nbn Special Access Undertaking Variation 2022 - Supporting submission

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Public Version

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Contents

Abbreviations and acronyms

Throughout this submission, unless the context provides otherwise, capitalised terms have the same meaning as in the Dictionary set out in Attachment C to the main body of the Variation.

Term	Description
ABBRR	Annual Building Block Revenue Requirement
ABS	Australian Bureau of Statistics
ACCAN	Australian Communications Consumer Action Network
ACCC	Australian Competition and Consumer Commission
AD	Access determination
ADSL	Asymmetric Digital Subscriber Line
AER	Australian Energy Regulator
API	Application Programming Interface
ARPU	Average Revenue Per User
ARTC	Australian Rail Track Corporation
AVC	Access Virtual Circuit
BBM	Building block model
BCAR	Bureau of Communications, Arts and Regional Research
BRoC	Binding rule of conduct
BSS	Business Satellite Services
B2B	Business-to-Business
CAGR	Compound annual growth rate
CAM	Cost allocation manual
capex	Capital expenditure
CAPM	Capital asset pricing model
CCA	*Competition and Consumer Act 2010* (Cth)
CIF	Cumulative Inflation Factor
CIR	Committed Information Rate
CPI	Consumer Price Index
CSA	Connectivity Serving Area
CVC	Connectivity Virtual Circuit
DFN	Distribution Fibre Network
DPU	Distribution Point Unit
DSL	Digital Subscriber Line
DSLAM	Digital Subscriber Line Access Multiplexer
DSQ	Dynamic Site Qualification
EE	**nbn**™ Enterprise Ethernet

Term	Description
ELB	Entry Level Bundle
ESCOSA	Essential Services Commission of South Australia
FANOC Decision	ACCC, *Assessment of FANOC's Special AccessUndertaking in relation to the Broadband Access Service – Draft Decision,* December 2007
FTE	Full Time Equivalent
FTTB	Fibre-to-the-Building
FTTC	Fibre-to-the-Curb
FTTN	Fibre-to-the-Node
FTTP	Fibre-to-the-Premises
GBE	Government Business Enterprise
Gbps	Gigabits per second
HFC	Hybrid Fibre Coaxial
HST	Higher speed tier
ICRA	Initial Cost Recovery Account
IOP	Integrated Operating Plan
IPART	Independent Pricing and Regulatory Tribunal
LFN	Local Fibre Network
LTIE	Long-term interests of end-users
LTRCM	Long Term Revenue Constraint Methodology
LTSS	Long Term Satellite Service
MBHT	Mean busy hour throughput
MBIE	Ministry of Business, Innovation and Employment
Mbps	Megabits per second
MRP	Market Risk Premium
MTM	Multi-technology mix
NBN	National Broadband Network
NBN Access Bill	*Telecommunications Legislation Amendment(National Broadband Network Measures – Access Arrangements) Bill 2011*
NBN Co	National Broadband Network Company Pty Ltd
NBN Companies Act	*National Broadband Network Companies Act 2011*
NDOs	Non-discrimination obligations
NNI	Network-Network Interface
NPV	Net Present Value
NZCC	Commerce Commission New Zealand
opex	Operating expense
PDF	Product Development Forum

Term	Description
PIR	Peak Information Rate
PMP	Previous measurement period
POI	Point of interconnect
QCA	Queensland Competition Authority
RAB	Regulatory Asset Base
RBA	Reserve Bank of Australia
RMA	Replacement Module Application
RSP	Retail Service Provider
RTC	Ready-to-connect
SAO	Standard access obligation
SAU	Special access undertaking
SFAA	Standard form of access agreement
SIO	Services in operation
SIP	Statutory Infrastructure Provider
SMB	Small and Medium-sized Businesses
SOE	Statement of Expectations
SQ	Site Qualification
STM	Speed Tier Mix
TC	Traffic Class
Telecommunications Act	*Telecommunications Act 1997* (Cth)
TiND	Telecommunications in New Developments Policy
Tribunal	Australian Competition Tribunal
TSA	Temporary Staff Arrangement
TUSMA	Telecommunications Universal Service Management Agency
ULLS	Unconditioned Local Loop Service
WACC	Weighted Average Cost of Capital
WAPC	Weighted-Average Price Cap
WBA	Wholesale Broadband Agreement

Executive Summary

nbn's Special Access Undertaking (**SAU**) plays a central role in the telecommunications industry's regulatory framework. Originally accepted by the ACCC on 13 December 2013, the SAU has provided a degree of certainty to **nbn**, retail service providers (**RSPs**) and end-users by governing key price and non-price terms on which **nbn** supplies services to RSPs over the period to 30 June 2040. At the same time, the SAU provides for regulatory oversight by the ACCC. This regulatory oversight will continue and be enhanced under this variation to the SAU, including a Replacement Module Application (**RMA**), lodged by **nbn** with the ACCC (the **Variation**).

Since 2013, both the broader telecommunications landscape and **nbn**'s operating context have changed significantly. From less than 100,000 active services at the end of 2013, the **nbn**™ network now supplies services to over 8.4 million premises and covers over 12 million premises.[1] During 2014-17, **nbn** implemented the multi-technology mix (**MTM**) approach, and in 2020 the Minister declared that the network should be treated as built and fully operational. Today, the **nbn**™ network is enabling Australia's digital capability, with **nbn**'s role taking on even greater significance during COVID-19, which changed the way that people live, work, and learn. It is therefore appropriate that **nbn**'s regulatory framework, as represented in the SAU, is updated at this time to reflect **nbn**'s role, and to ensure the SAU continues to deliver outcomes that enable **nbn** to meet the needs of end-users, RSPs and other stakeholders.

The Variation is a critical enabler for **nbn** to materially evolve its pricing structure in response to RSP feedback whilst retaining continuity with its long-term cost recovery framework. In particular, the Variation addresses key industry concerns around cost uncertainty and operational complexity associated with demand variability and management of CVC, removing variable charges on high-speed tiers where these issues are most pronounced.

For other speed tiers, **nbn** will introduce new "bundled" offers, which will replace the current discounts – applying to bundles of AVCs with included CVC capacity. These new bundled offers will also feature automatic adjustments to the level of CVC inclusions to reflect changing end-user demand. Importantly, **nbn** will now only charge for any additional CVC capacity that is actually utilised by RSPs, rather than the amount of capacity they have ordered (which would typically include headroom to allow for demand peaks). The Variation establishes Maximum Regulated Prices for all new offers, and places controls on how those prices can change over time, with potential price increases applying on an annual "use it or lose it" basis.

In addition to these significant changes to the overall pricing structure and regulated price points, the Variation:

- includes pricing reforms for entry level offers that provide a positive step change in broadband affordability, with significantly reduced pricing for voice-only customers and those with basic connectivity needs;
- gives further certainty to RSPs and end-users about the evolution of **nbn**'s prices through a suite of individual price controls that apply to **nbn**'s new and existing service offerings; and
- places new restrictions on future discounting to ensure on-going price certainty, guaranteeing that the removal of discounts in future will not result in price shocks.

The Variation also expands the scope of **nbn**'s price commitments to services it supplies over the MTM networks, delivering uniformity and certainty to the regulatory framework within which **nbn** supplies its services. This responds to the Statement of Expectations issued by the Communications Minister to the ACCC[2] which among

[1] National Broadband Network – Weekly Progress Report for the week ending 3 March 2022. Access: https://www.nbnco.com.au/corporate-information/about-nbn-co/corporate-plan.

[2] Statement of Expectations issued by the Minister for Communications, Cyber Safety and the Arts to the ACCC on 9 October 2020.

other things, asked the ACCC to work constructively with **nbn** on developing a comprehensive regulatory solution for **nbn**'s pricing, including an SAU variation to incorporate the MTM networks.

The Variation promotes efficient use of the **nbn**™ network and efficient investment. In addition to a pricing approach designed to maximise take-up and use of the network, the Variation gives the ACCC the ability to review forecasts at the start of each Regulatory Cycle, including **nbn**'s capital and operating expenditure (i.e., an ex-ante review), supplemented by giving the ACCC the ability to scrutinise and validate **nbn**'s capital expenditure at the end of each Regulatory Cycle (i.e., on an ex-post basis). Any unexpected costs during a Regulatory Cycle are also subject to ACCC oversight and transparency commitments through a cost pass-through process. In combination with commitments in the Variation that **nbn** will set its prices so that its forecast revenues align with its underlying costs over time, these roles provide the ACCC with oversight of **nbn**'s prices to ensure they are reasonable.

The Variation places limits on the rate at which **nbn** can seek to recover its Initial Cost Recovery Account (**ICRA**) during the term of the SAU. The ICRA recognises the substantial losses that have necessarily occurred in the build and early operational stages of the **nbn**™ network, in the expectation that future demand for **nbn**'s services will provide **nbn** with the opportunity to recover those losses over time. **nbn**'s opportunity to seek recovery of the ICRA is enshrined as a fixed principle in the existing SAU as accepted by the ACCC in 2013. This recognises that **nbn**, and all investors in regulated infrastructure, require the opportunity to recover the efficient costs of their investments in order to make and continue investing in such infrastructure. By limiting the rate of that recovery, the Variation ensures that **nbn** may pursue that recovery in a predictable way, ensuring price certainty for RSPs and end-users, and strict revenue controls in each Regulatory Cycle. In addition to limiting the rate of recovery of the ICRA, the Variation will crystallise the value of the ICRA as at 30 June 2023, with no further regulatory losses being added to it, and thereafter no increase in its value in real terms.

In crystallising the value of the ICRA and limiting the rate at which it can be recovered, the Variation will introduce an enhanced revenue constraint in the form of a binding revenue cap on **nbn**'s Core Regulated Services. This revenue cap is calculated as the annual maximum allowable revenue for those Core Regulated Services generated under a building block model (**BBM**), plus the annual drawdown of a defined portion of the ICRA.

This combination of ex-ante and ex-post regulatory oversight together with strong revenue controls is best practice in infrastructure regulation. The Variation implements the transition to a utility-style regulation that is appropriate for **nbn**'s central role in providing broadband access to Australians now that the initial build of the **nbn**™ network is complete and the process of migrating end-users to the network is well-progressed. **nbn**'s ongoing expenditures will also be made increasingly transparent through the use of standard Cost Allocation Principles to address any potential cross-subsidy between **nbn**'s Core Regulated Services and its business-grade services supplied into more competitive markets.

The package of new and enhanced commitments included in the Variation deliver a regulatory framework over the period to 2040 that will increase certainty for RSPs and end-users in relation to **nbn**'s prices, incentivise ongoing innovation and efficient use of and investment in the **nbn**™ network, and provide **nbn** with the ability to deliver the policy and financial objectives set out for it by government.

The ACCC is tasked with considering **nbn**'s Variation proposal against the applicable statutory criteria. To accept the Variation, the ACCC must be satisfied that it meets the statutory criteria set out in section 152CBD(2) of the *Competition and Consumer Act 2010* (Cth) (**CCA**). Broadly, this requires the ACCC to be satisfied that:

1. the terms and conditions in the Variation related to compliance with the Category B Standard Access Obligations (**SAOs**) referred to in section 152AXB of the CCA are consistent with those obligations and are

reasonable. As the ACCC noted in its 2013 final decision on the SAU lodged by **nbn** on 19 November 2013 (**Final 2013 Decision**), the "reasonableness" of terms and conditions is not determined by reference to whether they are the best possible terms and conditions or whether they could be improved;[3]

2. conduct that is specified in the Variation in relation to access to **nbn**'s services as referred to in section 152CBA(3B) of the CCA will promote the long-term interests of end-users (**LTIE**), and that the related terms and conditions are reasonable; and
3. any conduct that is specified in the Variation in relation to matters related to access to **nbn**'s services as referred to in section 152CBA(3C) of the CCA will promote the LTIE.

nbn submits that the Variation satisfies the statutory criteria and should be accepted by the ACCC.

Overall, **nbn**'s Variation represents an integrated package comprising numerous individual commitments including new pricing constructs and commitments, enhanced and binding revenue constraints and Competitive Services cost separation described above, together with network utilisation management commitments, network performance reporting and numerous other matters. This package of commitments represents a strong regulatory framework in addition to the scrutiny and incentives that **nbn** faces due to its unique circumstances as a wholesale-only provider that both faces competition and has Government Business Enterprise (**GBE**) obligations.

nbn's Variation is a comprehensive response to the concerns of RSPs and addresses each of the key outcomes from the series of Working Groups convened by the ACCC during 2021 (**ACCC Working Groups**). It will provide long-term certainty to stakeholders around **nbn**'s commitments and obligations, and will promote the LTIE.

The measures in the Variation will promote competition and encourage the efficient use of, and investment in, communications infrastructure. These measures will also encourage **nbn** to operate efficiently and ensure that prices are not inefficiently high in later years.

Along with the service standards commitments in **nbn**'s Wholesale Broadband Agreement (**WBA**) and ongoing regulatory oversight by the ACCC over changes to service standards commitments over time, the Variation provides a clear, comprehensive and robust quality of service framework to ensure that RSPs and end-users know what to expect from **nbn** services. This will promote the take-up and use of the **nbn**™ network.

Other commitments in the Variation also promote the LTIE and address key outcomes of the ACCC Working Groups. For example, the Variation commits **nbn** to work with the industry, Government and consumer advocacy groups on an ongoing basis to address the needs of low-income, vulnerable and unconnected end-users.

Importantly, **nbn**'s proposed commitments are put forward by **nbn** as a single comprehensive Variation proposal. The Variation represents an integrated package of proposals. Together, **nbn** considers that they form the basis of an appropriate variation to its SAU which meets the relevant statutory criteria by which such a variation must be assessed, including (as relevant) that the terms of the SAU variation be reasonable and promote the long-term interests of end-users. Ultimately, the SAU submitted by **nbn** must balance the needs and concerns of all parties, and enable **nbn** to remain a sustainable commercial enterprise that can continue to implement government policy.

[3] Final 2013 Decision, p. 50.

Background and context

The Government established **nbn** in 2009 as a GBE as a means of implementing its national broadband policy. As a GBE, the company is subject to the *Public Governance, Performance and Accountability Act 2013* (Cth) (**PGPA**) and a high degree of public scrutiny both generally and through Parliamentary committees. This scrutiny means that **nbn** is held to a very high standard, including balancing alignment of its commercial objectives with the needs of its stakeholders, being primarily end-users and RSPs.

The *National Broadband Network Companies Act 2011* (Cth) (**NBN Companies Act**) requires **nbn** to operate on a wholesale-only basis. The commercial consequence of this is that **nbn** is solely dependent on RSPs as a channel to supply its services to, and respond to the needs of, end-users. This means that **nbn** has to be highly attuned to, and aligned with, the interests and needs of RSPs and end-users, to achieve commercial success.

nbn's policy mandate, reflected in successive Statements of Expectations (**SOE**), has been to build and operate a national broadband network capable of delivering minimum transmission speeds of at least 25 megabits per second (**Mbps**) download (and proportionate upload speeds) to all premises and at least 50Mbps download speeds to 90 percent of fixed line premises as soon as possible.[4] The current SOE stipulates service expectations and requires **nbn**, as the default Statutory Infrastructure Provider (**SIP**) for all of Australia, to meet legal obligations, including in relation to minimum service speeds[5] and network performance requirements. Within its capital constraints, **nbn** is required to upgrade network technologies on an ongoing basis to support RSPs to meet demand from end-users that exceeds minimum requirements, including to implement current plans to expand access to peak download speeds of up to one gigabit per second (**Gbps**).[6]

nbn's SAU was developed to support the achievement of the Government's national broadband policy, which also recognises that **nbn** was expected to achieve a commercial rate of return for its Government shareholder. Amongst the objectives that **nbn** sees the SAU fulfilling are:

- supporting the delivery of Government policy objectives for **nbn**, including as set out in successive SOEs from **nbn**'s shareholder ministers;
- enabling a sustainable and competitive retail environment;
- balancing efficient investment in the network with efficient use of the network;
- supporting continued investment to lift the digital capability of Australia;
- providing **nbn** with the opportunity to recover prudently and efficiently incurred costs; and
- providing **nbn** with the flexibility to respond to market dynamics.

The Variation ensures that the SAU will continue to meet these objectives.

[4] Statement of Expectations issued to **nbn** on 8 April 2014 and Statement of Expectations issued to **nbn** on 24 August 2016.

[5] The *Telecommunications Act 1997* (Cth) sets out connection and supply obligations on the SIP of a service area, including broadband speeds. The services supplied by a SIP should enable RSPs to provide broadband service speeds that achieve a peak of at least 25Mbps for downloads and 5Mbps for uploads.

[6] Statement of Expectations issued to **nbn** on 26 August 2021.

The current SAU implements a modular structure that facilitates changes over time, as both **nbn** and the ACCC recognise the likely need for change over the term of the SAU. For example, it was always anticipated that **nbn** would move to a more standard utility-style form of regulation following the completion of its initial network build. However, it was also recognised that up-front certainty for significant long-term infrastructure investment is important for investors, and this was facilitated within a framework that provided for core matters to be enshrined as fixed principles terms and conditions under section 152CBAA of the CCA.

nbn believes that the current SAU, as amended by way of the Variation to extend the SAU's product and pricing commitments to the MTM services and its adoption of other proposed commitments, achieves the above objectives. In addition to the statutory criteria, **nbn**'s preparation of the Variation has been guided by (and addresses) the ACCC Working Groups' outcomes while enabling achievement of the Government's policy objectives. **nbn** submits that the Variation satisfies all relevant legislative requirements, including that the terms and conditions are reasonable and promote the LTIE, and should be accepted by the ACCC.

Part A
Overview and introduction

1 Overview of nbn's Variation

The lodgement of this Variation follows significant consultation with industry and consumer stakeholders, and the ACCC, including the *ACCC's Industry Roundtable on regulatory arrangements under NBN Co's Special Access Undertaking* held in June 2021 and the subsequent series of ACCC Working Groups conducted throughout the remainder of 2021.

nbn has undertaken an open-minded and holistic review of the SAU provisions that relate to issues raised during the consultation, and has lodged a Variation that makes a number of key commitments representing material changes from the way in which **nbn**'s products and pricing are currently offered and how **nbn**'s expenditure is regulated relative to the existing SAU. The Variation also provides for increased transparency in respect of network performance and provides the ACCC with additional functions and powers in respect of important aspects of how **nbn** may be regulated in the future.

The individual commitments and proposed changes to the SAU represent a comprehensive package of regulatory obligations and constraints which are in the LTIE. They also address the five key outcomes identified by the ACCC in its Working Group Summary Paper, as further discussed at Table 2 in chapter 7.[7]

The changes proposed in the Variation fall into the following broad categories:

A. Pricing constructs and appropriate price controls including reduction of Maximum Regulated Prices; rules to limit discounting; smoothing of the revenue and price path; and commitments regarding low-income end-users (see chapters 11 and 12).
B. Revenue control measures including the establishment of a binding revenue control from the commencement of the Subsequent Regulatory Period[8] of the SAU prior to the ICRA being extinguished; cost allocation between Core Regulated Services and Competitive Services; constraints on the recovery of the ICRA associated with the Core Regulated Services during the term of the SAU; and ex-post capital expenditure review of **nbn**'s capital investments (see chapters 13, 14 and 15). **nbn** proposes four new fixed principles terms and conditions for these purposes.
C. Inclusion of MTM technologies (see chapter 10).
D. Quality of service framework including utilisation management and performance reporting commitments (see chapters 18 and 19).

The Variation implements standard utility-style regulation that is appropriate to the circumstances that **nbn** faces, including that:

- **nbn** faces competition from a range of different providers and technologies;
- telecommunications is a dynamic industry which makes it much more challenging to predict demand than is the case for monopoly providers meeting a basic physical need such as water; and
- **nbn** is a GBE that is a vehicle for the fulfilment of government policy objectives and it has specific obligations arising from its GBE status and the SOEs which apply to it.

[7] ACCC, *NBN Co Special Access Undertaking - Summary of industry wording group outcomes,* 22 December 2021, p. 6.

[8] The Subsequent Regulatory Period commences on 1 July 2023 and runs for the remainder of the term of the SAU, to 30 June 2040.

A New pricing constructs and enhanced price controls

A.1 Pricing constructs arising from the Working Group Engagement

One of the key drivers of **nbn**'s desire to vary the SAU was to respond to RSP concerns about the structure of **nbn**'s prices, the impact of ongoing CVC demand growth on RSP costs, and the uncertainty caused by discounts becoming the primary means by which **nbn** set prices in respect of services that made up the majority of its revenues, without those prices being reflected as Maximum Regulated Prices. **nbn**'s prices have historically been set to promote take-up and ensure the affordability of broadband services (with the consequence that **nbn** has under-recovered its prudently and efficiently incurred costs to date). **nbn** recognises that it is now appropriate to set its regulated prices at levels which are expected to recover **nbn**'s prudently and efficiently incurred costs over time, including an appropriate portion of **nbn**'s accumulated unrecovered losses (i.e., the ICRA). In addition, as the ACCC Working Group feedback highlighted, end-users should be protected from price shocks and RSPs should be given greater certainty over the costs they face when using the **nbn**™ network. **nbn** also recognises that with greater cost certainty, RSPs will have incentives to invest in service-related infrastructure and to continue to develop **nbn**-related product offerings.

To address these concerns, **nbn** proposes to introduce changes to the structure and level of its regulated prices, as well as to make changes to the SAU price control arrangements. These measures also include providing the ACCC with expanded and enhanced regulatory oversight functions and powers in respect of both **nbn**'s revenue and expenditures.

In the Variation, **nbn** proposes the following new pricing construct commitments, which will work in tandem with **nbn**'s proposed revenue control measures:

1. To introduce a new pricing construct which addresses concerns about the structure of **nbn**'s prices and the level of **nbn**'s entry level service. This new pricing construct includes:
    i. introducing an AVC-only pricing construct for **nbn**™ Ethernet TC-4 services supplied with a bandwidth profile of Home Fast or higher in direct response to industry feedback;
    ii. setting out in the SAU for the first time bundled AVC/CVC offers for lower-speed **nbn**™ Ethernet TC-4 services, and defined rules for bi-annual adjustments to the CVC inclusions to reflect actual changes in end-user download utilisation over time;
    iii. elevating the 25Mbps bandwidth profile as **nbn**'s entry level broadband service across all fixed line and fixed wireless services by significantly reducing the fixed access charge for this bandwidth profile;
    iv. in recognition of the diverse needs of end-users across Australia, significantly reducing the effective price of basic voice-only connectivity services (supplied using the 12Mbps speed tier) to make these more accessible and affordable; and
    v. transforming the CVC billing model from billing 'provisioned' CVC to 'utilised' CVC across TC-4 Bundled Offers,[9] with the effect that RSPs will no longer need to actively forecast and manage CVC provisioning and will only be charged for CVC that is actually utilised, without idle provisioned headroom.
2. Changes to the price controls that apply to **nbn**'s services and rules in respect of **nbn**'s use of discounts such that end-users and RSPs have greater price certainty, including in the long-term. **nbn** commits to:

[9] TC-4 AVC-only and TC-4 Bundled Offers are described further in chapter 11.

i. reducing its Maximum Regulated Prices under the new price structure to be more reflective of the effective prices that will be payable by RSPs;

ii. effective price controls applying to individual **nbn**™ Ethernet services. Specifically:

- a CPI + 3% price control on individual AVC-only services for the First Regulatory Cycle (to 30 June 2025), with an ongoing default price control of the greater of CPI and 3%;
- a CPI price control on individual bundle service offerings;
- a commitment not to increase the price of CVC overage (for the bundle service offerings) over the term of the SAU. The Maximum Regulated Price for CVC overage will be set at $8 per Mbps to 2040; and
- retention of the CPI - 1.5% price control on all other services, and

iii. discounting rules such that **nbn**'s use of discounts is constrained, transparent and predictable. **nbn** must reduce Maximum Regulated Prices to the extent that **nbn**'s TC-4 revenue in a Financial Year is more than 5% less than the undiscounted TC-4 revenue **nbn** would have earned had it charged list prices (i.e., revenue generated if **nbn** charged full price). If this limit is exceeded in any given Financial Year, **nbn** will 'ratchet down' TC-4 Maximum Regulated Prices in the following Financial Year to reduce the difference. As a result, **nbn** will be unable to discount its services in the broad manner that it has done historically without promptly lowering its Maximum Regulated Prices, which provides RSPs and end-users with greater long-term certainty.

3. **nbn**'s prices have historically been, and continue to be, set to promote take-up and affordability of broadband services (with the consequence that **nbn** has under-recovered its prudently and efficiently incurred costs). Going forward, the regulatory framework will allow **nbn** to set prices, informed by its BBM, at levels which provide the opportunity for **nbn** to recover prudent and efficient costs over time, including the recovery of an appropriate portion of the ICRA.

These commitments are reasonable, promote the LTIE, and address the outcomes of the ACCC Working Groups. Specifically:

- **nbn**'s new price constructs, in particular the introduction of the AVC-only pricing constructs, are designed to provide greater cost certainty for end-users and RSPs. The diverse price range (i.e., from $12 to $230 per month) and choice of AVC-only and Bundled offers offered by **nbn** will encourage greater take-up and use of the **nbn**™ network and promote competition for broadband services.
- The introduction of a voice-only 12/1Mbps service is in direct response to requests from RSPs. It is priced to optimise the efficient take-up and use of the **nbn**™ network and to promote competition in the delivery of voice telephony services. The introduction of a voice-only service also increases the affordability of telecommunications services, especially for the low-use and voice-only customer cohort.
- Elevating the 25/5Mbps speed tier service as the entry level broadband service responds to an increasingly competitive market and will further promote competition in broadband and telecommunications markets. The reduction in the price of the 25/5Mbps service increases the affordability of higher quality fixed line broadband services and thus promotes efficient use of the **nbn**™ network.

- The alignment of **nbn**'s Maximum Regulated Prices with the current effective prices paid by RSPs, together with the proposed price controls will mean that RSPs and end-users have certainty that **nbn** will not lift prices above efficient levels. Furthermore, the proposed rules on discounts mean that the Maximum Regulated Prices will track the effective market prices for **nbn**'s services over time. These regulatory constraints protect end-users and RSPs from price shocks and provide greater cost certainty to RSPs that use the **nbn**™ network. Greater certainty will promote competition and is expected to increase take-up and use of the **nbn**™ network.
- These pricing measures provide strong incentives for **nbn** to maximise the take-up and use of its services in order to help achieve its allowable revenue. **nbn** will need to develop and offer new and innovative services over time as well as continue to improve the quality and reliability of its existing services. These incentives promote competition and efficient investment in telecommunication infrastructure.
- Finally, **nbn**'s prices will be informed by **nbn**'s BBM and **nbn** will be provided the opportunity to recover its prudently and efficiently incurred costs over time including the recovery of an appropriate portion of the ICRA, pay down debt (as per government policy) and ultimately provide a return of, and on, equity to shareholders. This does not mean that **nbn**'s prices will simply equal the average revenue per user (**ARPUs**) calculated by the BBM. Rather, **nbn** will set the prices of its suite of services, within the constraints of the Maximum Regulated Prices, such that over the term of the SAU (i.e., to 30 June 2040) it has the opportunity to generate the allowable revenues calculated by the BBM and recover an appropriate proportion of the ICRA. It also means that as the willingness to pay for broadband services grows over time, due to changes in consumer behaviour and the development of new and innovative applications, **nbn** will have the commercial flexibility to gradually adjust its prices and grow demand. These outcomes will promote the efficient take-up and use of the **nbn**™ network as well as enhance inter-generational equity. Inter-generational equity is maximised by matching the recovery of fixed costs with the increased use and utility of the network.

A.2 A commitment to address the needs of low-income customers

nbn has already implemented a number of initiatives and programs aimed at improving access to its network to increase the level of digital inclusion for various low-income, vulnerable, and unconnected cohorts, including low-income families, older Australians, and remote communities. These are being progressed with industry consultation and engagement.

In the Variation, **nbn** commits to convene an industry working group at least once per Financial Year in the First Regulatory Cycle (commencing 1 July 2023), focused on targeted initiatives to improve access to **nbn**'s network for low-income, vulnerable and unconnected customers.

The working group will be convened and chaired by **nbn** and will include representatives of not-for-profit groups, telecommunications and consumer advocacy groups, government agencies and RSPs.

nbn will also publish an annual update on its initiatives to improve access for low-income, vulnerable and unconnected customers.

These commitments promote both economic efficiency and social equity and, in turn, are reasonable and promote the LTIE. Specifically:

- **nbn**'s proposed approach to addressing the various needs of low-income, vulnerable, and unconnected customer cohorts in partnership with RSPs and consumer advocacy groups provides **nbn** with the flexibility to calibrate its in-market offerings as the evolving and potentially different needs of the targeted customer cohorts change over time.

- Targeted discounts and offers to address the needs of low-income, vulnerable and unconnected cohorts allows **nbn** to maximise the take-up and use of the **nbn**™ network.

A.3 Functions and powers provided to the ACCC to support pricing provisions

The current SAU provides the ACCC with several specific functions and powers to ensure that **nbn**'s prices are not higher than reasonable. While these functions and powers give the ACCC the ability to directly address any inefficient pricing and unreasonable product withdrawals by **nbn**, they currently only apply to services supplied by **nbn** over its fibre to the premises (**FTTP**), fixed wireless and satellite networks. **nbn** proposes to extend the operation of these functions and powers to all of **nbn**'s technologies, including the multi-technology mix networks (i.e., fibre to the curb (**FTTC**), fibre to the node (**FTTN**), fibre to the basement (**FTTB**) and hybrid fibre coaxial (**HFC**)).

In the Variation, **nbn** has also provided the ACCC with the following additional functions and powers:

a. **Ex-post review of nbn's capital expenditure:** **nbn** recognises that moving to the new ex-ante / forecasting approach used in the BBM and the high degree of demand uncertainty (including due to substitution risk) may result in uncertainty about the level of **nbn** capital expenditure needed to prudently and efficiently respond to future demand and to meet other objectives set for it. **nbn** therefore proposes to combine the ex-ante forecasting approach already contemplated in the existing SAU with an ex-post capex review role for the ACCC. The ACCC will be able to review actual capital expenditure for a Financial Year within each Regulatory Cycle within the scope of certain parameters.

b. **To assess and approve cost pass-throughs:** **nbn** believes that introducing a limited range of cost pass-through provisions will lead to more efficient investment and price outcomes than building in the cost of unknown exogenous, regulatory and other events into **nbn**'s forecasts. Therefore, consistent with other regulatory systems, **nbn** is proposing to introduce the ability for **nbn** to reopen its revenue cap and amend Maximum Regulated Prices during a Regulatory Cycle to pass-through certain types of unforecast cost increases and decreases, subject to ACCC review and approval.

c. **To conduct a public inquiry into the appropriateness of a weighted-average price cap (WAPC):** **nbn** considers that while demand for its services remains uncertain, a revenue control, coupled with specific individual price controls, remains an appropriate form of economic control on **nbn**. However, in recognition that **nbn** may not always face the degree of demand uncertainty that it does today, the SAU allows for a potential future transition to a WAPC. This includes the ability for the ACCC to conduct a review and run a consultation process on whether **nbn**'s revenue control and system of individual price caps should be transitioned to a WAPC.

d. **Categorisation of new products into core/competitive and the consequential cost allocation:** As a result of the introduction of the cost allocation provisions into the SAU, **nbn** is proposing to future-proof the SAU by allowing **nbn** in the first instance to determine whether a new product will fall into either the Core Regulated Services or Competitive Services Category. The ACCC will be conferred a role to disallow the categorisation of new products as either Core Regulated Services or Competitive Services, and to review and determine the appropriate allocation of building block costs to new Competitive Services. The ACCC will also be conferred a power to re-categorise existing services as being either Core Regulated Services or Competitive Services as part of the Replacement Module process.

These functions and powers strike a balance between providing **nbn** with a level of commercial flexibility to develop new products and prices commercially but subject to regulatory oversight, and the possibility of

regulatory intervention by the ACCC. **nbn** submits that providing the ACCC with these additional functions and powers promotes the LTIE and the related terms and conditions are reasonable.

B Revenue control measures

The current SAU incorporates a long-term revenue constraint methodology (**LTRCM**), which is designed to provide **nbn** with the opportunity (but not the guarantee) to recover no more than its efficiently incurred costs (including a regulated rate of return). With the passage of time, it has become clear that the level of initial losses incurred has made it unlikely that a binding revenue constraint will be established under the LTRCM during the term of the SAU.

To address this, the enhanced revenue constraint included in the Variation will provide **nbn** with the opportunity to recover its prudently and efficiently incurred costs over time, including a defined and discrete proportion of its initial losses. This will be complemented by a regulatory framework in which **nbn**'s individual prices will be subject to price controls, will be informed by its BBM, and where the ACCC will be able to review and disallow **nbn**'s expenditure.

B.1 Enhanced revenue controls and changes to cost allocation in the RAB

In the Variation, **nbn** proposes to:

- Significantly adjust its revenue controls to ensure that it is subject to a binding revenue cap on its "core" regulated services. This binding revenue cap will be in addition to the individual price controls described in chapter 12.
- Enhance transparency and regulatory oversight by allocating the costs in the RAB between Core Regulated Services and Competitive Services. Specifically, **nbn** makes the following commitments:
    - the three **nbn** services which are subject to the most competition (being **nbn**™ Enterprise Ethernet, **nbn**™ Business Satellite Service (Layer 3) and **nbn**™ Satellite Mobility for Large Commercial Passenger Aircraft (Layer 3)) will be excluded from the revenue cap (and in the case of **nbn**™ Enterprise Ethernet, the price controls that would otherwise apply);
    - **nbn** will allocate costs between the core regulated and competitive service groupings in accordance with Cost Allocation Principles specified in the SAU; and
    - revenue earned in connection with **nbn**'s Core Regulated Services will be subject to a binding revenue cap (and the price controls outlined above).

These commitments are reasonable, promote the LTIE, and address the outcomes of the ACCC Working Groups. Specifically, the allocation of costs in the RAB between Core Regulated Services and the Competitive Services will:

- address concerns of industry and the ACCC about the potential for a cross-subsidy between **nbn**'s business-grade services, supplied in more competitive markets, and its residential services;
- promote competition in the wholesale and retail supply of business-grade services; and
- ensure that the prices for **nbn**'s Core Regulated Services are set at levels which are expected to recover **nbn**'s prudent and efficient costs over time, including the recovery of an appropriate portion of the ICRA, thus promoting the efficient use of those services.

B.2 Predictable and transparent recovery of the ICRA

It is widely accepted that the SAU should provide **nbn** with the opportunity to earn the minimum revenues it needs to meet its legitimate financing objectives, including transitioning to an investment grade credit rating. The ACCC has recently indicated that "*significant reforms to the current arrangements for the initial cost recovery account (ICRA) will be required to realise such a regulatory framework*".[10]

In the Variation, **nbn** makes very significant commitments and concessions regarding the recovery of the ICRA during the Subsequent Regulatory Period and proposes the following new commitments relating to revenue caps and the recovery of the ICRA:

1. The SAU will establish a new binding revenue cap on Core Regulated Services for each Regulatory Cycle, calculated as the sum of:
    - the annual building block revenue requirement (**ABBRR**) allowance forecast in respect of Core Regulated Services; and
    - an annual draw-down of a defined portion of a crystallised ICRA.
2. In a significant concession, there will be no further additions to the total real value of the ICRA as from 30 June 2023, and it will not continue to be capitalised using the SAU's rate of return (**WACC**). It will instead only continue to grow in line with inflation such that it remains constant in real terms, less the amounts drawn down each year as part of the revenue cap.
3. **nbn** will commit to only having the opportunity to recover a set portion of that total ICRA value in a transparent and predicable manner such that in any given year the amount of ICRA that **nbn** may recover during the term of the SAU is constrained, in aggregate and annually, and via a clearly defined formula. **nbn** believes that the annual amount of ICRA that **nbn** would be permitted to recover in any given year would allow **nbn** to earn regulated cashflows sufficient to pay down debt and achieve (and maintain) the benchmark credit rating defined in the SAU (being a benchmark rating of Baa2).

Currently, the ICRA is a single value and **nbn** can exceed its annual revenue requirement and 'draw down' on any amount of the ICRA in any Financial Year. The Variation proposes to fundamentally change this structure of drawdown on the ICRA and only allow a portion of the ICRA to be recovered in a Regulatory Cycle.

By changing the ICRA draw-down arrangements in the SAU and the amount to be recovered in the Subsequent Regulatory Period, the Variation will impose a revenue control on **nbn** which does not currently exist. **nbn** believes that a revenue control is an effective form of regulation and will provide a stable form of economic regulation in circumstances where there is significant demand uncertainty (including from 5G and other wireless and satellite substitution) which gives rise to continued **nbn** revenue sufficiency risk.

These changes can be made whilst retaining the fixed principles terms and conditions contained in the SAU that specify that the value of the ICRA at the end of the Initial Regulatory Period is to be the same as the starting value of the ICRA at the beginning of the Subsequent Regulatory Period. **nbn** is not proposing to change this fixed principles term or condition, but the provisions identified above will address the ACCC's concerns that **nbn** may be able to recover annual revenues that significantly exceed its annual revenue requirement (including an appropriate component of ICRA recovery).

[10] ACCC, *NBN Co Special Access Undertaking – Summary of industry working group outcomes,* 22 December 2021, p. 6.

These commitments are reasonable, promote the LTIE, and address the outcomes of the ACCC Working Groups. Specifically:

- Constrained recovery of the ICRA balances allowing **nbn** the opportunity to recover its past prudently incurred costs (currently a fixed principles term or condition of the SAU) with price certainty for RSPs and end-users.
- Transparency and predictability of the profile of ICRA recovery also provides greater price certainty to RSPs and confidence that **nbn**'s prices are set at efficient levels.
- Greater price certainty will promote the take-up and use of the **nbn**™ network as well as promote competition in related broadband and telephony markets.
- Providing **nbn** with the regulatory certainty that it has the opportunity, but not the guarantee, to recover a reasonable proportion of its ICRA over time, albeit in a constrained manner, will encourage efficient investment in communications infrastructure.

B.3 New fixed principles terms and conditions

nbn proposes to vary the SAU by specifying four new fixed principles terms and conditions:

- Clause 2C.2.2, which specifies the minimum building blocks which are used to calculate the Forecast Nominal Core Services ABBRR for a given Financial Year within a Regulatory Cycle;
- Clause 2C.4.4, which specifies how the value of the Real Core Services ICRA as at 1 July 2023 will be calculated, for the purposes of calculating the Forecast Core Services Revenue Cap for all Regulatory Cycles after the First Regulatory Cycle;
- Clause 2C.9.3, which ensures that the Real Core Services RAB Portion at the commencement of the Subsequent Regulatory Period will be the Real Core Services RAB Portion at the end of the Initial Regulatory Period; and
- Clause 2C.9.5(a), which specifies how the Real Core Services RAB Portion at the commencement of a Regulatory Cycle, other than the First Regulatory Cycle, will be calculated by rolling-forward the Real Core Services RAB Portion from the immediately preceding Regulatory Cycle.

The proposed new fixed principles terms and conditions are consistent with and supplement the existing fixed principles terms and conditions. They have the same qualifying conditions as the existing fixed principles terms and conditions, and have a notional fixed period extending to the expiry of the SAU in 2040 (the same as the existing fixed principles terms and conditions).

nbn considers that the proposed new fixed principles terms and conditions:

- promote the LTIE and are reasonable;
- will not prevent the ACCC from ensuring that the SAU only contains terms and conditions which promote the long-term interests of end-users and are reasonable; and
- are objectively ascertainable, do not involve discretion and are critical to ensuring long-term certainty of **nbn**'s network investment.

