of this program, NBN Co plans to evolve, over FY19, its design criteria with the aim of targeting a minimum average download wholesale speed across all active users on a cell of 6Mbps[1] during the busy hour.

As the number of end users on the network has grown, together with an increase in concurrent usage and data throughput growth, this program has become necessary to deliver adequate consumer experience.

Satellite

The satellite program is NBN Co's solution to provide high-speed broadband to rural and remote Australians. The first broadband Sky Muster™ satellite launched into orbit in October 2015 and the second launched successfully in October 2016. The satellites, which are supported by ten ground stations across Australia, have been designed to provide access to services in regional and remote Australia. In the last year, NBN Co has released new satellite broadband packages – increasing average wholesale peak downloads plans by up to 50 per cent – and increased the maximum monthly wholesale Sky Muster™ data limits.

At the end of June 2018, there are more than 400,000 premises RTC on the satellite program – and approximately 90,000 active Sky Muster™ services growing at a rate of approximately 1,000 activations per month.

NBN Co is also focused on the development of **nbn**™ Business Satellite Services. In February 2018, it signed a deal with Speedcast International Limited, to deliver wholesale business and enterprise satellite services to rural and remote Australia.

Transit Network

The transit network is the full fibre backbone of the **nbn**™ access network. It delivers core site, transport and network capability. The initial footprint is complete for the requirements of the current four million activated users but will need to continue to add capacity to support changes in technology, additional users, observed data growth trends or product changes.

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1   This speed target is for the minimum average downlink throughput across all active users in a cell, in the busiest hour of the day, averaged over a month, provided to NBN Co's RSPs.

2.3.4
Operations strategy

As the nbn™ access network is built, services are activated and subsequently operated by the Network Engineering and Operations (NEO) team.

NEO manages vital processes within NBN Co including:

- Activate and modify services
- Assure nbn™ services
- Maintain and restore the nbn™ access network
- Optimise the nbn™ access network

Activate and modify services

NEO is responsible for the activation of new services as well as modifications to existing services over the nbn™ access network. As of 30 June 2018, a total of four million premises have been activated to services on the nbn™ network, up from 2.4 million in FY17. In FY19, NEO is expected to add another 1.5 million active premises, increasing the forecast total number of active premises to more than 5.5 million premises. The FY19 number of new activations is below last year's forecast due to the HFC pause and the increase of FTTC deployments, which impacts the phasing of the rollout.

In FY19, NEO will continue to help improve the end-user 'connect experience' with its continuous improvement program. The program will focus on improving elements within NBN Co's control, such as: 'Right First Time' installations of nbn™ equipment[1], currently at 92 per cent, and reducing Mean Time to Connect (MTTC)[2] for new connections, currently at 10 days. A key component of these improvements is the increased use of self-install kits for new HFC and FTTC connections.

Assure services over the nbn™ access network

NEO provides service assurance to RSPs to enable them to restore end-user services should they experience an interruption or difficulty. In FY19, NEO will aim to build on FY18 process improvement efforts to reduce the 'Mean Time to Resolve', currently at 40 hours as of June 2018. Similarly, NEO will aim to further improve the 'Right First Time' fault restoration[3], currently at 88 per cent as of June 2018.

The 'Mean Time to Resolve' excludes misses due to network outages, incidents, weather, force majeure and customer caused reschedules or cancellations.

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1   The percentage of homes and businesses that have their nbn™ equipment installed without additional work from NBN Co the first time the installation is attempted. Please, refer to network availability footnote on page 75 for further details on how the metric is calculated.

2   'Mean Time To Connect' (MTTC) is the time in calendar days from the receipt of an NBN Co order via an RSP to when the NBN Co order has been completed. It includes installation of any NBN Co equipment as required to complete the order. It does not include any additional time it may take for the RSP to complete their activity, such as install an RSP modem or gateway. It excludes misses due to Network Outages/ incidents, Weather, Force Majeure and customer caused reschedules/cancellations.

3   Measures whether a service was restored on the first appointment date associated with Incident and whether the associated NBN Co resolution was accepted by the RSP (i.e, no RSP Rejection of NBN Co's resolution). The RFT measure excludes misses due to network outages/ incidents, weather, force majeure and customer caused reschedules/ cancellations. It also excludes 'Not In Attendance' scenarios, when the end user is not present at the premises, and is considered to be a customer-caused miss.

Maintain and restore the **nbn**™ access network

Maximising network availability remains a critical focus for NEO. To maximise customer experience, RSPs must have access to the best information, at the right time. This information allows RSPs to inform their customers of any disruptions to services and advise when optimum performance will be restored.

The **nbn**™ access network has been up and running 99.9 per cent of the time or more since June 2017 (calculated per NBN Co's agreed service levels with RSPs and excluding planned outages)[1], proving that network performance can operate at scale with more than four million end users already on the network. NEO aims to maintain this level of network availability as we scale to more than eight million premises activated by 2020.

Optimise the **nbn**™ access network

The end-to-end performance of the **nbn**™ access network can be impacted by some inputs including equipment and components used, network maintenance, capacity utilisation and others. This complex array of inputs is carefully managed by the NEO team to provide an enhanced network experience for RSPs and end users.

2.3.5
Enablers of the plan

NBN Co's cross-functional internal and external teams work collaboratively to achieve organisational goals and business objectives.

The Systems Engineering Operations, People and Culture, Security, and Health, Safety and Environment teams contribute to the success and outcomes of NBN Co.

Systems Engineering Operations (SEO)

NBN Co's SEO team provides converged network and IT engineering solutions to digitally enable NBN Co's customers, partners and staff. The SEO function also supports technological innovation to enable new business capabilities and develop new insights related to customer experience.

For FY19, SEO is developing technology initiatives to improve the value, scale and stability of NBN Co systems, scale HFC and FTTC capabilities for high-volume customer connections and adapt technological capabilities for the business segment. Longer-term SEO initiatives such as the use of DevOps[2], predictive analytics and artificial intelligence will support a dynamic operational environment and will enable flexibility in the respective processes of RSPs.

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1   Percentage of time the **nbn**™ access network is available and operating. Please, refer to network availability footnote on page 75 for further details on how the metric is calculated.

2   DevOps for NBN Co enables industry alignment to software development best practices to drive increased delivery efficiency, availability and scale. It combines business ownership, engineering and architecture best practice to reduce time to value in software development activities. DevOps accelerates software engineering through lean practices, reducing handoffs and waste in the process while leveraging 'everything as code' practices to accelerate previously manual intensive activities.

   To achieve this, cloud native practices such as micro services, SaaS, rest API's, need to be adopted to provide modularity and elasticity of scale, and high levels of automation need to be applied as part of the development cycle. Finally, the embedding operational, non-functional and security requirements and controls into core process to enable the elimination of gates in delivery processes and support delivery frequency.