C. Inclusion of the MTM technologies

The Minister's Statement of Expectations to the ACCC,[11] requires the ACCC to work constructively with the Department and **nbn**:

> *on how best to develop a comprehensive regulatory solution on NBN's wholesale pricing that delivers certainty for all stakeholders, including a Special Access Undertaking (SAU) variation to incorporate all of the Multi-Technology Mix networks.*

Consistent with the Minister's expectations, this Variation expands the scope of **nbn**'s price- and product-related commitments including the product development and withdrawal commitments to services delivered over **nbn**'s MTM technologies, being the **nbn**™ Ethernet FTTN, FTTB, FTTC and HFC services.

These commitments promote the LTIE and address the outcomes of the ACCC Working Groups by providing greater regulatory certainty for both **nbn** and RSPs.

D. Clear and robust quality of service framework

nbn understands the importance of robust quality of service measures to RSPs and end-users, as discussed during the ACCC Working Groups. The SAU is one of a number of instruments which together provide for appropriate service standards to be set. As outlined in **nbn**'s SAU Working Group Response Paper, the quality standards (specifically the service levels and associated rebates) agreed in December 2020 in WBA4 (and accepted by the ACCC as promoting the LTIE of broadband consumers[12]), form the factual base on which **nbn** is making a range of other commitments, particularly its Maximum Regulated Prices and price control settings.

Beyond these settings in WBA4, **nbn** has strong incentives to deliver services at efficient prices and at high quality specifications, including owing to the significant demand uncertainty it faces and competition from a range of alternative networks including existing and emerging wireless networks.

A range of detailed commercial and operational considerations inform service standards commitments, including the need for operational co-ordination between RSPs and **nbn** and the rest of the telecommunications supply chain to implement each changed service standard. Due to these detailed considerations (which will evolve over time), **nbn** does not believe that the SAU is the most appropriate vehicle for service standards commitments. Rather, such commitments should continue to be developed by commercial negotiation between RSPs and **nbn** and set out in successive WBAs. **nbn** also acknowledges that its regulatory framework under the CCA contemplates a strong oversight role for the ACCC. This may include the setting of service standards in regulatory instruments to the extent that future commercial negotiations fail to deliver appropriate outcomes.

The SAU plays a complementary role to the WBA in relation to service standards. Accordingly, the Variation includes a recital about service standards and their location in the WBA while also recognising that **nbn** may offer and agree different service standards in access agreements with RSPs, and the ACCC continues to have the ability to regulate service standards unaffected by the recitals contained in the SAU.

Furthermore, to address the expectation that service quality will be maintained and improved over time, **nbn** has introduced Service Standard Improvements as a category into the new cost pass-through regime. This will facilitate the improvement of service standards by commercial agreement with RSPs on the basis that their value

[11] Statement of Expectations issued by the Minister for Communications, Cyber Safety and the Arts to the ACCC on 9 October 2020.

[12] Discussed in the ACCC Final Report, *Inquiries into NBN access pricing and wholesale service standards*, November 2020 and accompanying media statement.

at least equals their cost (which **nbn** will have the opportunity to recover). The ACCC will have a role in determining whether any cost pass-through is reasonable in the circumstances, and therefore whether major service standard improvements should proceed to be implemented where accompanied by material new costs to **nbn**.

D.1 Utilisation management and performance reporting commitments

In recognition of the importance to RSPs and end-users of the reliability and scalability of the **nbn**™ network, particularly with the introduction of AVC-only services, NNI overbooking and utilisation-based billing for CVC TC-4, **nbn** will introduce new commitments in the SAU requiring **nbn** to take corrective measures where utilisation of its shared network resources exceeds a specified threshold.

nbn also commits in the SAU to produce detailed and regular reporting on a wide range of matters relating to the performance of **nbn**'s network, including network capability, congestion, outages, service faults, recurring faults and right first-time installations.

These commitments promote the LTIE and address the outcomes of the ACCC Working Groups. Specifically, an enhanced network utilisation and network performance framework will provide a transparent, clear and robust quality of service framework to ensure that RSPs and end-users know what to expect from **nbn** services and support continued ACCC oversight of **nbn**'s service standards. This will promote the take-up and use of the **nbn**™ network through giving RSPs and end-users confidence and certainty that price changes will reflect the value and performance of the network.

Summary of how the Variation addresses the outcomes of ACCC Working Groups

nbn submits that the Variation addresses each of the five key outcomes that emerged over the course of the ACCC Working Groups.[13]

a. **nbn's revenue requirement:** **nbn** has the opportunity to earn the minimum revenues it needs to meet its legitimate financing objectives, including to transition to a stand-alone investment grade credit rating.

The following changes address this issue:

- Ensuring the new binding revenue cap provides **nbn** with the opportunity to recover an appropriate proportion of the ICRA
- Inclusion of a WACC methodology that produces a stable estimate of **nbn**'s return on capital
- Introduction of a financeability test that ensures that the Core Services ABBRR is adjusted to at least match the revenues that would be required by a hypothetical efficient business in **nbn**'s position to maintain the benchmark credit rating (which is Baa2)

[13] ACCC, *NBN Co Special Access Undertaking – Summary of industry working group outcomes,* 22 December 2021, pp. 6 - 7.

b. **Pricing:** **nbn** end-users are protected from price shocks and from prices that are inefficiently high in later years.

The following changes address this issue:

- Introduction of a binding revenue cap on **nbn**'s Core Regulated Services and constrained, predictable and transparent opportunity to recover the ICRA balance crystallised as at 30 June 2023
- Individual price controls for each **nbn** offer
- Lowering **nbn**'s Maximum Regulated Prices to be more reflective of prices currently being paid by RSPs, with appropriate price controls.
- Introduction of an ex-post capital expenditure review which will complement the SAU's existing processes
- Changes to product terms and the inclusion of MTM technologies
- Introduction of new pricing structures in response to RSP feedback

c. **Incentives on nbn:** The regulatory framework provides incentives for **nbn** to operate efficiently and promote use of the NBN.

The following changes address this issue:

- Introduction of new pricing constructs
- Continued operation of individual price constraints such that **nbn** is only able to achieve the allowed revenue cap by optimising demand
- A binding revenue cap with a risk-sharing unders and overs mechanism that provides **nbn** with strong incentives to maximise demand
- Introduction of an ex-post capital expenditure review which will complement the SAU's existing processes

d. **RSP cost certainty**: **nbn** RSPs have greater certainty over the costs that they will face when using the NBN.

The following changes address this issue:

- Introducing an AVC-only pricing construct for **nbn**™ Ethernet TC-4 services with a bandwidth profile of Home Fast or higher
- Including bundled AVC/CVC offers for lower-speed **nbn**™ Ethernet TC-4 services in the SAU
- Introducing a mechanism to automatically adjust the TC-4 CVC inclusions to reflect changed end-user download utilisation over time
- Enhancing the entry level broadband service to the 25Mbps TC-4 service
- Significantly reducing the price of basic voice only connectivity services
- Introduction of CVC billing based on capacity utilised, rather than ordered in advance
- Discounting restrictions that reduce Maximum Regulated Prices to reflect any material level of price discounting by **nbn**

e. **Quality of service framework:** There is a clear and robust quality of service framework, so RSPs and end-users know what to expect from **nbn** services, including a review mechanism so that service standards remain fit for purpose.

The SAU and WBA work together to provide a clear and robust quality of service framework. **nbn** considers that a commercially negotiated WBA, backed by ACCC oversight, remains the more appropriate vehicle for capturing **nbn**'s service standards commitments with RSPs.

In addition, the following changes to the SAU address this issue:

- Introducing network utilisation commitments and service quality reporting commitments into the SAU
- Incentivising Service Standard Improvements by including a mechanism for related building block costs to be included in **nbn**'s revenue cap

Continuing engagement with the ACCC and stakeholders

In formulating the commitments contained in the Variation, **nbn** has engaged and consulted extensively with the ACCC, RSPs and the Australian Communications Consumer Action Network (**ACCAN**) and other industry stakeholders, including Government, and these engagements and consultations have been valuable to clarify the needs and concerns of stakeholders.

nbn has prepared the Variation to best address the various needs and concerns of industry, including those that emerged over the course of the ACCC Working Groups, to ensure that the Variation commitments are reasonable and promote the LTIE. In so doing, **nbn** has made a number of key concessions and modifications to its proposals discussed during the ACCC Working Groups. The most significant of these concessions and modifications are:

- **New pricing commitments:** Providing significantly improved cost certainty for RSPs, and taking on significant demand risk currently managed by RSPs, by introducing AVC-only pricing, committing to bundle pricing in the SAU, committing to automatic CVC inclusion adjustments for bundle pricing, charging on the basis of utilised rather than acquired CVC capacity, locking in the price of CVC overage with no price increases (even for CPI) to 2040, introducing new individual price controls, and committing to reduce Maximum Regulated Prices if **nbn**'s revenue in a year is more than 5% lower than it would have been without the use of discounts.
- **Revenue controls:** The Variation establishes a binding revenue cap for each Regulatory Cycle based on the Core Services ABBRR and the recovery of a defined proportion of the Core Services ICRA. This ICRA is crystallised at its value as at 30 June 2023, and does not have any future losses added to it, and so does not increase in real terms. In addition to this revenue cap, the Variation includes a revenue control that limits the amount of under recovery that can be carried forward by only allowing 50% of under-recovered amounts in a Regulatory Cycle (relative to the revenue cap) to be carried forward into the revenue cap for the next Regulatory Cycle (and noting that this is matched with a commitment that only 50% of any over-recovery, relative to the revenue cap, will be subtracted from the revenue cap for the next Regulatory Cycle).
- **Enhanced oversight role for the ACCC:** Enhanced regulatory oversight will provide confidence on **nbn**'s expenditure and therefore prices by giving the ACCC the ability to determine the amount of capital expenditure to be rolled into the RAB (and Core Services RAB Portion) at the end of each Regulatory Cycle on an ex-post basis.

- **Increased transparency**: In response to industry and ACCC concerns regarding the potential for a cross-subsidy between **nbn**'s business-grade services and its residential services, **nbn** will commit to enhancements to transparency and regulatory oversight by identifying a portion of the RAB attributable to Core Regulated Services (the Core Services RAB Portion).
- **Approach to depreciation:** In response to ACCC feedback, the method for determining the RAB and Core Services RAB Portion at the end of each Financial Year during the First Regulatory Cycle will be real straight-line depreciation, rather than back-loaded depreciation.
- **Enhanced utilisation and performance reporting:** An enhanced network utilisation and network performance reporting framework that will provide a clear and robust quality of service framework to ensure that RSPs and end-users know what to expect from **nbn** services.

nbn believes that the commitments in the Variation address the needs and concerns of stakeholders and now welcomes the ACCC's public consultation process. **nbn** remains ready and willing to continue its constructive engagement with the ACCC and industry during and following the ACCC's consultation process.

As noted earlier, **nbn**'s proposed commitments are put forward as a single Variation proposal that necessarily balances the needs and concerns of all parties, and enables **nbn** to remain a sustainable commercial enterprise that can continue to implement government policy.

2 Introduction

This Variation covers four key areas:

1. new pricing constructs and enhanced price controls;
2. revenue control measures;
3. inclusion of the MTM technologies; and
4. clear and robust quality of service framework.

As part of this Variation, **nbn** is also lodging with the ACCC a RMA in respect of the First Regulatory Cycle (FY24 and FY25). Further detail in respect of **nbn**'s RMA is set out in chapter 17.

Chapter 7 details how the proposed changes, both individually and as a package, address the concerns of RSPs and the ACCC; in particular it addresses the five key outcomes identified by the ACCC in its *Summary of industry working group outcomes* paper released in December 2021.

Chapter 9 focuses on the extent to which the Variation satisfies the relevant statutory criteria. The table at section 9.2 describes each of the proposed changes that make up **nbn**'s Variation and the benefits of each change, including how they contribute to the LTIE and why the change is reasonable.

2.1 Structure of submission

The submission consists of three parts:

- Part A provides an overview of **nbn**'s mandate and the role and purpose of the SAU in fulfilling that mandate. It also provides a detailed overview of the Variation and the extent to which the Variation has been informed by industry consultation and engagement with the ACCC. Part A also details the reasons why the Variation should be accepted by the ACCC, having regard to the relevant Statutory Criteria.
- Part B of the submission comprises:
  - 11 chapters which provide a detailed explanation of **nbn**'s proposed changes in respect of pricing, revenue controls, service quality commitments, service level reporting, the future role of the ACCC and Module 1 commitments being carried over;
  - **nbn**'s Replacement Module Application for the period FY24 and FY25 (see chapter 17); and
  - two chapters which discuss the legislative framework for assessing the Variation and proposed new fixed principles terms and conditions.
- This submission includes a number of technical appendices and attachments, comprising:
  - Appendix A: Decision not to adopt a WAPC;
  - Appendix B: a detailed explanation of **nbn**'s expenditure forecast for the Replacement Module period;
  - Appendix C: a detailed explanation of **nbn**'s demand forecast for the Replacement Module period;
  - Attachment 1: a detailed report on **nbn**'s WACC methodology prepared by Frontier Economics (in consultation with **nbn**) (**Frontier WACC Report**); and
  - Attachment 2: a detailed report on whether **nbn** will face incentives under the key revenue and price control aspects of the Variation prepared by Frontier Economics (**Frontier Efficiency Incentives Report**).

2.2 Supporting materials

In support of this Variation, **nbn** may provide additional material including expert reports relevant to **nbn**'s Variation.

nbn also relies on additional reports submitted in relation to the original SAU and subsequent proposed variations. The following reports prepared by independent experts from Australia, the United Kingdom and the United States supported **nbn**'s SAU as accepted in 2013:[14]

- Professor Janusz Ordover and Dr Allan Shampine (**Ordover and Shampine**): high level design of the SAU (including the 30 year term, modular structure and regulatory recourse arrangement in Module 1), the nature and strength of incentives for investment, expenditure efficiency, pricing, product development and withdrawal, service quality, and engagement with Customers on non-price terms, and the significance of **nbn**'s wholesale-only status and its broader context to simplifying the task of developing appropriate long-term regulatory arrangements;
- Synergies Economic Consulting (**Synergies**): the efficiency of many of the specific mechanisms set out in the SAU including the various elements of the LTRCM and pricing commitments;
- Professor Bob Officer and Dr Steven Bishop (**Officer and Bishop**): the specification of the WACC approach included in Module 1 (and associated tax treatments) and also the WACC principles set out in Module 2 for use in the subsequent 20 years of the SAU; and
- Analysys Mason: addressing the prudency and efficiency of the initial design of **nbn**'s fibre, wireless and satellite networks.

The following reports supported **nbn**'s proposed SAU variations submitted in 2016 and 2017:

- Ordover and Shampine: assessment of whether MTM access technologies altered views of the 2012 Ordover and Shampine report, and specific consideration of **nbn**'s pricing incentives and efficiency;[15]
- Officer and Bishop: assessment of WACC approach and cost of capital principles in relation to MTM access technologies; and
- Analysys Mason: addressing the prudency and efficiency of the initial design of **nbn**'s FTTB, FTTN and HFC networks, and **nbn**'s network selection methodologies and processes.

In preparing this Submission, **nbn** has sought to comprehensively address all relevant issues. While noting that the ACCC may request further information from **nbn** at any time throughout its assessment process, **nbn** may also lodge further submissions, expert reports and other information if it considers this may be useful.

[14] These reports accompanied the SAU that was submitted in 2012. While the SAU was subsequently varied in response to a direction from the ACCC and accepted in 2013, these reports remain relevant to the accepted SAU and this Variation.

[15] Two Order and Shampine reports were submitted, with an initial report in support of the proposed 2016 SAU variation and a supplementary report submitted in support of the amended 2017 SAU variation.

3 nbn mandate, regulatory framework and commercial settings

3.1 Mandate and regulatory framework applicable to nbn

Established as a GBE in 2009, **nbn** has designed, built and now operates the national broadband network as a wholesale-only provider, on an open-access basis.

nbn's mandate, set through the Federal Government's SOE, includes expectations that it will maximise the economic and social benefits of the **nbn**™ network and, within legal parameters, operate as a sustainable, commercial business generating sufficient revenue to support investment in the network to meet the current and future needs of Australians.

All of **nbn**'s eligible services are declared services and subject to a standard access obligation to supply services on non-discriminatory terms. **nbn**'s SAU is a key part of the regulatory framework that governs price and other terms on which **nbn** supplies services over the **nbn**™ network to its wholesale customers.

Designed with a modular structure, the more detailed terms of the SAU apply for the first ten years (the Initial Regulatory Period and roll-out phase) and a set of higher-level principles apply for the remainder of the SAU term (the Subsequent Regulatory Period).

As **nbn** approaches the end of the Initial Regulatory Period, the SAU requires **nbn** to lodge RMAs every three to five years. A key part of each such application will be the financial forecasts for the upcoming Regulatory Cycle.

nbn was established in 2009 for the purpose of designing, building and operating a national wholesale broadband access network (the **nbn**™ network) to provide high-speed broadband services to Australian homes and businesses at least cost. **nbn** has been engaged in that activity for some 10 years.

nbn is wholly owned by the Commonwealth of Australia and is incorporated under the *Corporations Act 2001* (Cth). As a GBE, **nbn** is operated in accordance with the *Public Governance, Performance and Accountability Act 2013* (Cth) and is subject to a high degree of Parliamentary scrutiny (e.g., the Senate Standing Committees on Environment and Communications).

As a wholesale-only, open-access broadband network, **nbn** supplies its services to retail phone and internet service providers (**RSP**s), who then incorporate these wholesale services into their retail broadband products for supply to end-users. The structural separation of **nbn** from RSPs is achieved by the *National Broadband Network Companies Act 2011* (Cth) (**NBN Companies Act**),[16] which limits **nbn** to being a wholesale-only entity. As a result, **nbn** is entirely dependent on RSPs as a channel-to-market, and is therefore incentivised to support RSPs, promote competition downstream and facilitate access to the **nbn**™ network. **nbn** is therefore incentivised to continue to invest in its network and to price at levels that maximise demand for **nbn**'s services.

nbn's mandate is set through applicable SOEs. The current SOE, dated 26 August 2021, sets out the objectives and service expectations to guide **nbn** in its transition to its fully operational phase, and to ensure that **nbn**'s strategic direction remains aligned with the Government's objectives for **nbn**. These include the Government's policy

[16] NBN Companies Act, s 9.

objective of maximising the economic and social benefits of the **nbn**™ network, and for **nbn** to operate as a sustainable, commercial business which will utilise available funds to add to shareholder value, targeting ongoing improvements in its return on investment.[17] Within legal and policy parameters, the SOE provides that **nbn** should generate sufficient revenue to support appropriate levels of investment in the network to meet the current and future needs of Australians, wherever they live.[18]

nbn's key service expectation under the SOE is to continue to be a wholesale-only access network that is available to all access seekers. **nbn** is the default Statutory Infrastructure Provider (**SIP**) for all of Australia and, where it is the SIP, it must meet legal obligations,[19] including to connect a premises to the **nbn**™ network and to provide minimum service speed and network performance requirements. As the SIP for Australia,[20] **nbn** has an obligation to connect a premises to the **nbn**™ network upon reasonable request from a RSP (on behalf of a customer), subject to some legal, environmental and technical limitations. It is also required to support the roll-out of telecommunications in new developments, and associated rules requiring developers to provide 'fibre ready facilities' in each building unit or lot in a new real estate development.

Within its capital constraints, **nbn** is required to continue to upgrade the network technologies to support RSPs to meet demand from end-users which exceeds these minimum requirements, including implementing current plans to expand access to peak download speeds of up to 1Gbps.[21]

nbn is subject to a high degree of regulation (or the threat of regulation). This includes regulation under the CCA, where Parts XIB and XIC deal respectively with anti-competitive conduct and access. Part XIC establishes a regime for access to telecommunications services. All of **nbn**'s eligible services are declared services under Part XIC and this part provides for a 'hierarchy of instruments' for the provision of telecommunications services: s 152AA. This hierarchy is shown in Figure 1 below.

These access instruments, in order of precedence from highest to lowest, are:

- Access Agreements, which are commercial contracts between the access provider (for **nbn** declared services) and an access seeker that set out commercially negotiated terms and conditions of supply: s 152BE;
- Special Access Undertakings (**SAUs**) given by the access provider and accepted by the ACCC, which are documents given by the access provider proposing the terms and conditions on which it will offer access to its services: s 152CBA;
- Binding Rules of Conduct (**BRoCs**), which are written temporary rules made by the ACCC in relation to the supply of a declared service, where there is an urgent need to make such rules, specifying any or all of the terms and conditions for compliance with any or all of the SAOs in Division 2 of Part XIC of the CCA, or specifying a manner in which a service provider is to comply with the SAOs: s 152BD; and
- Access Determinations (**ADs**), which are written determinations made by the ACCC relating to access to a declared service, which may specify any or all of the terms and conditions for compliance with any or all of the SAOs, or any other terms of access: s 152BC.

[17] Statement of Expectations issued to **nbn** on 26 August 2021.

[18] Statement of Expectations issued to **nbn** on 26 August 2021.

[19] *Telecommunications Act 1997* (Cth), Part 19.

[20] Except in those geographic areas where an alternative network carrier has been declared the SIP.

[21] Statement of Expectations issued to **nbn** on 26 August 2021.

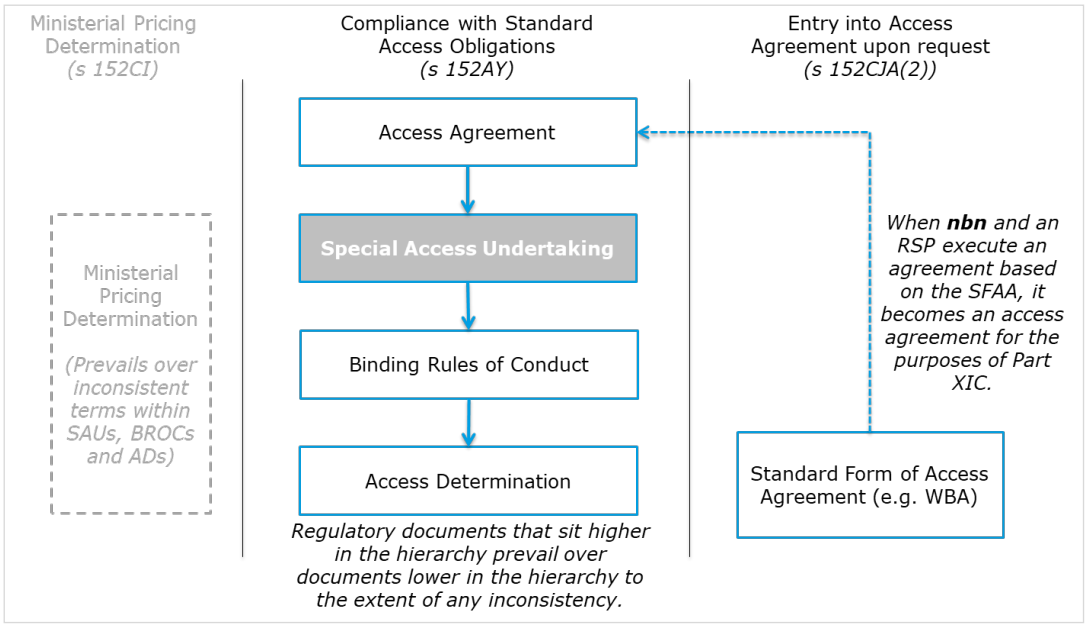

Figure 1. Order of precedence of regulatory documents applicable to nbn under Part XIC of the CCA – which gives primacy to access agreements, i.e., commercially negotiated outcomes.

The regulatory framework favours commercially negotiated Access Agreements. That is, any terms made by the ACCC (or set out in the SAU) are intended to operate as a 'fall back' that parties can rely on if they are unable to otherwise reach an agreement.

The commitments in the SAU complement the existing WBA commitments to ensure that RSPs and end-users know what to expect from **nbn** services, and to achieve an appropriate balance between regulatory certainty and commercial responsiveness for RSPs, end-users and **nbn**.

3.2 nbn's commercial context

Consistent with Government policy objectives at the time, **nbn**'s initial pricing was set to encourage take-up and to provide affordable broadband priced on a uniform basis, rather than being set to recover prudent and efficiently incurred costs. This combined with the inherent time lag between network construction and take-up of the network reaching maturity, resulted in **nbn** under-recovering its prudently incurred costs to date.

It is these policy imperatives that have led to the large ICRA. Recognising these matters, the ICRA is a fixed principles term. It is not reflective of inefficiency and should not be considered as something to be written off or ignored in the future.

nbn pricing and products continue to maximise the take-up and use of the **nbn**™ network. This is reflected in a two-part tariff structure, including a low fixed entry price point and escalating bandwidth inclusions for higher speed tiers. It is also reflected by **nbn**'s ongoing development of new products, including the development of products to support the premium residential, business and enterprise markets.

nbn faces significant, varying levels of competition from established and new entrant fixed and wireless infrastructure providers in a number of market segments, including brownfield residential, enterprise, business and new developments markets.

The Variation facilitates a consistent approach to regulation of the additional MTM technologies, providing end-users and RSPs with clear and consistent commitments from **nbn**, and extending the long-term benefits for industry afforded by the SAU.

3.2.1 nbn's initial approach to pricing

As noted above, the upfront investment required to roll-out the **nbn**™ network has been very significant. Like any regulated utility, **nbn** should have the opportunity to recover its efficiently and prudently incurred costs, including a return on capital.

The approach **nbn** initially took to the level and structure of its prices and regulatory settings was informed by the policy and commercial factors at play at the time, including:

- the Federal Government's desire to address the lack of high-speed broadband in Australia and reshape the telecommunications sector;[22]
- the Federal Government's expectation that **nbn** would achieve uniform national wholesale pricing and recognise the importance of maintaining affordability to drive take-up rates; and
- **nbn**'s expectation that it would have the opportunity (but not the guarantee) to recover its upfront fixed costs, including an appropriate rate of return, over the term of the SAU.

In this context, **nbn** did not develop individual prices to reflect the underlying costs of each product component, speed tier or access technology. Instead **nbn**'s initial pricing, which is set out in the SAU, was designed to allow RSPs to provide a smooth transition for end-user customers to the **nbn**. In particular, many of the prices for **nbn**'s key entry-level services were established by reference to equivalent legacy services in market at that time (in particular, the price of ADSL2+ services), rather than by reference to their underlying costs. As **nbn** noted in 2012:[23]

[22] See, for example, the Joint Standing Committee on the National Broadband Network, *Rollout of the National Broadband Network –First Report*, 31 August 2011, section 2.1.

[23] **nbn**, *Supporting Submission - NBN Co Special Access Undertaking*, 28 September 2012, p. 113.

> *… initial prices (which are then subject to the CPI-1.5% Individual Price Increase Limit for the remainder of the SAU) have been struck to facilitate migration from the legacy networks to the NBN rather than to achieve cost recovery at as fast a rate possible*

nbn also adopted a "user pays" model and developed a two-part (AVC/CVC) usage-based pricing structure. Initial Maximum Regulated Prices were also included in the SAU.

This initial approach to pricing means that, to date, **nbn** has under-recovered its prudently incurred costs, with the SAU providing the opportunity to recover those costs (including an appropriate rate of return) over time. This has two important consequences for **nbn**'s future pricing proposals and SAU arrangements:

- **nbn**'s prices are currently below cost recovery levels, meaning that any future price reduction would be inefficient and would be inconsistent with the LTIE; and
- despite pricing its services at below cost recovery levels, a fundamental feature of the SAU, as accepted by the ACCC, is that **nbn** would have the opportunity to recover its prudently incurred costs, including an appropriate rate of return, over the term of the SAU. This is reflected in the fixed principles terms and conditions in respect of the RAB and the ICRA. **nbn** has indicated that it is willing to take a pragmatic approach to the ICRA, proposing to constrain recovery of the ICRA during the term of the SAU. While **nbn** is willing to provide greater certainty and transparency about the rate at which it will recover the ICRA, and do so over a longer period of time than provided for in the current SAU, it would be inappropriate for **nbn** to agree to any write down of either the ICRA or the RAB.

3.2.2 nbn's demand-responsive pricing proposals are reasonable and appropriate

As the ACCC acknowledged in 2013, the scale of the **nbn** rollout was unprecedented. It has involved, and continues to involve, a substantial investment through capital (and operating) expenditure which **nbn** has prudently incurred in accordance with the specified rules in the SAU regarding network design and procurement.

Since the original policy settings, market developments and changes in policy mean that **nbn** has faced, and will continue to face, significant demand-side risks and revenue sufficiency risks (that is, the risk that its revenue from access charges may not cover the costs it incurs).

nbn faces significant competition in the enterprise, business, and new developments markets from existing infrastructure providers, and also faces increasing competition from 4G, 5G and fixed wireless services in the residential market. The fact that almost one in three households (approximately four million out of 12 million premises passed by the **nbn**™ network[24]) is not using the **nbn** today, despite a mandatory disconnection and massive migration program, illustrates the dynamic and competitive nature of the telecommunications sector. Recent examples of this include:

- Telstra has rapidly expanded its 5G network, transitioning from covering approximately one third of the Australian population in August 2020, to covering 75% of the Australian population in June 2021. Telstra started the initial 5G rollout across major cities and is now concentrating its efforts to extend this out to

[24] National Broadband Network – Rollout Information. Weekly report by **nbn** for the week ending 3 March 2022. Access: https://www.nbnco.com.au/content/dam/nbn/documents/about-nbn/weekly-progress/Public_Progress_data-03032022.pdf.

suburbs, regional centres and rural areas. In the six months leading up to the 75% population milestone, Telstra switched on 5G services in more than 100 regional towns and cities.[25]

- Optus, Telstra and TPG position their 5G service offerings as **nbn** comparable and market their 4G/5G network services as a substitute for an **nbn** fixed line service. For example, both Vodafone and TPG highlight their 4G/5G offerings as "Our fast alternative to the **nbn**™" [26] and a "Great value alternative to the **nbn**™" [27] respectively.
- Telstra, TPG and Optus have been proactively migrating end-users off the **nbn**™ network on to their fixed wireless and 5G networks – in particular, voice-only and lower speed tier customers. For example, TPG recently reinforced its intent to more than double its fixed wireless base in 2022**,** in its FY21 year-end results announcement.[28] Further, at Telstra's Investor Day in November 2021, Telstra Group Executives stated, "it is feasible to offer a fixed wireless access service… to about 10-15% of the broadband market".[29] Telstra has 2.3 million 4G fixed wireless modems in **nbn** homes across Australia. This is approximately 20% of **nbn**'s total connections.

The extent of competition and substitution risk means that **nbn** faces substantial revenue sufficiency risk. The consequence of this is that **nbn** faces the risk of being unable to generate sufficient cashflows to sustain its business and continue to invest in the network to meet its policy obligations and the needs of end-users.

Unlike standard utilities with inelastic demand, **nbn** cannot maximise its profitability by rebalancing its fixed and variable price components or increasing prices without affecting demand. If **nbn** were to increase its fixed charges and reduce variable price components on lower-speed tiers, this would significantly increase the risk of low-usage end-users switching away from the **nbn**™ network to viable alternative platforms, such as mobile broadband. Price increases would increase the incentives for RSPs to offer those alternative services, where they have the ability to do so, and would undermine the efficiency of **nbn**'s pricing for higher usage end-users, who derive greater value from its services, and hence have a greater willingness to pay.

Additionally, as noted in section 3.1, **nbn** is the default SIP under the *Telecommunications Act 1997* (Cth) (**Telecommunications Act**) and is subject to Category B SAOs to supply eligible services on request, meaning **nbn** cannot refuse to connect premises to the **nbn**™ network to reduce its costs. Furthermore, the charges that **nbn** can levy on developers for rolling out broadband infrastructure in new developments is capped as set out in the Government's Telecommunications in New Developments Policy. Hence, **nbn** is unable to reduce its incremental investments and sweat existing assets in the face of growing competition or increasing network substitution.

Rather, **nbn** is incentivised, wherever a commercial business case exists, but subject to capital budget constraints and sufficient regulatory certainty, to invest in improvements in the quality of its services, in order to compete to attract and retain customers on its network.

If infrastructure providers perceive demand-side and revenue risks to be significant, the incentives for providers such as **nbn** to act efficiently when investing in and operating its network will be greater.[30] The large-scale nature

[25] Telstra, *Telstra announces 75 per cent coverage in major 5G rollout milestone – Media Release,* June 2021. Access: https://www.telstra.com.au/aboutus/media/media-releases/telstra-5g-coverage-announcement.

[26] See: https://www.vodafone.com.au/home-internet/5g (accessed 15 March 2022).

[27] See: https://www.tpg.com.au/home-wireless-broadband (accessed 15 March 2022).

[28] TPG, *Results for Full Year Ended 31 December 2021*, p. 2.

[29] Telstra, *Investor Day Transcript*, November 2021, pp. 9, 30.

[30] Final 2013 Decision, p. 95.

of the investment and the significant losses made in the construction phase also significantly influences **nbn**'s incentives to ensure that it migrates end-users to, and retains end-users on, the **nbn**™ network, particularly given this demand-side uncertainty.

In summary, the revenue sufficiency risk faced by **nbn** provides it with strong commercial incentives:

- to continue to invest in its network and to price at levels that maximise demand for **nbn**'s services;
- to develop new products to drive the take-up and use of the **nbn**™ network; and
- to only incur costs that it has a high degree of confidence that it can recover over the lifecycle of **nbn**'s network and service offerings.

Over the current Corporate Plan period 2022-2025, **nbn** will continue to invest in the next evolution of the **nbn**™ network. These investments will increase the nation's access to the technologies and infrastructure that will underpin Australia's transition to a smarter, digitally-enabled economy. Last year, **nbn** unveiled the next phase of investment in the **nbn**™ network: a $4.5 billion commitment to make the highest **nbn** wholesale speed plans available in more areas across Australia and to advance the capability, reach and value of this critical asset for the nation.[31] This commercial network investment plan has three components:[32]

1. network upgrades to make **nbn**'s highest wholesale speed plans available, as demand arises, to up to 75% of households and businesses in the fixed-line network by 2023 (and up to 68% in the total network);
2. a package of initiatives to collaborate with industry to help deliver enhanced digital capabilities for businesses across Australia supporting innovation, productivity and growth; and
3. the creation of a dedicated fund to co-invest with governments or local councils to continue to enhance broadband services for Australia's regional and remote communities.

This investment plan is consistent with the SOE that, among several objectives, directs **nbn**, within its capital constraints, to upgrade the network to meet end-user demand (including implementing current plans to expand access to peak download speeds of up to 1Gbps).

3.2.3 Overview of nbn access technologies

nbn supplies broadband access services of different speeds using a mix of access technologies primarily through the **nbn**™ Ethernet product. This product has both residential and business-grade functionality.

The **nbn**™ Ethernet product is supplied to RSPs subject to terms and conditions set out in Access Agreements which are bilateral in nature. In compliance with **nbn**'s non-discrimination obligations (**NDOs**), those agreements reflect a standard form of access agreement (**SFAA**) published on **nbn**'s website (the WBA). The WBA sets out price and non-price terms relating to the supply of **nbn**™ Ethernet (and other **nbn** access services). These bilateral agreements between **nbn** and RSPs constitute "access agreements" within the meaning of section 152BE of the CCA.

The **nbn**™ Ethernet product is supplied by means of an MTM model comprising the connections set out in Table 1.[33]

[31] **nbn**, *Corporate Plan 2022*, pp. 6, 13.

[32] **nbn**, *Corporate Plan 2022*, pp. 6, 13.

[33] See: https://www.nbnco.com.au/learn/network-technology (accessed 17 March 2022).

Table 1. nbn's multi-technology mix model

Connection	Description
Fibre to the premises (FTTP)	A fibre optic line is run from the nearest available fibre node directly to the premises.
Fibre to the building (FTTB)	Generally used when connecting an apartment block or similar types of buildings to the **nbn**™ network. In this scenario, a fibre optic line is run to the fibre node in the building's communications room, and then the existing wiring in the building is used to connect each apartment to the network.
Fibre to the node (FTTN)	Existing copper network is used from a nearby fibre node to make the final part of the connection to the **nbn**™ network. The fibre node usually takes the form of a street cabinet. Each street cabinet allows the **nbn**™ network signal to travel over a fibre optic line from the exchange, to the cabinet, and connect with the existing copper network to reach the end-users' premises.
Fibre to the curb (FTTC)	Used in circumstances where fibre is extended close to the premises, connecting to a small Distribution Point Unit (**DPU**), generally located inside a pit on the street. From here the existing copper network is connected to the fibre to form the final connection to the **nbn**™ network.
Hybrid fibre coaxial cable (HFC)	Used in circumstances where the existing 'pay TV' or cable network can be used to make the final part of the **nbn**™ network connection. In this circumstance, signal is carried via coaxial cable from the nearest available fibre node to the premises.
Fixed wireless	Utilises data transmitted over radio signals to connect a premises to the **nbn**™ network. This connection is typically used in circumstances where the distance between premises can be many kilometres.
Sky Muster™ satellite	Delivers the **nbn**™ network to homes and businesses in regional and remote Australia, via two **nbn** owned satellites.

The **nbn**™ network rollout was originally envisaged to reach 93% of premises with FTTP technology by the end of the rollout period, with the remaining 7% to be served by fixed wireless and satellite,[34] and the existing SAU was accepted by the ACCC on that basis at that time. As such, the product and price provisions of the existing SAU apply to FTTP, fixed wireless and satellite products supplied over the **nbn**™ network.

Since 2014, the **nbn** has used the MTM model to deliver national broadband coverage for the benefit of all Australians.

Services supplied over **nbn**'s FTTN, FTTB, FTTC and HFC technologies do not fall within the scope of the existing SAU service descriptions. However, the prudently incurred costs of rolling out these networks are reflected in **nbn**'s RAB and LTRCM in accordance with the 'Module 1' provisions of the SAU. Despite this it has been **nbn**'s practice to date to supply services over these technologies at the same price, using the same price controls, and following the same processes for product development (and potentially for subsequent product withdrawal) as those set out in the existing SAU.

[34] Statement of Expectations issued to **nbn** on 20 December 2010.

4 An overview of the SAU

4.1 Scope of the SAU

nbn's SAU is a key part of the regulatory framework under which **nbn** has operated since 2013.

Designed with a modular structure, the more detailed terms apply for the first ten years (the Initial Regulatory Period and rollout phase) and a set of higher-level principles apply for the remainder of the SAU term (the Subsequent Regulatory Period).

As **nbn** approaches the end of the Initial Regulatory Period, the SAU requires **nbn** to lodge RMAs every three to five years. A key part of each such application will be the financial forecasts for the upcoming Regulatory Cycle.

nbn's SAU is a key part of the regulatory framework designed to meet the following objectives:

- support the delivery of Government policy objectives for **nbn**;
- enable a sustainable and competitive retail environment;
- support efficient use of the network;
- support continued efficient investment to lift the digital capability of Australia;
- provide **nbn** with the opportunity to recover efficiently incurred costs; and
- provide **nbn** with the flexibility to respond to market dynamics.

The SAU covers Layer 2 access services provided over **nbn**'s Fibre, Fixed Wireless and Satellite networks; ancillary services that facilitate the supply of those services, and sets out the terms and conditions on which **nbn** will make the Facilities Access Service available to access seekers. The acceptance of the SAU followed a multi-year engagement between **nbn**, the ACCC, RSPs and other stakeholders to ensure it provided appropriate regulatory settings for the rollout of the **nbn**™ network and access to the services provided over the network.

nbn has operated under the terms of the SAU since its acceptance in December 2013.

In summary, the SAU:

1. Establishes Maximum Regulated Prices for all products covered by the SAU, and places controls on how those prices can change over time, which includes that each individual price for these products can increase by no more than CPI-1.5% in any year, on a "use it or lose it" basis.
2. Sets out the processes that **nbn** must follow for product development, modification and withdrawal.
3. Defines the processes that **nbn** must follow in order to include capital expenditure in its RAB; to include operating expenditure in the determination of the ABBRR; and the mechanisms by which **nbn** calculates its initial losses and is provided the opportunity to subsequently recover them as revenues increase.

4.2 Structure of the SAU

The SAU has a modular structure, which specifies certain terms in detail for the first ten years of its operation, with others to be established via the lodgement of "Replacement Modules" that apply from FY24 onwards, with

certain other terms continuing for the full term of the SAU as specified in Module 2 of the SAU. A high-level overview of its modular structure is shown in Figure 2 below.

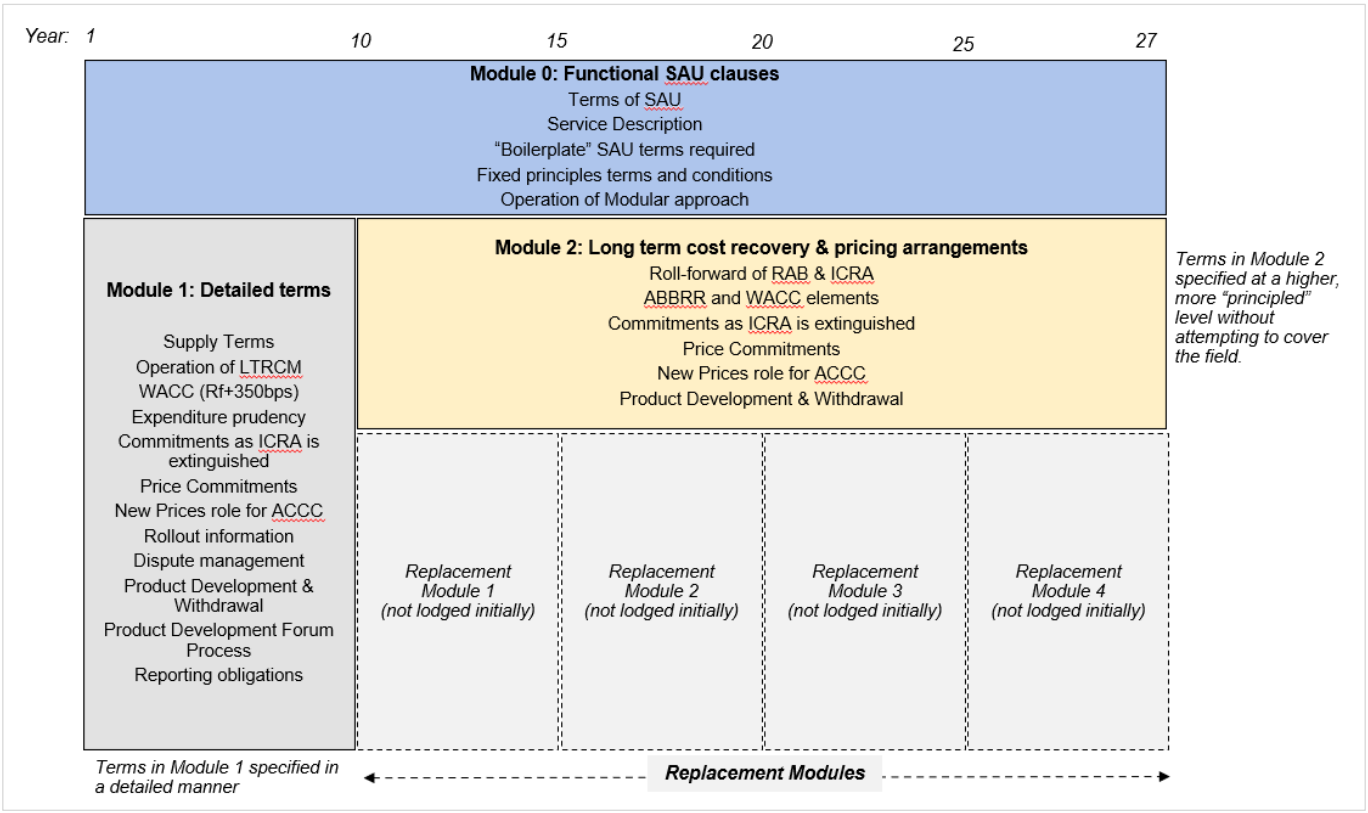

Figure 2. Overview of the modular structure of the current SAU

The SAU also specifies fixed principles terms and conditions which endure for the full term of the SAU, including that the opening values of the RAB and the ICRA in each forthcoming Regulatory Cycle are to be equal to the closing values of the RAB and the ICRA in the immediately prior Regulatory Cycle.

For the duration of Module 2, the SAU requires **nbn** to develop and lodge Replacement Modules as variations to the SAU and to nominate the length of each Replacement Module, which may be a period of three, four or five years. Each Replacement Module specifies the key elements of the SAU, such as the calculation of **nbn**'s regulatory cost base on a forward-looking basis and forecasts of expenditure and regulated revenue, consistent with principles set out in the SAU.

Under the terms of the SAU, the ACCC must consult on and consider each of **nbn**'s proposed RMAs, and either accept **nbn**'s proposal or issue its own Replacement Module determination prior to the commencement of Module 2. More detail on the Replacement Module process is set out in chapter 16.

5 The role of the Statement of Expectations

5.1 Statement of Expectations issued to the ACCC

The importance of a revised SAU for providing continued certainty to the industry was reflected in the Statement of Expectations issued by the Minister for Communications, Cyber Safety and the Arts (**Minister**) to the ACCC on 9 October 2020 (the **ACCC SOE**).[35]

The ACCC SOE provides that:

- the ACCC should work constructively with **nbn** and the Department of Communications on how best to develop a comprehensive regulatory solution to wholesale pricing that delivers certainty for all stakeholders, including an SAU variation to incorporate all of the multi-technology mix networks;
- in developing an agreed SAU variation with **nbn**, the ACCC could have regard to the recommendation of an independent review in 2014 that the ACCC should use a "building block" cost model;
- work could begin on such a model immediately in accordance with the framework under the SAU and the ACCC could include **nbn** technologies not currently covered by the SAU in this building block cost model; and
- the cost model could be based on **nbn**'s actual prudently incurred costs in accordance with the methodology set out in the existing SAU.

In December 2020, the ACCC published a Statement of Intent in response to the Minister's Statement of Expectations regarding the ACCC's telecommunications functions and powers,[36] which stated that:

- the ACCC would continue to work closely with **nbn** and the Department of Communications, including in developing a comprehensive regulatory framework for the **nbn** (including developing options for a variation to the SAU to include all **nbn** access technologies);
- this work would complement the formal assessment and consultation processes the ACCC is required to follow for variations to the SAU; and
- the current SAU includes core elements of the building block model, which was designed to account for **nbn**'s changing operating environment over time and which the ACCC would have regard to in its discussions with **nbn** and the Department of Communications, and in its formal assessment of any future variation of the SAU.

[35] Statement of Expectations issued by the Minister for Communications, Cyber Safety and the Arts to the ACCC on 9 October 2020.

[36] Statement of Intent – Telecommunications-related functions issued by the ACCC in December 2020.

6 Industry consultation

nbn has engaged and consulted extensively with stakeholders while planning for, and drafting, the Variation. The Variation has benefited from stakeholder consultation, particularly the ACCC Working Groups. **nbn** has sought to draft the Variation to reflect the various needs and concerns raised by stakeholders, while also promoting the LTIE.

In preparing the Variation, **nbn** has engaged and consulted extensively with the ACCC, RSPs, ACCAN and other industry stakeholders. These engagements and consultations have been highly valuable. **nbn** has sought to draft the Variation to best address the various needs and concerns of industry, including the five key outcomes that emerged over the course of the ACCC Working Groups, (described further below) and to ensure that the Variation promotes the LTIE. The extent and nature of this engagement is set out below.

6.1 Consultation prior to lodging Variation

nbn has undertaken extensive consultation regarding the Variation over the past 12 months, commencing with the 2021 pricing consultation and continuing with **nbn**'s SAU Discussion Paper and ACCC Working Groups.

6.1.1 Pricing consultation

In February 2021 **nbn** commenced the 2021 pricing consultation. This was the latest in a series of pricing consultations undertaken by **nbn** focused on continued improvement for RSPs, end-users and **nbn**. The 2021 consultation was intended to:

1. enhance short term pricing certainty through a new 24-month Traffic Class 4 (**TC-4**) Bundles Discount Roadmap and a review of the SAU Price for TC-4 CVC; and
2. commence a review of longer-term considerations for **nbn**™ Ethernet charges (including TC-1, TC-2, support for the low-income segment, optimisation of billing cycles and evolving **nbn**'s long-term wholesale TC-4 pricing).

The consultation presented RSPs with two alternative pricing options: (1) the first option involved higher fixed charge and significantly improved bundled inclusions; (2) the second option offered marginal inclusion improvements with no fixed charge increase. Overwhelmingly RSPs reacted negatively to the first option with a preference for the second. Consequently, in closing that consultation **nbn** committed to increase CVC inclusions without an increase in the TC-4 bundle effective charges for most wholesale speed tiers – a further RSP favourable pricing change. The consultation paper also highlighted two common industry requests:

1. to reduce the commercial risk to RSPs from overage charges in the event of higher than expected usage growth; and
2. to explore opportunities to reduce the effort of CVC management.

nbn's initial consideration of a soft cap to address these concerns, was superseded as the pricing consultation transitioned into **nbn**'s SAU discussion paper and the ACCC Working Groups.

6.1.2 SAU Discussion Paper

In June 2021, **nbn** released a discussion paper regarding proposed amendments to the SAU to facilitate engagement with industry and consumer advocacy groups on key changes to the SAU that **nbn** proposed to

submit to the ACCC.[37] The changes proposed in the paper included updating the SAU to expand its scope to cover the MTM networks (which now include FTTN, FTTB, FTTC and HFC), as well as specifying options to evolve wholesale broadband pricing for the future to address feedback from the industry. In this context, the paper also continued the aspect of the wholesale pricing consultation relating to the long-term pricing construct and levels that **nbn** commenced with industry in February 2021. The discussion paper included analysis that **nbn** commissioned consulting firm Accenture to conduct to address end consumer benefits associated with different pricing constructs.[38] The analysis concluded that moving to a one-part tariff across all speed tiers (described as "AVC-only" and involving the removal of separate charging for CVC) would adversely impact low data usage end-users and result in fewer such end-users using services provided over the **nbn**™ network.

In addition to the categories of change identified above, **nbn** sought feedback from RSPs and consumer advocacy groups regarding other areas of the SAU that should be considered as part of the variation. **nbn** welcomed feedback to this discussion paper, with these issues subsequently being considered in further detail under the ACCC Working Groups.

6.1.3 ACCC industry roundtable and working groups

In late June 2021, the ACCC released a framing paper to help guide industry discussion through a collaborative process regarding **nbn**'s SAU variation via an industry roundtable and series of workshops.[39] The working groups, which commenced in August 2021 and continued until December 2021, were convened according to three streams:

- **nbn Product and Pricing Working Group:** This working group considered **nbn**'s products and pricing, price structure, individual price controls and associated economic controls. In relation to pricing and price structure, a key focus of this group was whether it is appropriate for CVC to remain part of the **nbn**™ Ethernet product construct and the associated charges. In relation to the economic controls which should apply to **nbn**, a key focus of discussion was whether it was appropriate for the current SAU revenue control to continue under a varied SAU or whether a movement to a WAPC would be appropriate having regard to **nbn**'s circumstances and the broadband market.
- **nbn Building Block Model Working Group:** This working group was primarily concerned with discussing **nbn**'s revenue control and development of a BBM. Key areas of focus included the application and use of the BBM model (e.g., whether the BBM should play a role in deriving prices), treatment of different sources of costs and revenues (i.e., the treatment of Core Regulated Services versus Competitive Services under the BBM), the elements of the BBM and associated regulatory reset process, and the treatment of accumulated losses.
- **nbn Regulatory Framework Working Group:** This working group considered the nature and content of the regulation model to be adopted under the varied SAU (e.g., propose-respond regulation common to utility industries, the role of the ACCC in the regulatory reset process, the length of Regulatory Cycles), the interaction between price and revenue constraints with product quality / specification (e.g., the role of service levels and network performance reporting under the SAU), the relationship between the SAU and the WBA, and dispute resolution.

[37] **nbn**, *RMID1064 – **nbn** Special Access Undertaking Variation 2021 – Discussion Paper*, June 2021.

[38] **nbn**, *The **nbn**™ Network Wholesale Pricing Review – Moving to a fixed price wholesale pricing model: Risks for low data users*, May 2021.

[39] ACCC, *ACCC industry roundtable on regulatory arrangements under NBN Co's special access undertaking – industry roundtable summary,* June 2021.

In addition to the ACCC summary of the Working Groups, **nbn** provided a response paper to the working group members in December 2021 detailing how **nbn** intended to address the key issues considered. The discussions and outcomes of the ACCC Working Groups have played a critical role and informed the key commitments that constitute **nbn**'s Variation (summarised in chapter 7 below).

6.2 nbn's approach to the Variation following engagement with the ACCC and the industry

As discussed above, the Variation has benefited from stakeholder consultation facilitated by the ACCC through the ACCC Working Groups conducted in 2021. As articulated in **nbn**'s Working Group Response Paper, **nbn** has listened to the feedback from RSPs, the ACCC and other stakeholders. Among the key messages **nbn** has taken away from the ACCC Working Groups are the five key outcomes articulated by the ACCC in its *Summary of industry working group outcomes* paper released in December 2021:[40]

a. **nbn** should have the opportunity to earn the minimum revenues it needs to meet its legitimate financing objectives, including to transition to a stand-alone investment grade credit rating.

b. **nbn** end-users should be protected from price shocks and from prices that are inefficiently high in later years.

c. The regulatory framework should provide incentives for **nbn** to operate efficiently and promote use of the **nbn**™ network.

d. **nbn** access seekers should have greater certainty over the costs that they will face when using the **nbn**™ network.

e. There should be a clear and robust quality of service framework, so access seekers and end-users know what to expect from **nbn** services, including a review mechanism so that service standards remain fit for purpose.

[40] ACCC, *NBN Co Special Access Undertaking – Summary of industry working group outcomes*, December 2021.

7 The Variation meets the outcomes of the ACCC Working Groups

Overall **nbn**'s Variation, as lodged with the ACCC, represents a package of individual commitments as detailed in chapter 9.

Importantly, **nbn**'s proposed commitments are put forward by **nbn** as a single comprehensive Variation proposal. The Variation represents an integrated package of proposals which, taken together, **nbn** considers forms an appropriate variation to its SAU that meets the relevant statutory criteria by which such a variation must be assessed, including (as relevant) that the terms of the SAU variation be reasonable and promote the long-term interests of end-users. Ultimately, the SAU must balance the needs and concerns of all parties, and enable **nbn** to remain a sustainable commercial enterprise that can continue to implement government policy.

Table 2 summarises **nbn**'s proposed material changes and how they meet ACCC Working Group outcomes.

Table 2. Variation overview

Proposed material change	Description	How does the proposed change meet the outcomes of the ACCC Working Groups?
New pricing constructs	**nbn** is: • introducing an AVC-only pricing construct for **nbn**™ Ethernet TC-4 services supplied with a bandwidth profile of Home Fast or higher in direct response to industry feedback; • setting out in the SAU for the first time bundled AVC/CVC offers (TC-4 Bundled Offers) for certain **nbn**™ Ethernet TC-4 services, and defined rules for bi-annual adjustments to the CVC inclusions to reflect actual changes in end-user download utilisation over time; • elevating the 25Mbps bandwidth profile as **nbn**'s entry level broadband service across all fixed line and wireless services by significantly reducing the fixed access charge for this bandwidth profile; • in recognition of the diverse needs of end-users across Australia, significantly reducing the effective price of basic voice-only connectivity services on fixed line technologies (supplied using the 12Mbps speed tier) to make these more accessible and affordable; and	Some of the main ways include: • the proposed pricing constructs, particularly the AVC-only pricing construct, are designed to avoid cost unpredictability and provide greater price certainty for end-users and RSPs. This will encourage greater take-up and use of the **nbn**™ network and promote competition for broadband services; • elevating the 25Mbps bandwidth profile as **nbn**'s entry level broadband service will increase **nbn**'s competitiveness in the face of an increasingly competitive market and will further promote competition, and encourage efficient use of and investment in the **nbn**™ network; • the reduction in the price of the 25/5Mbps service increases the affordability of higher quality fixed line broadband services thus promoting efficient use of the **nbn**™ network; and

Proposed material change	Description	How does the proposed change meet the outcomes of the ACCC Working Groups?
	• transforming the CVC billing model from billing 'provisioned' CVC to 'utilised' CVC across TC-4 Bundled Offers, with the effect that RSPs will no longer need to actively forecast and manage CVC provisioning and will only be charged for CVC that is actually utilised, without idle provisioned headroom.	• the introduction of a voice-only 12/1Mbps (as requested by RSPs) for fixed line technologies is priced to optimise the efficient take-up and use of the **nbn**™ network and to promote competition in the delivery of voice telephony services. It will also increase the accessibility and affordability of telecommunications services, especially for the basic connectivity and voice-only customer cohort. Overall, the proposed pricing constructs will promote a more competitive and efficient use of the **nbn**™ network, with greater price and cost certainty for end-users and RSPs. The pricing constructs will also ensure services are more accessible and affordable.
Reduction of Maximum Regulated Prices	To provide RSPs with greater long-term price certainty, **nbn** is to reduce its Maximum Regulated Prices to be more reflective of the prices actually paid by industry. For each AVC-only offer, **nbn** will implement an individual price control of CPI + 3% per Financial Year (on a use it or lose it basis) for the first Regulatory Cycle, with a default price control of CPI or 3% (whichever is greater) for subsequent Regulatory Cycles. An individual price control of CPI will apply to the AVC portion of TC-4 Bundled Offers, while the Maximum Regulated Price applicable to CVC overage for TC-4 Bundled Offers will be set at $8 per Mbps, with no right for **nbn** to increase this amount in real or nominal terms over the SAU term. **nbn** is to retain the existing individual price control of CPI – 1.5% per Financial Year across all other offers.	The reduction of the Maximum Regulated Prices, combined with other proposed changes, will ensure that over time prices change in a predictable manner, protecting RSPs and end-users from price shocks. It also means that as the willingness to pay for broadband services grows over time, due to changes in working behaviours and the development of new and innovative applications, **nbn** will have the commercial flexibility to adjust its prices and grow demand. These outcomes will promote the efficient take-up and use of the **nbn™** network as well as enhance inter-generational equity.
Discounting rules	**nbn** must reduce Maximum Regulated Prices to the extent that **nbn**'s TC-4 revenue in a Financial Year is more than 5% less than the undiscounted TC-4 revenue **nbn** would have earned had it charged list prices.	In addition to providing greater certainty to RSPs, the discounting rules means that the Maximum Regulated Prices will track the effective market prices for **nbn**'s services over time. These regulatory constraints protect end-users and RSPs from price shocks. The greater certainty will promote competition and is expected to increase greater take-up and use of the **nbn**™ network.
Adjustments to revenue control and	**nbn** is to significantly adjust its revenue controls to ensure that **nbn** will be subject to a binding revenue cap on its "core" regulated services.	The adjustments to revenue controls will constrain **nbn**'s ability to raise prices over time. Combined with proposed pricing constructs, **nbn**

Proposed material change	Description	How does the proposed change meet the outcomes of the ACCC Working Groups?
RAB, including Core Regulated Services vs Competitive Services	**nbn**'s revenue controls will be balanced by a regulatory framework in which **nbn**'s individual prices are subject to price controls. **nbn**'s adjustments will include enhancements to transparency and regulatory oversight by identifying a portion of the RAB attributable to Core Regulated Services, as follows: • the three **nbn** services which are subject to the most competition (being **nbn**™ Enterprise Ethernet, **nbn**™ Business Satellite Service and **nbn**™ Satellite Mobility for Large Commercial Passenger Aircraft and referred to in this paper as Competitive Services) will be excluded from the revenue cap (and price controls); • **nbn** will allocate costs between its services in accordance with the Cost Allocation Principles specified in the SAU; and • **nbn**'s Core Regulated Services will be subject to a binding revenue cap (and the price controls outlined above).	will be strongly incentivised to develop and offer new and innovative services over time, as well as to continue to improve the quality and reliability of its existing services, supported by commercial business cases that will be reflected in its forecasts, which the ACCC will oversee. These incentives promote competition and efficient investment in telecommunications infrastructure. Transparency commitments will provide comfort to the ACCC and industry that **nbn** is not cross-subsidising the costs of supplying its business-grade services from revenues earned from the supply of residential grade services. This will promote competition in the wholesale and retail supply of business-grade services. Working in tandem with the proposed new price controls, it will also ensure that the prices for **nbn**'s Core Regulated Services accurately reflect the cost of providing those services and will promote the efficient use of the network used to supply those services. Finally, it also ensures that the price of **nbn**'s Core Regulated Services are set at efficient levels and will allow **nbn** the opportunity to recover the efficient costs of those services.
Revenue Cap and allocation of ICRA	**nbn**'s new binding revenue cap on Core Regulated Services, established before its ICRA is extinguished, is set by reference to a Core Services Revenue Cap, calculated as the sum of: • the ABBRR allowance generated in respect of Core Regulated Services under the building block model in the SAU; and • an annual recoverable amount of the ICRA. This will involve stopping further additions to the total real value of the ICRA as at 30 June 2023 and committing to only recovering a set portion of that total value over the period of the SAU (i.e., to 30 June 2040). The recoverable amount of the ICRA will be set at a level to enable **nbn** to maintain the benchmark credit rating (being a benchmark rating of Baa2).	It is widely accepted that the SAU should provide **nbn** with the opportunity to earn the minimum revenues it needs to meet its legitimate financing objectives, including transitioning to an investment grade credit rating. The ACCC has indicated that "*significant reforms to the current arrangements for the initial cost recovery account (ICRA) will be required to realise such a regulatory framework*".[41] Crystallising and constraining recovery of the ICRA balances will allow **nbn** the opportunity to recover its past prudently incurred costs (consistent with the ACCC Statement of Expectations) with price certainty for RSPs and end-users, as well as confidence that **nbn**'s prices are set at efficient levels. The transparency and predictability of the ICRA recovery will also provide greater price certainty to RSPs, ultimately promoting the take-up and use of the **nbn**™ network as well as promote

[41] ACCC, *NBN Co Special Access Undertaking – Summary of industry working group outcomes,* December 2021, p. 6.

Proposed material change	Description	How does the proposed change meet the outcomes of the ACCC Working Groups?
		competition in related broadband and telephony markets.
Ex-post expenditure review	**nbn** believes there could be some advantage in combining the ex-ante forecasting approach in the BBM, with an ex-post review role for the ACCC (together with a cost pass-through mechanism). This ex-post review would complement the decision-making process about **nbn**'s capital expenditure forecast. The ex-post expenditure process would provide the ACCC with a role to review the prudency and efficiency of actual capital expenditure subject to certain decision-making rules and principles.	This ex-post review power strikes a balance between providing **nbn** with a level of commercial flexibility to develop new products and prices commercially but subject to regulatory oversight, and the threat of regulatory intervention, by the ACCC – providing industry with confidence that **nbn**'s expenditure will continue to be efficiently incurred.
Utilisation management and performance reporting commitments	In recognition of the importance to RSPs and end-users of the reliability and scalability of the **nbn**™ network, particularly with the introduction of AVC-only services, NNI overbooking and utilisation-based billing for CVC TC-4, **nbn** is to introduce new commitments in the SAU requiring **nbn** to take corrective measures where utilisation of its shared network resources exceeds a specified threshold. **nbn** also plans to provide new commitments in the SAU requiring it to produce detailed and regular reporting on a wide range of matters relating to the performance of **nbn**'s network, including network capability, congestion, outages, service faults, recurring faults and right first-time installations.	These commitments complement the existing WBA commitments to provide a clear and robust quality of service framework to ensure that access seekers and end-users know what to expect from **nbn** services. Appropriate incentives and safeguards will exist to ensure that customers continue to receive the level of service that customers should expect on the **nbn**™ network. Specifically: • an enhanced network utilisation and network performance framework will provide enhanced transparency regarding service performance and promote the take-up and use of the **nbn**™ network; and • **nbn**'s proposed cost pass-through mechanism in respect of costs associated with improved service levels will promote the efficient use of and investment in broadband infrastructure.
Product terms and inclusion of MTM technologies	**nbn** proposes to expand the scope of **nbn**'s product-related commitments, including the product development and withdrawal commitments to services delivered over **nbn**'s MTM technologies, being the **nbn**™ Ethernet FTTN, FTTB, FTTC and HFC services. **nbn** has updated the description of these services and their terms in the Variation to reflect the recently commercially negotiated outcomes for the current WBA4, which also reflects the outcomes of the ACCC's three-year inquiry into **nbn**'s Wholesale Service Standards and the ACCC's Pricing Inquiry.	These proposed changes to the SAU provide greater regulatory certainty for both **nbn** and access seekers. Greater regulatory certainty is likely to encourage efficient use of, and investment in, network infrastructure and also promote competition in both wholesale and retail communication markets.

Proposed material change	Description	How does the proposed change meet the outcomes of the ACCC Working Groups?
Updating of other SAU terms	With the passage of time, several SAU terms have become outdated, and **nbn** sees this current SAU variation process as providing the opportunity to either refresh or remove such terms. For example, the removal of the Fibre Multicast product (which has recently been withdrawn).	Updating several existing SAU terms will provide a clearer and easier to understand regulatory framework.

8 The Variation supports economically efficient outcomes

Economic efficiency is a key factor to be considered by the ACCC when assessing the terms and conditions of the Variation against the statutory criteria.

nbn's proposed commitments set out in the Variation will ensure that **nbn** will face strong incentives to set efficient prices, to incur only efficient costs and to invest in the network in a timely and efficient manner. These commitments are additional to **nbn**'s existing incentives to operate efficiently as a consequence of its mandate to operate as a standalone commercial entity in an increasingly competitive broadband market.

Economic efficiency is a key factor to be considered by the ACCC when assessing the terms and conditions of the Variation against the Statutory criteria. It is a key element of the reasonableness criteria and a key objective to be taken into account when considering the LTIE.

The Variation promotes economic efficiency, further embedding long-term incentives for **nbn** to set efficient prices, incur costs efficiently and invest efficiently in the network. Additionally:

- the broader regulatory framework within which **nbn** operates constrains **nbn**'s ability to operate in a manner which would be inefficient or detrimental to the objective of promoting competition;
- as a wholesale-only access network provider, **nbn** is heavily reliant on its wholesale customers and their end-users to generate the revenues **nbn** needs to achieve its commercial objectives. Migrating end-users to **nbn**'s network as soon as possible, and then having them take-up higher value services is integral to **nbn**'s success. If RSP and end-user expectations are not met in relation to **nbn**'s prices, **nbn** will not achieve its objectives. **nbn** does not have the same incentives as a vertically integrated incumbent as **nbn** faces current and emerging infrastructure competition; and
- Australia's telecommunication industry and broadband market is characterised by low barriers to entry and market expansion. There are several fixed and fixed wireless network operators that compete directly with **nbn** in the residential and business markets, many of which are expanding their footprints and marketing their services to end-users as **nbn** substitutes.

This means that the efficiency of the commitments in the Variation should be considered in tandem with the operation of the wider regulatory framework, as it applies to **nbn**, the wholesale-only context in which **nbn** has been established, and the market conditions in which **nbn** operates.

8.1 The commitments in the Variation promote economic efficiency

The Variation contains a range of commitments that promote economic efficiency as described below.

8.1.1 Incentives to set efficient prices

As discussed in section 11.5, the commitments set out in the Variation provide **nbn** with strong incentives to set efficient prices. In particular:

- Maximum Regulated Prices on individual services tightly limit **nbn**'s ability to raise prices in the event of demand shortfall. The initial Maximum Regulated Prices for TC-4 AVC-only and TC-4 Bundled Offers established under the Variation are below the equivalent offers in the current SAU and bring the price caps into alignment with the effective prices paid by RSPs today.
- Together with these reduced Maximum Regulated Prices the overall pricing structure and price levels are designed to maximise take-up and use of the network over time.
- **nbn'**s limited ability to increase prices means that **nbn** will be reliant on future demand growth to achieve its regulatory revenue allowances and avoid any under-recovery of those revenue allowances. Similarly, in the face of uncertain demand, **nbn** will be unable to increase its prices above the Maximum Regulated Prices but will instead have strong incentives to grow demand to avoid under-recovery of revenue allowances.
- These incentives are further strengthened by **nbn**'s proposal to forego in subsequent regulatory periods, the recovery of 50% of any unrecovered revenue allowances. This will limit **nbn**'s opportunity to recover efficient costs in the future to only 50% of the under-recovered amount from prior Regulatory Cycles, even in circumstances where the market would allow recovery of a greater proportion. This is a material concession by **nbn** which is intended to specifically address the ACCC's desire to ensure that **nbn** faces strong ongoing incentives to operate efficiently, maximise demand and to innovate.

8.1.2 Incentives to incur only efficient costs

nbn will be incentivised to incur only efficient costs as:

- A firm acting commercially that is regulated under a revenue cap has the incentive to be cost efficient as prices and revenues are likely to be delinked from actual costs as the Regulatory Cycle progresses, and any cost savings can be captured as higher profits for a limited period.
- The ACCC will have the power to, ex-ante and ex-post, scrutinise **nbn**'s costs, disallowing expenditure assessed as imprudent or inefficient. Specifically, the ACCC will have the ability to review costs on *ex-ante* basis for operating and capital expenditure, and once more *ex-post* for capital expenditure. See chapters 14 and 20 for more detail.

Additionally, the SAU requires that **nbn**'s opex and capex reasonably reflect the expenditure that a prudent and efficient operator in **nbn**'s position, acting in accordance with good industry practice, would incur in achieving **nbn**'s Expenditure Objectives. These Expenditures Objectives which are set out in clause 2C.2.5(a)(iii) of the Variation are:

- meeting or managing the expected demand for products and services during the Regulatory Cycle;
- complying with, and otherwise responding as reasonably necessary to give effect to, or prepare for, any relevant Regulatory Requirements or Regulatory Change Events applicable to **nbn** providing products and services;
- implementing a project or program which is the subject of a Government Policy Project Notice;

- maintaining the quality, reliability, safety, security and integrity of supply of any products and services, considering current and reasonably anticipated future market conditions (including the extent to which **nbn** must adjust quality to meet competition); and
- maintaining a national network coverage that provides ubiquitous access to all Australian residential and business premises.

nbn's Expenditure Objectives are informed by the expenditure objectives of relevant regulated GBE utilities and State-Owned Corporations in other sectors including electricity[42] and water. **nbn**'s Expenditure Objectives also appropriately reflect that **nbn** is a wholly Government-owned GBE that is obligated to provide both a connection and an eligible service upon reasonable request as per the SIP regime, the Category B SAOs and the requirements set out in the Telecommunications in New Developments Policy (**TiND**).[43]

Within this context the Variation stipulates that:

- **prudent expenditure** is the expenditure that a prudent operator in **nbn**'s position, acting in accordance with good industry practice, would incur if the expenditure reflects a reasonable choice amongst available alternatives (see clause 2C.2.5(b)(i) of the Variation); and
- **efficient expenditure** is the expenditure that an efficient operator in **nbn**'s position, acting in accordance with good industry practice, would incur if the expenditure is likely to lead to the lowest Total Cost of Ownership or highest value outcome over time (see clause 2C.2.5(b)(ii) of the Variation).

The Variation also sets out a range of factors to be taken into account when assessing expenditures, including historical trends in expenditure (the Expenditure Factors – see clause 2C.2.5(c) of the Variation).

Together these requirements are informed by, and consistent with, expenditure tests applied in other regulated utilities such as energy and water. For example, the AER's Expenditure Forecast Assessment Guidelines for electricity networks are premised on the understanding that prudent expenditure is that which reflects the best course of action, considering available alternatives, while efficient expenditure results in the lowest cost to consumers over the long-term.[44] Importantly, **nbn**'s proposed tests for prudency and efficiency are also consistent with Part XIC of the CCA because they can enhance the efficient use of, and investment in, **nbn's** network.

A requirement that **nbn**'s opex and capex be both prudent and efficient creates appropriate incentives for **nbn** to operate and invest efficiently. **nbn** can be penalised for expenditure that is either imprudent or inefficient as the ACCC will have the ability to disallow those expenditures – ex-ante for opex and ex-ante and ex-post for capex. These principles complement the unders and overs mechanism that together provide **nbn** the incentives to outperform its cost and revenue forecasts thus maximising the use of the network while minimising costs. **nbn** also submits that to the extent that **nbn** faces competition, now and in the future, it will not be able to recover imprudent or inefficient expenditures in its prices and still remain competitive.

[42] See: AER, *AER capital expenditure assessment outline for electricity distribution determinations*, February 2020, p. 4.

[43] Telecommunications in new developments policy – 1 September 2020. Access: https://www.infrastructure.gov.au/media-centre/publications/2020-telecommunications-new-developments-policy.

[44] AER, *Explanatory Statement, Expenditure Forecast Assessment Guideline*, November 2013, p. 59.

8.1.3 Incentives to invest efficiently

Efficient investment is promoted by affording a service provider the opportunity to recover the costs of their prudent and efficient investments, inclusive of a normal commercial return.[45] This is the case regardless of the form of ownership.[46]

This includes recovery of existing investments – noting that the treatment of past investments sends important signals to firms about the risk of new investment, affecting forward-looking investment incentives. The fact that a firm might be in a position where it can commercially raise finance and recover forecast costs from users may still be insufficient to encourage efficient investment if the firm does not believe that, once the investment is sunk, the regulator will allow for all (efficiently-incurred) sunk costs to be recovered.

As the opportunity to recover prudently-incurred sunk costs is a fundamental component of the current SAU, as accepted by the ACCC in 2013, then denying all or part of that opportunity signals a clear risk to **nbn** that the ACCC may seek to write off future investments as being inefficient or imprudent.[47] Given that all sunk costs were at one point in time future proposed investments (including the investments made to date by **nbn**), an inconsistent treatment by the regulator of those investments once made increases the risks faced by a regulated firm. If the current stock of sunk costs is disregarded by regulators, there is no reason to think that the regulator will not apply the same treatment to future investments. This has implications for the likelihood that efficient investments will be made in the first place, thus denying the benefits of those investments to end-users. As the Australian Competition Tribunal has recently commented, efficient investment, dynamic efficiency and regulatory risk are intrinsically linked:[48]

> *… precluding a return on all the assets that are part of the facility (sunk or not) would send a signal to future investors in other natural monopoly assets that they risked having their investment, once made, treated as sunk, with future returns confiscated. That unfortunate investor would still have an incentive to operate its asset as long as the returns exceeded the scrap value, but the investment climate for such assets would be fatally damaged.* ***In effect, price regulation would have created a new sovereign risk****.* (Emphasis added)

Indeed, as the ACCC and the Tribunal have recognised, building block model regulation naturally involves the recovery of sunk costs and in doing so meets the statutory criteria of promoting efficient investment in infrastructure and taking into account a service provider's legitimate business interests.[49] Such regulation, as discussed by the ACCC, "*…allows the infrastructure provider to recover the costs of past sunk infrastructure*

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[45] *Re Telstra Corporation Limited* [2006] ACompT 4 (2 June 2006) at 103; *Re Telstra Corporation Ltd (No 3) [2007]* ACompT 3 (17 May 2007) at 159; *Re Telstra* [2010] ACompT 1 at [244].

[46] Part XIC of the CCA does not apply differently to a regulated firm depending on the identity of its shareholders. This reflects a general principle, noted recently by the ACCC, that regulatory frameworks should provide a return on investment based on a benchmark efficient entity regardless of ownership – see: ACCC, *Summary of industry wording groups report,* 22 December 2021, p. 9.

[47] This also puts to one side that **nbn**'s legitimate business interests allow it to receive a commercial return on its prudent (past) investment in the infrastructure used to supply the regulated services. Application by Telstra Corporation Limited ABN 33 051 775 556 [2010] ACompT 1 (10 May 2010) at 210.

[48] *Application by Port of Newcastle Operations Pty Ltd* [2019] ACompT 1, at 352-354.

[49] For example, in advocating for building block model regulation in its 2010 *Review of the 1997 telecommunications access pricing principles for fixed line services*, the ACCC stated that: "*An important objective of the BBM is to allow the access provider to recover its previous costs of investing in sunk infrastructure as well as its efficient and prudent costs of investment in new network assets. The Tribunal expressed similar views, stating that the access provider's legitimate business interests would be met by access prices that allow it to receive a commercial return on its prudent (past) investment in infrastructure.*" (ACCC Draft Report, p. 21, citing *Re Telstra* [2010] ACompT 1 at [244]). The ACCC also highlighted that in BBM regulation, the choice of the RAB value had important consequences, since valuing "*sunk assets at less than their actual costs could prevent an access provider from recovering the full costs of any future investments in sunk assets. This risk, which is often termed the risk of regulatory opportunism, could deter the access provider (and other market participants) from undertaking future investments in sunk assets, because they would lack confidence that the regulatory arrangements will permit them to recover the costs of those investments.*" (p. 26).

investment", in circumstances where "*not allowing an access provider to recover these costs would mean that it may be unwilling to make sunk investments in the future – which would jeopardise dynamic efficiency.*"[50]

The SAU framework that was accepted by the ACCC in 2013 was designed to provide **nbn** with the opportunity (but not the guarantee) of recovering its initial prudently incurred investments (i.e., those expenditures that might otherwise be deemed to be a sunk cost at some later date). In particular, the ICRA played the role of recognising and accounting for the initial losses incurred by **nbn** as it deployed and sought to migrate end-users to a nation-wide network.

However, **nbn** recognises that it is unlikely to be able to recover all of the ICRA by 2040 and has proposed in the Variation that it will only have the opportunity to recover a clearly defined and constrained lesser amount over the remaining term of the SAU. This new approach affords **nbn** the opportunity (but still not the guarantee) of recovering an appropriate amount of its initial investment such that **nbn**, if successful, will be able to generate sufficient cashflows to achieve and sustain a standalone investment grade credit rating.

To achieve such a credit rating (which will only occur over the medium-term, not during the First Regulatory Cycle), **nbn** will need to be able to generate revenues sufficient to reduce its levels of debt in order to achieve targeted financial metrics. Such outcomes are not dependent on just the revenue that **nbn** is able to generate, but also on **nbn**'s management of costs, which remains a key focus for the company.

As **nbn** moves from a prolonged period of intense capital investment required to deploy a national network, its focus shifts to the efficient operation of a network for the benefit of RSPs and end-users. **nbn**'s forecast level of costs over the period to FY25 is significantly reduced relative to previous years (as discussed further in Appendix B), reflecting this shift in organisational priorities. **nbn**'s focus on cost reduction and efficiency was articulated in its most recent set of half-year results:[51]

> *Total employee expenses decreased by $129 million (28 per cent) compared to the prior period primarily due to post rollout restructuring and workforce change undertaken by the Company in the first half of fiscal 21. Following the completion of the initial build in June 2020, both the size and shape of the organisation were restructured with a reduction of approximately 800 employees as NBN Co transitioned from predominately an infrastructure build company to a wholesale operating company. As the Company continues to focus on maximising cost efficiencies and productivity through simplification and digitalisation of internal operations, the total number of Company employees has continued to decline over the past 12 months. Across the past 18 months, the number of full-time equivalent staff has fallen from approximately 6,300 to 4,800 as at 31 December 2021.*
>
> *Other operating expenses decreased by $17 million (7 per cent) against the corresponding prior period and have continued to reduce as a result of the Company's ongoing focus on cost efficiency. These costs cover a range of activities but are primarily associated with IT and software applications, outsourced business operations, strategic consulting, legal and regulatory services, communication to the public, commercial properties, and other indirect employee-related expenditure.*

Additionally, **nbn** continues to face the revenue sufficiency risks previously recognised by the ACCC, as a result of ongoing competition from alternative networks (fixed line, wireless and satellite). **nbn** therefore continues to have strong incentives to innovate its products and pricing to drive demand for end-users to connect to and stay on its network, as well as to increasingly use more of the capabilities of the network (e.g., by taking up higher

[50] ACCC, Submission to the Department of Broadband, Communications and the Digital Economy titled "*National Broadband Network: Regulatory Reform for 21st Century Broadband*"," June 2009, p. 111. In that context, the ACCC noted that such regulation can therefore involve a trade-off between productive and allocative efficiency, and dynamic efficiency.