Corporate Plan

NBN Co
Corporate Plan 2019–22

Leadership and Capability

NBN Co's investment in leadership is a critical component to increase employee engagement and leader effectiveness scores. Leaders at NBN Co need to manage scale, change and transition in a challenging operating environment while enhancing the values-based culture. World-class leadership programs attract, develop and retain key leadership talent and ultimately lead to improved performance and achievement of organisational goals.

In parallel, the Company continues to focus on technical capability. In a complex environment where great customer experience is critical, technical capabilities are essential. NBN Co has invested in a training lab to provide a practical training environment that simulates the **nbn**™ access network, increasing workforce competence and output.

As NBN Co's business profile transitions from build to operate, the P&C team will support leaders and employees with strategies and services to effectively manage capabilities and workforce plans with minimal impact to organisational efficiency, performance, engagement and achievement of organisational goals.

People and culture (P&C)
Internal workforce

P&C enables NBN Co to reach its goals by attracting, engaging and developing diverse and high-performing people and teams. To make NBN Co a Great Place to Work, it continues to focus on employee engagement, culture and capability. NBN Co's Employee Engagement Score has increased from 44 per cent in FY14 to 74 per cent in FY18, placing NBN Co in the top quartile of global enterprises surveyed. Voluntary turnover continues to be favourable at 7.2 per cent in June 2018.

NBN Co has been awarded Bronze status by the Australian Workplace Equality Index (AWEI) for its work on Pride and Inclusion.

Diversity and inclusion

NBN Co believes that teams are stronger with diversity of thought and perspective. Diverse employees enhance innovation, problem-solving and deepen the understanding of the needs of customers and Australian communities. The Corporate Plan 2019-22 includes the following diversity initiatives:

Gender Balance: Increase the participation of women in the workforce with a focus on female representation at senior management level; build an external profile as an employer of choice for women, and reach 33 per cent of leadership roles held by women by 2020 with a 40:40:20[1] gender balance in executive teams by 2022. As of 30 June 2018, 29 per cent of leadership roles were held by women, up from 27 per cent at June 2017

Accessibility: Create an inclusive workplace with the appropriate resources, facilities, support and systems to enable employees with disabilities to contribute at their best

Culture: Celebrate, engage and embrace the many diverse cultures represented across NBN Co. 35 per cent of NBN Co's workforce identify as culturally diverse

LGBTI Pride: Create a workplace to connect, support and celebrate awareness and acceptance of Lesbian, Gay, Bisexual, Transgender, Intersex (LGBTI) employees and their allies

First People: Recognise and respect Aboriginal and Torres Strait Islander people; build their culture into the way NBN Co does business and ensure the **nbn**™ access network makes a positive contribution to their lives and communities

Health, Safety and Environment (HSE)

The HSE team supports the broader NBN Co business and its partners to make tomorrow safer, healthier and more sustainable than today.

The HSE team provides HSE strategy, processes, systems, support and programs that aim to enhance the physical health and mental wellbeing of NBN Co's people, ensure the safety of everyone every day and the safety of the **nbn**™ access network and associated infrastructure. HSE also aims to preserve and minimise the impact on the natural environment, reduce NBN Co's overall energy consumption and preserve sites of cultural and heritage significance.

In FY19–22, NBN Co aims to increase the maturity of the HSE culture, addressing not only current challenges but positioning NBN Co for the future. In the year ahead, HSE will focus on embedding the recently refreshed suite of HSE Critical Controls through an awareness program and targeted inspection program and will complete the build of an IT platform that supports HSE processes and systems. Also, there will be a suite of initiatives focused on the core areas of risk management, governance, leadership, processes and systems and NBN Co workforce.

External workforce

NBN Co has proactively supported the telecommunications industry since 2015 through its external workforce strategy, working with industry partners to develop and grow the capability of the telecommunications industry, in line with NBN Co's needs.

NBN Co is committed to the ongoing development of the external field workforce to ensure their skills, competencies and behaviours continue to align with NBN Co's evolving standards and capability requirements.

As of June 2018, NBN Co funded nationally recognised training for 3,500 new and existing workers while conducting in-field practical competency assessments for 5,000

1   40 per cent women, 40 per cent men, 20 per cent unallocated.

experienced workers. NBN Co continues to support key program initiatives by using enAble™ (a single national accreditation portal that recognises external workers' skills and competencies), and deploying a simulated network training facility to improve training experiences and outcomes. The simulation lab aims to help NBN Co foster insights with the external workforce, and better communicate NBN Co's mission and values to them. It also provides a 'live' network training environment including training programs, practical assessments and ancillary development activities.

Security

As a critical infrastructure provider, NBN Co must maintain a robust set of security controls and detection capabilities that deliver a high level of resilience. The role of Security at NBN Co is to protect the Company's people and assets from personnel, physical and cyber security threats, and to build trust and confidence in NBN Co's ability to deliver a reliable and fast broadband network. NBN Co's Security team has a clear objective to be trusted security advisors, and to lower NBN Co's risk of business exposure to security threats through the creation and maintenance of an engaged and robust security culture.

NBN Co operates a converged security model with a single point of accountability for enterprise-wide security capability. Under this model, the Security team continues to mature its capabilities to ensure NBN Co remains abreast of relevant industry security trends, complies with its security-related regulatory obligations and responds to emerging security threats.

Other corporate functions

The Strategy, Transformation, Regulatory and Technology group is responsible for creating and implementing NBN Co's business and regulatory strategy, delivering the Integrated Operating Plan, scaling the business, and developing the **nbn**™ access network architecture and advanced technologies.

The Finance, Procurement and Supply team is responsible for the financial management of NBN Co's business activities, including business planning, financial and management reporting, financial control, commercial finance activities in support of the business, taxation and treasury, audit and risk services as well as data governance, procurement and supply activities.

The Corporate Affairs team engages with NBN Co's Shareholder Ministers, to advise and disclose NBN Co's estimated strategic long-term plan to deliver on the SoE. Communication strategies are developed and implemented to ensure public transparency on the Company's progress and plans for 2019-2022.

The Legal group is responsible for all NBN Co's legal services including its company secretariat and freedom of information functions. The Legal group provides support on all major transactions, dispute management and litigation, legal analysis and advice, and governance.

2.4
Operational and financial forecasts

Table 2: Key financials

$ billions	FY18(A)	FY19	FY20	FY21	FY22
Revenue	2.0	2.6	3.9	5.2	5.6
Operating Expenses	(2.4)	(2.6)	(2.6)	(2.8)	(2.7)
EBITDA before subscriber payments	**(0.4)**	**0.0**	**1.3**	**2.4**	**2.9**
Subscriber Payments	(1.9)	(1.8)	(2.6)	(1.1)	(0.4)
EBITDA	**(2.3)**	**(1.7)**	**(1.4)**	**1.3**	**2.5**
Capital Expenditure	(5.7)	(6.0)	(3.6)	(1.5)	(1.2)
Contingency	0.0	0.0	(0.3)	(0.7)	0.0
Interest and Working Capital	0.5	(0.2)	(0.6)	(1.3)	(1.2)
Cash Flow	**(7.6)**	**(7.9)**	**(5.8)**	**(2.2)**	**0.1**
Peak Funding					
Equity Funding	29.5	29.5	29.5	29.5	29.5
Debt Funding	5.5	13.4	19.2	21.4	21.4
	35.0	**42.9**	**48.7**	**50.9**	**50.9**

Note: Due to rounding, numbers presented may not add up precisely to the totals.