[51] NBN Co Half-Year Report 2022 – For the six months ended 31 December 2021. Access: https://www.nbnco.com.au/content/dam/nbn/documents/media-centre/media-statements/2022/nbn-co-2022-half-year-report.pdf.

speed tiers). While these challenges are primarily commercial ones for **nbn** to address and respond to, if the regulatory regime does not afford it even the *opportunity* to generate the revenues necessary to achieve its efficient financial objectives (including a stand-alone investment-grade credit rating and the financial ability to deliver on existing and future Government policy objectives) then **nbn**'s investment incentives will be distorted. This will compromise **nbn**'s ability to meet the future needs of RSPs and end-users; such a compromise will not be at the hands of the market, but of the ACCC.

The compromise offered by **nbn** in the Variation is to move away from the position accepted by the ACCC as a fixed SAU principle in 2013 (i.e., that **nbn** be afforded the opportunity to recover all of its initial prudently incurred costs) and instead provides meaningful transparency and predictability in respect of the profile of **nbn**'s recovery of the ICRA, including a constraint on the quantum of ICRA that can be recovered over the remaining term of the SAU. The compromise strikes an appropriate balance between balancing **nbn**'s legitimate business interests (providing incentives for ongoing efficient investment) and providing certainty to RSPs and consumers that **nbn** will face a binding revenue constraint over the remaining term of the SAU.

8.2 Broader regulatory framework

Absent effective competition, access regulation seeks to constrain and incentivise the behaviour of the monopoly access provider such that it acts as though it faced effective competition (given the characteristics of the market). Specifically, prices (and underlying costs) should be consistent with the levels that would occur if the access provider faced the threat of being displaced as a supplier.

The broader regulatory framework (which includes the current SAU) applying to the supply of **nbn**'s layer 2 wholesale services achieves outcomes consistent with competitive market outcomes. In particular:

- **At best nbn can achieve an NPV=0 outcome:** **nbn**'s current SAU provides **nbn** with the opportunity, but not the guarantee, that it may be able to recover its prudently incurred costs including a regulated return on capital. In other words, the current SAU allows **nbn** at best to achieve an NPV=0 outcome, meaning in practice that **nbn's** access prices must be cost based (or lower) over the term of the SAU. Importantly, given the market and policy constraints imposed on **nbn** to date, **nbn**'s prices are below cost and while they will be set to recover **nbn**'s prudent and efficient costs over time, it is likely that **nbn**'s prices will be below cost recovery levels for several years to come.
- **Part XIC imposes on nbn an almost blanket prohibition on discrimination:** Specifically, **nbn** must not discriminate between access seekers in the supply of an eligible service or when carrying out a broad range of activities related to the supply of an eligible service (see sections 152AXC and 152AXC of the CCA). This prohibition ensures that access prices do not have the effect of reducing competition and that **nbn** cannot engage in either price or non-price discrimination.
- **nbn has no commercial incentive to reduce competition in related or dependant markets:** **nbn**'s wholesale-only mandate along with the lines of business restrictions set out in the NBN Companies Act[52] mean that **nbn** has no commercial incentive to reduce competition in related or dependant markets. To the contrary, given that **nbn** can only supply eligible services to RSPs **nbn** has strong incentives to ensure that there is dynamic and healthy competition in dependant markets to ensure that end-users have available **nbn** services that are high quality and affordable.

[52] NBN Companies Act, Part 2.

8.3 Market incentives to set efficient prices

In addition to the Variation and the broader regulatory framework, **nbn** has faced, and will continue to face, a high degree of demand-side risks and revenue sufficiency risk.[53] In particular, **nbn** understands it to be uncontested that **nbn** faces significant competition in the markets in which business, enterprise and new developments services are supplied, along with increasing competition from 4G, 5G, fixed wireless network and low-earth orbit satellite operators in those markets in which residential services are supplied. This competition does, and will, continue to incentivise **nbn's** efficient pricing setting.

These complex competitive pressures and differences in end-user demands, mean that it is not possible for **nbn** to price by simply dividing its revenue requirement by forecast access volumes to set prices. Any such simplistic and unnuanced pricing strategy would price out some customers with lower willingness-to-pay and cause others to substitute to inferior services with lower fixed charges. Rather, **nbn** must pursue sophisticated pricing strategies, accounting for variations in demand and willingness and ability to pay. This allows **nbn** to promote the efficient use of the network and allocative efficiency while also maximising its chances of recovering its efficiently incurred costs over time.

8.3.1 Residential market competition

nbn faces increasing competition in those markets in which residential services are supplied. As noted above, this is evidenced by the fact that almost 1 in 3 households (approximately 4 million out of the 12.1 million premises that are ready to connect to the **nbn**) are not using the **nbn** today. This is despite mandatory disconnection from legacy networks and comprehensive end-user migration programs.

A significant and growing source of competition in markets in which **nbn** supplies residential services is from 4G, 5G, fixed wireless network and low-earth orbit satellite operators that are expanding their footprint and aggressively marketing their services as a substitute or alternative to an **nbn** fixed line service, particularly in respect of voice-only and lower speed tier customers. This is evidenced by:

- Telstra has rapidly expanded its 5G network, transitioning from covering approximately one third of the Australian population in August 2020, to covering 75% of the Australian population in June 2021. Telstra has more than two million 5G devices on its network and is using 5G as a competitive alternative to the **nbn.**[54] Additionally, Telstra's 5G Home Internet service is priced to compete directly with the Telstra **nbn** 50/20 product - Telstra's 5G Home Internet product is priced at $85 per month (with $0 for the first month) while the Telstra **nbn**'s 50/20 product is priced at $95 per month.[55]

[53] Revenue sufficiency risk refers to the risk that a firm may face that its revenues are insufficient to cover the efficient costs it incurs to supply the relevant product or service.

[54] Telstra, *Investor Day Transcript*, 16 November 2021, pp. 45 and 8-9.

[55] See: https://www.telstra.com.au/internet/plans (accessed 15 March 2022).

- Telstra Group Executives commented at a recent investor day, that *"…it is definitely feasible to offer a fixed wireless access service to a subset of our customers*" later adding, *"…we estimate that 10-15% of the broadband market can benefit from fixed wireless access*".[56] This represents approximately 20% of **nbn**'s total connections and a significant proportion of **nbn**'s customer base that is subject to head-to-head competition despite the fact that all of **nbn** services are subject to monopoly regulation (both access regulation and conduct regulation).
- TPG markets its 5G Home Broadband as "*Our fast alternative to the NBN*" and its TPG Home Wireless Broadband product as a "*Great value alternative to the NBN*".[57] These products are offered at similar price points to its **nbn** offerings ($79.99 **NBN** 100Mbps plan compared with $69.99 for the 5G products with up to 100Mbps speed). TPG recently reinforced its intent to migrate its **nbn** base in its FY21 year-end results announcement.
- Both Optus and Telstra market their "*5G Home Internet*" services directly alongside **nbn** products[58] with Optus' 5G product offerings at $79 and $89 per month, compared with Optus' **nbn** 50/20 offering at $79 per month. Consumers are likely to perceive this as implying that a 5G Home Internet Service is a reasonable alternative to an **nbn** fixed line service.

This increasing competition from 4G and 5G network operators is driving sustained and increasing net churn off the **nbn**™ network. Based on contemporary market conditions net churn for FY22 is forecast to be 3.1% or 263,000 customers. In FY23 **nbn** expects net churn to be higher still at 3.3% or 283,000 customers.

Further, in those markets in which **nbn** supplies residential FTTB services, **nbn** faces competition from TPG's FTTB network and a number of smaller fixed line networks which compete head-to-head with **nbn** on a regionally targeted basis. This competition is typically concentrated in high-value, low-cost-to-serve areas.

8.3.2 Business and enterprise competition

It is well accepted that **nbn** faces significant competition from fixed line networks, particularly in those markets in which business and enterprise services are supplied.[59] In particular, competition comes from several long established vertically integrated operators – Telstra, Optus, Vocus and TPG. Of these, Telstra operates the largest network – a business fibre network with a national footprint – and has the highest retail share of this market.

nbn's entry into those markets in which business and enterprise services are supplied has been strongly pro-competitive, offering a suite of affordable, wholesale-only business-grade products. There is increased customer choice with more affordable pricing. However, as expected, there has been a strong and healthy competitive response by the incumbent operators seeking to retain market share.

[56] Telstra, *Investor Day Transcript*, 16 November 2021, pp. 9 and 30.

[57] See: https://www.tpg.com.au/5g-home-broadband and https://www.tpg.com.au/home-wireless-broadband (accessed 15 March 2022).

[58] See: https://www.telstra.com.au/internet and https://www.optus.com.au/broadband-nbn (accessed 15 March 2022).

[59] See, for example: Telstra, *ACCC preliminary view on LTRCM capital expenditure and operating expenditure for 2018-19 and issues for further consideration*, 6 March 2020, p. 2.

8.3.3 New developments

In the New Developments space, **nbn** faces competition from Uniti Group as well as a range of smaller players. Uniti, like other network operators that service New Developments, is a functionally separated competitor without equivalent **nbn** lines of business restrictions. The lines of business restrictions prohibit **nbn** from supplying certain services and places **nbn** at a competitive disadvantage in the market.

The practical effect of the lines of business restrictions is that they protect Uniti, and other network operators that serve new developments, from competition in the supply of broadband services. This is because non-**nbn** network operators can offer value added services to developers such as content (FTA TV services) and non-communications services (such as in-building services) that **nbn** is unable to supply. **nbn**'s inability to offer these services as a package means that **nbn** is unable to match competitor offerings. This is detrimental to consumer choice, affordability and long-term sustainable competition.

9 The Variation satisfies the Statutory Criteria

The Variation represents an integrated package of proposals, which **nbn** considers meets the relevant statutory assessment criteria, including (as relevant) that the terms of an SAU variation are reasonable and will promote the long-term interests of end-users (LTIE).

This chapter gives an overview of how the Variation satisfies the statutory criteria.

9.1 Statutory assessment

9.1.1 Overview of the relevant statutory test

The ACCC must assess an SAU variation against specific statutory criteria.[60] Broadly, to accept the Variation, the ACCC must be satisfied that:

1. the terms and conditions specified in the Variation relating to compliance with the Category B Standard Access Obligations (**SAOs**) are consistent with those obligations and are reasonable;[61]
2. conduct specified in the Variation in relation to access to **nbn**'s services will promote the LTIE, and that the related terms and conditions are reasonable;
3. conduct specified in the Variation relating to certain additional matters (such as developing new eligible services) will promote the LTIE; and
4. the Variation is consistent with any Ministerial pricing determination.

Further, the ACCC cannot reject the Variation for particular reasons related to fixed principles terms and conditions.

Detail on the statutory framework and criteria of 'reasonableness' and promoting the LTIE is set out in chapter 22.

In section 9.2 below, **nbn** provides an overview of how the Variation satisfies the general statutory criteria of 'reasonableness' and promoting the LTIE. In a supplementary submission, **nbn** will set out its view on whether particular clauses in the Variation should be categorised against the matters set out in paragraphs (1), (2) or (3) above.

9.1.2 Terms and conditions relating to compliance with Category B SAOs

For terms and conditions relating to compliance with the Category B SAOs (subsection 152CBA(3A)),[62] the ACCC must not accept an SAU variation unless it is satisfied that such terms and conditions are consistent with the Category B SAOs and are reasonable.

[60] CCA, ss 152CBG(4), 152CBD(2).

[61] As the ACCC noted in its Final 2013 Decision, the "reasonableness" of terms and conditions is not determined by reference to whether they are the best possible terms and conditions or whether they could be improved – see p. 50.

[62] Broadly, the Category B SAOs under section 152AXB of the CCA impose:

In the Final 2013 Decision, the ACCC categorised clauses about the following matters as relating to compliance with the Category B SAOs:

- terms and conditions of supply of product components;
- the commitment to supply NBN offers;
- prices and charges;
- the methodology for the calculation of the RAB;
- conditions for including capital expenditure into the RAB in Module 1;
- calculation of the ABBRR;
- operation of the ICRA;
- operation of the building block revenue period; and
- calculation of inflation and real values.

Compliance

nbn submits that in accordance with subparagraph 152CBD(2)(b)(ii), the ACCC should regard the terms and conditions in the Variation relating to compliance with the Category B SAOs as consistent with the applicable SAOs because:

- the terms and conditions of the Variation are consistent with the Category B SAOs in that they conform to **nbn**'s obligations under section 152AXB, by providing Access Seekers with supply of the declared services, and by permitting interconnection;
- there are no terms and conditions in the Variation that are inconsistent with applicable SAOs and as such the terms and conditions of the Variation are likely to be consistent with applicable SAOs; and
- where there may be terms and conditions in the Variation that may place appropriate conditions upon the manner in which the Category B SAOs will be complied with, those conditions do not amount to any inconsistency with the Category B SAOs.

nbn also submits that the ACCC should regard the terms and conditions in the Variation relating to compliance with the Category B SAOs as reasonable.

9.1.3 Conduct in relation to access

For conduct and terms and conditions in relation to access under subsection 152CBA(3B), the ACCC must not accept an SAU variation unless it is satisfied that the specified conduct will promote the LTIE, and that the related terms and conditions are reasonable.

- a requirement for an NBN corporation to supply a declared service on request to a service provider in order that the service provider can provide Carriage Services and/or Content Services;
- a requirement for an NBN corporation to permit interconnection to telecommunications facilities it owns or controls, if requested to do so by a service provider, for the purpose of enabling the service provider to be supplied with declared services in order that the service provider can provide Carriage Services and/or Content Services; and
- a requirement for an NBN corporation that supplies a declared service by means of conditional-access customer equipment to supply on request any related service that is necessary to enable a service provider to supply its relevant retail service and/or Content Services by means of the declared service and using the equipment.

In the Final 2013 Decision, the ACCC categorised clauses about the following matters as conduct and terms and conditions upon which **nbn** will engage in conduct relating to access under subsection 152CBA(3B):

- production and maintenance of SFAAs;
- development of SFAAs;
- dispute management;
- replacement module process;
- developing and maintaining procurement rules;
- issuing notices to access seekers and the ACCC prior to the end of the ICRA period;
- submitting regulatory information to the ACCC;
- issuing Tax Change Events Proposals;
- giving the ACCC a Price Review Notice and a Price Review Proposal; and
- withdrawal of a product.

Compliance

nbn submits that the ACCC should regard the conduct specified in the Variation in relation to access under subsection 152CBA(3B) as promoting the LTIE and the related terms and conditions as reasonable.

9.1.4 Conduct in relation to additional activities

For conduct in relation to the activities specified in section 152CBA(3C), the ACCC must not accept an SAU variation unless it is satisfied that any conduct in relation to the additional specified activities will promote the LTIE.

In the Final 2013 Decision, the ACCC categorised clauses about the following matters to be conduct under subsection 152CBA(3C):

- activities relating to the network design rules, permitted variations and network changes;
- the POI and rollout provision; and
- the product development provisions.

Compliance

nbn submits that the ACCC should regard the conduct specified in the Variation in relation to additional activities specified in subsection 152CBA(3C) as promoting the LTIE.

9.2 Assessment

No.	Topic and SAU reference	Proposed regulatory commitments	Assessment against statutory criteria
A.	**Pricing construct and related price controls**		

1.	**New TC-4 pricing constructs**
	
	Clauses 1C.1.4 and 1C2.2 – 1C.4.2, 1C.4.4, 2B.1.4, 2B.2.4, 2B.2.5 and 2B.2.10
		nbn makes commitments relating to new pricing offers and commitments about process and timelines for implementing those commitments to assist RSPs to plan for the transition to the new pricing constructs. **nbn** will:
		• introduce AVC-only pricing for **nbn**™ Ethernet Home Fast and higher speed tier offers;
		• introduce AVC / CVC bundles for **nbn**™ Ethernet supplied with speed tiers of 50Mbps (or Wireless Plus) and lower speed tier offers (except for Satellite), with:
		  ○ CVC TC-4 overage charged at $8 per utilised Mbps, which is locked in and cannot be increased over the SAU term; and
		  ○ automatic biannual updates to CVC TC-4 inclusions, sharing the impact of any actual CVC usage increase or decrease 50/50 with RSPs;
		• introduce a 12/1 voice-only offer at a substantially lower wholesale price ($12 per month);
		• move to utilisation-based billing for CVC TC-4 on fixed line and fixed wireless access technologies. Utilisation will be based on the peak utilisation of relevant speed tiers on all CVCs ordered by a RSP during the busiest hour across the relevant CSA; and
		• retain two-part pricing on TC-1, TC-2 and Satellite offers, with provisioning-based CVC billing. Satellite CVC TC-4 is priced at $15.75 per provisioned Mbps.
		The new price-related commitments have been formulated to apply to the products to be supplied subject to the existing service standards set out in WBA4.
			nbn's price commitments (which will be implemented within six months upon ACCC acceptance of the Variation) promote the LTIE in the following ways:
			• The AVC-only pricing constructs provide greater cost certainty for RSPs, which will encourage greater take-up and use of the **nbn**™ network and promote competition for broadband services.
			• The TC-4 Bundled Offers balance RSP objectives of wholesale price certainty and flexibility for RSPs in developing retail offers, which use certain **nbn** offers as an input.
			• RSPs will benefit from greater long-term predictability of wholesale pricing because CVC inclusion adjustments will be made biannually via a formula defined in the SAU. In particular, **nbn** would adjust the level of inclusion in the bundles by 50% of usage charge (meaning, in the case of usage growth, increased inclusions at no additional charge).
			• Elevating the 25Mbps bandwidth profile as **nbn**'s predominant entry level offer at the same effective price as the 12Mbps bandwidth profile, more than doubling existing access speed of the downlink and at least five times the speed of the uplink.
			• Introduction of a voice-only offer, at almost half the price as the existing entry level offer.
			• Utilisation-based billing will provide simplicity and transparency for RSPs; improving efficiency for RSPs, which in turn will benefit end-users.
			• **nbn** commits to continue to offer a two-part AVC / CVC pricing construct in respect of TC-1, TC-2 and Satellite offers, which provides RSPs with the greatest degree of flexibility in developing retail products which use certain **nbn** offers as an input.
			See chapter 11 for more detail.

No.	Topic and SAU reference	Proposed regulatory commitments	Assessment against statutory criteria
		The transition to the new pricing construct must happen within six months after acceptance of the Variation. **nbn** will publish a process and timeline for transitioning to the new pricing constructs during this six-month period, within 20 Business Days of the Variation being accepted.	
2.	**Annual price controls for new pricing constructs** Clauses 2B.2.3 and 3B.1	<u>Price controls from 1 July 2023 to 30 June 2025</u> **nbn** commits to the following price controls for the First Regulatory Cycle: • CPI + 3%, for AVC-only offers; • CPI, for AVC / CVC bundled offers (applicable to the combined price of the AVC TC-4 and CVC TC-4 components, but not for Overage, which is locked in at $8 over the entire SAU term); and • CPI– 1.5%, for all TC-1, TC-2 and Satellite TC-4 offers (including CVC), the same as for the Initial Regulatory Period. <u>Default price controls out to 30 June 2040</u> The default price controls apply if **nbn** does not specify different price controls in a future RMA, or the ACCC rejects the price controls proposed in a future RMA. The default price controls are: • the greater of CPI or 3%, for AVC-only offers; • CPI, for AVC / CVC bundled offers (applicable to both the AVC TC-4 and CVC TC-4 components, but not for Overage, which is locked in at $8 over the SAU term); and • CPI - 1.5%, for all TC-1, TC-2 and Satellite TC-4 offers (including CVC), the same as for the Initial Regulatory Period.	The individual price controls for **nbn**'s new price constructs have been designed to balance **nbn**'s need for sufficient flexibility to respond to changing market conditions, with the needs of RSPs for price stability and certainty, and end-users for price stability. In particular: • Every RSP obtains the benefits of the system of individual price controls proposed by **nbn**, because the price controls apply to all Core Regulated Services that fall within the scope of the NBN Access Service, including for the first time the TC-4 Bundled Offers which are currently not subject to any Maximum Regulated Prices (other than those that relate to the TC-4 AVC and CVC product components to which the current Bundles Discount applies, and accordingly do not face effective SAU price controls). This promotes efficient use of infrastructure and accordingly the LTIE. • **nbn**'s price controls provide **nbn** with a greater ability to invest in its network to maintain and improve service quality compared with the individual price control applicable to existing two-part AVC/CVC offers. • The flexibility for **nbn** to propose alternative price controls in an RMA reflects that **nbn** and industry may face changing demand scenarios over the remaining period of the SAU. This encourages efficient use of **nbn**'s network by ensuring that **nbn**'s price controls remain dynamic and reflective of market conditions, subject to ACCC review and approval. • The price controls will operate in conjunction with the binding Core Services Revenue Cap to ensure that, in the face of increasing competition, **nbn** will continue to have strong incentives to maximise the take-up and use of its network in order to achieve its allowable revenues, innovate and to increase the quality and reliability of its services over time. Again, this promotes the efficient use of **nbn**'s infrastructure. For the reasons described above and taken together with **nbn**'s reduced Maximum Regulated Prices, which now more closely reflect **nbn**'s effective prices, **nbn** submits that its proposed price controls strongly promote the LTIE. See chapter 12 for more detail.
3.	**Rules applicable to Maximum**	**nbn** commits to retaining the following obligations in respect of its original networks and extending those obligations to the MTM networks:	The ongoing nature of these commitments will promote the LTIE because: • RSPs and end-users will be protected from price shocks as **nbn** will be constrained in its ability to raise prices.

No.	Topic and SAU reference	Proposed regulatory commitments	Assessment against statutory criteria

	Regulated Prices
	
	Clauses 2B.2.1 – 2B.2.2 and 2E
		• that its prices for **nbn** offers will not exceed specified Maximum Regulated Prices;
		• to allow ACCC determinations to change the Maximum Regulated Price of a new offer/other charge within 24 months of its introduction by **nbn**;
		• to allow ACCC determinations to change the Maximum Regulated Price of a previously zero-priced offer or other charge within 24 months of the offer or other charge ceasing to be zero-priced;
		• to include a price review mechanism to allow **nbn** or the ACCC to review and change **nbn** Maximum Regulated Prices in a revenue neutral manner; and
		• **nbn** also commits to reducing Maximum Regulated Prices in specified circumstances, as outlined in item 6 of this table.
			• The ACCC will have an ongoing regulatory oversight role and have the ability to review and reset prices in certain circumstances. Specifically:
			  ○ The ACCC will have the ability to reset the price of a new Core Regulated Service in the event that **nbn** sets the price of that service at a level that the ACCC deems is not consistent with the promotion of the LTIE.
			  ○ **nbn**'s overall pricing construct will be subject to ongoing ACCC oversight with the threat that the ACCC could rebalance **nbn'**s prices if they are not consistent with the promotion of the LTIE including the efficient recovery of **nbn**'s costs.
			Providing the ACCC with these roles means that **nbn** will remain incentivised to discover efficient prices balanced against RSPs having greater price certainty. This can be demonstrated by the fact that **nbn**'s effective prices have historically been significantly lower than its Maximum Regulated Prices.
			See chapter 12 for more detail.

4.	**Changes to pricing constructs** Clause 2B.4	**nbn** may only replace an **nbn** offer pricing construct with an alternative price construct (e.g., replacing a TC-4 Bundled Offer with AVC-only pricing) subject to giving RSPs at least six months' notification, consulting with RSPs, and provided that the ACCC does not object to the proposed change.	The amendments to **nbn**'s pricing constructs provide RSPs with several layers of protection, which promote the LTIE: • The amendments ensure that changes cannot be made to pricing constructs without giving RSPs an opportunity to input into the proposed changes including any impacts it may have on their own product offerings. This promotes the LTIE by striking a balance between **nbn** having flexibility to set and adjust its prices while at the same time giving RSPs and end-users price certainty and transparency regarding **nbn**'s pricings strategy. • The amendments create a mechanism by which RSPs can provide **nbn** with feedback and raise concerns with **nbn** about any proposed price changes. This mechanism supports the alignment of commercial incentives between **nbn** and RSPs, which encourages the economically efficient use of, and investment in, the **nbn**™ network. • The amendments provide sufficient time for RSPs to make any adjustments to their retail product offerings. This provides certainty for RSPs. • The amendments provide a mechanism for the ACCC to object to the proposed change having regard to matters including whether the proposed change is in the LTIE.

No.	Topic and SAU reference	Proposed regulatory commitments	Assessment against statutory criteria
			• In a dynamic market **nbn** may need to change its price construct to remain relevant and competitive. This mechanism therefore allows for such evolution over time in a controlled manner with appropriate consultation and regulatory oversight. See section 20.3 for more detail.
5.	**Tariff list** Clause 2B.1.6	**nbn** must publish a Tariff List by 1 May each year, setting out the Prices, Maximum Regulated Prices and CVC inclusions applicable for the 12 months commencing from 1 July of that year. **nbn** may also update the Tariff List to reflect any updates to CVC inclusions for bundled offers, changes to Prices (e.g., increases through the year up to the Maximum Regulated Price) and any changes to the Maximum Regulated Price (this will only be relevant at the start of a Regulatory Cycle if the price controls change under an accepted **nbn** RMA).	**nbn**'s proposed commitments in respect to publishing a forward-looking Tariff List provides greater transparency and price certainty for RSPs, which supports RSPs' ability to optimise and position their retail service offerings. This, in turn, promotes retail competition for **nbn** based services. See chapter 12 for more detail.
6.	**Discounting rules** Clause 2B.2.9	**nbn** must notify the ACCC and reduce TC-4 Maximum Regulated Prices if the total value of **nbn**'s TC-4 revenue in a Financial Year is more than 5% less than the notional TC-4 revenue **nbn** would have earned if it had charged list prices (i.e., without discounts). **nbn** will choose which Maximum Regulated Prices it reduces, and the amount by which it reduces those Maximum Regulated Prices, such that if **nbn** had charged at that level in the previous year, it would not have breached the 5% threshold. The discounting rules commence when **nbn** first supplies the AVC-only offers and AVC / CVC bundled offers. Service standard rebates, low-income discounts, emergency relief payments (e.g., COVID-19 rebates), amounts paid to resolve disputes, and government-requested discounts approved by the ACCC will be excluded from the 5% threshold.	**nbn**'s proposed discount rules are intended to balance addressing industry concerns about **nbn**'s previous reliance on the sustained use of broad-based discounts with the need for **nbn** to have sufficient flexibility in response to changing market conditions, including technological change, increased competition and changes in consumer preferences. The rules promote efficient use of the **nbn**™ network in several ways. First, the discount threshold creates incentives for **nbn** to reduce the price of its products and services rather than engaging in broad-based (and temporary) discounts above a 5% threshold. This directly addresses the concerns of RSPs and the ACCC about the breadth of **nbn**'s discounting practices, resulting in greater price certainty for RSPs and end-users. Greater wholesale pricing certainty also promotes RSPs' incentives to invest in their networks and services. Further, given that the value of discounts to be provided by **nbn** are capped at 5%, it unlikely that the use of discounts will have the effect of undermining the effectiveness of the Maximum Regulated Prices. This also provides RSPs and end-users greater price certainty and protection from future price shocks. Secondly, by preserving a degree of flexibility for **nbn** to engage in efficient price discovery, the discounting restrictions: • promote efficient use of the **nbn**™ network. This is evidenced by **nbn**'s historic discounting practices, which have incentivised the upgrade of services (e.g., to higher speed tiers) and

No.	Topic and SAU reference	Proposed regulatory commitments	Assessment against statutory criteria
			improved the affordability of higher-speed services, as well as driving reductions in congestion during peak usage periods (e.g., through significant CVC discounts); • allow **nbn** to align and calibrate its commercial incentives with those of RSPs in a rapidly evolving marketplace, for example, through discounts incentivising RSPs to promote upgrades to higher speed tiers (which some RSPs, as **nbn**'s largest competitors, may not otherwise be incentivised to undertake). This also promotes efficient use of the **nbn**™ network and efficient investment at both the wholesale and retail layers of the market; and • allow **nbn** to continue undertaking, within the bounds of the proposed restriction, a complex price/quality discovery process, which allows **nbn** to undertake real-world analysis of the end-user value proposition for **nbn**'s products and their willingness to pay, especially where end-user preferences and the role of broadband continue to evolve rapidly. This encourages efficient use of **nbn**'s network, as it allows for low-use customers to be retained while providing a ladder from low to higher-value products. See chapter 12 for more detail.
7.	**Low-income offers** Clause 3E.2	**nbn** must convene an industry working group at least once per Financial Year in the First Regulatory Cycle, focusing on targeted initiatives to improve access to **nbn**'s network for low-income, vulnerable and unconnected customers. **nbn** must also publish an annual update on its initiatives to improve access for low-income, vulnerable and unconnected customers.	This commitment – which **nbn** makes in the context of a number of existing and proposed programs that seek to improve access to the **nbn**™ network for various low-income, vulnerable and unconnected cohorts, including low-income families, older Australians and remote communities – enshrines industry and stakeholder consultation on meeting these needs. This commitment will promote demand for **nbn** services among currently unconnected customers and encourage efficient pricing by reference to ability to pay. The forum may also promote competition between service providers to provide services to these cohorts of end-users. See chapter 11 for more detail.
8.	**Recital as to service standards** Clauses 1C.1.8 and 2B.1.7	The Variation includes recitals regarding: • initial service standards being set out in the SFAAs on the SAU variation date (or upon introduction of a new product or service); and • the ability for service standards to evolve during the term of the SAU, including as a result of agreement between **nbn** and RSPs, a SIP Standards, Rules and Benchmarks instrument issued by the Minister, or through regulatory action such as an AD or BRoC made by the ACCC.	The Variation supports the evolution of **nbn**'s service standards over time in response to changing market conditions and needs of RSPs and end-users. Relative to the counterfactual which is a resetting of service standards periodically every three to five years via a cumbersome regulatory process (i.e., the SAU Replacement Module process) the commercially driven WBA processes, supported by the associated SAU recital, is likely to promote competition and encourage efficient investments in the network. This is because it provides a mechanism whereby improvements in service standards will be reflected to changes in price terms and conditions governed by the SAU and will be reflected in **nbn**'s expenditure forecasts and RAB.

No.	Topic and SAU reference	Proposed regulatory commitments	Assessment against statutory criteria
			There are benefits to service levels and similar commercial matters being commercially agreed between access providers and access seekers in the first instance, with the regulator having oversight in the event that commercial agreement is not achieved. The recital also provides certainty for RSPs balanced against an appropriate degree of flexibility for **nbn** to set service standards that are detailed and responsive to customer needs and operational and technical circumstances, via commercial processes with industry.
B.	**Long term revenue control measures: 1 July 2023 to 30 June 2040**		
9.	**Detailed commitments by nbn on a rolling basis and corresponding ACCC role** Clauses 4.5 – 4.10	**nbn** will make detailed supply commitments for the First Regulatory Cycle (commencing on and from 1 July 2023) in the form of a RMA. For the second and each subsequent Regulatory Cycle, and in accordance with the Expenditure Objectives and Expenditure Factors outlined in item 10 of this table, the ACCC may: • review and assess **nbn**'s RMA; and • make an ACCC Replacement Module Determination.	To ensure that **nbn**'s investment decisions are efficient and promote the LTIE, **nbn** proposes to adopt a traditional propose-respond utility-style of regulation which provides the ACCC with a role to review the specific regulatory settings applying in each Regulatory Cycle. This approach strikes a balance between a commercially driven investment and expenditure process by **nbn** and an appropriate regulatory oversight role for the ACCC, by providing the ACCC with sufficient information for the effective operation of the LTRCM and RAB roll-forward mechanisms. This approach will provide a degree of regulatory certainty and predictability thereby encouraging economically efficient investment decisions by **nbn**. Such propose-respond arrangements are common in utility regulation and are reasonable in the context of **nbn**. See chapter 16 for more detail.
10.	**Expenditure Objectives and Factors** Clause 2C.2.5	For each Regulatory Cycle, the forecasts of **nbn**'s opex and capex used as inputs into **nbn**'s ABBRR and revenue cap must reasonably reflect what a prudent and efficient operator in **nbn**'s position, acting in accordance with good industry practice, would incur in achieving certain objectives, including meeting or managing demand, complying with regulatory requirements, implementing government-endorsed projects, maintaining the quality / reliability of its Products and maintaining national network coverage. Several factors must be taken into account in determining whether forecasts comply with these objectives, based on the information available to **nbn** at the time of making the forecasts. These objectives	In respect of each Regulatory Cycle, **nbn** commits to ensure that any Operating Expenditure and Capital Expenditure reasonably reflects what a prudent and efficient operator acting in accordance with good industry practice in **nbn**'s position would incur. For this reason, **nbn** has established the Expenditure Objectives and Expenditure Factors set out in the SAU, by reference to regulatory best practice in Australia and New Zealand, including as applied by the AER, IPART and the NZCC.[63] **nbn** submits that these Expenditure Objectives and Factors are reasonable. See chapter 8 for more detail.

[63] For example, see: AER, *Expenditure Forecast Assessment Guideline,* 29 November 2013; IPART, *Guidelines for Water Agency Pricing Submissions,* November 2020; New Zealand Commerce Commission, *Chorus' price quality path from 1 January 2022 – Draft decision reasons paper,* 16 June 2011.

No.	Topic and SAU reference	Proposed regulatory commitments	Assessment against statutory criteria
		and factors must be applied by both **nbn** (in making forecasts) and the ACCC (if making an ACCC Replacement Module Determination when assessing **nbn**'s forecasts).	
11.	**Categorisation and cost allocation in respect of Core Regulated Services and Competitive Services** Clause 2C.10	As part of the regular three to five-year Replacement Module process, **nbn** may propose, and the ACCC may determine: • categorisation of a service as a 'Competitive Service' (initially comprising **nbn**™ Enterprise Ethernet, **nbn**™ Business Satellite Service and **nbn**™ Satellite Mobility) or a 'Core Regulated Service' (initially comprising all other services); and • consequential cost allocations (based on specified Cost Allocation Principles and in accordance with a Cost Allocation Manual provided by **nbn** to the ACCC) for products and services over time. In addition, **nbn** may, following consultation with access seekers, decide whether to categorise any proposed new product or service as a Core Regulated Service, with a consequential cost allocation, subject to ACCC review. The effect of categorising a product or service as a Core Regulated Service or Competitive Service is outlined in item 12 of this table.	It is well recognised that efficient cost allocation rules between products that face different levels of competition will lead to outcomes that are consistent with the LTIE. In particular, the application of clear and consistent Cost Allocation Principles increases transparency and mitigates against the risk of any anticompetitive cross-subsidy between products. This in turn will promote competition in communication markets as well as encourage the efficient use of, and investment in, communications infrastructure. See chapters 14 and 20 for more detail.
12.	**Effect of categorisation of Core Regulated Services and Competitive Services** Clauses 2C.10.3, 1C.1.5, 1I.1.3(iii), 2B.1.5 and 2D.1.3	Core Regulated Services will be subject to Maximum Regulated Prices and price controls, Tariff List publication obligations, a binding revenue cap and product development and withdrawal requirements. For the purposes of the revenue cap applicable to Core Regulated Services, a portion of the RAB and a separate ABBRR attributable to Core Regulated Services (**Core Services RAB Portion** and **Core Services ABBRR**) will be calculated by applying the cost allocation methodology referred to in item 11 of this table to the values which comprise the RAB and ABBRR. Competitive Services will not be subject to the above obligations.	As outlined in item 11 of this table, cost allocation between Core Regulated Services and Competitive Services in accordance with clear and consistent principles provides transparency to the ACCC and industry that **nbn** is not cross-subsidising its business-grade services with revenues earned from the supply of residential-grade services. This will promote competition in the wholesale and retail supply of business-grade services. Subjecting **nbn**'s Core Regulated Services to a revenue cap and individual price caps will ensure that prices for those are reflective of the efficient costs to supply those services, which in turn promotes the efficient use of, and investment in, the infrastructure used to supply those services. These services are also subject to product development and withdrawal provisions addressed further in item 30 of this table. That **nbn**'s Competitive Services will not be subject to such regulation is appropriate and reasonable given those services are **nbn**'s business-grade services which are subject to the most competition. Those services will continue to be subject to Part XIC of the CCA more generally (including **nbn**'s SAOs and non-discrimination obligations, and the ACCC's information gathering powers) and the prospect of

No.	Topic and SAU reference	Proposed regulatory commitments	Assessment against statutory criteria
			being regulated again in the future (through the ACCC's ability to recategorise a Competitive Service as a Core Regulated Service in the Replacement Module process). See chapters 14 and 20 for more detail.
13.	**RAB and Core Services RAB Portion Fixed Principles and principles for calculation of the ABBRR and Core Services ABBRR** RAB – clauses 2C.9.2, 2C.9.3, 2C.9.4(a) and 2C.9.5(a) ABBRR – clauses 2C.2.1(a) and 2C.2.2	The Variation will set out specified fixed principles terms and conditions regarding how the Real RAB and Real Core Services RAB Portion are calculated at the commencement of the First Regulatory Cycle and in subsequent Regulatory Cycles, including as to indexation. The Variation will also contain fixed principles terms and conditions regarding the calculation of the ABBRR and Core Services ABBRR by reference to forecasts of opex and capex, depreciation, a rate of return on capital, and a tax allowance.	Each of the proposed new fixed principles terms and conditions related to the Real Core Services RAB Portion and Core Services ABBRR are consistent with, and supplement, the existing fixed principles terms and conditions applicable to the calculation of the value of the Real RAB and the ABBRR. The ACCC accepted these fixed principles terms and conditions in 2013. The new fixed principles terms and conditions are established to preserve **nbn**'s investment incentives consistent with the existing fixed principles terms and conditions, with adjustments to reflect how the Variation identifies the portion of the RAB and ABBRR attributable to Core Regulated Services. The fixed principles terms and conditions are reasonable and provide certainty about long-term cost recovery. This in turn will encourage investment in the **nbn**™ network as well as in communications infrastructure more generally, thus promoting the LTIE. See chapters 13, 14 and 23 for more detail.
14.	**RAB Roll-forward determination by ACCC (ex-post review of capex)** Clauses 2C.9.7 and 2C.9.8	The ACCC may conduct ex-post review to determine the amount of capital expenditure to be rolled into the RAB and Real Core Services RAB Portion at the end of a Regulatory Cycle (as well as the values of depreciation and disposals in the roll-forward), in accordance with a specified process, including consultation with **nbn**. As part of this process, the ACCC may also determine aspects of the ABBRR for the following Regulatory Cycle which are dependent upon the RAB and Real Core Services RAB Portion values determined through the ex-post review.	**nbn** recognises that moving to a new ex-ante / forecasting approach used in the BBM and the high degree of demand uncertainty (including due to substitution risk) may result in uncertainty about the level of **nbn** capital expenditure needed to prudently and efficiently respond to future demand, improve quality of network services and implement Government policy. For these reasons, **nbn** proposes to combine its ex-ante forecasting approach with an ex-post capex review role for the ACCC. This has several benefits: • It provides **nbn** with a level of commercial flexibility to develop new products and prices commercially, subject to regulatory oversight, and the threat of regulatory intervention.

No.	Topic and SAU reference	Proposed regulatory commitments	Assessment against statutory criteria
			• The ACCC must have regard to certain decision-making rules and principles which provides **nbn** a degree of regulatory certainty. • It provides confidence to RSPs and industry that **nbn**'s prices only recover expenditure that is prudently and efficiently incurred, consistent with the achievement of productive and allocative efficiency. Additionally, the RAB roll-forward mechanisms will provide a degree of regulatory certainty and predictability to **nbn** thereby encouraging economically efficient investment decisions by **nbn**. See chapter 14 for more detail.
15.	**Core Services Revenue Cap and value of Real Core Services ICRA** Clauses 2C.5, 2C.4.3 and 2C.4.4	**nbn** will adopt a new revenue control in respect of its Core Regulated Services (**Core Services Revenue Cap**). The Core Services Revenue Cap will apply in relation to a Regulatory Cycle and will be calculated to allow **nbn** to recover part of the amount of the ICRA attributable to Core Regulated Services (**Real Core Services ICRA**) as at 1 July 2023 during the remaining period of the SAU. The amount of ICRA able to be drawn down each year will grow over the term of Module 2, providing the opportunity for **nbn** to grow its revenues over time to recover its historical prudent costs. The value of the Real Core Services ICRA as at 1 July 2023 is to be calculated in accordance with a new fixed principles term and condition, by applying an allocation methodology to the value of the ICRA as at 1 July 2020 and rolling forward unrecovered costs and accounting for the time value of money. The SAU will contain a requirement on **nbn** that on the first day of each Financial Year, **nbn**'s prices must be set such that **nbn**'s forecast core services revenue for a Regulatory Cycle does not materially exceed the revenue cap for that Regulatory Cycle.	The proposed new fixed principles terms and conditions regarding the Real Core Services ICRA have analogies with the existing fixed principles terms and conditions applicable to the ICRA. The ACCC accepted those existing fixed principles terms and conditions in 2013. In response to concerns raised by the ACCC and industry, **nbn** has committed to introducing a revenue control for its Core Regulated Services, which applies before the ICRA is fully extinguished, in a manner that meets the legitimate business interests of **nbn** and promotes the LTIE. This will be achieved by setting a new annual revenue cap by reference to the annual revenue allowance generated from the BBM model (the Core Services ABBRR) in the SAU plus an annual draw-down amount of the ICRA. Establishing a binding revenue cap involves three substantial concessions by **nbn** in respect of the ICRA: • that **nbn** will cease growing the ICRA at the WACC (instead indexing only by inflation); • that **nbn** will not add any further losses to the ICRA during Module 2; and • **nbn** will only have the opportunity to recover a set portion of the ICRA in any given year, which will be subtracted from the ICRA balance. This is a very material change to the way in which the revenue control and the recovery of the ICRA works under the current SAU, but does so in a way which respects and rolls over the value of the ICRA in accordance with the current fixed principle and without varying that fixed principle in any way. Constrained recovery of the ICRA balance will allow **nbn** the opportunity to recover its past prudently incurred costs (encouraging economically efficient investment in infrastructure) and strongly incentivises the economically efficient use of the existing infrastructure by **nbn**. This results in price certainty for RSPs and end-users, as well as confidence that **nbn**'s prices are set at efficient levels. The transparency and predictability of the ICRA recovery will provide greater price certainty to RSPs, ultimately promoting the take-up and use of the **nbn**™ network as well as promoting competition in related telecommunications markets.

No.	Topic and SAU reference	Proposed regulatory commitments	Assessment against statutory criteria
			See chapters 13 and 23 for more detail.
16.	**Under-recovered and Over-recovered Amounts** Clause 2C.5.3	**nbn** has adopted a '50-50' risk sharing approach, where: • if **nbn** under-recovers its revenue cap for a given period, then 50% of that under-recovery will be added to the revenue cap for the next period; and • if **nbn** over-recovers its revenue cap in a given period, then 50% of that over-recovery will be subtracted from the revenue cap for the next period.	**nbn**'s proposals to only allow 50% of under- or over-recoveries of the revenue cap exposes **nbn** to additional demand risk and creates another strong incentive for **nbn** to set prices to maximise demand. The 50:50 distribution of unders or overs protects RSPs and end-users against the creation of a substantive 'unders account' that could impact pricing decisions in subsequent years. That is, of the total under-recovery by **nbn** in a given period, only 50% of that under-recovery will be able to be recovered in the future. The remaining 50% is foregone notwithstanding this represents a lost revenue opportunity for **nbn** as it will be prevented by regulation from recovering those unrecovered losses in the future. There is a significantly greater likelihood that, until at least 2028, **nbn** will under- rather than over-recover against the revenue cap, meaning the 50% risk sharing arrangement is likely to be skewed against **nbn** until that time. See chapter 13 for more detail.
17.	**Cost Pass-Through Events** Clauses 2C.11 – 2C.15	During a Regulatory Cycle, **nbn** may apply to the ACCC to adjust its revenue cap and Maximum Regulated Prices to reflect material changes in costs relative to the existing ABBRR for that Regulatory Cycle, where those costs are the result of regulatory changes, specific Government Policy Project Notices (see item 18 of this table), tax changes, force majeure events or new service standards in a published SFAA. **nbn** is also required to submit 'negative' Cost Pass-Through Applications if **nbn** incurs a material decrease in costs as the result of a change in tax, regulation, government direction or a Government Policy Project Notice.	**nbn** commits to introduce a mechanism for the revenue cap to be re-opened (and Maximum Regulated Prices adjusted) where **nbn** incurs materially increased (or decreased) costs relative to the ABBRR for that Regulatory Cycle. Such arrangements are commonplace in utility access regulation and provide investors with an opportunity to recover costs which have been prudently and efficiently incurred. **nbn**'s proposed cost pass-through arrangements balance the need for **nbn** to pass-through costs which it could not have forecast and which it should be permitted to recover, alongside the need for RSPs to have certainty about the types of costs that underpin **nbn**'s cost base and are passed through to its revenue cap. The mechanism is in the legitimate business interests of **nbn**, incentivises appropriate expenditure by **nbn** and promotes the LTIE. The proposed cost pass-through arrangements are transparent and provide for ACCC oversight of the efficiency and prudency of **nbn**'s expenditure in response to cost pass-through events (noting that costs incurred on projects which are the subject of a Government Policy Project Notice will be deemed prudent, as discussed below). See chapter 14 for more detail.
18.	**Government-Policy Projects**	The SAU provides that **nbn**'s costs will be deemed 'prudent' if they are incurred on a project which is the subject of a notice from the Communications Minister stating that the project is required to achieve	As a GBE established to provide high-speed broadband services nation-wide on a wholesale-only basis, **nbn** operates under a government policy mandate. **nbn**'s shareholders have issued a SOE that sets out certain Government policies in relation to **nbn**, including a mandate to operate commercially. **nbn**'s

No.	Topic and SAU reference	Proposed regulatory commitments	Assessment against statutory criteria
	Clauses 4.10(c), 4.14, 2C.2.5, 2C.9.7(vi) and (vii), and 2C.13.5(a)(vi) and (b)(ii)	Government policy (a 'Government Policy Project Notice'). This means that such costs will be included in the ABBRR and **nbn** will be allowed to recover such costs under the revenue cap, subject to the ACCC assessing whether such costs are 'efficient' / whether **nbn**'s proposed implementation of the project is efficient. A Government Policy Project Notice must meet certain requirements, including that a draft must be provided to the ACCC 14 days in advance of the final version, which must also be provided to the ACCC by **nbn** and published on the Department's website. The ACCC may cap the amount of expenditure included in the ABBRR in respect of such a project at the amount of any cap specified by the Minister in that notice, which may be less than the amount considered by the ACCC to be efficient.	shareholders also have the power to direct the company. For **nbn** to be a sustainable commercial business it must be clear how Government policy projects are to be funded. It is reasonable for the SAU to recognise that **nbn** must comply with Government policy and the directions / policies issued to **nbn** by its shareholders. Where the Government considers a project to be commercial, or overall a project is consistent with Government policy for the telecommunications industry generally and/or in relation to **nbn** specifically that the costs are recovered from users of **nbn**'s services, it is in the LTIE that such decisions are transparent and certain. The Government Policy Project Notice provisions ensure this transparency, and provide **nbn** with greater certainty that the ACCC will not prevent it recovering the efficient costs of such projects. This, in turn, promotes investment certainty that supports efficient investment in the **nbn**™ network and other infrastructure. See chapter 14 for more detail.
19.	**Rate of return on capital: methodology** Clause 2C.6	**nbn** will apply a specified methodology to calculate its return on capital for each Financial Year of each Regulatory Cycle in the Subsequent Regulatory Period (i.e., the entirety of Module 2) by reference to a formula and specified inputs. To promote stability in the return on capital rate in each year, while still accommodating changes in the input parameters over time, **nbn** will apply a "midpoint" return on capital that is derived by giving equal weighting to a "long-term" and "current" value for most of the input parameters. The "long-term" input parameters will be fixed over the Subsequent Regulatory Period. The "current" input parameters will vary between Financial Years. The weighting means that the fixed long-term parameters will smooth variation in the current parameters from year to year.	**nbn** should have the opportunity to earn a reasonable rate of return using a WACC methodology that is consistent over the period of the SAU. Adopting such a methodology is in the legitimate business interests of **nbn** and provides regulatory certainty. The WACC methodology proposed by **nbn** produces reliable estimates of the market cost of capital in a wide range of market conditions and affords stability in the allowed return on capital over time, benchmarked against a broad sample of comparator firms. **nbn** considers that this approach is reasonable, will promote the LTIE and will encourage economically efficient investment in the **nbn**™ network. See chapter 15 for more detail.
20.	**Return on debt true-up** Clause 2C.2.7	**nbn**'s Forecast Nominal ABBRR and Forecast Nominal Core Services ABBRR for a Regulatory Cycle will be adjusted to account for a true-up of forecast and actual return on debt.	**nbn** considers that the proposed adjustments to the revenue cap to incorporate a return on debt true-up will promote economic efficiency. Specifically, while the return on debt allowance will be known at the start of a Regulatory Cycle, that forecast may differ from the actual return over the Regulatory Cycle. Accordingly, the Variation contains a true-up mechanism that ensures that **nbn** does not over- or under-recover the cost of debt relative to the efficient cost of debt. This approach is both transparent and reasonable. See section 4.6 of the Frontier WACC Report for more detail.

No.	Topic and SAU reference	Proposed regulatory commitments	Assessment against statutory criteria
21.	**Cumulative Inflation Factor calculation** Clause 2C.1.5	The formula under which the Cumulative Inflation Factor is calculated in Module 2 for the purposes of **nbn**'s revenue controls will be amended to determine inflation using the Queensland Competition Authority (**QCA**) glidepath approach[64] across each Regulatory Cycle in the Subsequent Regulatory Period.	This approach allows for **nbn**'s efficient capex and opex to keep pace with the actual inflation rate. This will provide an incentive for efficient investment and operational decisions by **nbn** (i.e., by **nbn** paying the rate of expected inflation on debt used to fund those investments) which will therefore promote the LTIE. See section 8 of the Frontier WACC Report for more detail.
22.	**Financeability test** Clause 2C.7	**nbn**'s forecast Core Services ABBRR will be subject to a benchmark regulatory financeability test and a mechanism which provides for commensurate adjustments to the forecast Core Services ABBRR where a financeability issue is identified that would not be consistent with the objective of maintaining the benchmark credit rating. The benchmark credit rating is Baa2. If the ACCC rejected an **nbn** RMA and made a substitute decision regarding **nbn**'s revenue cap for the upcoming regulatory period, the ACCC would apply a 'regulatory financeability test', to ensure that the building block revenue component of the revenue cap reflects the revenues required by a hypothetical efficient business (with benchmark gearing and cost of debt) to maintain a benchmark credit rating for the regulatory period. If the test is not met, the ACCC would adjust its decision (changing the cost of equity and/or depreciation profile) to ensure the test is met.	A benchmark financeability test will help to identify possible errors in the regulatory model so that they can be appropriately addressed and tests the internal consistency / adequacy of the Core Services ABBRR, by reference to whether a hypothetical, efficient business in **nbn**'s circumstances would be able to maintain the benchmark credit rating used to determine the ABBRR. This is both reasonable and ensures that the regulator has regard to **nbn**'s legitimate business interests. See chapter 15 for more detail.
23.	**Transition to Weighted Average Price Cap** Clause 4.13	The ACCC may initiate a public inquiry into whether it is appropriate for **nbn** to be subject to a weighted average price cap (**WAPC**) rather than a revenue control and individual price caps under the SAU. The ACCC may, following such an inquiry, direct **nbn** to submit an SAU variation application setting out a WAPC applicable to Core Regulated Services. Under this mechanism, the earliest date by which **nbn** could be subject to a WAPC under the SAU is 1 July 2028.	**nbn** considers that while demand remains uncertain, a revenue cap meets the reasonableness requirements and remains an appropriate form of economic control on **nbn**. A revenue cap is stable under the dynamic demand conditions faced by **nbn** and individual price controls will provide certainty to all RSPs that they will not face price shocks irrespective of the speed tiers they acquire from **nbn** and market to end-users. This contrasts markedly with a WAPC where an allowable price increase (or decrease) under a WAPC could result in a RSP being afforded more or less protection than average, depending on whether its product weighting relative to the industry average means it is more or less affected by the particular range of price changes.

[64] See: http://www.qca.org.au/project/inflation-forecasting/inflation-forecasting-review-2021/.

No.	Topic and SAU reference	Proposed regulatory commitments	Assessment against statutory criteria
			While **nbn** does not believe that it is appropriate to move to a WAPC at this time, **nbn** recognises that the SAU is a long-term regulatory instrument and a WAPC may be suitable to introduce at some later stage during its term. This arrangement provides for the ACCC to conduct an industry wide consultation process that will be transparent and give weight to all industry stakeholders and to end-users taking account of the statutory criteria. Such processes by their very nature promote the LTIE. Recognising that such a material change to the regulatory framework will necessitate material changes within **nbn** for which it will need to prepare and which will take time to implement, it is reasonable that a Regulatory Cycle's notice be afforded for any change. See chapter 20 and Appendix A for more detail.
C.	**Revenue control measures: First Regulatory Cycle commencing on 1 July 2023**		
24.	**First Regulatory Cycle length and timing of forecasts** Clause 3A.1	**nbn**'s First Regulatory Cycle is for two years. Future Regulatory Cycles will be between three to five years in duration. **nbn**'s Variation contains its forecast ABBRR and forecast Core Services ABBRR for the First Regulatory Cycle (FY24 and FY25). For visibility, the Variation also contains **nbn**'s forecast ABBRR and forecast Core Services ABBRR for the two Financial Years immediately preceding the First Regulatory Cycle (FY22 and FY23). As part of assessing **nbn**'s proposed regulatory arrangements for the First Regulatory Cycle, the ACCC will consider the forecast ABBRR for the first two-year Regulatory Cycle together with all of **nbn**'s other regulatory commitments for the Regulatory Cycle.	Under the current SAU, to provide **nbn** with a degree of flexibility to account for uncertainties, **nbn** may propose a Regulatory Cycle term of either three, four or five years for each Replacement Module. The three to five-year Regulatory Cycle period provides appropriate flexibility to promote efficient and prudent investment in infrastructure and the LTIE more broadly, and **nbn** does not propose to vary this framework in the SAU. However, **nbn** considers that the Variation, which provides for an initial, one-off two-year Replacement Module, is reasonable and in the legitimate business interests of **nbn** given: • **nbn** predicts a higher level of demand and revenue uncertainty over the period FY24 and FY25, including as a result of the introduction of new pricing constructs for TC-4 AVC-only and Bundle Offers and new constraints on discounting as set out in the Variation; and • the first two-year period will be the initial period in which the less flexible hard revenue cap will be introduced in the SAU. This will give the ACCC, RSPs and **nbn** an opportunity to review and assess the revenue constraint and price controls under the Variation thereby encouraging the economically efficient investment in the **nbn**™ network, in the interests of RSPs. A two-year initial Regulatory Cycle will also align the Replacement Module process with **nbn**'s current IOP, which only captures forecast expenditures to FY25. See chapter 16 for more detail.
25.	**ICRA, RAB and Core Services RAB**	The starting values in respect of the Real RAB and ICRA across **nbn**'s entire product suite as at 1 July 2023 are calculated in accordance with the existing fixed principles terms and conditions as follows:	As described at item 13 of this table, **nbn** has committed to introducing a revenue control for its Core Regulated Services. This will apply before the ICRA is fully extinguished, in a manner that meets the legitimate business interests of **nbn** and promotes the LTIE. This will be achieved by setting a new Core

No.	Topic and SAU reference	Proposed regulatory commitments	Assessment against statutory criteria
	Portion: First Regulatory Cycle RAB – clauses 2C.9.2 and 2C.9.3 ICRA – clauses 2C.4.2 and 2C.4.3	• Real RAB: will be the value of the Real RAB as at 30 June 2023, calculated in accordance with the 'Module 1' LTRCM provisions; and • ICRA: will be the value of the ICRA as at 30 June 2023, calculated in accordance with the 'Module 1' LTRCM provisions. The SAU also contains provisions for setting the opening value of the Real Core Services RAB Portion and Real Core Services ICRA, which are also proposed to be new fixed principles terms and conditions, as described in items 13 and 15 of this table.	Services Revenue Cap by reference to the annual revenue allowance generated from the BBM model in the SAU plus an annual draw-down amount of the ICRA. The transparency and predictability of the ICRA recovery will provide greater price certainty to RSPs, ultimately promoting the take up and use of the **nbn**™ network as well as promoting competition in related telecommunications markets. Additionally, the proposed fixed principles terms and conditions are reasonably necessary and provide certainty about long-term cost recovery. See chapters 14, 17 and 23 for more detail.
26.	**RAB and Core Services RAB Portion roll-forward rules: First Regulatory Cycle** Clauses 3C.1 – 3C.3	**nbn's** Forecast Nominal ABBRR and Forecast Nominal Core Services ABBRR for the First Regulatory Cycle will be calculated by reference to the elements referred to in item 13 of this table, including real straight-line depreciation. In the First Regulatory Cycle, the ABBRR and Core Services ABBRR will also include an Annual Construction in Progress Allowance (**ACIPA**) as an additional building block.	**nbn** considers that it is reasonable that the methodology for the calculation of the Forecast Nominal ABBRR (and Forecast Nominal Core Services ABBRR) in the First Regulatory Cycle should contain all of the elements of the ABBRR in accordance with the existing fixed principles terms and conditions in the SAU (and the proposed new fixed principles terms and conditions in respect of the Forecast Nominal Core Services ABBRR). **nbn** considers that it is reasonable for the building blocks in the First Regulatory Cycle to include an Annual Construction in Progress Allowance, given **nbn**'s expectation that it will incur capital expenditure on Relevant Assets not yet placed into service in that Regulatory Cycle. This provides for **nbn** to earn a return on capital on that capital expenditure which is incurred but not yet placed into service, thus encouraging **nbn**'s investment incentives and promoting the LTIE. See chapter 17 for more detail.
27.	**Approach to depreciation: First Regulatory Cycle** Clause 3C.3	The method for accounting for depreciation when determining the RAB and Core Services RAB Portion at the end of each Financial Year during the First Regulatory Cycle will be real straight-line depreciation.	Provided that the unders and overs mechanism is maintained, the real straight-line depreciation approach is reasonable and in the legitimate business interests of **nbn**. **nbn** notes that it initially proposed back-loaded depreciation, allowing permitted cost recovery to more closely match **nbn**'s expected revenue profile over time. However, the ACCC has indicated that it does not currently support such an approach. See chapter 14 for more detail.

No.	Topic and SAU reference	Proposed regulatory commitments	Assessment against statutory criteria
28.	**Rate of return on capital: First Regulatory Cycle** Clause 3C.2.3	**nbn's** nominal rate of return on capital for the First Regulatory Cycle will be 7.2% (FY24) and 7.1% (FY25), calculated consistently with the methodology described in item 19 of this table.	Refer to item 19 of this table and see chapter 17 for more detail.
29.	**Transparency and compliance reporting in relation to the First Regulatory Cycle** Clause 3C.4	**nbn** will provide to the ACCC a report by 31 October after each Financial Year in the First Regulatory Cycle in respect of the following matters: • **nbn**'s capital and operating expenditure incurred in that Financial Year including as it compares to the forecast information provided by **nbn** to the ACCC in support of the relevant RMA; and • whether the prices charged for **nbn**'s offers and other charges in that Financial Year exceeded the Maximum Regulated Prices for those offers and other charges.	Transparency measures support the ex-ante regulatory settings and ex-post review. Reporting of the kind proposed for Module 3 has been done by **nbn** to date to support the Module 1 LTRCM compliance reporting. A similar approach to ex-post transparency following the end of each Financial Year in a Regulatory Cycle is reasonable. See chapter 20 for more detail.
D.	**Product commitments**		
30.	**General product commitments** Clauses 1A.4.4 – 1A.4.5, 2D.1.2, 2D.1.3 and 2D.3 – 2D.6	**nbn** commits, in respect of Core Regulated Services, to: • consult via the Product Development Forum (**PDF**) in relation to the introduction of new products and material product changes; • extend the operation of the PDF Processes into the First Regulatory Cycle (see item 37 of this table); • provide 12 or 24 months' notice of any product withdrawal (including if **nbn** amends a product so that it is no longer reasonably capable of delivering at least the same functionality, performance or features); and • confer on the ACCC powers to veto the withdrawal of a product, in accordance with a prescribed process.	As **nbn**'s only channel-to-market, it is important that RSPs have visibility of future products that **nbn** proposes to introduce, and that **nbn** takes an inclusive approach to consulting with RSPs about new products, applicable service levels and product changes. RSPs and end-users also require certainty about the continued existence of products once introduced. The product withdrawal provisions require **nbn** to provide sufficient notice of a product withdrawal (except where the withdrawal of a product is required by law or a Shareholder Minister or **nbn** is prohibited from providing the product under section 41(3) of the NBN Companies Act). This is strengthened by the ACCC's power to object to a product withdrawal where the continued provision of the product would promote the LTIE. **nbn** notes that these provisions were accepted by the ACCC as reasonable / promoting the LTIE in the original SAU and the 2021 variation. **nbn** submits that the provisions continue to remain reasonable and in the LTIE. See section 20.6 for more detail.

No.	Topic and SAU reference	Proposed regulatory commitments	Assessment against statutory criteria
31.	**Product-specific commitments** Clauses 2A.4 – 2A.5 and 2B.1.3(c)	**nbn** commits to: • certain minimum performance standards for MTM products during co-existence with legacy services or during any period of Network Activity or Interference Mitigation; and • certain product-specific definitions of what is a "Standard Installation".	**nbn** commits to ensure that its **nbn**™ Ethernet MTM products comply with certain minimum performance standards during co-existence with legacy services or during any period of Network Activity or Interference Mitigation, to align more closely with the commitments made by **nbn** under the WBA in respect of these standards. **nbn** also commits to comply with certain product-specific conditions in assessing whether an installation is a "Standard Installation". See chapter 21 for more detail. Arrangements that better align the SAU with the WBA will minimise the risk of duplicative and potentially inconsistent obligations and processes. Avoiding such duplication is efficient and will promote the LTIE. See section 10.3 for more detail.
32.	**Utilisation management** Clauses 1H.5 and 3D.1	**nbn** will, where utilisation of certain shared network resources in the transit backhaul network exceeds 95% for 15 minutes or more on three separate days in a 30-day period, take such measures it considers necessary to reduce utilisation to below 95% (i.e., appropriate network augmentation). **nbn** must also provide monthly reporting on these matters to affected RSPs. This commitment applies from the time that the AVC-only pricing construct is introduced and will then apply for the duration of the First Regulatory Cycle.	The utilisation management commitment provides a minimum level of performance which strikes an appropriate balance between efficient use of the **nbn**™ network and efficient investment in the network. In the transition to TC-4 AVC-only and TC-4 Bundled Offers (and the transition of CVC TC-4 from CIR to PIR), RSPs and end-users require certainty that services on the network will continue to meet performance expectations. The commitment to ensure shared network resources operate below 95% utilisation provides RSPs, and by extension end-users, confidence that **nbn** will continue to ensure the network has sufficient capacity to support end-users' services, while not triggering capacity augmentation when sufficient headroom exists in the network. This commitment, and the associated reporting commitments, promote the LTIE by providing a transparent and robust quality of service commitment to ensure that RSPs and end-users know what to expect from **nbn** services. This will promote the take-up and use of the **nbn**™ network. The commitment also ensures **nbn**'s costs are incurred as efficiently as possible (through the appropriate utilisation threshold). This is important to the legitimate business interests of **nbn** and to ensuring that **nbn**'s revenue constraint is referable to efficient capex spend. See chapter 18 for more detail.
33.	**Network performance reporting** Clauses 1H.6 and 3D.2	**nbn** will provide certain reporting on the performance of the **nbn**™ network for **nbn**™ Ethernet, including, on network capability to achieve certain speeds, network congestion, outages, service faults and performance incidents, recurring faults, right first-time installations and network availability.	These commitments promote the LTIE and address the outcomes of the ACCC Working Groups. Specifically, these commitments will provide for a transparent, clear and robust quality of service framework to ensure that RSPs and end-users know what to expect from **nbn** services. This will promote the take-up and use of the **nbn**™ network. Reporting also creates natural incentives for **nbn** to invest in its network and improve / maintain its quality of service.

No.	Topic and SAU reference	Proposed regulatory commitments	Assessment against statutory criteria
		Reports on network capability, outages and recurring faults will be provided solely to the ACCC, while other reports will be provided to RSPs or published on **nbn**'s website, or (on request), to the ACCC. This commitment will not apply where the ACCC makes a Record Keeping Rule in respect of substantially the same information.	By committing to these reporting commitments in Module 1 and Module 3 rather than Module 2, **nbn** retains flexibility to adjust these reporting commitments from time to time to more closely reflect industry needs and requirements. See chapter 19 for more detail.
34.	**Other product-related matters** Attachment C, D, Schedule 1C (various)	With the passage of time, several SAU terms have become outdated, and **nbn** sees this current SAU variation process as providing the opportunity to either refresh or remove such terms. **nbn** will remove references to redundant commitments currently set out in the SAU, including to Fibre Multicast (which has recently been withdrawn), TC-3 offers (which have never been launched), the Interim Satellite Service (which ceased operating in 2017), and to more closely align SAU definitions with the WBA where relevant.	It is reasonable that redundant provisions that are no longer effective or relevant to **nbn**'s operations are removed from the SAU. This provides clarity of the regulatory framework for all parties.
E.	**Other matters**		
35.	**Incorporation of MTM technologies** Various (including in Attachments A, C and D)	Under the Variation **nbn** extends its product and pricing commitments to the FTTB, FTTN, FTTC and HFC access technologies. This includes the application of Maximum Regulated Prices, price controls, product development and product withdrawal obligations.	Extending the SAU framework to the MTM access technologies will provide RSPs and end-users with long-term certainty regarding the regulation of the services supplied over these networks, and remove the current inconsistency caused by these access technologies not being subject to the SAU product and pricing commitments. The SAU framework is designed such that it supports a strong pre-existing set of economic incentives for **nbn** to incur costs and invest efficiently, price to efficiently recover fixed, common and variable costs from end-users, and ultimately, increase the prospects of long-term cost recovery. Extending the SAU framework to the MTM technologies will have the positive effect of bringing the MTM technologies within that overall regulatory architecture. This will produce economically efficient outcomes for those technologies that meet **nbn**'s legitimate business interests and the interests of RSPs and end-users. See chapter 10 for more detail.
36.	**Term of SFAAs**	**nbn** commits that:	In the current SAU, there are no commitments made in relation to the maximum terms of any SFAA published by **nbn** from 1 July 2023. **nbn** recognises that a maximum SFAA term commitment gives RSPs flexibility in negotiating access agreements with **nbn** that are negotiated proximately to (and more closely reflect) the prevailing industry and market conditions at the time of supply, including any SAU

No.	Topic and SAU reference	Proposed regulatory commitments	Assessment against statutory criteria
	Clauses 2F.1 and 3A.2	• for the First Regulatory Cycle of two years, published SFAAs will specify an expiry date resulting in a SFAA term that is no longer than two years and three months; and • for each subsequent Regulatory Cycle, published SFAAs will specify an expiry date resulting in an SFAA term that is no longer than the duration of the Regulatory Cycle.	Replacement Module. In that context, and to align with the shift in **nbn**'s regulatory framework from 1 July 2023, **nbn** proposes to extend this commitment to align the term of **nbn**'s contractual vehicle (SFAA) with that of SAU Replacement Modules to provide certainty to RSPs, and to ensure a more integrated and consistent set of industry supply terms remain in place. The certainty provided by this new commitment should aid the negotiation of new commercial terms between **nbn** and RSPs. This commitment promotes the LTIE as it allows for the better coordination of **nbn**'s regulatory framework to align more closely with the operational activities of RSPs. See chapter 16 for more detail.
37.	**Carry-over of Module 1 commitments** Clauses 3D.3, 2G.1 and 3E.1	**nbn** will extend the following commitments currently set out only in Module 1 of the SAU: • dispute management provisions, for the duration of the First Regulatory Cycle; • closure, relocation and new Points of Interconnect, until 30 June 2040, with minor changes; and • PDF Processes, for the duration of the First Regulatory Cycle.	These commitments have already been assessed by the ACCC in the Final 2013 Decision as compliant with the applicable statutory criteria. In the case of the dispute management provisions and PDF Processes, the ACCC recently re-considered these provisions in the context of the SAU variation accepted by the ACCC in April 2021, which extended the term of operation of these provisions to the end of Module 1. **nbn** considers it reasonable to extend these commitments to Module 3 (i.e., the First Regulatory Cycle), subject to minor edits in response to RSP feedback on MTM drafting shared by **nbn** in August 2021. Carrying forward the detailed PDF Processes (that were recently extended for Module 1 in April 2021[65]) to the First Regulatory Cycle ensures that product development continues to occur in an open and consultative way. **nbn** has proposed only minor amendments to the PDF Processes in Module 1 (which are reflected in the new Module 3 commitments), to remove provisions relating to the Product Ideas Register. These amendments reflect that the Product Ideas Register is of limited utility to industry, particularly given recent improvements made to the PDF. This will allow **nbn** to enhance its focus on investing in processes and systems which are of greater utility to access seekers and ultimately to end-users, promoting downstream competition and thus the LTIE. See chapter 21 for more detail.

[65] ACCC, *NBN Co Special Access Undertaking variation final decision,* April 2021.

Part B
Detail of **nbn**'s Variation proposal

10 SAU Service Description – Incorporation of MTM technologies

The additional MTM technologies (FTTN, FTTB, FTTC and HFC) used by **nbn** are not currently subject to the product and price provisions of the SAU. This leaves them open to regulatory inconsistency and long-term uncertainty relative to **nbn**'s regulatory commitments in the SAU with regard to the FTTP, fixed wireless and satellite networks.

nbn proposes to incorporate the MTM technologies into the SAU framework. This will provide for a consistent regulatory framework, extending the benefits of SAU regulation, which already applies to **nbn**'s original technologies, to all **nbn** access technologies.

In doing so, RSPs and **nbn** will have greater certainty about the regulatory framework. This will encourage the efficient use of, and investment in, network infrastructure, as well as promote competition in wholesale and retail communication markets.

10.1 Background

Currently, a gap exists in the SAU regulatory framework wherein original access technologies deployed or contemplated by **nbn** at the time the SAU was accepted in 2013 are covered by the SAU, but subsequently adopted technologies are not. These subsequent technologies are those that comprise **nbn**'s MTM being the **nbn**™ Ethernet FTTN, FTTB, FTTC and HFC services. **nbn** proposes to extend the SAU framework to incorporate these services.

Initially, **nbn**'s remit was to design, build and operate a wholesale-only, high-speed broadband network using FTTP, fixed wireless and satellite networks.[66] Following a strategic review published on 12 December 2013, the Federal Government agreed that **nbn**'s roll-out should transition from this three-technology network (FTTP, fixed wireless and satellite) to an optimised MTM approach.[67]

Consistent with the Government's policy, **nbn** previously sought to incorporate the MTM technologies into the SAU framework through variations lodged in 2016 and 2017. The 2016 variation attempted to better 'future-proof' the SAU by providing for **nbn** to be able to add new technologies and varied network boundaries without lodging further SAU variations. **nbn** considered these to be reasonable changes to the SAU framework to streamline the operation of the SAU, promote regulatory certainty and process efficiency. At the time that variation was lodged, the FTTC network had not yet been launched but was in planning.

In response to ACCC concerns about this approach, **nbn** withdrew the 2016 variation and simultaneously lodged a revised variation in 2017. The 2017 variation sought to incorporate the MTM technologies into the SAU framework using the same detailed service description approach used for the original technologies in the existing SAU. **nbn** subsequently also withdrew the 2017 variation (though the new detailed service descriptions for the MTM technologies were not at issue).

[66] Statement of Expectations issued to **nbn** on 20 December 2010, pp. 1-2.

[67] Statement of Expectations issued to **nbn** on 8 April 2014, p. 1.

10.2 Recent relevant developments

10.2.1 Pricing

Since the 2017 variation, **nbn** has consulted extensively with RSPs, introducing successive new price constructs to establish pricing for **nbn**'s products that maximises the benefit end-users gain from the network while facilitating competition at the retail level. Most recently, **nbn** has negotiated pricing with RSPs based on AVC/CVC bundled discounts, as set out in WBA4. **nbn** is now committed to introducing the further revised pricing discussed in chapter 11. These revised prices cover all **nbn**™ Ethernet access technologies, with the exception of satellite.[68]

10.2.2 Co-existence and remediation

Since the 2017 variation, **nbn** has continued to refine its approach to managing co-existence and remediation of the MTM networks. These issues were amongst the topics considered as part of the ACCC's inquiry into **nbn**'s service standards.[69] Informed by that inquiry, **nbn** incorporated a number of improvements regarding co-existence and remediation into WBA4. These include:

- improved service levels for completion of remediation (referred to in WBA4 as 'Network Activity') and a rebate paid monthly while a service is the subject of a Network Activity; and
- to account for performance impacts of co-existence and other copper-affecting issues, a rebate for services supplied over the FTTN/B/C networks where:
  - the service is not able to achieve at least 50% of the maximum of the downlink speed range for that service; and
  - historically supported speed information for the service is either unavailable at the time of the RSP ordering or proves to be inaccurate.

10.3 nbn's proposal

To incorporate the MTM technologies into the SAU framework, **nbn**'s key proposed changes relate to:

- expansions to the service description in Attachment A of the SAU, to include FTTB, FTTN, FTTC and HFC;
- committing in the SAU to continue current WBA speed commitments relating to the performance of FTTN, FTTB and FTTC services during co-existence and remediation;
- expansions to the SAU dictionary in Attachment C, to incorporate new concepts relevant to the MTM technologies; and
- changes to other parts of the SAU as necessary to incorporate the initial products and prices for the MTM technologies.

In addition, **nbn**'s new price commitments discussed in chapters 11 and 12 of this submission and new non-price commitments discussed in chapters 18 and 19 of this submission will also apply to the newly introduced MTM access technologies.

[68] The new prices also do not apply to TC-1 and TC-2 services.

[69] See: https://www.accc.gov.au/regulated-infrastructure/communications/national-broadband-network-nbn/nbn-wholesale-service-standards-inquiry.

These changes are a positive development for **nbn**, RSPs and ultimately end-users. They contribute to providing long-term regulatory certainty regarding a number of key aspects of **nbn**'s services, which in turn encourages investment and innovation in downstream markets.

As **nbn** has previously articulated to the ACCC, the SAU framework is designed such that it supports a strong set of natural incentives for **nbn** to incur costs and invest efficiently, price to efficiently recover fixed, common and variable costs from end-users, and ultimately, increase the prospects of long-term cost recovery. On this basis, extending the SAU framework to the MTM technologies will have the positive effect of bringing the MTM technologies within that overall regulatory architecture. This will produce economically efficient outcomes for those technologies that meet **nbn**'s legitimate business interests and the interests of RSPs and end-users.

Extending the SAU framework to the MTM technologies also reflects the government policy change in 2014 for **nbn** to implement an MTM model (a policy that continues today). Further details regarding the policy change and **nbn**'s methodology for selecting the MTM technologies is set out in the expert report of Analysys Mason dated 31 May 2016, submitted in support of the 2016 variation. In short, the policy provided **nbn** with flexibility regarding technical, operational and network design decisions to implement the network, but **nbn** was expected to:

- Deliver the network within the constraint of a public equity capital limit of $29.5 billion specified in its funding agreement with the Australian Government and the Australian Government's broadband policy objectives.
- Determine which technologies are utilised on an area-by-area basis to minimise peak funding, optimise economic returns, and enhance the company's viability.
- Be guided by the Australian Government's policy objectives of providing download data rates (and proportionate upload rates) of at least 25Mbps per second to all premises and at least 50Mbps per second to 90% of fixed-line premises as soon as possible.

In making these decisions, **nbn** also had to have regard to a broader range of considerations, such as long-term business-case considerations and its strategy associated with exercising its rights (under the revised agreements with Telstra) to acquire some of the copper network assets from Telstra, as well as some of the HFC network assets from Telstra and Optus.

nbn believes the MTM model that it proposes to incorporate into the SAU framework meets these expectations.

nbn's proposal also reflects the views of the Minister for Communications, Cyber Safety and the Arts (as he then was) who, as part of the Statement of Expectations given to the ACCC in 2020, expressed a desire for a comprehensive regulatory framework that includes "*a Special Access Undertaking (SAU) variation to incorporate all of the Multi-Technology Mix networks*".

10.4 Prior consultation on MTM drafting

In August 2021, **nbn** issued proposed SAU drafting for the incorporation of MTM access technologies to provide industry with an early opportunity to consider the MTM-specific changes before the Variation was lodged. This was shared with all members of **nbn**'s Product Development Forum (which includes both current and prospective RSPs, as well as consumer advocacy groups) and also with the ACCC. **nbn** received feedback from only one RSP, the majority of which concerned technical drafting points that **nbn** has responded to and, where appropriate, addressed in the Variation.

11 nbn's new pricing commitments

nbn's pricing commitments needs to be viewed in the context of efficient cost recovery, including the overall price levels and the pricing construct. In particular, the pricing construct has been designed to maximise allocative efficiency between consumers with varying levels of utility, and therefore maximise take-up and use of the network through targeted price points and pricing structure. These considerations are also balanced against RSPs' objectives of greater wholesale price certainty and simplicity in developing retail offers. Under the Variation **nbn** commits to introduce:

- AVC-only pricing as new **nbn** offers for **nbn**™ Ethernet Home Fast and higher speed tiers; and
- bundled **nbn** offers in respect of lower-speed AVC TC-4 bandwidth profiles on all **nbn**™ Ethernet access technologies other than Satellite.

These offers will establish new Maximum Regulated Prices (subject to price controls set out in chapter 12).

To provide further price certainty and transparency to RSPs, **nbn** commits to bi-annually adjust CVC inclusions (with the exception of the ELB [12/1] Voice-only Offer and the 12/1Mbps broadband offers on fixed-line and fixed wireless technologies) using a formula-based approach applied to observed changes in usage. To improve the simplicity and transparency of the new TC-4 Bundled Offers, **nbn** also commits to implementing utilisation-based billing for CVC TC-4.

In determining an updated pricing construct that is in the LTIE, RSP certainty must be balanced with ensuring efficient use of the network and allowing **nbn** the opportunity to recover its efficiently incurred costs (including a return on capital), in a competitive market.

The pricing proposals in this Variation should be considered against the legislative and policy context of **nbn**'s initial pricing designed to:

- provide a smooth transition for end-users to the **nbn**™ network; and
- encourage early take-up of the **nbn** and generate service revenue.

The user pays principle was central to **nbn**'s SAU accepted by the ACCC on 13 December 2013, consistent with consecutive Statements of Expectations that have required **nbn** to operate commercially, and remains critical to **nbn**'s ability to recover the cost of building, maintaining and upgrading the network. This principle demands that **nbn**'s individual service prices over time reflect the value of those services to end-users, rather than any individual service price directly reflecting the cost of providing that service at that time (which if strictly applied would make services unaffordable to many low-income and vulnerable end-users).