The main operational and financial outcomes of the Corporate Plan 2019-22 include:

- Projected **nbn**™ access network build complete by June 2020
- Eight million premises forecast to be activated by 2020
- Projected annual revenue of $5.2 billion in FY21
- Forecast peak funding of $51 billion

2.4.1
Ready for service

NBN Co continues to scale the deployment of the network with 2.4 million new premises declared RFS in FY18, a 42 per cent increase year-on-year.

In FY18, NBN Co made a critical decision to pause HFC orders to undertake upgrade work to help improve customer experience on the HFC network. This decision, together with the decision to increase the FTTC footprint, has

impacted the phasing of RFS premises but not the completion of the build by June 2020. This results in 0.6 million and 1.3 million fewer premises declared RFS by June 2018 and June 2019, respectively, compared to Corporate Plan 2018-21.

Also, NBN Co is working to improve the serviceability of areas already declared RFS by prioritising rollout of held orders with outstanding construction work over deployment in new areas. While this negatively impacts the number of premises declared RFS, it improves the experience of RSPs and end-users.

Table 3: RFS profiles

Premises RFS – cumulative (millions)	FY18	FY19	FY20	FY21	FY22
FTTP Brownfields	1.1	1.1	1.1	1.1	1.1
FTTP Greenfields	0.5	0.6	0.8	0.9	1.0
FTTN/B	3.8	4.3	4.7	4.7	4.7
FTTC	0.2	0.7	1.4	1.4	1.4
HFC	1.4	2.1	2.5	2.5	2.5
Fixed Wireless	0.6	0.6	0.6	0.6	0.6
Satellite	0.4	0.4	0.4	0.4	0.4
Total	**8.1**	**9.9**	**11.6**	**11.7**	**11.9**

Note: These numbers represent estimates and do not take into account the potential dilution of the non-fixed line footprint that could arise as NBN Co deepens its understanding in this footprint. Due to rounding, numbers presented may not add up precisely to the totals.

The following exhibit summarises the rollout by state and territory:

Table 4: Progression of rollout by state and territory[1]

Pre-FY19 FY19 FY20
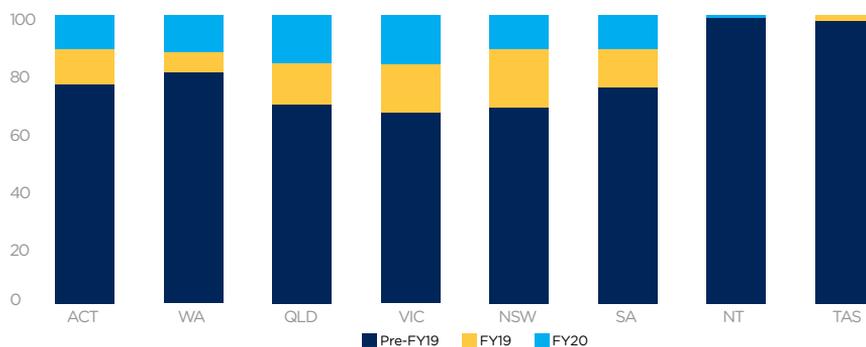
1   Premises RFS as a proportion of FY20 total RFS footprint, excluding incremental Greenfields growth.

2.4.2
Ready to connect

To further support NBN Co's customer-centric business approach, the reporting methodology has transitioned from RFS metrics to RTC metrics. RTC is a more relevant measure for the end user as it refers to when premises within an area can place an order for **nbn**™ services with the end user's preferred RSP. By comparison, RFS indicates when RSPs can start selling **nbn**™ services within an area, which may require further work to enable connection. RFS is still an important measure of progress, as it is related to the bulk of construction.

Phasing of RTC volumes across FY18 and FY19 has been impacted by the decisions to pause HFC and increase the FTTC footprint. Despite these significant changes to the network deployment program, NBN Co has continued to expand the network footprint while working to help improve customer experience.

As of 30 June 2018, 7.0 million premises have been declared RTC, an increase of 29 per cent year-on-year. This means that about 60 per cent of Australian premises can connect to a service over the **nbn**™ access network.

Table 5: RTC profiles

Premises RTC – cumulative (millions)	FY18	FY19	FY20	FY21	FY22
FTTP Brownfields	1.1	1.1	1.1	1.1	1.1
FTTP Greenfields	0.5	0.6	0.8	0.9	1.0
FTTN/B	3.8	4.2	4.7	4.7	4.7
FTTC	0.1	0.7	1.4	1.4	1.4
HFC	0.5	1.9	2.5	2.5	2.5
Fixed Wireless	0.6	0.6	0.6	0.6	0.6
Satellite	0.4	0.4	0.4	0.4	0.4
Total	**7.0**	**9.7**	**11.6**	**11.7**	**11.9**

Note: These numbers represent estimates and do not take into account the potential dilution of the non-fixed-line footprint that could arise as NBN Co deepens its understanding of this footprint. Due to rounding, numbers presented may not add up precisely to the totals.

2.4.3
Premises activated

Premises activated is the number of premises connected to a service over the **nbn**™ access network. Together with RSPs, NBN Co activated broadband services over the **nbn**™ access network to four million Australian premises as of 30 June 2018, an increase of 1.6 million premises over the last year.

The lower RTC profile in FY18 and FY19 will shift activation volumes: NBN Co expects to experience an almost identical number of incremental activations in FY19 as compared to FY18, while FY20 is forecast to be the biggest activation year in NBN Co's history with two million activations. This results in 0.4 million and 1.4 million fewer premises activated by June 2018 and June 2019 (expected), respectively, compared to Corporate Plan 2018-21. With the completion of the build still on track for June 2020, NBN Co's overarching goal remains on track to connect eight million homes and businesses to services over the **nbn**™ access network by 2020.

Table 6: Activations profiles

Premises Activated – cumulative (millions)	FY18	FY19	FY20	FY21	FY22
FTTP Brownfields	0.9	0.9	0.9	0.9	0.9
FTTP Greenfields	0.3	0.4	0.5	0.6	0.8
FTTN/B	2.1	2.7	3.2	3.4	3.5
FTTC	0.0	0.2	0.8	1.1	1.1
HFC	0.4	0.8	1.6	1.9	2.0
Fixed Wireless	0.2	0.3	0.3	0.3	0.4
Satellite	0.1	0.1	0.1	0.1	0.1
Total	4.0	5.5	7.5	8.4	8.7

Note: These numbers represent estimates and do not take into account the potential dilution of the non-fixed-line footprint that could arise as NBN Co deepens its understanding of this footprint. Due to rounding, numbers presented may not add up precisely to the totals.