11.1 nbn™ Ethernet pricing construct and price points

The Variation will implement a pricing construct that strikes an appropriate balance between promoting efficient use of the network, addressing RSPs' needs (including greater pricing certainty) and allowing **nbn** the opportunity to recover its efficient costs (including an appropriate rate of return) in building, maintaining and upgrading the network. This is achieved through the introduction of:

- an **AVC-only pricing construct** for **nbn**™ Ethernet TC-4 services supplied with a bandwidth profile of Home Fast or higher, where network usage charges would be reduced to $0 (**TC-4 AVC-only Offers**);[70]

[70] The Variation calls these "Flat Rate Offers".

- **Bundled AVC/CVC offers** for **nbn**™ Ethernet TC-4 services of 50Mbps and below (**TC-4 Bundled Offers**) on all **nbn**™ Ethernet access technologies other than Satellite. These TC-4 Bundled Offers (with the exception of the ELB [12/1] Voice-only Offer and the 12/1Mbps broadband offers on fixed-line and fixed wireless technologies) include defined rules for bi-annual adjustments to the CVC inclusions to reflect actual changes in end-user download usage over time;
- **Utilisation-based billing for TC-4 CVC**, a significant change from the existing pricing construct under which RSPs are billed based on CVC provisioned, including for unused headroom; and
- **Entry level pricing reform**, uplifting the entry level offer to 25/5Mbps at the same effective wholesale price as 12/1Mbps to improve the baseline experience of end-users and repurposing 12/1Mbps as a very low-priced, voice-only and basic connectivity product.

Table 3 below outlines the pricing construct and wholesale price points that **nbn** is committing to for the new **nbn**™ Ethernet TC-4 offers that are included in the Variation.

Table 3. Proposed pricing construct and wholesale price points

AVC TC-4 bandwidth profile[71]	Common Reference	Pricing Terms		
		Monthly charge	CVC inclusions (Mbps)	CVC TC-4 Overage Charge ($/Mbps)
ELB [12/1] (capacity usage ≤ 0.1Mbps)*	Voice-only	$12	0	$8 (Utilised CVC)
ELB [12/1] (capacity usage > 0.1Mbps)	Entry Level Bundle	$26	0	
FW 12 [12/1]		$26	0	
B25 [25/5, 25/10]		$26	0.1	
B50 [50/20] and Wireless Plus	Standard Bundles	$50	2.45	
Home Fast [100/20]	High Speed Services (AVC-only Offers)	$60	NA	$0
Home Superfast [250/25]		$70		
Home Ultrafast [up to ~1000/50]		$80		
Premium Bundle [100/40]		$65		
Premium Bundle [250/100]		$100		
Premium Bundle [500/200]		$160		
Premium Bundle [1000/400]		$230		

* Available on fixed line technologies.

11.1.1 A different approach for high speed and lower speed services

A fundamental benefit of the Variation is that it provides greater price predictability, cost certainty and simplicity for RSPs and, in turn, end-users on the **nbn**™ network. A prevailing view among RSPs is that this certainty can be best achieved through the removal of CVC for all **nbn**™ Ethernet speed tiers.[72] While this broad approach may

[71] Each bandwidth profile includes ranged profiles for which the specified bandwidth is the maximum speed in the range. For example, 50/20 includes the 25-50 / 5-20Mbps bandwidth profile.

[72] Though this view was not universal amongst RSPs. There was a view that usage-based billing similar to that under the current SAU price construct should be continued, as it allows RSPs maximum flexibility to differentiate their services and set value-based pricing that enhances competition in the retail market. It was proposed that this could be enhanced via dimension-based CVC charging similar to that which applied under **nbn**'s previous Dimension-Based

achieve increased cost certainty for RSPs, this must be considered in the broader context of cost recovery and the efficiency of pricing. For example, if **nbn** no longer earned CVC revenue from heavy data users on lower-speed services, that revenue would need to be earned from other users. This could be achieved by increasing lower-speed prices in a way that excludes low data users. Or it could be achieved by increasing higher-speed prices in a way that discourages otherwise efficient use of higher speed tiers. Either approach results in inefficient use of the network, reduces value that would otherwise flow to end-users and, in the worst case, completely excludes marginal users of the network.

The different pricing construct for TC-4 AVC-only Offers and TC-4 Bundled Offers promotes the LTIE and a reasonable opportunity for **nbn** to recover its prudently and efficiently incurred costs. It has been informed by several factors:

- **Increased pricing certainty for RSPs:** 'More cost certainty over access costs for access seekers' is one of the five key outcomes that the ACCC considers should inform the regulatory framework applicable to the **nbn**™ network.[73] This is consistent with feedback **nbn** has received in the course of extensive pricing and SAU consultations.

  With a positive usage charge, 100Mbps and faster plans represent higher commercial risk to RSPs due to their higher throughput capability, the typically higher-use end-users on these speed tiers and the volatility of their usage patterns. **nbn**'s analysis shows that between December 2020 and November 2021, the monthly variance of Mean Busy-Hour Throughput (**MBHT**) for a 100/20Mbps plan is ten times that of a 50/20Mbps plan, and even greater variability is observed for speeds above 100/20Mbps.[74] Under the updated pricing construct, RSPs will have a reduced exposure to overage-related cost variability from those end-users with high bandwidth requirements and high data consumption, and as a result may be able to develop cheaper retail pricing on higher speed tiers while retaining the ability to provide end-users with low bandwidth and limited usage requirements with cheaper monthly retail fixed charges and tiered pricing options based on how much they use the **nbn**™ network.

  While not adopting an AVC-only construct across the board, the TC-4 Bundled Offers established under the Variation will also enhance pricing certainty for speed tiers of 50Mbps and below. The bundles and associated price levels rebalance fixed and variable charges on the bundled 50Mbps speed tier in order to significantly minimise the likelihood that these services will incur substantial overage charges. The committed six-month update to CVC inclusions – under which **nbn** will share 50% of average usage changes with RSPs (in the case of usage growth resulting in increases to bundle inclusion at no additional charge) – removes **nbn** discretion in setting bundled inclusions and should provide RSPs with greater predictability regarding charges for these **nbn**™ Ethernet services and remove the need for the existing bundle roadmap consultation process, and enhance RSPs' ability to offer retail products that meet customer needs while reducing uncertainty regarding potential CVC overage charges.

Discount by RSP (DBD-R), under which the per-unit cost of capacity reduced the more a RSP provisioned (or utilised) per service. It was further proposed that this model could be adjusted so that the highest dimension-based discount would reduce the cost of CVC essentially to $0, replicating the outcome of AVC-only pricing.

[73] ACCC, *NBN Co Special Access Undertaking – Summary of industry working group outcomes*, December 2021, p. 7.

[74] Based on observed industry average monthly download usage, converted to MBHT using consistent busy hour traffic share. Monthly average MBHT variance for 100/20Mbps is 0.148 vs 0.010 for 50/20Mbps over the 12-month period.

While the 50Mbps speed tier is currently the most popular choice of **nbn** plan, and the ACCC contends that 50Mbps is sufficient in most cases,[75] the expectation is that consumer demand for higher speeds will continue to grow over time. **nbn** modelling of anticipated usage requirements indicates that the 100Mbps plan will best support the broadband experience of approximately 50% of end-users based on forecast usage within this decade. This is based on **nbn**'s expectation that instantaneous peak speeds will impact end-user bandwidth decisions and is informed by usage forecasts established in the Bureau of Communications, Arts and Regional Research (**BCAR**) report on demand for fixed line broadband – noting that BCAR research provides alternative views based on whether end-users will be willing to accept a certain level of instantaneous congestion.[76] Consequently, while the majority of **nbn** services are currently connected on a 50Mbps speed tier, this is expected to change over time and further improve the price and cost certainty that RSPs have asked for.

- **Ensuring pricing certainty does not reduce access to the network:** Another key outcome identified by the ACCC following the ACCC Working Groups is 'Incentives for efficient operation and efficient use' – which includes promoting both the take-up and use of the **nbn**™ network. In seeking to address RSP concerns with pricing certainty, **nbn** has considered applying an AVC-only construct to all **nbn**™ Ethernet speed tiers. Our modelling indicates, however, that such an approach will reduce take-up of services on the **nbn**™ network.[77] A transition to AVC-only pricing necessarily requires a rebalancing of the access price to ensure that **nbn** retains the opportunity to recover the costs incurred in building, maintaining and upgrading the network – i.e., increasing prices for all end-users or, more likely, a higher fixed access charge reducing entry-level affordability.

  nbn released Accenture's research as part of its June-2021 SAU discussion paper, which showed that "AVC-only" pricing across all speed tiers will have significant adverse impacts on low data usage end-users, particularly those currently on data capped retail offerings. The research estimated that in March 2021, there were 1.4 million households accessing the **nbn**™ network through data capped retail offers, with the vast majority of those end-users purchasing services based on **nbn**'s wholesale speed tiers of 50Mbps or below (approximately 88% of all capped plans), and that under AVC-only pricing, these end-users would likely face a significant "price shock", an average increase of $120 per year in their **nbn** retail prices, as RSPs transition these end-users onto unlimited data retail offers.

  The research also highlighted that consumers on data capped plans have a higher prevalence of specific socio-economic cohorts, including retirees, low-income households, and households receiving government subsidies, which exacerbates the impact of such a "price shock" on their household budget. The report concluded that AVC-only pricing across all speed tiers would lead to significant degradation to consumer value over the **nbn**™ network; this would be in the order of a $213 million per annum reduction in consumer surplus, including a $155 million loss for end-users absorbing the price shock either by remaining on their current speed tier and paying more, or downgrading to a lower speed tier to achieve budget savings. An additional $58 million loss is estimated for 69,000 end-users losing access to broadband over the **nbn**, due to reduced affordability and value for money compared to alternatives.

[75] ACCC Media Release, *NBN speeds recover after COVID-19 demand,* 21 May 2022. Access: https://www.accc.gov.au/media-release/nbn-speeds-recover-after-covid-19-demand.

[76] BCAR, *Demand for fixed-line broadband in Australia, 2018-2028 (Working Paper)*, July 2020. BCAR research indicates that end-user bandwidth may be lower if end-users are only concerned with average peak speeds and accept certain levels of congestion during instantaneous peak speed events.

[77] **nbn**, *RMID1064 – **nbn** Special Access Undertaking Variation 2021 – Discussion Paper*, June 2021.

There would also be significant revenue impacts associated with such a model due to high-use end-users paying prices that are lower than they are willing to pay for the utility they obtain from their **nbn** service, resulting in sub-optimal value capture in terms of product mix and therefore upward pressure on prices to achieve the same level of cost recovery. As an example, **nbn**'s market survey in 2021 indicated that customers using unlimited retail plans are willing to pay $38 per month more than customers using 150GB or less a month, and $18 per month more than customers using 500GB or less a month, supporting the strong linkage between willingness to pay and the use of the network.[78]

These risks raise obvious concerns for the viability of AVC-only pricing on entry level and standard TC-4 speed tiers, and run counter to the progress on affordable superfast broadband products that the ACCC, **nbn** and industry have made through the existing 12/1 Entry Level Bundle.

nbn is not unique in this challenge, with other utility providers across the world experiencing similar trade-offs between cost recovery and take-up. Two-part tariffs emerged as the predominant structure across utility pricing in Australia, including water, electricity, gas and indeed telecommunications prior to the introduction of **nbn**. The specific design of the two-part pricing structure differs across industries, ultimately balancing the need to recover efficiently incurred costs and minimising the level of distortion tariffs have on consumption (i.e., Ramsey pricing).[79] For **nbn**, this requires in-depth understanding of the value end-users place on **nbn** services and their likely responses to price signals for different product attributes. As a result of **nbn**'s significant fixed cost, this also includes efficiently levying mark-up above marginal cost on the least price elastic product attributes.

In this context, **nbn** considers it promotes the LTIE to maintain a two-part pricing construct in relation to entry level and standard TC-4 Bundled Offers, where consumers are more sensitive to access prices due to availability of close substitutes and are less responsive to usage charges.[80] In addition, two-part pricing enables RSPs to continue to provide products that cater to both:

a. market segments that may not have significant data or speed requirements and are seeking the most affordable service that meets basic connectivity requirements; and

b. those customers who have higher data requirements but for whom 50Mbps or below provides sufficient bandwidth.

- **Balancing maximisation of network use with the recovery of efficient costs:** **nbn**'s pricing structure and pricing levels are aimed at maximising the take-up and use of the **nbn**™ network, and must necessarily enable **nbn** to recover its efficiently incurred costs (including an appropriate rate of return). Indeed, given the magnitude of the **nbn** investment and ensuring **nbn** can continue to invest for future customer benefit, it is critical that **nbn**'s pricing promotes dynamic and allocative efficiency. This is aligned with the ACCC's five key outcomes which includes the opportunity for **nbn** to earn sufficient revenues to meet its legitimate financing objectives, including transitioning to an investment grade credit rating.[81]

  In considering appropriate pricing structures for utility networks, the marginal costs of access and usage provide a useful 'first best' theoretical solution, in the sense that marginal cost pricing allows all units to be

[78] This data is based on a 2021 market survey commissioned by **nbn**, with a sample base of 3910 end-users.

[79] Laffont and Tirole, *Competition in Telecommunications,* MIT Press, 2000, section 2.2; Berg and Tschirhart, *Natural Monopoly Regulation: Principles and Practice*, Cambridge University Press, 1988, section 4 on non-linear tariffs and efficiency.

[80] This data is based on a 2021 market survey commissioned by **nbn**, with a sample base of 3910 end-users.

[81] ACCC, *NBN Co Special Access Undertaking — Summary of industry working group outcomes,* December 2021, pp. 6, 8.

supplied where users' willingness to pay exceeds the cost of supply. While the maximum efficient use of the network would occur in a theoretical analysis if all services were priced at marginal cost of access and usage, this would not be practical or sustainable for **nbn** as it would not allow for cost recovery of the real undepreciated common costs in a telecommunications network and would heavily discourage new investment in the future. Further, this pricing structure would not have permitted **nbn** to adopt the initial pricing levels for **nbn**™ Ethernet services which the ACCC accepted in 2013 as promoting the LTIE by being set by reference to legacy services and facilitating migration onto the network without price shocks for end-users.[82]

The 'second best' approach, which is common among other utilities, is the two-part tariff mentioned in the previous section, with a usage charge reflecting the marginal cost of usage and an access charge allowing for the recovery of all other costs. Such an approach could, in theory, allow for cost recovery and promote efficient network usage, but this approach would typically require a uniform network access charge (i.e., single AVC charge), priced substantially above **nbn**'s historical and current AVC prices. A key challenge with this approach is that demand on the **nbn**™ network is price elastic (end-users are sensitive to the level of access charges) given the general availability of suitable substitutes, such as mobile and fixed wireless services. Accordingly, a uniform access charge would result in significant deadweight loss, particularly among consumers with low willingness to pay and who derive low utility from the network, a proportion of which would choose not to connect to the **nbn**™ network, reducing efficient network use and the overall benefit of fixed broadband for the community.

This highlights the complex questions that **nbn**'s pricing structure must consider, such as how to charge for different aspects of product value (readily measurable features such as headline speed, peak speed, network usage, latency, jitter) and questions of how price levels should evolve over time to continue to support **nbn**'s ability to recover its efficiently incurred costs (including an appropriate rate of return). In practical terms, the allocation of common and sunk costs needs to be considered from both a cross-sectional and temporal perspective (including through use of Ramsey pricing principles that account for differing demand sensitivity to prices). The cross-sectional view considers the most efficient way to price differentiate among different consumer segments across product features as to maximise allocative efficiency of the overall pricing framework, while the temporal view addresses the issue of willingness to pay for the network over time as its use and value increases. Both of which must be addressed to enable **nbn**'s recovery of efficiently incurred costs in the least distortive way to demand and consumption.

11.1.2 Usage charge remains relevant to ensuring efficient pricing

nbn considers its pricing proposal balances the considerations discussed in section 11.1.1, and that a usage charge on entry level and standard TC-4 speed tiers remains necessary to ensure efficient pricing. Removing usage charges from higher speed tiers while retaining usage charges for lower speed tiers strikes a reasonable balance between:

- encouraging greater use of the network and enabling RSPs to provide services targeted at higher usage customers without exposure to unpredictable overage costs;
- encouraging greater take-up of the network by providing lower use customers with a relatively low monthly access charge to increase the attractiveness of **nbn**'s offerings; and

[82] Final 2013 Decision, p. 85.

- encouraging more efficient cost recovery by disincentivising heavy use customers from selecting products with lower access charges that are designed to cater to lower use customers (which generally results in a poor customer experience as a reflection of its poor allocative efficiency properties).

The appropriate level of the usage charge is considered further in section 11.2.3. From a pricing structure perspective, it is important to note that a usage charge is not required to reflect localised costs in order to be deemed efficient; it is an instrument to ensure the overall pricing construct is allocatively efficient.

In this respect, **nbn** acknowledges the ACCC's suggestion in the ACCC Working Groups that charging for usage where the charge is not directly linked to localised costs is unlikely to promote efficient investment and could cause misalignment between the driver of cost and revenue. It is correct that a usage charge based on localised costs could produce a *more* efficient construct in terms of investment incentives considered in insolation. However, such an approach would not maximise access to and use of the network, leading to a loss of efficiency. Further, removing or radically reducing (non-localised) usage charges would have negative impacts on demand for both services generally and for premium products in particular, where the access charge across all products would need to increase to recover the same revenue requirement.

11.1.3 Utilisation-based billing for usage simplifies bundled offers

As set out above:

- there are compelling reasons for usage-based pricing to continue to apply for lower-speed **nbn** services;
- **nbn** is committing to include TC-4 Bundled Offers in the SAU, which is a meaningful response to RSPs' legitimate concerns regarding certainty of bundle pricing.

nbn is also making complementary operational changes which provide significant benefits to RSPs, and which **nbn** expects will provide further certainty and simplicity for RSPs in managing wholesale input costs to their business and will promote competition in downstream markets by doing so.

The existing approach to usage pricing involves **nbn** charging RSPs for 'provisioned bandwidth' – i.e., the amount of CVC the RSP has ordered to meet anticipated end-user demand. This approach requires RSPs to manage the CVC capacity to balance end-user experience against wholesale input cost. The result for RSPs is that as usage has increased, CVC management has become increasingly costly and complex, requiring sophisticated tools and dedicated resources to maintain the fine balance between risks to end-user experience and cost.

To address these concerns, **nbn** is proposing a move to 'utilisation-based' billing at the same time that **nbn** introduces the TC-4 AVC-only Offers and TC-4 Bundled Offers as committed under the Variation. The move to utilisation-based billing will address the CVC management complexity concerns by removing the wholesale cost implications of bandwidth provisioning. **nbn** will only bill for bandwidth that is utilised (measured at the AVC level for services supplied under the TC-4 Bundled Offers and pooled nationally), enabling RSPs to maximise bandwidth provisioning and only be liable for costs incurred by actual utilisation of the network.

This transition to utilisation-based billing will be implemented via **nbn** system changes to enhance billing capability, minimising costs and migration efforts for RSPs. CVC bandwidth will be ordered and provisioned in the same way as it is today, however RSPs will have the option of provisioning each CVC up to the bandwidth of the relevant NNI (detailed further in section 18.1.3) but only paying for CVC capacity that is utilised. Overage charges for TC-4 Bundled Offers will continue to be nationally pooled across all CSAs, calculated using the total utilised bandwidth of the applicable speed tiers as opposed to the current method of using the provisioned CVC bandwidth.

This will support the efficient use of the **nbn**™ network, benefit RSPs and ultimately promote competition in downstream markets by:

- reducing the need to manage bandwidth provisioning on a daily basis and in response to sporadic demand events (e.g., gaming updates);
- further simplifying network management as existing bandwidth utilisation conditions will be removed as a result of the move to utilisation-based billing;
- enabling a vastly simpler migration to the new pricing construct by enabling both TC-4 Bundled Offers and TC-4 AVC-only Offers to be supplied on the same CVC, meaning RSPs will not need to adapt to and manage another CVC type; and
- ensuring RSPs can further focus on managing network traffic according to their competitive positioning, trading off peak hour performance and wholesale input cost associated with network usage (i.e., overage exposure).

Inherent in the provisioned bandwidth CVC approach is an allocation of CVC headroom (see equation below), which caters for the instantaneous peak burst capacity. This is CVC capacity that generally sits idle unless there are significant demand surges, however RSPs pay for this capacity and the amount required increases as overall customer usage grows.

$$Overage = [(Avg.Utilised\ bandwith + CVC\ headroom) - Bundle\ Inclusion] * Overage\ Rate$$

nbn currently observes busy hour CVC headroom on a daily basis as a percentage of utilised bandwidth, a figure that has tracked to a longer-term trend of 20% to 25%. Figure 3 below shows the monthly average headroom (in yellow) since September 2019 across all RSPs. The average CVC headroom for this period has been ~28%, although this includes elevated headroom during COVID-19 (~36%) due to the CVC Boost and lower headroom prior to COVID-19 (~22%). Headroom over the past 12 months has remained relatively stable at 25%, higher than the pre-pandemic levels. This is largely driven by permanent changes in end-user behaviour induced by the COVID-19 pandemic (e.g., working from home) as well as the emergence of the Omicron variant and resulting behavioural changes.

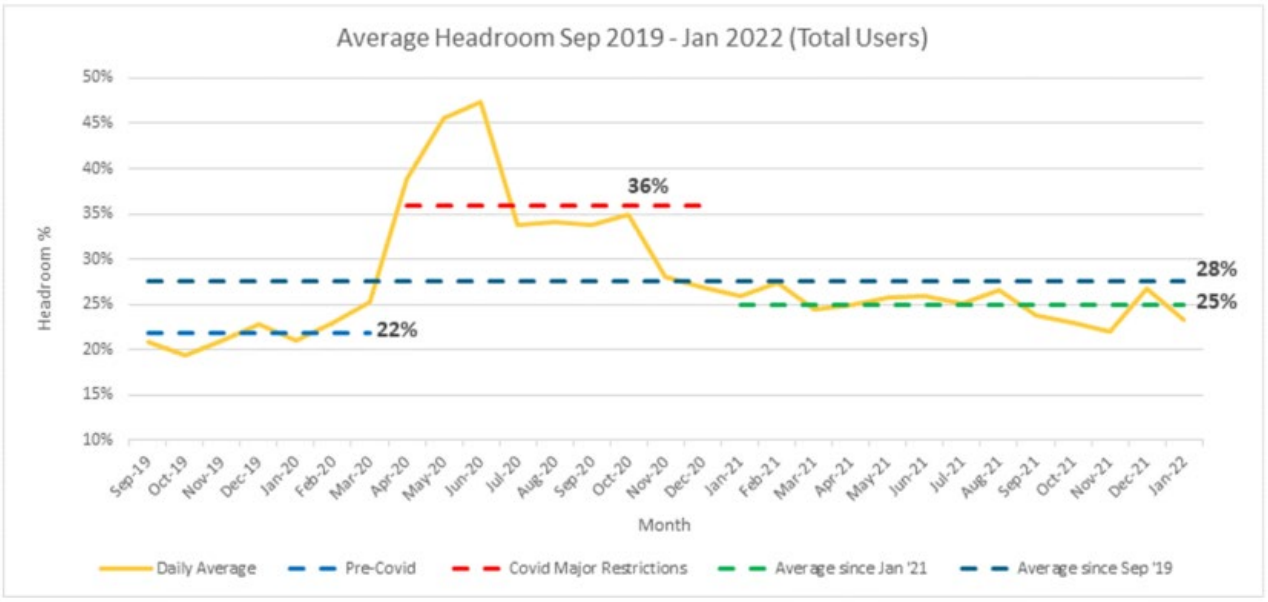

Figure 3. Average Headroom September 2019 – January 2022 (Total Users)

The proposed implementation of utilisation-based billing will effectively operate like nth percentile billing due to peak hour averaging,[83] smoothing the cost of CVC in peak usage and particularly in the event of demand shocks. Under this approach, RSPs would no longer be billed for the 'CVC headroom' portion of the overage charge reducing exposure to growth in usage and particularly growth in the size of peak hour maximum bursts.

$$Overage = [Avg.Utilised\ bandwith - Bundle\ Inclusion] * Overage\ Rate$$

In formulating the TC-4 Bundled Offers in the Variation **nbn** has considered the revenue implications of introducing utilisation-based billing and adjusted the level of inclusions for TC-4 Bundled Offers by a proportionate amount to the observed historical CVC headroom (based on a more RSP favourable pre-pandemic level). For example, in the SAU discussion paper released in June 2021, **nbn** proposed 3Mbps of CVC inclusions for the B50, based on the current 'provisioned bandwidth' approach.[84] **nbn** has not materially changed this target inclusion level other than to adjust the inclusion down proportionately by 22% headroom to 2.45Mbps, reflecting the removal of headroom from overage calculations.

11.2 Determining appropriate price levels

11.2.1 nbn's pricing objectives

nbn's pricing objectives include optimising both the number of users *on* the **nbn**™ network and use *of* the network. The prices that **nbn** has established for its suite of products – including the TC-4 AVC-only Offers, TC-4 Bundled Offers and CVC capacity charges in the Variation reflect pricing standards that require that prices:

- lie between long run **marginal and stand-alone (fully distributed) cost**;
- in recovering fixed and common costs, take into account differences in **willingness to pay** for different products, including over time and, where relevant, network effects;
- are set based on an **expectation of future price and demand evolution** that is consistent with stable and predictable prices that **recover no more than the long-term costs of supply** (inclusive of an appropriate return on capital); and
- provide for a **smooth transition from legacy services** to the **nbn** on a like-for-like product basis.

Table 4 below provides an overview of how **nbn**'s pricing conforms to each of these pricing standards.

[83] 'Provisioned' CVC bandwidth is designed to cater for instantaneous burst capacity during peaks in network throughput. In contrast, 'utilised' bandwidth is the average measured during the peak hour, representing the average throughput observed in the network in that period. This takes into account both peaks and troughs in network throughput within the hour, with the peak throughput ('provisioned bandwidth') often orders of magnitude higher than average throughput ('utilised bandwidth') due to high variability in demand; this is particularly true for smaller RSPs with fewer AVCs per CVC.

[84] As set out in Table 3 above, B50 includes the 25-50/20Mbps and 50/20Mbps speed tiers.

Table 4. Overview of how nbn's pricing confirms to pricing standards

Price standard	How nbn pricing conforms to the standard
Lie between long-run marginal and stand-alone cost	• This is demonstrated by the building block model – which provides transparency regarding the build, maintenance and upgrade costs of **nbn**'s Core Regulated Services and Competitive Services. • RSPs are informed and are able to identify when a price may exceed stand-alone cost (and there are no claims at present that any prices exceed such limits). • **nbn**'s prices are intended to at least recover long-run marginal costs over time[85] and in the face of competitive substitutes and significant upfront losses, face disincentives to price in such a way as to stifle demand, discourage take-up or encourage disconnection from the **nbn.**
In recovering common costs, take into account differences in willingness to pay of different customer cohorts for different products and over time and, where relevant, network effects	• RSPs are able to highlight where there is an issue with the relativities between prices and where network effects are significant. • **nbn** has incentives to incorporate willingness to pay considerations and network effects (informed in part by RSP feedback) into its pricing, including as influenced by increasing competition and availability of broadband substitutes. • Willingness to pay is central to the proposal to introduce TC-4 AVC-only Offers (with higher access charges) for higher speed tiers, and the maintenance of a usage charge for TC-4 Bundled Offers. • **nbn** demonstrates its commitment to using willingness to pay (or value-based pricing) to recover common costs through the diversity of its product offerings, which include varying price points and quality levels. The fact that **nbn** is offering products ranging from $12/month to $230/month under the Variation reflects **nbn**'s desire to allow all potential end-users choice and promote more allocative efficient outcomes, recovering costs without discouraging take-up. • In particular, the new price structure and levels **nbn** is committing to under the Variation further supports the needs of price sensitive customers with a low willingness to pay, through the development of a Voice-only Bundle and an improved Entry Level Bundle. • **nbn** is also committed to considering the breadth of its products offerings, by virtue of the discipline imposed by RSPs in the product development process. RSPs operate at scale, and often expect a minimum addressable market before they agree to create retail offerings corresponding to new **nbn** products. As a result, **nbn** is continuously encouraged to consider the market dynamics associated with achieving scale, and balancing that against the need to promote efficient pricing outcomes.
Are set consistent with an expectation of future price and demand evolution that is consistent with recovering no more than the long-term costs of supply (including an appropriate rate of return)	• **nbn**'s prices are set by having regard to the present value of revenue requirements to recover efficient costs rather than just focussing on short term revenue maximisation (something made possible by the ICRA and unders-and-overs mechanisms in the SAU). • **nbn**'s prices seek to maximise demand and use of the network both in the short term and longer term – in particular, prices have historically and currently been set at below cost levels to support an early and smooth migration from legacy networks.

[85] In this regard, recovery of marginal cost needs to be considered in the context of **nbn**'s nationally averaged pricing approach, and may occur via a combination of charges and over time. For example, **nbn** does not charge for initial standard installations, but the cost of an initial standard installation will be recovered over time via recurrent charges such as AVC and CVC.

Price standard	How nbn pricing conforms to the standard
	• Going forward (as reflected by the proposed price controls), **nbn**'s prices levels are expected to grow as willingness to pay for the network increases. The increased willingness to pay for broadband will be driven by increasing consumer value propositions, including ongoing and sustained increases in broadband network traffic as well as the emergence of new applications and new uses for the network (e.g., 8K TV).
Provide for a smooth transition from legacy services to the **nbn**™ network on a like-for-like product basis	• **nbn**'s historic and current pricing is below cost levels to allow for a smooth transition from legacy networks to functionally equivalent products based on the 12/1 speed tier. • This focus on a smooth migration has not only translated to affordable prices for products comparable with legacy services (e.g., 12/1) but also to higher speed services due to the anchoring effect of lower speed services. The affordability of **nbn**™ Ethernet services to support a smooth migration is enhanced through **nbn**'s changes to pricing for the 12Mbps and 25Mbps speed tiers, noting the re-characterisation of 25/5 as the new entry level service and associated substantial price decrease. • While this has been at the expense of cost recovery in the short term, a key objective of the SAU was to provide **nbn** with regulatory certainty that it would be able to achieve government policy and have the opportunity to recover its initial upfront costs over the life of the network and the SAU. This is in **nbn**'s legitimate business interests and is consistent with the fixed principles terms and conditions of the SAU.

While **nbn** considers these pricing standards as the appropriate core determinants for establishing appropriate price levels on the **nbn**™ network, alternative views were put forward in the ACCC Working Groups, with a specific focus on the relationship between the direct costs of each of **nbn**'s products and the price levels associated with those products. This is considered in section 11.2.2 below.

11.2.2 Relationship between nbn's costs and product price levels

A key focus of the ACCC Working Groups, specifically the BBM working group, was how **nbn's** prices and ARPUs are aligned with its costs. One proposal put forward during the ACCC Working Groups was that each of **nbn**'s products should reflect cost-based pricing: any fixed access charge (i.e., AVC) for a specified product should reflect the fixed costs incurred in delivering that product while any variable or usage charge (i.e., CVC) should equate to the applicable marginal cost.

It is well established that historically **nbn**'s individual prices do not reflect the underlying costs of each product component, speed tier or access technology. This was the basis on which initial Maximum Regulated Prices were included in the original SAU accepted by the ACCC in 2013, where **nbn** was explicit that there was no such direct linkage of costs and prices.[86] The fundamental challenges to such an approach include the scale and rapid deployment involved in the **nbn**™ network rollout, the requirement for cross subsidisation between commercial and loss-making products, and the diversity and number of **nbn**'s products sharing a common network. The fact that **nbn** has completed the primary network build does not remove the fact that these build costs have been incurred, on the basis of a regulatory commitment that **nbn** would be given the opportunity to recover the efficient and prudent costs of those investments (including an appropriate rate of return). This is the basis of the current SAU, as accepted by the ACCC, and consistent with standard access regulation and the LTIE.

[86] See, for example: **nbn**, *Supporting Submission - NBN Co Special Access Undertaking*, 28 September 2012, p. 100.

Given the upfront investment required to roll out a ubiquitous national broadband network, the recovery of this investment (including an appropriate rate of return) is only possible over the economic life of the **nbn**™ network. As a result, it was always recognised that there would be upfront losses (relative to a regulatory building block allowance) and that these losses would be accumulated in an ICRA, with **nbn** being given the opportunity to recover these losses in future periods. This promoted **nbn**'s investment incentives and accordingly the LTIE, and was formalised through the establishment of fixed principles terms and conditions which preserve and roll forward the value of the ICRA and the value of **nbn**'s RAB for the duration of the SAU term. **nbn** commits in the Variation to manage the way in which the ICRA may be recovered over the remainder of the SAU term, as discussed in chapter 13. This set of commitments does not negate the basic pricing standards that shape **nbn**'s pricing, as discussed above.

There are a number of challenges with the view that **nbn**'s usage charge should instead reflect its long-run marginal cost, as outlined below:

- **Very high CVC charge if adopted under nbn's initial pricing construct:** If the proposed methodology (that any usage charge should reflect **nbn**'s long run marginal cost) was adopted at the introduction of **nbn**'s services, this would have translated to an incredibly large and unrealistic CVC charge payable by all users of the **nbn**™ network – given the costs yet to be incurred in building the network and **nbn**'s policy mandate to achieve uniform national wholesale pricing. This demonstrates why the adoption of a usage charge decoupled from long run marginal cost promoted the LTIE from the establishment of the **nbn**™ network.
- **Inefficient use of network if access charges increased to supplement lost usage revenue:** If **nbn**'s usage charge reflected its long run marginal cost, the access charge for **nbn**'s prices would need to increase accordingly in order for **nbn** to maintain the ability to recover its build, maintenance and upgrade costs. This would significantly increase the risk of substitution to mobile and fixed wireless network for low-usage end-users and result in an inefficient price point for high-use customers who have a higher willingness to pay, ultimately leading to inefficient use of the **nbn**™ network and preventing **nbn** from recovering its efficiently incurred costs.
- **Cost allocation in a multi-technology and multi-product environment:** **nbn** is a multi-product firm with high fixed costs, many virtual assets and over 100 products across seven **nbn**™ Ethernet access technologies, and an even greater number when taking account of **nbn**™ Enterprise Ethernet, **nbn**™ Sky Muster™ Plus and the **nbn**™ Business Satellite Service. In this context, delineating costs into technology and product 'buckets', before any reasonable ICRA recovery and allocation, requires cost modelling choices. As a result, prices derived directly from the BBM (and specifically in relation to long run marginal cost) do not produce a meaningful or accurate outcome for **nbn** products, resulting in the likelihood of setting inefficient prices.
- **Less predictable CVC price path:** If **nbn**'s usage charge had historically reflected its long run marginal cost, RSPs would have experienced less predictability in their overall cost of service (in addition to the initial high level of CVC charge discussed above). This is particularly true of the initial build phase when rapid changes in the underlying technology significantly impacted forward-looking costs and the timing of those costs. The implication being a long-run marginal cost that would have varied greatly every one to two years. **nbn** questions whether this strict adherence to long-run marginal cost relative to pricing stability would have been beneficial.

Rather than establishing a direct link per product component, speed tier or access technology, the SAU framework is premised on the link between **nbn**'s costs and prices being ascertained at a network level via the BBM and demand forecasts.[87] **nbn**'s prices currently support an ARPU that is below the average cost of providing services as measured by the revenue requirement (ABBRR) derived from the BBM (i.e., below the ARPU required to achieve cost recovery).[88] This outcome holds even when only part of the ICRA is allocated through the BBM. Hence, **nbn** considers that current price levels are not out of alignment with **nbn**'s costs. The revenue and price controls in the Variation will continue to constrain **nbn**'s ability to raise prices above average efficient costs, including once a proportion of the ICRA is included.

nbn has to date under-recovered its prudently incurred costs, with the SAU providing the opportunity to recover those costs (including an appropriate rate of return) over time. If **nbn** seeks to increase its revenues to recover its costs, it can only do so as a result of end-users choosing to use the **nbn**™ network rather than competing networks, and taking up service offerings beyond entry-level services. As noted by the ACCC in its 2013 decision on **nbn**'s SAU, this creates strong incentives for **nbn** to introduce services at prices that end-users are willing to pay, and to only incur costs efficiently, given the revenue sufficiency risks that **nbn** faces.[89] **nbn** does not expect to achieve its ABBRR (in respect of Core Regulated Services) until FY28, hence the incentives created by revenue sufficiency risk are as strong today and over the period of the First Regulatory Cycle as they were during the initial build phase of the network.

nbn submits that, with end-user preferences and the role of broadband evolving rapidly, consumers are best served by price structures and levels that reflect the value that end-users ascribe to individual services. Adopting prices that ignore the role of demand in efficient pricing, such as prices derived directly from the BBM, would require a degree of subjectivity that would invite contention, and, in any case, would not produce efficient prices. Rather, **nbn**'s prices – both variable and fixed – are necessarily based on the factors set out above (consumer willingness to pay, competition, and **nbn**'s requirement to recover build, maintenance and investment cost).

11.2.3 Overage price level

The ACCC has also highlighted that the proposed CVC TC-4 Overage Charge of $8 per Mbps ($7.75 below the Maximum Regulated Price under the SAU of $15.75 per Mbps, as at March 2022) is above the long run marginal cost estimates produced by **nbn** in the ACCC Working Groups, suggesting that this is not indicative of an efficient pricing construct or price levels. As discussed in section 11.1.2, **nbn** considers that the efficiency of the usage charge should not be considered in isolation and must be considered together with other pricing elements and the broader pricing structure.

The role of the usage charge in the pricing construct is not to solely recover the forward-looking costs of augmenting the network to deliver additional capacity. Rather, the usage charge provides a *contribution* to the fixed and variable costs of the network, in a way that incentivises higher-use customers to demand higher value speed tiers. In essence, the pricing construct in the Variation allows non-linear recovery of common and sunk costs across different consumer cohorts, with higher use customers contributing mostly through fixed monthly

[87] Under the Variation, however, **nbn** will allocate costs between Core Regulated Services and Competitive Services as discussed in section 14.4.

[88] Note that this also implies that were prices to be based on fully allocated costs, they would increase, on average, compared to current prices.

[89] This was discussed by the ACCC in the Final 2013 Decision, p. 11: "*Initial prices in the SAU are set at levels similar to current prices for copper and hybrid fibre coaxial (HFC) services and there is a limit on how much prices can change by each year. In particular, prices cannot increase by more than CPI minus 1.5 per cent each year. This means that NBN Co will only be able to increase its revenue by offering new products or increasing demand, meaning NBN Co has an incentive to innovate and to increase take-up of its services*".

charges, whilst lower use customers would largely contribute through usage charges. **nbn** considers that this structure maximises the use of the network, whilst increasing overall affordability, and enables a more predictable price path than would be achieved if the CVC TC-4 Overage Charge was tied to long-run marginal cost.

Regardless of the basis on which usage charges are developed, **nbn** recognises the fundamental concern of RSPs that usage charges under the current pricing arrangements contribute to potential cost uncertainty.

Several measures described above address this uncertainty, including: the introduction of TC-4 AVC-only Offers for speed tiers with the highest bandwidth consumption and potential volatility; commitments to adjust bundled CVC inclusions by 50% of observed growth (effectively halving the effective cost of CVC TC-4 Overage, albeit with lag); transition to utilisation-based billing for TC-4 CVC; and the removal of the existing CVC utilisation condition, that incentivises RSPs to manage to a utilisation threshold for CVCs of 95% of provisioned capacity.

The CVC TC-4 CVC Overage Charge of $8 per Mbps must therefore be considered in conjunction with the fact that:

- speed tiers of 100Mbps and above will not be subject to any CVC TC-4 Overage Charge; and
- speed tiers of 25Mbps and 50Mbps will receive CVC inclusions reflective of demand on the network, significantly minimising the exposure to overage.