2.4.4
Revenue and ARPU

Revenue is expected to increase from $2 billion in FY18 to $5.6 billion in FY22.

This revenue growth is driven by increased end-user take-up of services over the **nbn**™ access network as the rollout progresses, increased data usage, higher wholesale speed tier mix and focus on business segment products across the **nbn**™ access network.

By FY22, NBN Co forecasts overall Australian market take-up of 73-75 per cent, depending on the prevalence of vacant premises, mobile-only households and any alternative fast broadband network providers. These forecasts are consistent with the penetration observed in fixed-line areas where the **nbn**™ access network has been available for a period of 18 months and which have progressed through the mandatory disconnection process. This may be subject to change as the industry and market evolve.

Monthly Average Revenue per User (ARPU) is expected to grow from $44 to $51 in FY22, stimulated by an expected increase in end-user willingness to pay, increase in end-user take-up of plans based on higher wholesale speed tiers, increased end-user data consumption, and increased penetration into small to medium business segments.

NBN Co will continue its 'Focus on 50' campaign until 31 October 2018 and has introduced new optional bundle discounts for RSPs. These initiatives have improved RSP incentives to upsell higher speeds, particularly 50Mbps. More generally, NBN Co will monitor market developments closely and will continue to refine its wholesale pricing approach to maximise end user, RSP and NBN Co outcomes.

While phasing of the revenue profile has been impacted by customer experience decisions taken in FY18, NBN Co continues to forecast annual revenue of more than $5 billion from FY21 onwards. FY20 revenue forecast was estimated at $4.9 billion in Corporate Plan 2018–21, compared to $3.9 billion in this plan. This revenue deferral can be primarily attributed to a revised phasing of deployment, including the HFC pause impact, and new wholesale bundle discounts.

NBN Co
Corporate Plan 2019–22

2.4.5
Operating expenses and subscriber payments

Table 7: Operating expenses and subscriber payments

Opex ($ billions)	FY18	FY19	FY20	FY21	FY22
Infrastructure related costs	0.4	0.5	0.7	1.0	1.0
Other Opex	2.0	2.1	2.0	1.8	1.7
Total Operating Expenses	**2.4**	**2.6**	**2.6**	**2.8**	**2.7**
Subscriber payments	**1.9**	**1.8**	**2.6**	**1.1**	**0.4**

Note: Due to rounding, numbers presented may not add up precisely to the totals.

Subscriber-related costs primarily reflect contractual payments to Telstra regarding the disconnection of existing services and to Optus regarding the migration of subscribers to services over the **nbn**™ access network.

Infrastructure-related costs primarily represent contractual payments for third-party infrastructure such as ducts, dark fibre and facilities. The presentation of these operating costs for management and corporate planning purposes is not in accordance with Australian GAAP. This differs from quarterly and annual statutory reporting where these costs are accounted for as finance leases, which are accordingly capitalised and amortised over a 35-year period.

Other operating costs include staff-related costs, network operations, assurance, restoration and maintenance, IT costs, marketing and communication, leasing and other overheads.

2.4.6
Capital expenditure

Capex requirements have increased by $3.4 billion since Corporate Plan 2018–21. The primary drivers of this include HFC optimisation, Fixed Wireless capacity upgrades, business fibre investment and

increased FTTC footprint. These investments have been largely funded by the contingency allocated in Corporate Plan 2018-21.

Capex will progressively relate to ongoing investment in providing increased network capacity, and in developing new network and operational capabilities to support revenue growth and improve customer experience.

Table 8: Capital expenditure

Capex ($ billions)	FY18	FY19	FY20	FY21	FY22
FTTP	0.3	0.3	0.2	0.2	0.2
FTTN/B	1.6	1.2	0.6	0.2	0.1
FTTC	0.8	1.4	0.9	0.1	0.0
HFC	1.3	1.2	0.6	0.1	0.2
Fixed Wireless	0.4	0.6	0.4	0.4	0.2
Satellite	0.1	0.1	0.0	0.0	0.0
Transit	0.5	0.3	0.1	0.1	0.1
Common Capex and Other	0.7	0.9	0.6	0.4	0.3
	5.7	6.0	3.6	1.5	1.2

Note: Due to rounding, numbers presented may not add up precisely to the totals.

How Cost per Premises is calculated

The Cost per Premises (CPP) is an internal management calculation used to assess the comparative incremental costs of initial construction of each access technology.

- The CPP reported is a weighted average over the full period of the build and depends on some factors such as geographic build conditions, distances from exchanges, the population density of the area considered, the number of premises per multi-dwelling unit and the extent of re-use of the existing infrastructure

- The CPP reflects the capital and lease costs associated with the initial construction of the access network, which includes certain capital costs incurred within the co-existence period. The CPP excludes common capex (such as IT and transit network), and subsequent capital investment in network capacity. It also excludes net operating losses

- The CPP reflects the sum of underlying rates for individual elements of construction, which relate to the volume of technology build, premises connected or activated as relevant

- The CPP excludes certain costs such as the impact of initial trial arrangements, where costs are not in line with long-term expectations (due to low volume, and bespoke commercial and delivery arrangements), and excludes contingency

- Infrastructure leases are included in the CPP calculation based on an NPV of minimum future payments over the expected lease term, and consist of certain infrastructure assets utilised in the fixed-line network such as ducts, wireless towers and ground leases. While not reported as capital costs in the Corporate Plan, these outlays represent a necessary and incremental cost of construction of each access network technology

Performance

FTTP Brownfields and Greenfields

As of June 2018, the CPP for FTTP Brownfields and Greenfields was $4,401 and $2,255 respectively, and at the end of the build period are forecast to be $4,400 and $2,100. These targets at the end of the build period remain in line with prior year. The weighted average CPP for Greenfields is forecast to decrease to $2,100 due to efficiencies generated over the build period, including lower investment in temporary transit links which were required in the early years of the build.

FTTN/B

As of June 2018, the CPP was $2,244, and at the end of the build is forecast to be $2,300, which is in line with Corporate Plan 2018-21. The FTTN CPP includes a blend of the cost for premises delivered using both FTTN and FTTB technologies.

FTTC

The weighted average CPP for FTTC is forecast to be $3,000 at the end of the build period. Compared to alternate technologies, this reflects the additional cost of fibre deployment to end-user premises beyond FTTN deployment but eliminates costly lead-ins required for each premises in FTTP. This has increased from the previous year's Corporate Plan due to capital costs incurred by proactively fitting missing lead-ins to improve customer experience, and higher quality Network Connection Devices (NCD) to improve network assurance diagnostics.

HFC

As of June 2018, the CPP was $2,412. The weighted average CPP is forecast to increase to $2,500 by the end of the build and reflects further network optimisation and node works to deliver a higher level of network quality.

Fixed Wireless

As of June 2018, the CPP was $3,757. The weighted average CPP is forecast to increase to $4,300 due to challenging build requirements as NBN Co progresses towards the end of the rollout and is in line with Corporate Plan 2018-21. The CPP does not include subsequent capital investment to uplift capacity and enhance customer experience.

2.4.7
Sources of funding

Management has flexibility and discretion in operational, technology and network design decisions within the constraints of a public equity funding commitment of $29.5 billion and a Commonwealth loan facility of up to $19.5 billion. The Commonwealth loan was secured on commercial terms from the Commonwealth Government in December 2016, informed by credit ratings received by NBN Co. The loan agreement sets out the terms of the commercial facility that will be available to NBN Co for up to $19.5 billion for the period from 1 July 2017 to 30 June 2021. The Commonwealth loan agreement has a fixed interest rate of 3.96 per cent, with interest payable monthly over the life of the facility.

The Commonwealth has agreed to extend the tenor of its loan by three years (from 30 June 2021 to 30 June 2024) and to allow NBN Co to access up to $2 billion of private sector debt. The terms of the amended and restated Commonwealth loan and terms for the private debt are subject to the approval of the Commonwealth. This plan assumes Commonwealth approval to both is provided.

2.4.8
Estimated peak funding

The Corporate Plan 2019-22 estimates a base case peak funding of $51 billion, inclusive of $1 billion contingency given ongoing complexities and uncertainties to the plan. The increase in peak funding from Corporate Plan 2018-21 is due to the decisions taken in FY18 to consciously prioritise customer experience.

The decision to pause HFC orders and optimise the network is expected to impact revenue over the life of the build by $0.7 billion, and incur additional optimisation capex spend of $0.2 billion. The wholesale pricing change, while successful in helping shift end users to higher speed plans and helping reduce congestion, is forecast to result in a $0.7 billion deferral in revenue in the plan. The Fixed Wireless capacity upgrade program is designed to help address congestion in order to improve end-user experience[1], and is expected to result in additional capex of $0.8 billion.

As outlined above, while the Corporate Plan represents Management's view of the most likely outcome, ongoing challenges and opportunities have been assessed in detail and sensitivities have been tested to identify their impact on delivery timing and peak funding and to inform Management's view of the peak funding.

Table 9: Scenario analysis of key sensitivities

Area	FY22 cashflow impact ($'m)
ARPU shift by $1	100
1 percentage point permanent change to penetration rate	80
10 per cent change in operating expenditure (excluding leases)	170
10 per cent change to ongoing capital expenditure	120

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1   Your experience, including the speeds actually achieved over the **nbn**™ Fixed Wireless network, depends on: the configuration over which services are delivered to your premises, whether you are using the internet during typical busy periods, such as evenings, when more people are online, and some factors outside our control (like how far away your premise is located from the transmission tower, your equipment quality, software, broadband plans, signal reception, the plan you choose from your provider, the performance of your modem, Wi-Fi, cabling, other devices in your premises and how your service provider designs its network). Speeds may be impacted by network congestion on NBN Co's Fixed Wireless network, including during busy periods.

2.4.9
Long-term financial
outlook

In a dynamic market, Management and the Board face inherent uncertainty in accurately forecasting long-term financial prospects. NBN Co has a limited factual and operational base for financial projections due to uncertainty in the long-term market structure and competitive landscape, network usage, regulatory policy, innovation and other potentially disruptive events. This gives rise to a range of possible financial outcomes.

Management has forecast a base case peak funding of $51 billion. The base case IRR is 3.2 per cent, which is calculated based on estimates in respect to long term cashflows, including ongoing growth in Greenfields, applying inflation to revenue and cost, assuming steady state capital spend based on industry benchmarking, and a terminal value of 6x EBITDA. These assumptions are consistent with those applied to the previous Corporate Plans issued by NBN Co since its inception.

NBN Co
Corporate Plan 2019–22

2.4.10
Subsidiaries

The subsidiaries of NBN Co are listed in the table below. During FY19, it is the intention of the Company to liquidate its two subsidiaries to simplify the operations of the Company.

Table 10: Subsidiaries of NBN Co

Name of entity	Country of incorporation	Class of shares	Equity holding
NBN Tasmania Limited	Australia	Ordinary	100 per cent
NBN Co Spectrum Pty Ltd	Australia	Ordinary	100 per cent

NBN Co limited and NBN Tasmania Limited are parties to a deed of cross guarantee under which each company guarantees the debts of the other. NBN Tasmania Limited is a non-operating company and its business is exclusively operated by NBN Co limited. NBN Co Spectrum Pty Ltd is a non-operating company that holds spectrum licences for NBN Co limited and its business is exclusively operated by NBN Co limited.

2.5
Risk management

2.5.1
Risk management framework

The deployment of the **nbn**™ access network across Australia and scaling of activations are unique challenges that require a comprehensive approach to risk management. NBN Co's Board of Directors and Management support this approach by committing the Company to a robust risk management framework to enable effective identification, quantification, mitigation, and management of business risks.

How does NBN Co manage its risks?

NBN Co's Group Risk team is the custodian of risk management within the Company. The team is responsible for designing and overseeing the implementation of risk management practices, processes and governance across all business areas. Management and staff have a key role to identify, assess and manage their operational risks, and provide assurance through formal Executive Governance channels and Group Risk (including the Board Audit and Risk Committee).

The Audit and Risk Committee, Management and the Board review NBN Co's risk management framework and assess material risks on a bi-annual basis. In the event there are material events or changes to either, more frequent reviews will occur.

Maturing risk management

NBN Co's approach to risk management is aligned with the international standard for risk management: 'AS/NZS ISO 31000:2009 Risk Management – Principles and Guidelines on Implementation'. As NBN Co matures, the Group Risk function continues to enhance the Company's risk management framework with emphasis on:

• Refinement and formalisation of key first line risk management accountabilities through risk maturity assessments

• Enhanced risk reporting at governance and executive level management

• Enhanced alignment between first line and second line risk assurance

• Improved risk training, tools and compliance management capability

2.5.2
Overview of risks

Corporate Plan 2018-21 identified significant risks in the management of the complexity and scale of network design, such as build, activation and assurance processes across multiple technologies. It recognised the increasing influence that rapidly evolving competition, new business models and disruptive technology would have on NBN Co and its business objectives. These challenges, manifested in FY18, have driven NBN Co to respond with a range of strategic initiatives to uplift customer experience, and this focus continues in the current Corporate Plan.

These risk themes remain consistent in the current plan, with scaling of processes, technology and Delivery Partner capabilities for HFC and FTTC being the central challenge to achieve rollout targets. These rollout risks are amplified by customer behaviour, competition and technology trends. NBN Co's revenue forecasts are sensitive to changes in take-up and data growth usage assumptions. As mobile operators continue to focus on wireless development, mobile substitution remains a key risk to long-term revenue that the Company will continue to actively monitor. The key risk themes to this plan are:

1. Rollout of New Technologies

The timing of the deployment of the HFC and FTTC network technologies contains risk due to internal and industry scaling challenges. NBN Co continues to actively manage and tightly govern internal and external resource constraints that might impact performance. NBN Co's enhanced optimisation program for HFC and a measured approach to FTTC deployment reflect the commitment to a quality network performance and positive experience across the end-user connection journey.