Figure 4 illustrates the role that the overage rate plays in promoting allocative efficiency of the pricing construct, with three potential formulations of the entry level product at the same average effective price of $35. In particular, it demonstrates that a positive overage rate enables a lower access charge for low usage end-users, with more than half of the end-users benefiting from a lower wholesale rate. This property is eroded when the overage rate is reduced. For example, at a $4 overage rate the fixed access charge for low usage end-users would need to increase by $4-$5, to maintain the same average effective price of $35.

At the same time, the proposed CVC TC-4 Overage Charge promotes appropriate product selection at the high-end, with high data users on the 12Mbps and 25Mbps plans facing wholesale prices approaching or exceeding that of the 100Mbps plan. Subject to the retail offerings available, end-users consuming data at this level will likely be incentivised to adopt retail products based on the Homefast 100/20 speed tier which will have an initial Maximum Regulated Price of $60.

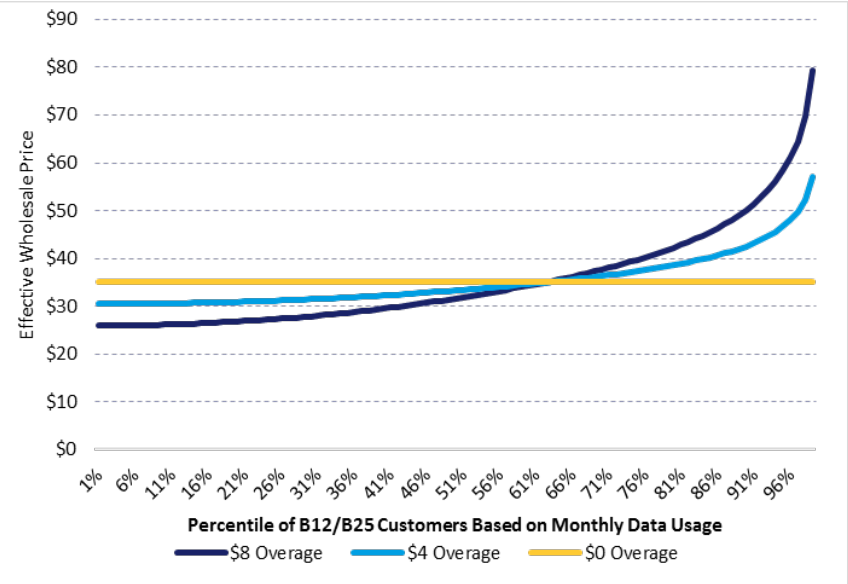

Figure 4. Effective wholesale price of 12/1 and 25 service

11.3 Voice-only construct

To cater for customers who use the **nbn**™ network for voice-only calls and basic connectivity, **nbn** is introducing a 'Voice-only Offer'. The Voice-only Offer will be made available using the 12/1Mbps speed tier across all fixed line technologies at a wholesale charge of $12 per month.

This will be implemented via billing processes removing the need for **nbn** or RSPs to develop a new product. The charge RSPs incur for a 12/1 service will be dependent on the service being used as an input into voice-only retail products and the data usage of that individual service being subject to a daily threshold test. That data will be measured as peak hour usage on 12/1Mbps AVCs, and any AVCs which use more than the specified voice-only bandwidth (0.1Mbps) will attract an additional 'charge' of $14, pro-rated on a daily basis. Unlike current ELB construct, the additional charge will be applied at an individual AVC level.

This update to the 12/1 speed tier enables RSPs to provide voice-only services based on a significantly lower wholesale charge than the current WBA4 charge of $24 per month and associated Maximum Regulated Price under the SAU. As the new Voice-only Offer in the Variation will establish a new Maximum Regulated Price under the SAU, RSPs will have certainty regarding the long-term availability of the Voice-only Offer at this substantially reduced price level.

11.4 Affordability and low-income end-users

nbn has always sought to price its products in a way that balances its need to have an opportunity to earn a reasonable return on the significant investment by Australian taxpayers alongside **nbn**'s mandate to maximise the economic and social benefits of the network by reliably and affordably meeting the current and future broadband needs of households and businesses.

Under the Variation, **nbn** will continue to offer entry level plans at affordable price points, ensuring the continued smooth transition to the **nbn**™ network from legacy networks, and ensuring end-users have fit-for-purpose broadband products, with a continued focus on how low-income household needs are best addressed. In this respect, two key features of the Variation are the introduction of:

1. an updated **entry level bundle based on the 25/5 speed tier** that will be subject to relevant price controls (as set out in section 12.3); and
2. an industry wide **low-income focused forum** with representation from non-profit and consumer groups to ensure that the needs of this market segment continue to be addressed into the future.

11.4.1 Entry Level Bundles

In a significant development from the current **nbn**™ Ethernet pricing, **nbn**'s Variation will redefine the Entry Level Bundle to apply to the 25/5 and 25/10 speed tiers. For all access technologies other than satellite, **nbn** is proposing to significantly rebalance the charging for the 25Mbps products by reducing the price from $37 to $26, with a corresponding reduction in the value of CVC inclusions to provide increased retail pricing flexibility to support low-income end-users.[90]

[90] Repricing of 25Mbps is expected to result in net $1 price reduction for RSPs, with $11 fixed charge reductions and removal of $10 worth of bundled inclusion. The existing 1.6Mbps inclusion is set based on provisioned bandwidth which includes 0.3Mbps (22%) inclusion intended for provisioning headroom, the move to utilisation-based billing means that headroom component is no long chargeable, therefore the effective bundled inclusion reduction is only 1.2Mbps (~$10).

nbn is proposing a corresponding price increase for the 12Mbps product, where used as a broadband service, from $22.50 to $26 with no CVC inclusions, reflective of a reduction in overage revenue due to the removal of CVC headroom and consistent with an effective $35 wholesale price which supports an unlimited retail offer of $60/per month consistent with existing retail offers today.[91]

nbn expects that consolidation of 12Mbps and 25Mbps speed tiers at the $26 price point, and additional inclusions on the 25/5 TC-4 Bundled Offer would see RSPs migrate significant portions of their broadband customer base from 12Mbps to 25Mbps, with remaining voice-only 12Mbps customers attracted to the lower price point for the Voice-only Offer. **nbn** also expects the effective price applying to the 'post-consolidation' 12Mbps and 25Mbps customer base to be at the $35 wholesale price point for unlimited plans, with options for RSPs to offer much more competitive 25Mbps plans to low usage customers. Given functional similarities between 12Mbps and 25Mbps products, and that end-users are unlikely to change consumption behaviour due to RSP driven product upgrades, **nbn** is not expecting a material change in average bandwidth consumed by existing 12Mbps customers once they migrate to a 25Mbps product. In the event that usage does increase in respect of end-users that migrate to a 25Mbps service, the new CVC inclusion adjustment mechanism will automatically increase the CVC inclusions for those services. An increase in usage by end-users that migrate from a 12Mbps to a 25Mbps service will also reflect that those end-users are obtaining greater value from **nbn**™ network.

The benefits of the updated approach to 12/1, 25/5 and 25/10 TC-4 Bundled Offers are set out below:

- **Increased access to 25/5 and 25/10 speed tier:** Repositioning of the 25Mbps product as an entry level offer responds directly to concerns raised in the ACCC Working Groups that retail products based on a 12/1Mbps service may not meet the needs of low-income users.[92] It also increases the baseline experience for end-users, with **nbn**'s internal analysis indicating that high use (~300GB or more) end-users on 12/1Mbps products have a poor experience.
- **Maintaining affordable unlimited entry level offerings:** In the ACCC's NBN Access Pricing Inquiry, which concluded in November 2020, the ACCC and some RSPs expressed their desire for **nbn** to support a $60 retail price point for an ADSL equivalent service to facilitate a smooth transition from legacy offerings, then considered by the ACCC to be 12/1Mbps services with "unlimited" data allowances. To facilitate a $60 retail price, the ACCC suggested that **nbn** should offer these services at a wholesale cost of $35, inclusive of an appropriate allowance of CVC capacity.[93]

  nbn's new pricing is expected to maintain a $35 wholesale price point to support unlimited entry level retail offerings, while significantly improving the quality of entry level offers, by more than doubling download access speed and offering five times the upload access speed. **nbn**'s data shows that average TC-4 utilisation across these services is currently 1.2Mbps. Based on this average level of required CVC TC-4, the resulting wholesale price point for the 25Mbps TC-4 Bundled Offer service is expected to be $34.80.

  Taken together with **nbn**'s proposal to implement utilisation-based TC-4 CVC billing (as described in section 11.1.3 above), **nbn** expects the new pricing will see most RSPs transition their broadband customers on

[91] Though, as noted above, the increase in the charge of the 12/1Mbps service from $12 to $26 will be pro-rated daily based on actual use as a broadband service.

[92] See, for example: submissions of ACCAN, IAA and Internet Australia in response to the ACCC Industry Roundtable on regulatory arrangements under NBN Co's Special Access Undertaking, June 2021.

[93] In response, and as recognised by the ACCC in its decision to conclude the inquiry without further regulatory intervention, **nbn** made a number of commitments in respect of its modified entry level bundle offering to support these objectives.

12/1Mbps to 25/5Mbps, and that the combined cohort would have an average wholesale price point of $35,[94] which will permit the supply of corresponding retail products for $60. This will not only promote the long-term interests of end-users by providing greater value and increasing efficient use of the **nbn**™ network, but will also continue to facilitate ADSL migration (to a higher anticipated speed tier) at an equivalent price point for end-users in line with the objectives of the ACCC's pricing inquiry in the short term.[95]

While maintaining price equivalence has played an important role in facilitating the initial migration to the **nbn**™ network, it is important to note that long-term pricing of entry level services needs to be considered beyond just ADSL equivalence, requiring **nbn** to balance maximising take-up of the network against overall efficiency of cost recovery.

11.4.2 Additional low-income measures

nbn is focused on lifting the digital capability of Australia, and is aware of the need to consider all cohorts of end-users, particularly the more vulnerable. To date, **nbn** has put in place a number of initiatives and programs targeting low-income, vulnerable and unconnected end-users.

During the ACCC Working Groups, participants also acknowledged that affordability is a complex policy issue and there are several factors, including affordable access to devices and digital literacy, which influence the perceived affordability of broadband services in Australia and several ways in which those affordability concerns can be addressed.

These issues are beyond the scope of the SAU, however, as a contribution to addressing affordability, **nbn** has made a commitment in the Variation to establish a working group to continue to consult on, and develop targeted initiatives to improve, access for low-income users. **nbn** believes that the commitment is appropriate at this time, given the role that **nbn** will increasingly play in ensuring that as many end-users as possible are able to access the **nbn**™ network.

The commitment will apply during the First Regulatory Cycle of Module 2 of the SAU and will sit beside the other initiatives and programs that **nbn** has already put in place to support low-income, vulnerable and unconnected end-users, and which are being progressed with industry consultation and engagement.

Consultation on low-income measures has given rise to a range of views within industry. While there is a degree of support for **nbn** bringing a broad-based low-income offer to market (beyond the Entry Level Bundle), there is not a clear consensus on how such an offer should be funded. For example, if **nbn** were to introduce a broad-based low-income offer this could be financially challenging for **nbn** and the industry, and would lead to price increases for full-priced services if implemented through a cross-subsidy. Some RSPs have instead expressed a preference that a broad-based low-income offer could be addressed in the retail market or by Government.

As acknowledged in the ACCC Working Groups, affordability is a complex policy issue and there are several factors (including affordable access to devices and digital literacy) which influence the perceived affordability of broadband services in Australia, and several ways in which those affordability concerns can be addressed. **nbn** considers that it is not the role of the SAU to solve these complex social policy issues through a broad-based offer.

The alternative approach posited by **nbn** during consultation with RSPs is for **nbn** to continue progressing its efforts in lifting the digital capability of Australia through targeted approaches to reach low-income households,

[94] Assuming average CVC usage of 1.2Mbps per AVC across combined customer cohort current on 12Mbps and 25Mbps.

[95] A key consideration for the LTIE and reasonableness criteria is economic efficiency. The LTIE refers to sub-criteria of encouraging the economically efficient use of, and the economically efficient investment in, infrastructure. It is also necessary to assess whether the proposed access terms would promote the economically efficient operation of a carriage service, a telecommunications network or a facility.

including through discounting and rebates from time to time. **nbn** considers that this remains an appropriate option to address any affordability concerns identified by **nbn**, the industry and the ACCC over time and accordingly **nbn** does not propose to include any specific low-income offer in the SAU.

nbn believes that there is scope to improve cross-industry discussion on supporting low-income and other vulnerable groups of end-users, and therefore **nbn**'s proposed Variation includes the following commitment which will apply during the First Regulatory Cycle of Module 2 of the SAU:

1. **nbn** commits to convene an annual industry working group on low-income and related accessibility issues;
2. this group will be convened and chaired by **nbn**, and will be focused on targeted initiatives to improve access for low-income, vulnerable and unconnected end-users to the **nbn**™ network;
3. **nbn** would provide a report before each forum on progress of its targeted initiatives to improve access for low-income, vulnerable and unconnected end-users;
4. the working group will be open to representatives of not-for-profit, telecommunications and consumer advocacy groups, Government agencies and RSPs. **nbn** may establish reasonable limits on the number of working group members and meeting participants (such as by asking some groups to be representatives of a broader set of members), to promote meaningful engagement; and
5. **nbn** will also commit to publishing an annual update on its activities in relation to low-income, vulnerable and unconnected end-users.

nbn believes that this commitment is appropriate to make at this time, given the increasing role that **nbn** plays in ensuring that as many Australians as possible are able to access the network that has been put in place over the last decade. Direct engagement with all relevant stakeholders will increase the likelihood of more effective solutions being developed.

In addition to this new commitment, **nbn** has already put in place a number of initiatives and programs targeted at various low-income, vulnerable and unconnected end-users, including low-income families, older Australians, and remote communities, which are being progressed with industry consultation and engagement.

11.5 Ensuring continued efficiency of the price structure and levels

The efficiency of **nbn**'s pricing structure and levels requires an assessment of whether this pricing optimises take-up and use of the **nbn**™ network while enabling **nbn** the opportunity to recover its efficiently incurred costs (including an appropriate rate of return) to deliver and operate the network in accordance with government policy. **nbn** considers that the Variation strikes this balance as demonstrated below:

1. **The BBM and ICRA ascertain the costs that nbn is able to recover over the term of the SAU and within a given Regulatory Cycle:** The BBM (described in further detail in chapter 15) reflects standard methodologies commonly used to establish the efficient and prudent costs that a network provider is allowed to recover over a given period. As with **nbn**'s existing prices, the pricing structure and levels set out in the Variation are determined so that **nbn** will recover no more than the long-term costs of supply (inclusive of an appropriate return on capital). Two key changes compared to the BBM and ICRA provisions in the current accepted SAU are: (1) allocation of costs between Core Regulated Services and Competitive Services; and (2) establishing a binding revenue cap that will apply before the ICRA is extinguished.

On the basis that the existing BBM and ICRA revenue controls were determined to be consistent with **nbn**'s standard access obligations and reasonable, the commitments in the Variation which place greater restrictions on **nbn** (in the form of a more immediate binding revenue cap and greater transparency over the costs of Core Regulated Services and Competitive Services) are consequently reasonable and consistent with **nbn**'s standard access obligations. Not only are the TC-4 AVC-only Offers and TC-4 Bundled Offers captured in the Variation (and associated price controls) within the scope of **nbn**'s long-term recoverable costs, **nbn**'s flexibility with respect to price changes will be further contained in the first and subsequent Regulatory Cycles by the need to ensure these operate below a revenue constraint that would not have applied under the existing SAU due to the magnitude of the ICRA.

2. **Maximising take-up of the network:** Establishing that TC-4 AVC-only Offer and TC-4 Bundled Offer pricing, together with **nbn**'s broader product suite, will provide **nbn** with the opportunity to recover its efficient costs (including an appropriate return on capital) does not, in isolation, demonstrate an efficient pricing structure or pricing levels that are reasonable. Pricing must also be designed to maximise take-up of the network by minimising inefficient network by-pass and incentivising end-users with varying demand profiles to acquire services provided over the **nbn**™ network appropriate to their needs. **nbn**'s updated pricing achieves this in two ways.

   First, **nbn**'s diverse product suite offers a range of services and associated price points to enable RSPs, and by extension end-users, to select the appropriate service that meets their particular needs. A two-part pricing structure for 50Mbps services and below and AVC-only for speed tiers of 100Mbps and above allows RSPs to effectively price differentiate: supplying services to those end-users with lower usage requirements and likely lower willingness to pay at affordable entry level prices, and/or higher priced services to those end-users with higher and sustained usage requirements and likely higher willingness to pay.

   Second, **nbn**'s pricing remains linked to ensuring a smooth migration from legacy networks – with significant customer favourable improvements. While **nbn** has passed the peak phase of migration onto the network, the pricing of **nbn**'s 12Mbps, and now 25Mbps, services remain referable to the prices paid for ADSL broadband services. Not only will RSPs be enabled to supply voice-only services based on a wholesale price point almost 50% below existing prices, but the Variation facilitates the delivery of a 25Mbps service at the $60 retail price point considered appropriate for 12/1Mbps services from a migration perspective.

3. **Maximising use of the network:** The pricing structure and levels are designed to maximise use of the network in two key ways.

   First, by significantly reducing or removing the impact of usage charges, RSPs and end-users are incentivised to maximise use of the network in terms of both speed and data. Not only does the Variation introduce TC-4 AVC-only Offers which altogether remove the potential for RSPs to incur CVC overage costs on these speed tiers, but the TC-4 Bundled Offers which retain a variable charge component contain appropriate CVC inclusions to minimise the potential exposure to CVC overage. Combined with the transition to utilisation-based billing, this is expected to provide RSPs with greater predictability of forward-looking costs – enabling RSPs to continue offering unlimited data services at affordable prices.

   Second, as customer usage on the network increases, RSPs and end-users are incentivised to experience higher speed tiers on the network. Maximising use of the network is relevant to both data and speed. As end-user willingness to pay increases, users on lower speed tiers will be presented with a closing gap between the prices of 50Mbps and 100Mbps speed tiers encouraging adoption and experience of higher speed tiers.

The efficiency of **nbn**'s price levels described above is not only true of the initial Maximum Regulated Prices established under the Variation. The price controls described in chapter 12 ensure that this efficiency – specifically pricing that maximises take-up and use of the network – continues to be achieved over the course of the SAU, providing industry with confidence of long-term prices that are reasonable and consistent with **nbn**'s standard access obligations. Chapter 8 provides a more comprehensive overview of how the Variation will ensure that **nbn** continues to face strong incentives to set efficient prices, to incur only efficient costs and to invest in the network in a timely and efficient manner.

12 nbn's proposed price controls and price related constraints

The TC-4 AVC-only Offers and TC-4 Bundled Offers introduced under the Variation will be subject to individual price caps in the form of Maximum Regulated Prices, providing RSPs with enhanced certainty regarding forward-looking costs. These price controls are intended to operate in conjunction with the primary economic control in the form of a revenue cap.

In addition to establishing these Offers under the SAU, the initial Maximum Regulated Prices for these Offers are significantly below the potential TC-4 charges in the existing SAU and will be reflective of the prices actually paid by industry, directly addressing industry concerns regarding potential price shocks.

nbn commits to operate the following individual price controls in respect of its Offers for the First Regulatory Cycle (these establish a maximum price increase allowance in a Financial Year, on a use-it or lose-it basis):

- CPI plus 3%, for TC-4 AVC-only Offers;
- CPI, for the AVC TC-4 and bundled CVC inclusion components of TC-4 Bundled Offers (and also for the excess utilisation charge that applies to the Voice-only Offer but not for CVC Overage, which cannot increase above $8 per Mbps over the entire SAU term); and
- CPI minus 1.5%, for all TC-1, TC-2 and Satellite TC-4 offers (including CVC).

The following default price controls will apply in respect of offers for the second and each subsequent Regulatory Cycle (subject to any accepted RMA):

- the greater of CPI and 3%, for TC-4 AVC-only Offers;
- CPI, for the AVC TC-4 and bundled CVC inclusion components of TC-4 Bundled Offers (and also for the excess utilisation charge that applies to the Voice-only Offer, but not for CVC Overage, which cannot increase above $8 per Mbps over the entire SAU term); and
- CPI minus 1.5%, for all TC-1, TC-2 and Satellite TC-4 offers (including CVC).

In addition, **nbn** is proposing a new discounting rule that is designed to maintain the effectiveness of the Maximum Regulated Prices and price controls by obligating **nbn** to re-set Maximum Regulated Prices where discounting has exceeded a specified threshold.

nbn commits to maintain the following CVC Overage Charges over the period of the SAU, with no right for **nbn** to increase this price whether in real or nominal terms:

- $0 per utilised Mbps, for TC-4 AVC-only Offers; and
- $8 per utilised Mbps, for TC-4 Bundled Offers.

nbn's new price constructs have been designed to balance **nbn**'s need for sufficient flexibility to respond to changing market conditions, with the needs of RSPs for price stability and certainty, and end-users for price stability.

Under the Variation, the SAU will continue to apply Maximum Regulated Prices and associated price controls. The price controls, as well as the actual prices charged by **nbn**, determine the level of the Maximum Regulated Prices for product components and features in respect of each Financial Year. These individual price controls play an important role in providing RSPs with price/cost certainty and also in preventing potential price shocks to end-users. Having regard to the ACCC Working Group discussions, **nbn** has considered the appropriate form and levels of these price controls, including considering the differing views from ACCC Working Group members as to what form of price controls is more appropriate for **nbn**.

nbn has considered alternative price control arrangements

nbn has considered alternative price control arrangements and continues to believe that individual price controls are reasonable and appropriate. **nbn** considers that the choice of the appropriate price control must have regard to the particular demand characteristics of broadband services.

When choosing the appropriate price (and revenue) controls, **nbn** considers that demand risk should be borne by the party that is best able to manage that risk. **nbn** does not believe however that it is **nbn** who is best able to manage or control this demand risk. And it is not a risk that **nbn** can solely control.

A related consideration in the **nbn** context is that as a company with high fixed costs and low incremental costs, and with SIP responsibilities, **nbn** has strong pre-existing incentives to promote take-up of services on its network, as well as promoting use of higher-speed services on that network. These economic incentives also align with expectations placed on **nbn** by Government, as expressed in **nbn**'s SOE to offer products that promote take-up and use of the network. Taking into account those factors **nbn** proposes to combine its revenue cap with individual price controls, which will act as supplementary protections in the event that revenue sufficiency risk may not in itself impose sufficient constraint on **nbn** in respect of individual prices that may be important to all or only some RSPs. **nbn**'s proposed revenue cap is described in more detail in chapter 13. Further detail on **nbn**'s decision not to adopt a WAPC in relation to a defined basket of **nbn**'s regulated prices, as proposed in the ACCC Working Groups, is set out at Appendix A.

Under **nbn**'s revised revenue control proposal (discussed in chapter 13), which will implement a binding revenue cap from 1 July 2023, **nbn** will be required to have continuous regard to the revenue control from the First Regulatory Cycle when deciding the extent to which it adjusts prices for its products to the extent permitted under the price controls. That is, while **nbn** may have scope to increase individual prices within the applicable individual price control (e.g., CPI, CPI + 3%) any adjustment to prices must also ensure that **nbn**'s forecast revenue for Core Regulated Services remains under the revenue cap for the relevant Regulatory Cycle.

Sections 12.1 to 12.7 set out the detail of this price control framework and updated price controls, and how these are reasonable and promote the LTIE, including ensuring **nbn** retains the opportunity to recover its efficient and prudent costs incurred in building, maintaining and investing in the **nbn**™ network.

12.1 Maximum Regulated Prices

The key features of the price controls that will apply to both existing NBN Offers and Other Charges, and the new offers described above are:

- each NBN Offer and Other Charge will have a Maximum Regulated Price. The Maximum Regulated Price sets a cap on the Price that **nbn** may charge to access seekers for each NBN Offer and Other Charge;
- the Maximum Regulated Price for an NBN Offer or Other Charge in a given Financial Year is based on the average Price for that NBN Offer or Other Charge during the previous Financial Year (effectively resulting in a 'ratcheting-down' of the relevant Maximum Regulated Price when **nbn** reduces a Price);
- the Maximum Regulated Price for an NBN Offer or Other Charge for a given Financial Year also incorporates the relevant individual price increase limit for that NBN Offer or Other Charge;
- Maximum Regulated Prices will be updated to incorporate the benefits of material discounts (refer to section 12.5); and

- if **nbn** does not increase a Price up to the Maximum Regulated Price (which incorporates the individual price increase limit) in a Financial Year, then **nbn** cannot carry-over to future Financial Years any unused allowable price increases from the individual price control which applied in that or previous Financial Years (i.e., this operates on a 'use-it-or-lose-it' basis).

The initial Maximum Regulated Prices for TC-4 Bundled Offers and TC-4 AVC-only Offers will be the Prices set out in Table 3 in section 11.1 above. These Maximum Regulated Prices are a significant and customer favourable change from the existing Maximum Regulated Prices in the SAU. The new Maximum Regulated Prices are aligned with **nbn**'s long-term effective prices and remove the gap that currently exists between the Maximum Regulated Prices under the SAU and effective prices available under the WBA (which currently incorporate significant discounts). Further, changes proposed to **nbn**'s discounting practices (discussed in section 12.5) will result in Maximum Regulated Prices changing so as to incorporate the benefit of certain discounts, while the changes proposed for automatic CVC inclusion adjustments (discussed in section 12.3.1) will ensure inclusions track changes in user demand over time.

12.2 Individual price control for AVC-only offers

For AVC-only Offers, **nbn** is proposing an annual price control of CPI + 3%.

AVC-only Offers represent a transformational shift in the design and structure of **nbn**'s pricing model for speed tiers of 100Mbps and above. These offers markedly increase the demand-side risk borne by **nbn** from users who derive greater value from their use of the network without paying for that value through a usage charge. These speed tiers will not allow **nbn** to earn revenue associated with greater utility of the network given the absence of a usage charge; **nbn** faces a revenue sufficiency risk if the fixed charge is not set sufficiently high to recover those costs from those who place the greatest value on their **nbn** services (while making sure it is not set so high as to depress demand for these speed tiers).

Ideally, **nbn** would introduce and test the demand and revenue impacts of such a transformational shift through the use of discounts, as **nbn** did when successfully introducing bundled AVC/CVC pricing (in 2018). However, **nbn** recognises the desire expressed by RSPs, including in the ACCC Working Group discussions, for greater certainty in **nbn**'s wholesale pricing, and accordingly **nbn** is proposing to commit to introducing the TC-4 AVC-only Offers into the SAU.

The impact of **nbn** committing to such a fundamental shift in its pricing in the SAU prior to having tested that pricing in market conditions is that **nbn** risks entrenching, in its long-term regulatory framework, Prices which are set at inefficient levels, failing to adequately allocate the costs of the network to end-users that gain the greatest value from it. This would not be efficient, nor promote the long-term interest of end-users. In order to ensure the costs of the network continue to be allocated efficiently, **nbn** therefore requires greater flexibility in adjusting Maximum Regulated Prices for TC-4 AVC-only Offers in the First Regulatory Cycle (CPI + 3%). In the medium and long-term, **nbn** proposes a default price control of CPI or 3% – whichever is greater – which would enable **nbn** to keep prices flat in real terms and apply more moderate adjustments to these prices as end-user needs and their evolution become evident. As with price controls under the current SAU, these increases to the Maximum Regulated Prices would apply on a use it or lose it basis.

nbn considers that CPI + 3% for the First Regulatory Cycle is appropriate for TC-4 AVC-only Offers, as it provides **nbn** with an appropriate degree of flexibility to address the demand-side risks faced by **nbn** in connection with these offers and the removal of any usage-based price component, particularly given the as yet unknown impact on demand. Insufficient flexibility in this price control could otherwise constrain **nbn**'s ability to respond to RSP

and end-user demand behaviour, and its ability to earn sufficient revenue to recover its prudently and efficiently incurred costs (including an appropriate rate of return), pay down debt, and achieve and maintain a standalone investment credit rating.

In arriving at this proposal, **nbn** considered:

- the need to protect consumers from significant price shocks; and
- a range of demand scenarios for **nbn** services under the new pricing construct and corresponding pricing adjustments needed to reach forecast revenue requirements.

In the context of WAPC discussions, the view was expressed in the ACCC Working Groups that, to provide a degree of pricing certainty across individual products and avoid price shocks, a reasonable bound for an individual price control is within 5 – 10%. **nbn** notes also that an CPI + 3% is at the low end of the 5-10% range suggested in the ACCC Working Groups as being within "reasonable" bounds for a supplementary control.

The CPI + 3% price control also provides **nbn** with greater ability to price experiment and rebalance price relativities across TC-4 AVC-only Offers. This level of commercial flexibility is crucial for **nbn** as the industry transitions to a new pricing construct and for **nbn** to discover optimal efficient pricing for its products.

Again, while the Variation may permit increases up to this point, **nbn** remains subject to market constraints – **nbn** remains subject to the competitive threat of fixed, fixed wireless and mobile substitutes that will continue to challenge **nbn's** ability to increase Prices by the amount permitted in each Financial Year. Further, this price flexibility only relates to higher speed tiers and is therefore also constrained by the anchoring effect of lower speed tiers. The use it or lose it nature of the price control means that the smooth path for potential price increases is maintained over the course of the Regulatory Cycle. The price increase allowance must be applied from one Financial Year to the next, and **nbn** cannot 'bank' any unused price increase allowance to apply in a future year.

12.3 Individual price control for TC-4 Bundled Offers

For TC-4 Bundled Offers, **nbn** is proposing an annual price control of **CPI** applicable only to the bundle AVC/CVC price component of these offers (including the excess utilisation charge for the Voice-only Offer), with no ability for **nbn** to increase the CVC Overage Charge of $8 per Mbps (in real or nominal terms).

The price control will work in conjunction with the CVC inclusion adjustment mechanism (discussed in section 12.3.1), to provide effective price increases limited to below or within the 5-10% band. This is achieved through the CPI price control limit on the TC-4 Bundled Offer Price, and inclusion adjustment mechanisms, which will limit nominal bundle price movements and constrain future overage growth. The overage component of the price is a function of underlying usage growth on the network, the level of product optimisation that RSPs select through their AVC tier ordering choices, the level of traffic management and, finally, the changes in inclusion value as a result of the inclusion adjustment mechanism and any additional discretionary inclusions provided by **nbn**

A CPI price control on TC-4 Bundled Offers is appropriate as it enables sufficient pricing headroom for **nbn** to rebalance fixed and variable charges on TC-4 Bundled Offers over time. Such rebalancing may be favourable in future where it leads to a reduction in the proportion of variable charge and therefore price volatility. A more restrictive price control (such as the existing CPI - 1.5%) may not support such price rebalancing.

To assess the value of these changes to RSPs and customers, the new CPI price control cannot be compared with the existing CPI - 1.5% price control in isolation. Any comparison must take into account the revised price structure and substantial reductions to Maximum Regulated Prices in respect of these offers.

12.3.1 Commitment to adjust CVC inclusions on lower speed tiers

nbn has received feedback from industry that using pricing consultations to set bundle inclusions is resource intensive and that it provides little certainty to RSPs. Usage forecasts have also often been a source of contention between **nbn** and RSPs. To address these concerns, **nbn** is committing in the Variation to move to a formula-based approach to set bundled inclusions to reflect actual changes in network utilisation over time, providing 50% of any usage growth back to RSPs as bundle inclusion increases, and to increase the frequency of adjustment to twice a year to help smooth the effective price path.

This new approach to bundled inclusions is expected to significantly improve cost certainty for RSPs by substantially reducing the level of **nbn** discretion in adjusting bundled inclusions. Increased frequency of the adjustment should reduce cashflow fluctuations for RSPs – with CVC inclusions adjusting automatically every six months, CVC inclusions will keep in closer alignment with customer usage which should in turn reduce unexpected CVC Overage. Finally, **nbn**'s commitment to provide 50% of any usage growth back as a bundle inclusion at no additional charge to RSPs means that **nbn** is only monetising half of the potential overage growth, limiting the risk to RSPs of cost increases from potential demand shocks.

nbn is committing to adjust the amount of included CVC TC-4 capacity for each TC-4 Bundled Offer (except the 12/1Mbps offer) twice each Financial Year on the 1st of January and 1st of July (each an **Adjustment Date**). On and from each Adjustment Date, the applicable amount of CVC Inclusion in each TC-4 Bundled Offer will be adjusted in accordance with the following formula:

$$CVC\ Inclusion_{AD} = CVC\ Inclusion_{PAD} + CVC\ Inclusion\ Adjustment$$

where the ***PAD*** or ***Previous Adjustment Date*** refers to the immediately preceding Adjustment Date.

The *CVC Inclusion Adjustmen*t will be determined based on the below formula:

$$CVC\ Inclusion\ Adjustment = \frac{MBHT_{MP} - MBHT_{PMP}}{2} \times 50\%$$

where:

> ***MP*** *or* ***Measurement Period*** *means:*
>
> (A) *in respect of an Adjustment Date of 1 January in a given year (t), the period between 1 March$_{(t-1)}$ to 31 August$_{(t-1)}$; and*
>
> (B) *in respect of an Adjustment Date of 1 July in a given year (t), the period between 1 September$_{(t-1)}$ to the last day of February$_{(t)}$.*
>
> ***PMP*** *or* ***Previous Measurement Period*** *means, in respect of a Measurement Period, the corresponding six-month period in the preceding calendar year.*
>
> ***MBHT*** *or* ***Mean Busy Hour Throughput*** *means, in Mbps (rounded to two decimal places), in respect of the relevant Bundled Offer Group for a Measurement Period or Previous Measurement Period, the average National Daily Peak Utilisation across that Measurement Period or Previous Measurement Period (as applicable).*
>
> ***National Daily Peak Utilisation*** *means, in Mbps on a given day for a Bundled Offer Group, the aggregate Daily Peak Usage across all CSAs on that day, divided by the total number of AVC TC-4 Product Components supplied across all CSAs on that day in that Bundled Offer Group.*

Daily Peak Usage *means, in Mbps on a given day for a Bundled Offer Group for a CSA, the aggregate download usage (in megabits) observed by NBN Co during the relevant Daily Peak Hour across all AVC TC-4 Product Components supplied in that Bundled Offer Group[96] on that day in that CSA, divided by 3600 (seconds).*

Daily Peak Hour *means, on a given day for a CSA, the 60-minute period during which NBN Co observes the highest aggregate download usage (in megabits) across all AVC TC-4 Product Components supplied in that CSA on that day.*

The formula provides for a smooth adjustment of CVC inclusions by calculating the absolute change in data usage between the average use of the immediately passed six-month period and the average use of the same period in the prior year, halved to transform from an annual to six-month change. 50% of the change in usage over the applicable six-month period is applied to the CVC inclusions (meaning, in the case of usage growth, increased inclusions at no additional charge).

nbn will inform RSPs of the relevant CVC inclusion that will apply two months before each Adjustment Date and update the then-current Tariff List. These CVC inclusion adjustments will not apply to the ELB [12/1] Offer or FW12 [12/1] Offer. In addition to adjustments committed under the above formula, **nbn** may from time to time, by notice to RSPs *increase* the CVC inclusion for a TC-4 Bundled Offer.

Inclusion formula example (illustrative only):

To determine the CVC Inclusion Adjustment on the 1st January 2024, the six-month average daily MBHT between 1st March 2023 and 31st of August 2023 ($MBHT_{MP}$) will be subtracted from the six-month daily MBHT Average of the prior year ($MBHT_{PMP}$) between 1st March 2022 to 31st of August 2022), and divided by two due to the adjustment occurring twice a year. The CVC Inclusion Adjustment will constitute 50% of this amount (usage risk equally shared between **nbn** and RSPs). The 1st of July 2024 CVC Inclusion Adjustment would then follow in a similar manner and reference the difference in the average daily MBHT between the two six-month periods of 1st of September 2023 to 29th February 2024 and 1st of September 2022 to 28th February 2023.

The First Inclusion Adjustment in 2024 on 1st of January 2024 for the B50 plan would be:

Current B50 inclusion: 2.45 (illustrative)

B50 $MBHT_{\text{1st March 2023 and 31st of August 2023}}$ = 2.65Mbps (illustrative)

B50 $MBHT_{\text{1st March 2022 and 31st of August 2022}}$ = 2.45Mbps (illustrative)

$$\boldsymbol{CVC\ Inclusion\ Adjustment\ 1st\ Jan\ 2024} = \frac{\mathbf{2.65 - 2.45}}{\mathbf{2}} \times \mathbf{50\%} = \mathbf{0.05Mbps}$$

New B50 plan inclusion from the 1st of January 2024 = 2.45 + 0.05 = 2.5Mbps

The second Inclusion Adjustment in 2024 on 1st of July 2024 for the B50 plan would be:

Current B50 inclusion: 2.50Mbps (illustrative)

B50 $MBHT_{\text{1st of September 2023 to 29th February 2024}}$ = 2.75Mbps (illustrative)

B50 $MBHT_{\text{1st of September 2022 to 29th February 2023}}$ = 2.55Mbps (illustrative)

$$\boldsymbol{CVC\ Inclusion\ Adjustment\ 1st\ July\ 2024} = \frac{\mathbf{2.75 - 2.55}}{\mathbf{2}} \times \mathbf{50\%} = \mathbf{0.05Mbps}$$

New B50 plan inclusion from the 1st of July 2024 = 2.50 + 0.05 = 2.55

[96] To avoid small sampling issues with niche products, **nbn** is proposing to group certain services with similar headline speed for the purposes of the inclusion calculation. For example, 25/5 and 25/10 would be in the same TC-4 Bundled Offer Group, similarly 50/20 and FW Plus would be in the same TC-4 Bundled Offer Group.

12.4 Individual price control for two-part offers

For the two-part offers being retained across **nbn**™ Ethernet TC-1, TC-2 and Satellite TC-4 services, **nbn** is proposing to maintain an annual price control of CPI - 1.5% for each NBN Offer.

The demand risks and sensitivities underpinning this pricing construct are well-understood and have been the subject of extensive price discovery together with continued RSP, ACCC and **nbn** scrutiny since **nbn** commenced providing services to RSPs. **nbn** considers that retaining CPI - 1.5% in relation to these existing NBN Offers continues to be reasonable and appropriate.

12.5 Rules on discounts

nbn recognises that end-users should be protected from cost unpredictability and RSPs should be given greater certainty over the costs they face in acquiring services provided over the **nbn**™ network. As part of **nbn**'s new pricing constructs and enhanced price controls, which will work in tandem with **nbn**'s proposed revenue constraints, **nbn** commits in the Variation to new discounting rules.

The new discounting rules restrict **nbn**'s ability to discount (including certain rebates) its services in a broad manner and ensure that **nbn**'s use of discounts does not lead to material gaps between the certainty provided by Maximum Regulated Prices and **nbn**'s effective charges. While discounting off list prices is a common approach in a range of markets and acknowledged by RSPs to be beneficial in the context of **nbn** services, concerns have been expressed that the degree and prevalence of **nbn**'s discounts can operate to undermine pricing certainty, with consequential impacts such as inefficient retail pricing to factor in potential price increases if discounts were removed. **nbn** has therefore proposed this additional protection for RSPs and end-users in respect of the role and impact of discounting.