2. Customer and End-User Experience

Customer experience for end user and trust in NBN Co may be impacted as the result of industry-wide services, regardless of whether NBN Co is directly responsible. These flow-on impacts present risks to the value of NBN Co's brand, take-up rate and ARPU. Significant improvements in end-user experience have been achieved for aspects within NBN Co's control, compared with the same time last year.

NBN Co continues to embed customer experience metrics and targets into its operating model to help drive a positive uplift in customer and end-user satisfaction, and to assist in the lift in ARPU over time.

3. Operating Model Transformation

NBN Co's operating model and workforce is structured to deliver the initial network rollout while simultaneously transitioning to a network operating company. The deployment of proactive programs to transition the workforce, optimise NBN Co's cost base and build sustainable processes and systems all form part of NBN Co's approach of managing this transition risk. Even with this focus, the challenges associated with transitioning the operating model remain a key risk over the short to medium term.

4. Market Disruption

A number of converging external factors expose NBN Co to market disruption. The threat of wireless substitution and 4.9/5G evolution may emerge as a central challenge that NBN Co continues to actively manage. Market disruption is prominent in the business segment as competitors offer their customer base new products and service offerings. NBN Co will continue to monitor market developments and will address competitive risks as they emerge.

2.5.3
Key corporate risks and mitigation strategies

Throughout the transformation from a build to operation-focused business, it is critical that NBN Co focuses on deploying **sustainable** controls that scale for the network.

Risk governance design is embedded into program and management initiatives to enable management oversight of key risks.

Table 11: Key risks and mitigations

Key Risk	How the risk is managed
Health and safety of staff, contractors and end users NBN Co and its Delivery Partners must construct, activate, operate and maintain a network in a manner that prioritises the prevention of material HSE failures impacting NBN Co staff, contractors, members of the public and end users.	NBN Co takes a risk-based approach to HSE, with control standards that are consistently applied to staff, contractors and third parties, and underpinned by dedicated processes, systems and HSE experts. NBN Co also maintains a mature operating model and governance arrangements for end-user migration and disconnection arrangements.
Rapidly evolving infrastructure competition and technology to impact product and pricing constructs As technologies evolve and drive trends such as wireless substitution and greater data consumption, new business models and competition may create exposures that impact NBN Co's network upgrade options, product offerings and pricing constructs, leading to unacceptable long-term revenue and ARPU.	NBN Co regularly reviews its strategy to adjust for changes in the external environment. Market insight programs and scenario analysis are used to stress test technology and competition trends, with insights being incorporated into product development and technology upgrade plans.
Ability to monetise data growth Potential wireless substitution and retail market focus on market share retention/growth drives increased price pressure into the market and changes in data consumption behaviour that may make data monetisation more challenging.	NBN Co actively uses market insights and analytics to monitor data consumption and future use cases to stress test its product and pricing constructs to enhance the value of data in future products for customers.
Scaling partner resources, technology and processes to enable peak FTTC and HFC deployment NBN Co relies on its key Delivery Partners and vendors to ensure critical resources, processes and IT systems are able to scale effectively and deliver FTTC and HFC deployment, activation and customer experience targets within budget.	NBN Co maintains an extensive industry engagement program, and actively works with Delivery Partners to ensure resources are available. This includes training and co-creation initiatives. These activities, plus internal strategic initiatives, are tightly governed to ensure alignment and efficiencies between business areas.

Table 11: Key risks and mitigations continued

Key Risk	How the risk is managed
Uplifting customer satisfaction to enhance reputation, brand and achieve revenue targets NBN Co must build, activate, assure and maintain a network that supports a positive customer experience, while scaling rapidly to achieve deployment and activation targets, and responding to evolving competition, technology and the impact these factors may have on achieving take-up and ARPU targets.	NBN Co has programs in place to educate community and stakeholders on the role of NBN Co, RSPs and the broader industry. This includes Monthly Progress Reports, where key performance metrics are published to show the Company's commitment to achieving network rollout targets and helping improve the customer experience. Internally, NBN Co integrates extensive customer experience metrics into key operational deliverables and strategic initiatives.
Operating model transformation and optimisation While NBN Co's operating model is structured to successfully deliver the network rollout, the Company must also concurrently transform legacy capabilities and structures toward a lean digital telecommunications business with an optimised cost base.	NBN Co undertakes a range of formally governed executive sponsored initiatives to address key transition and optimisation challenges, including its future digital operating model, cost management, talent and culture and scaling the business segment.
Security of critical network assets, information and people NBN Co must manage exposure to cyber and physical threats that could compromise the security of critical network infrastructure, the welfare and safety of staff and the confidentiality, integrity and availability of sensitive information.	NBN Co takes a risk-based approach to manage its security, with defined structures, processes and systems for the security of critical infrastructure assets and sensitive information. The external and internal environment is continuously monitored and new security measures are deployed in response to emerging threats.
Resilience of operating environment to adverse events As an operator of critical communications infrastructure, NBN Co must design resilience into its network, IT systems and business operations to safeguard people, assets, systems and processes against adverse events such as extreme weather.	NBN Co has a centrally managed business resilience program that emphasises robust continuity strategies for critical processes and defined incident management arrangements for major network and IT outages, third-party disruptions and incidents impacting the welfare and safety of staff and contractors.

NBN Co
Corporate Plan 2019–22

Key Risk	How the risk is managed
Regulatory scrutiny and adverse action NBN Co operates in a highly regulated environment governing pricing, product and customer experience amongst other things. In the light of current industry transformation, these increase the potential for adverse actions in the short term. In the longer term, regulatory constraints and policy decisions may limit the ability to meet evolving customer and market needs.	NBN Co undertakes regular and proactive engagement with regulatory and Government stakeholders. This engagement model is supported by ongoing monitoring of the regulatory environment to identify emerging issues and opportunities to engage with regulators.
Growth in consumer data consumption and concurrency Cost of capacity management in the Fixed Wireless network may increase significantly from the estimates contained in the Corporate Plan as consumer data consumption continues to grow, along with concurrency.	NBN Co actively monitors network capacity and performance and the level of investment required for the Company's network upgrade path. These activities underpin future spectrum planning, and the impact that planned versus acquired spectrum will have on future network strategies.

3.0 Additional Information

Additional footnotes

Outlined below are footnotes in respect to key metrics disclosed on pages 22 and 23. These footnotes further explain what each metric is measuring and how each metric has been calculated.

Right first time installations of **nbn**™ equipment

The percentage of homes and businesses that have their **nbn**™ equipment installed without additional work from NBN Co the first time the installation is attempted. Typically NBN Co excludes end-user cancellations, end-user or RSP initiated reschedules, end-user premises 'shortfalls' and other things outside of NBN Co's control such as bad weather. This measure covers the installation of equipment that does not require more than one appointment. It does not cover successful connections to a plan over the **nbn**™ access network through an RSP.

Meeting agreed installation times

The percentage of premises that NBN Co connects to the **nbn**™ access network within its agreed service level timeframes with phone and internet providers. The agreed service level varies by **nbn**™ access network type and available infrastructure at the premises. The WBA includes provisions around calculation and time measurement. This metric does not include Priority Assistance connections or Accelerated Connections.

Fixed-line congestion

This metric reflects the estimated monthly average percentage of homes and businesses that experience **nbn**™ access network congestion (as per NBN Co's congestion measures for fixed-line networks). Congestion metrics vary between fixed-line technologies. These are calculated based on the utilisation of certain parts of the **nbn**™ fixed-line access network that are shared by RSPs. The speeds actually achieved over the **nbn**™ access network also depend on factors outside NBN Co's control including your equipment quality, software, signal quality, broadband plans and how your RSP designs its network.

Network availability

Percentage of time the **nbn**™ access network is available and operating. This is calculated per NBN Co's agreed service levels with phone and internet providers. This excludes planned network outages and has been rounded to the nearest one decimal place. *The Wholesale Broadband Agreement (WBA) includes detailed rules for defining and measuring network availability and includes a number of exceptions such as planned outages.*

Meeting agreed fault restoration times

The percentage of time NBN Co resolves faults within its agreed service levels with phone and internet providers. This measure tracks individual service faults, not network related faults which are tracked separately. The measure also excludes faults not related to the **nbn**™ access network. The agreed service levels vary depending on the location of the premises, and are different for the Sky Muster™ satellite network. The Wholesale Broadband Agreement (WBA) includes detailed rules for defining '**nbn**™ faults' and measuring **nbn**™ access network performance. This measure does not include Priority Assistance Faults or Enhanced Faults.

Faults per 100 connected homes and businesses

The number of faults on the **nbn**™ access network per 100 premises per month. This measure tracks individual service faults, not network related faults which are tracked separately. It excludes faults not related to the **nbn**™ access network.

Average network bandwidth congestion (per week)

The average number of minutes of bandwidth congestion per week/ per service. This is calculated across all bandwidth purchased by all phone and internet providers across the entire network (CVC congestion). Please note that while bandwidth congestion is caused by the level of provisioning of capacity by the phone and internet provider, there are also other types of congestion which may occur on the **nbn**™ access network.

Uptake to higher peak wholesale speed plans

This includes wholesale plans available to RSPs with download speeds of 50Mbps and 25–50Mbps. The **nbn**™ access network is being designed to provide these peak speeds to NBN Co's Retail Service Providers at NBN Co's network boundary. The **nbn**™ wholesale speed tiers available to RSPs vary depending on the **nbn**™ access network technology in your area. Your experience including the speeds actually achieved over the **nbn**™ access network depends on the network type, technology and configuration over which services are delivered to your premises. Your experience, including the speeds actually achieved over the **nbn**™ Fixed Wireless network, depends on: the configuration over which services are delivered to your premises, whether you are using the internet during typical busy periods, such as evenings, when more people are online, and some factors outside our control (like how far away your premise is located from the transmission tower, your equipment quality, software, broadband plans, signal reception, the plan you choose from your provider, the performance of your modem, Wi-Fi, cabling, other devices in your premises and how your service provider designs its network). Speeds may be impacted by network congestion on NBN Co's Fixed Wireless network, including during busy periods.

4.0
Glossary

Abbreviation or term	Definition
ABS	Australian Bureau of Statistics.
ACCC	Australian Competition and Consumer Commission.
Access Seeker	A customer acquiring NBN Co wholesale services with the intention to supply broadband services to Service Providers or end users.
Access Technology	The technology used by NBN Co to deliver the nbn™ access network from the exchange location to the network distribution point.
Access Virtual Circuit (AVC)	The bandwidth acquired by RSPs which can be allocated to end-users' premises. The AVC is a virtual point-to-point connection from NBN Co's network boundary point associated with end-user premises back to the POI.
ACMA	Australian Communications and Media Authority.
Augmented Reality (AR)	A version of the real world that has been enhanced or altered by a computer.
Australia's broadband network	The nation-wide wholesale-only access network, available on non-discriminatory terms to all access seekers, that will be deployed by NBN Co and third parties engaged on behalf of NBN Co.
Average Revenue Per User (ARPU)	Calculations include all telecommunications revenue generated including AVC, CVC and other products.
Brownfields	Pre-existing premises.
Business Satellite Services	Services providing Sky Muster™ capacity for remote businesses and enterprise customers.
Capital Expenditure (Capex)	The cost of purchasing tangible and intangible assets.
Committed Information Rate (CIR) products	Products with a prioritised traffic feature. These products include defined rate, latency, jitter and loss characteristics.

Abbreviation or term	Definition
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 of an RSP to be able to service each CSA. The CVC is virtual Ethernet broadband capacity acquired by an RSP that can be allocated by them to their aggregated AVCs at a CSA.
Copper Network	Telstra's copper-based customer access network, which is used to deliver standard voice telephony and broadband services.
Cost per premises (CPP)	An internal NBN Co management calculation used to assess the comparative incremental costs of construction of each access technology.
Customer	A customer is a retailer or third party acquiring NBN Co wholesale services with the intention to supply broadband services to end users. It is also defined as an Access Seeker or a Service Provider.
Dark Fibre	Optical fibre with no active electronics attached.
Data Over Cable Service Interface Specification (DOCSIS)	A telecommunications standard that permits the addition of high-speed data transfer and internet access through HFC infrastructure.
Delivery Partner	A third party involved in the build of the **nbn**™ access network. A Delivery Partner is a contractor, which has a contract with NBN Co for the delivery of a certain amount of work/activities in relation to the build and operation of the **nbn**™ access network.
Distribution Point Unit (DPU)	The DPU is one of the main components used in FTTC architecture. A DPU is typically connected to a GPON network and uses either VDSL2 or G.fast technology for the last run of copper into the premises.

Glossary

Abbreviation or term	Definition
EBITDA	Earnings Before Interest, Taxes, Depreciation and Amortisation.
End user	Final downstream customer to NBN Co's Service Providers.
Engagement score	Measure of the total number of engaged employees as a percentage of the total number of respondents to a bi-annual engagement survey. NBN Co's engagement surveys are undertaken by Culture Amp, allowing NBN Co to benchmark itself against other enterprises.
Fibre Network	NBN Co's optical fibre telecommunications network that is owned or controlled by NBN Co and which has been accepted into service, ready for the provision of commercial (non-trial) **nbn**™ access network services.
Fibre-to-the-Basement (FTTB)	Network design in which the Fibre Network is deployed to the basement of a building and copper lines are used for the connection to the end-user premises.
Fibre-to-the-Curb (FTTC)	Network design in which the Fibre Network is deployed to a distribution point near the premises and copper lines are used for the connection between the distribution point and the premises.
Fibre-to-the-Node (FTTN)	Network design in which the Fibre Network is deployed to the node (i.e. a VDSL cabinet), while copper lines are used for the connection between the node and the premises.
Fibre-to-the-Premises (FTTP)	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.
Fixed-Line	Delivery of voice, data and broadband services over a physical line from the exchange location to the end-user premises (with termination at that premises).
Fixed Wireless	Network design in which network connections are provided through radio signals.

Abbreviation or term	Definition
FYXX	The financial year ending 30 June 20XX.
FY18(A)	Actuals for the financial year ending 30 June 2018.
GAAP	Generally Accepted Accounting Principles.
G.fast	A technology similar to DSL for carrying broadband signals over copper pairs. It uses different signalling method and much higher frequency spectrum to deliver potential speeds higher than traditional DSL.
Gigabits Per Second (Gbps)	A unit of measurement of transmission speeds equal to one billion bits per second. X/YGbps means a maximum downstream speed of XGbps and a maximum upstream speed of YGbps.
Government	Reference to the Commonwealth or Cth is used interchangeably with Government.
Government Business Enterprise (GBE)	Commonwealth entity or wholly-owned Commonwealth company as defined by the PGPA Act and as prescribed as a GBE under the PGPA Rule.
Greenfields	A new development that can be either New Developments or Infills. Greenfields developments represent the growth of the premises market.
Health, Safety & Environment (HSE)	The activities responsible for establishing and maintaining policies regarding employee health, safety and environment issues.
Hybrid Fibre Coaxial (HFC) Cable Networks	Networks 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 development (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 unavailable.

Glossary

Abbreviation or term	Definition
Information Technology (IT)	Underlying operating and business systems and processes providing the platform and flow of information through NBN Co to enable the deployment, activation and operation of Australia's broadband network.
Internal Rate of Return (IRR)	The average annual total return from the cash investment over a specified time period, used to measure and compare the profitability of the investment.
Internet of Things (IoT)	The Internet of Things (IoT) is an evolution of machine to machine (M2M) connectivity, a network of physical devices, vehicles, home appliances, and other items embedded with electronics, software and sensors.
Lead-in	The part of the network from the pit in the street to the end-user premises.
Local Network	The part of the network from the Fibre Distribution Hub down each street.
Megabits Per Second (Mbps)	A unit of measurement of transmission speeds equal to one million bits per second. X/YMbps means a maximum downstream speed of XMbps and a maximum upstream speed of YMbps.
Multi-Technology Mix (MTM)	An approach used to determine which technologies to be utilised on an area-by-area basis to maximise the speed of the rollout and build the network most effectively.
NBN Co	NBN Co Limited.
Network Engineering Operations (NEO)	The NBN Co team responsible for the operation and activation of **nbn**™ services on the **nbn**™ access network.
New Developments (Greenfields Estates)	A New Development is defined as an estate that complies with the New Development Policy statements released by the Government. New Developments includes commercial, industrial and residential estates comprising of more than 100 lots with development approval to be released within a three year period located in NBN Co's long-term Fibre Footprint. For the role of NBN Co with regards to Greenfields developments, refer to the appropriate policy as befitting the circumstance.

Abbreviation or term	Definition
Next Generation Passive Optical Network (NG-PON)	A telecommunications network standard capable of increasing speeds over the fibre cables.
Operating Expenditure (Opex)	The ongoing cost of running a business, system or product, including payments under lease agreements. For the purpose of the Corporate Plan, Operating Expenditure includes 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.
Over the Top (OTT) Entertainment Services	Entertainment Services (audio, video, and other media) delivered directly to the consumer via the internet, without requiring users to subscribe to a traditional communication, cable or broadcast television service providers.
Point of Interconnect (POI)	The connection point that allows RSPs and WSPs to connect to the **nbn**™ access network access capability. In the field, this is the physical port on the Ethernet Fanout Switch (EFS) switch located at the **nbn**™ access network's POI, where an Access Seeker connects to establish exchange of traffic with the **nbn**™ access network.
Premises	A premises which NBN Co is required to connect is: 1. an addressable location currently used on an ongoing basis for residential, business (whether for profit or not), government, health or educational purposes; 2. a school as defined by the Department of Education, Employment and Workplace Relations; 3. within a new development at an addressable location for which NBN Co is the wholesale provider of last resort; or 4. a standard telephone service activated in compliance with the USO.
Premises activated	Refers to premises which have an active service installed. Premises are activated after receiving and provisioning a service order from a RSP to install a new service at the premises.
Product Development Forum	See http://www.nbnco.com.au/industry/service-providers/industry-consultation/product-development-forum.html.

Glossary

Abbreviation or term	Definition
Ready for service (RFS)	A Rollout Region is ready for service when the majority of premises are passed by the **nbn**™ access network and RSPs are able to begin selling services over the **nbn**™ access network in that Rollout Region.
Ready to connect (RTC)	A premise is ready to connect when an **nbn**™ service order can be placed, and the service can be connected within an area that has been declared ready for service.
Retail Service Provider (RSP)	A third-party provider of retail broadband services to end users.
Robotics	Robotic technology that helps to generate efficiencies through the use of automation.
Rollout Region	A region served by the **nbn**™ access network.
Service providers	A third-party provider of broadband services whether to end user and/or Retail Service Providers.
Sky Muster™ satellite service	NBN Co satellite service which will provide broadband services to Australians in predominantly rural locations.
Statement of Expectations (SoE)	Letter to NBN Co from its Shareholder Ministers dated 24 August 2016. See http://www.nbnco.com.au/content/dam/nbnco2/documents/soe-shareholder-minister-letter.pdf
Systems Engineering Operations (SEO)	The NBN Co team that provides converged network and information technology (IT) engineering solutions to digitally enable NBN Co's customers.
Technology Choice Program	A program which provides individual or groups of premises with the option to pay for a switch to a different **nbn**™ access network technology.
Temporary Staff Augmentation (TSA)	Temporary Staff Augmentation, refers to temporary workers, engaged on a temporary basis via external Labour Hire Companies and/or independent contractors to perform a specific role or task.

NBN Co
Corporate Plan 2019–22

Abbreviation or term	Definition
User Network Interface (UNI)	The physical port on the **nbn**™ access network Termination Device (NTD) at the end-user premises which connects the end user's residential gateway or Ethernet enabled device to the **nbn**™ access network which could be either a UNI-D (User Network Interface – Data) or UNI-V (User Network Interface – Voice).
VDSL	Very-High-Bit-Rate Digital Subscriber Line.
Virtual Private Network (VPN)	A private server run by a third-party provider to access the internet.
Voluntary Turnover	Measure of the employees who left the organization voluntarily as a percentage of average headcount over the reporting period.
Wholesale Broadband Agreement (WBA)	A document which sets out NBN Co's supply terms for the **nbn**™ Ethernet Bitstream Service and other related products and services.
Wholesale Service Provider (WSP)	A provider of wholesale services to Service Providers.
4K/8K TV	Ultra High Definition of video content: 4000 pixels (4K UHD) or 8000 pixels (8K UHD).
5G	Fifth-generation wireless technology.

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