The new rules on discounting mean that the Maximum Regulated Prices will track the effective market prices for **nbn**'s services over time, providing greater cost certainty to RSPs, which will in turn promote competition and increase take-up and use of the **nbn**™ network.

nbn agrees with discussions in the ACCC Working Groups that there is a balance to be struck between the benefits of pricing flexibility and the certainty afforded to RSPs through the operation of effective regulated price controls. Under existing SAU commitments, **nbn** may remove or modify discounts in accordance with the terms of those discounts at the time of their introduction. This allows **nbn** to test demand for its services and discover the efficient price for services, including as market conditions evolve. However, this process of testing and discovery means a degree of uncertainty about long-term price paths for **nbn** services that have the potential to create price volatility or inefficient retail pricing to smooth potential price volatility. **nbn** has not removed or modified discounts in a manner that increases prices materially – any discount that has been removed has been replaced by a new discount that is at least as favourable to RSPs and end-users. Nonetheless, **nbn** acknowledges that a risk of a price increase exists under the current discounting rules and cannot be fully discounted by RSPs. The Variation introduces a new rule to substantially reduce this risk, ensuring that **nbn**'s discounting will continue to promote the LTIE.

Under the Variation **nbn** makes the following commitments:

1. **Lowering Maximum Regulated Prices and aligning them with new proposed pricing levels:** This will address any existing price uncertainty flowing from the successful price discovery that has led to today's effective charges being significantly below Maximum Regulated Prices. Indeed, some ACCC Working Group participants have noted that discounting for legitimate commercial reasons is useful and that if the fundamental issue of

price certainty can be addressed in the SAU (being the gap between **nbn**'s Maximum Regulated Prices and its effective prices), the current issues with discounting "would largely go away".

2. **Incorporation of MTM access technologies under the SAU:** By incorporating the MTM access technologies under the SAU, **nbn** is ensuring that all access technologies used to deliver the **nbn**™ Ethernet service are subject to the same regulated price controls and revenue constraints. The access technologies introduced since the SAU was originally accepted (e.g., FTTN, FTTB, FTTC and HFC) are not currently covered by the SAU and therefore not subject to the Maximum Regulated Prices that it establishes.
3. **Introduction of discounting threshold:** **nbn** is proposing a constraint on the value of discounts that can be applied to AVC TC-4 and CVC TC-4 charges in a given Financial Year. Under this new threshold, **nbn** must reduce Maximum Regulated Prices to the extent that **nbn**'s TC-4 revenue in a Financial Year is more than 5% less than the undiscounted TC-4 revenue **nbn** would have earned had it charged list prices (i.e., revenue generated if **nbn** charged full price). If this limit is exceeded in any given Financial Year, **nbn** will 'ratchet down' TC-4 Maximum Regulated Prices to reduce the difference.

   This commitment is described in section 12.5.1 below, supported by the continued importance of discounting on **nbn**'s services detailed in section 12.5.2.

12.5.1 Discount threshold and 'ratchet down' commitment

To ensure that RSPs and end-users continue to benefit from the price discovery function of discounts, while providing RSPs with continued long-term certainty about prices, **nbn** is committing to a new 'ratchet down' provision applicable to **nbn**™ Ethernet AVC TC-4 and CVC TC-4 Maximum Regulated Prices. This discount commitment consists of:

1. **Annual 5% discount threshold:** **nbn** must reduce Maximum Regulated Prices if its TC-4 revenue (after discounts) is more than 5% less than the undiscounted TC-4 revenue **nbn** would have earned in a particular Financial Year. This is measured by assessing whether actual TC-4 revenue is more than 5% below undiscounted TC-4 revenue where:
   - actual TC-4 revenue is the revenue earned from AVC TC-4 and CVC TC-4 charges within the relevant Financial Year taking into account discounts that applied to services; and
   - undiscounted TC-4 revenue means the amount of revenue that would have been earned by **nbn** in a Financial Year from AVC TC-4 and CVC TC-4 charges, had no discounts applied to those charges.
2. **Ratchet down mechanism:** If **nbn** exceeds the 5% threshold in a Financial Year (FY1), **nbn** must ratchet down TC-4 Maximum Regulated Prices for the subsequent Financial Year (FY2) to a level which, had those Maximum Regulated Prices applied for throughout FY1, **nbn** would not have exceeded the 5% threshold. **nbn** will determine which Maximum Regulated Prices it ratchets down as it is difficult to attribute all discounts and rebates to specific speed tiers. For example, some discounts may be not tied to particular speed tiers and there may also be circumstances in which services on a given speed tier are receiving different discounts. As described in section 12.6, **nbn** commits under the Variation to publish Maximum Regulated Prices applicable to the next Financial Year on 1 May. **nbn** would seek to factor in and pre-empt any Maximum Regulated Price ratchet down as a consequence of the 5% discount threshold in this 1 May publication – noting that the published Maximum Regulated Prices list may need to be updated if the actual revenues received by 30 June result in an outcome different to that forecast. **nbn** has committed to reduce Maximum Regulated Prices within 60 Business Days after the start of the next Financial Year (i.e., from 1 July of FY2) with **nbn** back-

paying (by rebate or credit) any difference that RSPs have been charged above the adjusted Maximum Regulated Prices between the start of FY2 and the effective date of the ratchet down of Maximum Regulated Prices.

3. **Exclusions:** Any discounts, credits, rebates, waivers or allowances which fall into the following categories will be disregarded for the purposes of applying the 5% rule: service level rebates; payments to resolve disputes (e.g., billing disputes) or to refund any miscalculated or overpaid amounts; discounts for the public benefit or good in response to a particular event or circumstance outside **nbn**'s control (such as a natural disaster or emergency); discounts specifically in respect of low-income or otherwise socioeconomically disadvantaged end-users; amounts rebated as a result of **nbn** exceeding the discount cap threshold. In addition, discounts offered in response to requests from the government may be excluded from the application of the 5% threshold if approved by the ACCC.

This new ratchet down mechanism will commence on the date **nbn** first supplies TC-4 AVC-only Offers and TC-4 Bundled Offers, which **nbn** has committed to do within six months of acceptance of the Variation.

12.5.2 Continued importance of discounting

Discounting has delivered significant benefits to RSPs and end-users, including incentivising take-up of services and delivering improved end-user outcomes such as increased affordability of higher-speed services and a reduction in congestion during peak usage periods. Discounting is also a critical mechanism adopted by **nbn** to align RSP interests with those of **nbn**, for example through discounts incentivising RSPs to promote upgrades to higher speed tiers to end-users who would benefit from increased speeds, or to promote first-time connections to the **nbn**™ network. This alignment of interests promotes the LTIE by encouraging the efficient use of **nbn**'s infrastructure and by allowing **nbn** to recover efficiently incurred costs more efficiently through a broader base of end-users, including in a manner consistent with **nbn**'s mandate under its SOE to uplift the digital capability of Australia.

When making pricing decisions, **nbn** must undertake a complex price/quality discovery process. While some use can be made of market surveys and other such tools, the price/quality discovery process will ultimately need to be tested in market. That is, seeing what happens when absolute and relative prices change and seeing what happens when the quality of products are changed, and new/old products are introduced/withdrawn. **nbn** must undertake this process because **nbn**'s end-users are diverse in their perceptions of the value proposition for **nbn** based products and in their willingness to pay for those products, in contrast to other regulated infrastructure providers that face less variability in demand and end-user behaviour.

The task is made more difficult for **nbn** as it is a vertically separated entity with NDOs. It means that **nbn** has less information on end-user consumption behaviours and preferences (e.g., bundling of other products, payment arrangements, etc.) that may affect the end-user's willingness to pay. **nbn** is also competing with vertically integrated suppliers of Competitive Services (such as mobile and fixed wireless operators) that have greater information about user preferences as between demand for **nbn** services and alternative services. This means that relative to a vertically integrated entity (including those providing **nbn** substitutes), **nbn** is at a disadvantage, highlighting the importance of ensuring **nbn** has a reasonable level of product/pricing flexibility and ability to undertake price discovery.

Moreover, user preferences and the role of broadband are evolving rapidly, and the ability to offer new prices and price structures facilitated by discounting has allowed **nbn** to charge efficiently for **nbn** products without undue risk premiums at the wholesale level. In particular, **nbn**'s price discovery process has been critical to allow

nbn to set prices and product quality almost exclusively on the principles of price differentiation (not cost reflectivity), including determining how to:

- retain low usage customers;
- structure **nbn**'s prices and products (including the quality of these products) efficiently so that end-user willingness to pay is matched with appropriate product attributes and price, particularly for higher-value services; and
- provide a diverse portfolio from low to higher-value products.

The success of discounting flexibly has been demonstrated in numerous ways, including:

- the introduction of the Focus on 50 campaign that preceded the May 2018 introduction of bundles which significantly altered end-user experience. Prior to Focus on 50, 84% of services were on speeds of 25Mbps or less compared to today where more than 70% of services are on 50Mbps and above. Focus on 50 strongly facilitated a step-change in the broadband experience for end-users; and
- the very strong take-up of bundle discounts and packages which address key retail market failures in CVC provisioning and has substantially uplifted performance of **nbn** based services. As noted above, where **nbn** has withdrawn a discount, **nbn** has almost always replaced that discount with a more effective or generous discount (or inclusion), including in response to RSP feedback.

Most recently, the use of discounting has enabled **nbn** to support the industry and end-users through the COVID-19 pandemic and subsequent lockdown events, and to target specific end-user segments to increase utility and efficient use of the **nbn**™ network.

Given **nbn**'s unique circumstances, the price discovery process cannot stop, but must evolve as the market evolves, responding to end-user demand functions in an environment where **nbn** has limited access to end-user information.

12.6 Commitment to publish Tariff List

nbn recognises the importance of forward-looking price certainty for RSPs, including to enable RSPs to structure retail offerings based on **nbn** services. This will support RSPs' ability to optimise and position their retail service offerings and, in turn, will promote retail competition for **nbn** based services. In response to a request from the ACCC, **nbn** is committing to publish a Tariff List by 1 May each year, setting out the Prices, Maximum Regulated Prices and CVC inclusions applicable from 1 July of that year.

Publishing a Tariff List will increase transparency and price certainty of **nbn**'s Prices, Maximum Regulated Prices and CVC inclusions for RSPs. However, **nbn** notes that even without publishing a Tariff List, **nbn** would continue to be constrained by the Maximum Regulated Prices such that the magnitude of any Price increase, at most, would be in accordance with the applicable price control for the relevant Financial Year.

To ensure that RSPs have a clear view of **nbn**'s prices at a given point in time, **nbn** is proposing to publish the SAU Tariff List by 1 May each year which will include Prices, Maximum Regulated Prices and CVC inclusions that apply from the start of the next Financial Year (i.e., 1 July) for NBN Offers (in respect of Core Regulated Services) covered by the SAU. The Tariff List will cover all NBN Offers for Core Regulated Services which includes **nbn**™ Ethernet TC-4 pricing.

The Prices set out in the Tariff List will provide RSPs with visibility, before the start of each Financial Year, of any changes that **nbn** proposes to make to its Prices at the start of the Financial Year (for example, to utilise the CPI-

linked price flexibility allowed by the Maximum Regulated Prices, as discussed earlier in this chapter). The Maximum Regulated Prices set out in the Tariff List will provide further transparency by providing RSPs with visibility over maximum potential price changes over the course of the Financial Year. **nbn** will keep the Tariff List current throughout the Financial Year. For example, any Price increases within the cap set by the Maximum Regulated Prices will be promptly reflected (as will any price reductions).

The Tariff List will include:

1. **Maximum Regulated Prices applicable to each relevant NBN Offer subject to SAU price controls:** Adjustments to each Maximum Regulated Price will take effect on 1 July each year, and are subject to the CPI ± X% calculation, the newly introduced discounting ratchet down mechanism discussed in section 12.5, the cost pass-through mechanism discussed in section 14.5 and the RMA process discussed in chapter 16;
2. **Prices applicable to each NBN Offer:** Constrained by the relevant Maximum Regulated Price, **nbn** will also publish Prices for each component for a product effective as at 1 July each year and any updates within that constraint throughout the year; and
3. **Adjustments to the CVC inclusions in TC-4 Bundled Offers:** CVC inclusions for bundles will be adjusted twice a year based on usage measured between 1 March to 31 August (for 1 January adjustment) and 1 September to 1 February (for 1 July adjustment). This process is set out in further detail in section 12.3.1.

nbn may update the Tariff List during a Financial Year to reflect the 1 January CVC inclusion adjustment, any other increases in CVC inclusions and to adjust a price subject to the limitation imposed by the Maximum Regulated Price. The only circumstance where **nbn** can adjust the Maximum Regulated Price upwards after the Tariff List has been published on 1 May is where a new Replacement Module takes effect on 1 July and includes different price controls to those that were used at the time the Tariff List was published.

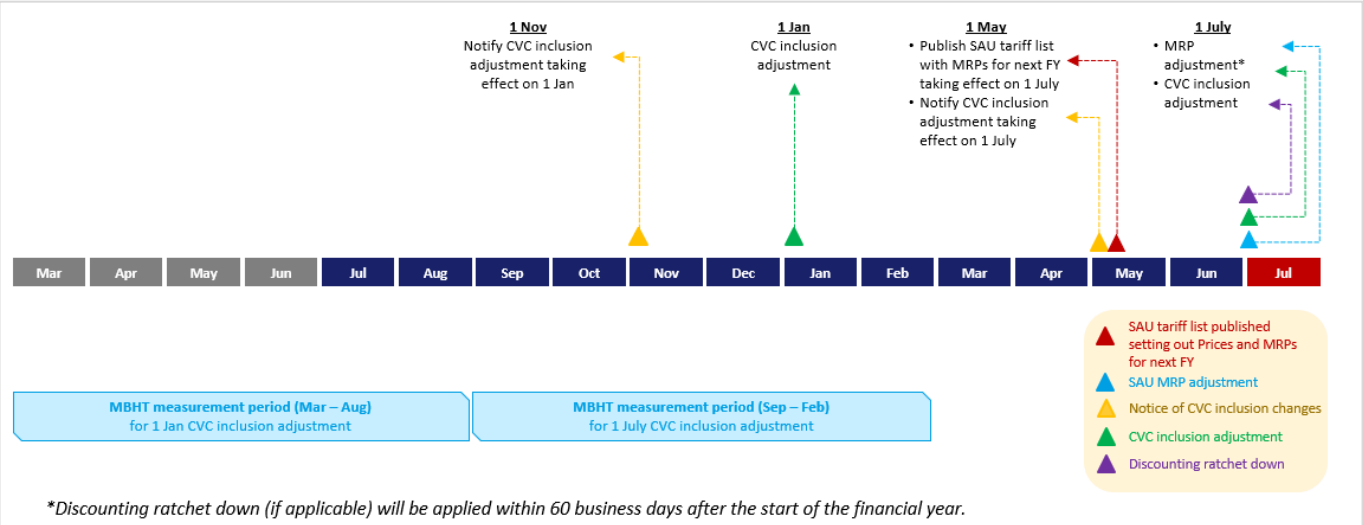

Figure 5. Default Tariff List update events

12.7 Implementation of new pricing under the WBA

If the Variation is accepted, **nbn** plans to amend the WBA to implement the new pricing for TC-4 AVC-only Offers and TC-4 Bundled Offers so that RSPs and end-users can obtain the benefit of the new TC-4 pricing construct as soon as practicable after acceptance of the Variation.

To assist RSPs plan for the transition to the new pricing construct, **nbn** has committed in the Variation to:

- within 20 Business Days after the Variation is accepted provide RSPs and the ACCC with a proposed process and timeline in which **nbn** will supply the TC-4 AVC-only Offers and TC-4 Bundled Offers; and
- commence supplying the TC-4 AVC-only Offers and TC-4 Bundled Offers no later than six months after the Variation is accepted.

In proposing this transition mechanism, **nbn** has sought to balance the need for RSP certainty about the timeframe in which the new pricing will commence with the significant and resource intensive technological and operational changes that **nbn** will need to make after acceptance of the Variation to begin supplying the new TC-4 AVC-only Offers and TC-4 Bundled Offers, and the corresponding technological and operational changes that RSPs will need to make to acquire those offers. The new pricing construct involves more than price changes and includes, for example, a new utilisation-based billing mechanism and NNI overbooking functionality (see sections 18.1.2 and 18.1.3, respectively).

nbn expects that a maximum six-month timeframe should accommodate RSPs as they plan for this transition, including assessing any changes they may wish to make to their wholesale speed tier mix to maximise the benefits of the new pricing construct for end-users.

As discussed in chapter 11, the new pricing construct replaces the two-part AVC/CVC TC-4 pricing structure that exists in the SAU and WBA today for all access technologies except Satellite. As a consequence, the Variation provides that for non-Satellite access technologies, the TC-4 AVC-only Offers and TC-4 Bundled Offers replace a range of pre-existing Offers that will be withdrawn from the date **nbn** commences supplying the TC-4 AVC-only Offers and TC-4 Bundled Offers. In response to these changes, **nbn** intends to make amendments to the WBA which will include:

- introducing the new TC-4 AVC-only Offers and TC-4 Bundled Offers;
- removing two-part AVC/CVC TC-4 pricing for non-Satellite technologies and certain discounts which are based on this pricing structure. This includes the TC-4 Bundles Discount (and Roadmap, given the new Tariff List commitments in the SAU) and the TC-4 Business Bundles Discount associated with Basic CVCs (which account for less than 0.05% of TC-4 services as at February 2022);
- necessary adjustments to other TC-4 discounts, such as the Take 2 rebate, the upcoming Light Up and Step Up rebates, and the TC-4 Business Bundles Discount associated with Bundled CVCs, to reflect the new TC-4 AVC-only Offers and TC-4 Bundled Offers; and
- amendments to facilitate the introduction of utilisation-based billing and NNI overbooking functionality. This includes the associated change in CVC TC-4 from CIR to PIR for all access technologies except Satellite.

In addition to transitioning existing TC-4 bundle services onto the new TC-4 AVC-only Offers and TC-4 Bundled Offers, RSPs will need to transition any TC-2 Business Bundles currently using basic TC-4 AVCs as the underlying service.

12.8 Price controls and price review powers of the ACCC

Notwithstanding the framework set out above, there are a number of potential adjustments to the Maximum Regulated Prices in the SAU, where any of the following apply within a Financial Year:

- a price review arrangement,[97] in which case the price in the price review arrangement would be the Maximum Regulated Price;
- an **nbn** offer or Other Charge ceases to be zero-priced, in which case the Maximum Regulated Price will be the price set by **nbn** or the price set by the ACCC through a resetting regulatory determination;
- the introduction of a new **nbn** Offer or Other Charge, in which case the Maximum Regulated Price will be the price set by **nbn** or the price set by the ACCC through a resetting regulatory determination; or
- a tax change event,[98] in which case the Maximum Regulated Price may be changed as a result of a tax change event.

These arrangements in the SAU are intended to promote competition in downstream markets, by providing access seekers with greater certainty over future price paths. In addition, the price review process helps to ensure that, where circumstances arise over the term of the SAU which suggest that prices for particular services are not encouraging competition, Maximum Regulated Prices can be adjusted appropriately.[99]

12.9 Wage Price Index

For the purposes of calculating the Maximum Regulated Price of an NBN Offer or Other Charge, the Variation replaces the Labour Rate Price Index (used to calculate any indexation of **nbn**'s hourly labour rate charges) with the Wage Price Index, to reflect the discontinuation of the Labour Price Index.

12.10 Price review mechanism

nbn does not propose any material variation to the existing price review mechanism in the SAU. **nbn** considers that the revenue-neutral price review mechanism remains fit-for-purpose and should remain the predominant structure for adjusting **nbn**'s Maximum Regulated Prices within the SAU (where such adjustment is appropriate) given:

- The existing price review mechanism in the SAU for the Subsequent Regulatory Period[100] allows either **nbn** or the ACCC to initiate a review of the Maximum Regulated Prices, with **nbn** then developing a price review proposal that the ACCC may either accept or reject. Such price rebalancing must be revenue-neutral (i.e., it cannot result in **nbn**'s revenues being lower than the revenues that would be earned without the price review being implemented).

[97] Current SAU, cl 1G.3.

[98] Current SAU, cl 1G.2.

[99] Final 2013 Decision, p. 89.

[100] See Current SAU Schedule 2E, which is substantively identical to the price rebalancing mechanism in Schedule 1G (applicable during the Initial Regulatory Period).

- In its 2013 SAU decision, the ACCC stated that the price review mechanism in Schedules 1G and 2E of the SAU allows Maximum Regulated Prices to be adjusted appropriately, including where pricing flexibility is needed to respond to unforeseen circumstances or where existing prices are not encouraging efficient use of and investment in **nbn**'s network.[101]
- The ACCC also considered that the criteria for the price review mechanism promoted efficient use of, and investment in, infrastructure, promoted **nbn**'s legitimate business interest and also provided certainty to access seekers in respect of the mechanism for price changes over time.[102]

nbn considers the pricing commitments set out in chapter 11 above and this chapter 12 to be reasonable, including promoting the LTIE, and address the outcomes of the ACCC Working Groups. It is essential that these commitments are considered in the context of the Variation as a whole, including the revenue constraint commitments detailed in chapters 13 to 15 below.

[101] ACCC, *NBN Co Special Access Undertaking – Final Decision*, 13 December 2013, p. 89.

[102] Final 2013 Decision, pp. 89–90.

13 nbn's revenue constraints

The ICRA is intended to play a key role in the overall SAU framework, providing **nbn** with regulatory certainty in relation to the treatment of the initial losses associated with the significant up-front investment required to deploy a new national broadband network. It recognises that this investment needed to be made well in advance of being able to provide a service, and that as a result, revenues will lag expenditure, due to the time delays involved firstly in customers coming onto the network, and then increasing their use of its capabilities over time. The ICRA mechanism provides **nbn** with the opportunity to recover its initial investments over the period of the SAU in line with increasing take-up and use of the network.

The ICRA provides **nbn** with incentives to invest in its network, however given the current and forecast size of the ICRA it is unlikely that **nbn** will be subject to a meaningful revenue constraint during the term of the SAU.

Recognising this, and in response to feedback from the ACCC and industry, the Variation commits **nbn** to only recovering a clearly defined and transparent proportion of the ICRA during the remainder of the SAU term. In doing so, a binding revenue cap will be established for **nbn**'s Core Regulated Services in each Regulatory Cycle, consistent with the practice for other regulated utilities.

Establishing a binding revenue cap involves three substantial concessions by **nbn** in respect of the ICRA:

- that **nbn** will cease growing the ICRA at the WACC (instead indexing only by inflation);
- that **nbn** will not add any further losses to the ICRA during Module 2; and
- **nbn** will only have the opportunity to recover a set portion of the ICRA in any given year for a period that will extend beyond the term of the SAU, which will be subtracted from the ICRA balance.

These are significant concessions by **nbn**, as **nbn** will no longer be afforded the opportunity to recover all of its initial costs (including a regulated rate of return) over the term of the SAU. Further, **nbn** will move away from a fundamental principle of the current SAU, that the regulatory compact provides **nbn** with the opportunity to achieve an "NPV=0" outcome (and no more) during its term. It is arguable whether these concessions are consistent with the LTIE as they risk disincentivising future investment in broadband infrastructure. That said, **nbn** is nonetheless willing to make these concessions in an effort to move forward with industry and provide RSPs with greater certainty. The transparency and predictability of the ICRA recovery will provide greater price certainty to RSPs, ultimately promoting the take-up and use of the **nbn**™ network as well as promoting competition in related telecommunications markets.

In the Subsequent Regulatory Period **nbn** will face a binding revenue cap for its Core Regulated Services despite the fact that the ICRA will not have been extinguished. This responds to concerns raised during the ACCC Working Groups.

The revenue cap that **nbn** will face will comprise the Core Services ABBRR plus a set portion of the ICRA. **nbn** will need to set its prices to reflect that revenue cap.

nbn's Core Services ABBRR will be determined under the BBM which will separately identify the costs associated with **nbn**'s Core Regulated Services and its Competitive Services. Within the BBM **nbn** will calculate a Core Services RAB Portion and Core Services ABBRR which will allow **nbn** to account for the long-term recovery of costs associated with these services. This will make transparent **nbn**'s allocation of costs between Core Regulated Services and Competitive Services and provide greater confidence that **nbn** does not cross-subsidise services supplied in competitive markets with revenue from Core Regulated Services.

The binding revenue cap works in conjunction with additional proposed changes in the Variation such as a 50% risk-sharing of unders and overs for the revenue cap and committing to set prices efficiently so that revenues are not expected to materially exceed the forecast revenue cap.

13.1 The ICRA supports a binding long-term revenue constraint

The SAU price controls set out in chapter 12 would on their own effectively protect RSPs and end-users from price shocks – indeed that is their core purpose. However, to ensure that **nbn**'s prices also remain linked to **nbn**'s efficient costs, the price controls in the SAU operate in tandem with a revenue constraint. As with the existing SAU, the Variation contains a Long-Term Revenue Constraint Methodology (**LTRCM**) which provides **nbn** with the opportunity (but not the guarantee) to recover its costs over time (inclusive of an appropriate return on capital), but no more.

Similar to the regulatory arrangements prevailing in other utility industries, the LTRCM set out in the Variation provides:

- a binding constraint on annual revenues; and
- incentives for ongoing efficient expenditure over time.

nbn's proposed approach is consistent with the 'Building Block Model' (**BBM**) methodologies used by the ACCC and other regulators in a range of industries and also incorporates an ICRA mechanism. The ICRA recognises the timing difference between when **nbn** started incurring costs to build and operate the **nbn**™ network and the date that **nbn** commenced receiving revenues. The ICRA mechanism is also supported by regulatory precedent.[103]

Unlike long established energy and water networks, where the core network build occurred many decades ago and the initial investments are either fully or substantially depreciated, **nbn** has incurred the capex for building to over 12 million premises[104] over a 12-year period. The completion of **nbn**'s initial network build only occurred in 2020, with the majority of the build program taking place in the few years prior to, and with many customers still yet to migrate to the **nbn**™ network. In the circumstances, it is not surprising that there is a lag between **nbn** incurring significant expenditure and being in a position to begin to recover those initial costs through future revenue.

The ICRA mechanism, in combination with a 27-year SAU, is particularly significant in **nbn**'s context because **nbn**'s initial prices (which are subject to individual price controls and have fallen in real terms since the SAU was accepted) were struck to facilitate migration from legacy networks to the **nbn**™ network rather than to achieve cost recovery at as fast a rate as possible. Thus, the ICRA recognises **nbn**'s legitimate business interests by providing the opportunity for **nbn** to recover its initial investments over the period of the SAU in line with increasing take-up and use of the network and meeting the expectations of government, while continuing to incentivise on-going efficient investment in the network.

The critical role played by the ICRA is recognised in the SAU through a fixed principles term that specifies that the opening balance of the ICRA at the start of the Subsequent Regulatory Period (i.e., 1 July 2023) will be the value of the ICRA at the end of the Initial Regulatory Period. The ACCC found that including this ICRA roll-forward equation as a fixed principles term and condition was reasonable and promoted the LTIE when accepting the SAU in 2013, stating that the ICRA roll-forward equation "…*will still be reasonable in the context of a future assessment of any*

[103] **nbn** notes that the concept of the ICRA follows a similar regime established in the Australian Rail Track Corporation's (**ARTC**) Hunter Valley access undertaking, which was accepted by the ACCC in 2011. Access: https://www.accc.gov.au/regulated-infrastructure/rail/hunter-valley-access-undertaking-2011.

[104] This represents the total number of premises in Australia Ready to Connect to the **nbn**™ network according to the weekly report by **nbn** for the week ending 3 March 2022. Access: https://www.nbnco.com.au/content/dam/nbn/documents/about-nbn/weekly-progress/Public_Progress_data-03032022.pdf.

new SAU or varied SAU", and that "*… these provisions are important to NBN Co's long-term cost recovery"*.[105] The current SAU provides for a transition to a standard BBM with a revenue cap reflective of **nbn**'s efficient costs once the ICRA has been extinguished.

While the ICRA remains an integral part of the regulatory framework, policy and market developments since 2013 and the upcoming transition to Module 2 of the SAU provide an appropriate opportunity to ensure the SAU's revenue constraint mechanism continues to promote the LTIE. This aligns with concerns raised within the ACCC Working Groups that the quantum and projected trajectory of the ICRA mean it is unlikely to be extinguished in the term of the SAU, therefore preventing a meaningful revenue constraint applying to **nbn**.[106]

The Variation addresses these concerns and establishes a binding revenue constraint that will apply in Regulatory Cycles before the ICRA is extinguished and ensure **nbn**'s pricing continues to operate in the LTIE.

13.2 Core Services revenue cap includes ABBRR and a portion of the ICRA

The revenue cap under the current SAU does not apply until the ICRA is extinguished, meaning **nbn** is permitted to earn revenue above its ABBRR.

The size of **nbn**'s ICRA as at 2019/20 is $32 billion in nominal terms and **nbn** estimates, all else being equal, that by 30 June 2023 its value will be approximately $44.6 billion (nominal). This means in practice that the current SAU revenue cap, if continued in its present form, is unlikely to provide a binding constraint on **nbn** during the term of the SAU.

To address this, the Variation will establish a *binding* revenue cap in relation to **nbn**'s Core Regulated Services. This is achieved by placing a constraint on the amount of ICRA that is able to be recovered in any year, which is not a feature of the current SAU. Importantly, the Variation will also no longer permit the ICRA to increase in real terms. That is **nbn** will *crystallise* the ICRA, as at its closing value at the end of the Initial Regulatory Period (30 June 2023). The ICRA will no longer have a rate of return applied, and so will maintain its value in real terms, less any annual drawdown of the ICRA as part of the calculation of the revenue cap described below.

Going forward from 1 July 2023 the Core Services Revenue Cap will be determined as the sum of the following values forecast for each year of a Regulatory Cycle:

a. **nbn**'s ABBRR as applicable to its core services (**Core Services ABBRR**) plus any relevant carry-over (unders/overs), as described in sections 13.2.1 and 13.3; and

b. a defined annual amount of ICRA drawdown (**Nominal Annual Drawdown of ICRA**), as described in section 13.2.2.

The establishment of a revenue cap comprised of a standard building block revenue requirement plus an appropriate proportion of the ICRA means that **nbn** will be subject to an effective revenue constraint, from the commencement of Module 2.

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[105] Final 2013 Decision, pp 107-111. The ACCC also stated: "*the LTRCM in Module 2… will provide NBN Co with an appropriate degree of certainty around how the amount of revenue it will be entitled to recover over the SAU period will be determined. Regulatory certainty is an important precursor to efficient investment. In particular, for NBN Co to invest efficiently, it needs to know it will be provided an opportunity to recover its efficient costs (including a return on investment) over time. The ACCC is satisfied that the SAU provides sufficient regulatory certainty to promote efficient investment in the NBN*" – see pp 61, 93-95.

[106] ACCC, *NBN Co Special Access Undertaking - Summary of industry wording group outcomes,* 22 December 2021, Attachment A p. 5.

In determining the prices for Core Regulated Services during each Regulatory Cycle from July 2023, **nbn** will be required to take into account not only individual price controls but its allowable revenue set by the Core Services Revenue Cap. In particular, the Variation requires that at the start of each Financial Year, **nbn** must price its Core Regulated Services so that forecast core services revenue over the Regulatory Cycle does not materially exceed the Adjusted Forecast Core Services Revenue Cap for that Regulatory Cycle.[107]

13.2.1 Calculation of Core Services ABBRR

The Core Services ABBRR component of the Forecast Core Services Revenue Cap will be calculated by reference to the BBM, or more specifically by the sum of the relevant building blocks of the BBM. The BBM comprises the following building blocks.

1. **Forecast operating expenditure allowance:** This building block captures **nbn**'s operating expenditure (**opex**) that **nbn** is forecast to incur for each year of the relevant Regulatory Cycle.
2. **Forecast return on capital allowance:** This building block provides for **nbn** to earn a nominal commercial return on capital. A benchmark rate of return is estimated and applied to **nbn**'s RAB (in this case, the Core Services RAB Portion).
3. **Forecast regulatory depreciation allowance:** This building block captures **nbn**'s depreciation or "return of" the capital in **nbn's** Core Services RAB Portion. Depreciation is calculated on a straight-line basis over the life of the assets.
4. **Forecast regulatory tax allowance:** This building block provides **nbn** an allowance for corporate taxation payable on taxable regulatory profit earned.
5. **Annual construction in progress allowance:** This is an optional building block that **nbn** may propose to include in a Regulatory Cycle, which **nbn** proposes to do in the First Regulatory Cycle. It provides a return on capital for capital expenditure incurred on relevant assets not yet placed into service.

When the separate building blocks are combined, the BBM calculates **nbn**'s Core Services ABBRR, which is an input to **nbn**'s allowable revenues for a Regulatory Cycle.

13.2.2 Recovery of appropriate portion of the ICRA

The ACCC expressed the view in the ACCC Working Groups that it considered that reforms to the current arrangements for the ICRA were required because they permitted annual revenues significantly above what is required over the course of the SAU. RSPs also expressed concerns that the ongoing growth of the ICRA was a source of uncertainty for them in respect of their supply of **nbn** based services in retail markets.

To address these concerns **nbn** is proposing the following treatment of the ICRA:

1. There will be no further additions to the total real value of the ICRA as from 30 June 2023.

[107] An exception is that, at the start of the first Financial Year of each Regulatory Cycle, **nbn** must price its Core Regulated Services so that forecast core services revenue over the Regulatory Cycle does not materially exceed the Adjusted Forecast Core Services Revenue Cap for that Regulatory Cycle as set out in the ACCC's Draft Core Services Revenue Cap Decision (or as set out in **nbn**'s RMA, if the ACCC has not issued a draft decision by 31 March of the preceding Financial Year) – see clause 2C.5.4 of the Variation. This accounts for the fact that **nbn** is required to publish a Tariff List for that Financial Year on or before 1 May of the preceding Financial Year, at which point in time the ACCC may not have accepted a RMA or made an ACCC Replacement Module Determination for the upcoming Regulatory Cycle. This position is not dissimilar to the position applying to electricity transmission networks – see clause 6A.24.4 of the National Electricity Rules.

2. The ICRA will no longer continue to be capitalised using the SAU's rate of return (WACC). Instead, the ICRA will grow only in line with inflation, such that it remains constant in real terms, less the amounts drawn down each year as part of the revenue cap.
3. **nbn** will identify that part of the ICRA that is attributable to the Core Regulated Services, and only recover a portion of that ICRA component from Core Regulated Services revenues during the Subsequent Regulatory Period.
4. **nbn** will commit to only recovering a set portion of that part of the ICRA attributable to Core Regulated Services each Regulatory Cycle in a transparent and predicable manner such that in any given Regulatory Cycle the amount of ICRA that **nbn** may recover is constrained and clearly defined in a formula. Specifically, the SAU sets out a "sum of digits" formula in clause 2C.5.2 which has the effect of increasing the proportion of the ICRA balance that is drawn down over time.
5. **nbn** will not have the opportunity to recover the entirety of the Core Services ICRA until beyond the term of the SAU.

This approach to recovering the ICRA in combination with forecasts of the Core Services ABBRR (calculated by the BBM), provides **nbn** with the opportunity to earn anticipated future revenue sufficient to achieve the revenue targets set out in **nbn**'s Integrated Operating Plan that are intended to allow **nbn** to achieve:

- ongoing investment in and upgrade of its networks to meet evolving end-user demand and competition, including in the capability of its IT systems;
- ongoing maintenance of its networks;
- achievement and maintenance of a standalone investment grade credit rating through to 2040; and
- achievement of the Government's SOE for **nbn**, which includes the objective of earning a commercial return for supplying wholesale broadband services to retailers to support business and end-users' needs.

This means that over time, **nbn** expects that its Core Services Revenue Cap and actual revenues will be relatively aligned, thus establishing a meaningful revenue cap that will need to be reflected into **nbn**'s overall price levels. In this way, the Variation addresses key concerns that have been raised by the ACCC and the industry, as it establishes a nexus between **nbn**'s costs and prices that has not previously existed. Given the enhanced role the Variation provides to the ACCC in relation to the investments that are included in **nbn**'s RAB, **nbn** believes that the varied SAU delivers a long-term regulatory framework that will enhance **nbn**'s incentives for efficient investment and promote the LTIE.

13.3 Revenue Cap includes unders and overs mechanism

Given the dynamic nature of Australia's communication industry (much of which is derived from globally driven technological change) future demand on the **nbn**™ network is difficult to forecast with accuracy. Without an unders and overs mechanism **nbn** may experience either significant windfall gains (where demand is above forecast) or be exposed to substantial potential losses (where demand is below forecast), neither of which is attributable to any inherent "efficiency" or merit on **nbn**'s part.

nbn's current SAU includes an 'unders and overs' mechanism where 100% of any under- or over-recovery is carried forward into the next period. This mechanism would only come into play once the ICRA has been extinguished, and the SAU enters into the "Building Block Revenue Period". As noted in section 13.1, given the current size of the ICRA, it is unlikely that the ICRA would be extinguished during the term of the SAU.

In a significant concession, the Variation commits **nbn** to a risk-sharing arrangement in which **nbn** will only carry forward 50% of any under-recovery (rather than 100%). The remaining 50% is foregone notwithstanding this represents a lost revenue opportunity for **nbn** as it will be prevented by regulation from recovering those unrecovered losses in the future. This is accompanied by a requirement to carry forward 50% of any over-recovery (rather than 100%). This concession has been made in the wider context of the package of changes that **nbn** has included in the Variation, which includes **nbn**'s approach to pricing, treatment of the ICRA, WACC methodology, depreciation, etc. As such, it should not be seen as a standalone element of the Variation, but rather as part of an integrated framework developed to address the interests of RSPs and end-users, while also recognising **nbn**'s legitimate business interests.

nbn has given this concession in circumstances in which there is a significantly greater likelihood that, until at least 2028, **nbn** is likely to under-recover beneath the revenue cap than over-recover above it, meaning the 50% risk sharing arrangement is likely to be skewed against **nbn** until that time.

For the First Regulatory Cycle in the Subsequent Regulatory Period, **nbn** proposes a standard form of revenue cap (which adopts the provisions already contained in the SAU that would apply when the ICRA is extinguished) whereby:

- the Core Services Revenue Cap is calculated using the Core Services ABBRR plus a defined draw down of the Core Services ICRA (as discussed in section 13.2);
- **nbn** sets its prices to not materially exceed the forecast revenue cap using quantity forecasts (including, for example, the speed tier mix), as well as in response to competitive pressures;
- **nbn** retains flexibility to set prices within the Core Services Revenue Cap, while subject to a number of other pricing commitments such as individual price caps; and
- in the event that **nbn**'s actual Core Regulated Services revenue deviates from forecast Core Regulated Services revenue, then all else being equal, **nbn** will carry forward 50% of any such deviations, on an NPV-neutral basis, into the following Regulatory Cycle (known as an 'unders and overs' or a 'wash-up' mechanism). This means that over time, the "value" of any unders carried forward from an earlier Regulatory Cycle will reduce, as only half of any amount that was "carried into" a Regulatory Cycle will be "carried out" into the next one. Simplistically, this means that if there were $100 of unders in the First Regulatory Cycle, only $50 of that would be carried into the second Regulatory Cycle, where if they were still unrecovered, would only have $25 carried into the third Regulatory Cycle. This design feature of the proposed unders and overs mechanism in the Variation addresses concerns that the mechanism could give rise to alternative form of an ICRA.

nbn has incorporated this risk-sharing unders and overs mechanism within the proposed revenue cap for the four key reasons outlined below:

1. **nbn is exposed to demand risks that cannot readily be managed or mitigated by nbn, as its sources are driven by factors outside of nbn's direct control:** **nbn** faces highly uncertain demand in terms of connections, the mix of users across speed tiers and the usage per customer (which will remain relevant to CVC for some plans). **nbn** is exposed to demand risks caused by several factors including uncertainty of future customer requirements, technological change that favours emerging competitive networks including 5G networks, alternative fixed line networks (whether in new developments, the rollout of competing FTTB networks, or otherwise) and alternative fixed wireless networks, together with likely future competition from low earth orbit satellites. These factors may have both short term and long-term impacts on **nbn's** demand.
2. **A revenue cap with an unders and overs reconciliation reduces the effect of demand forecasting errors:** As future demand on the **nbn**™ network is difficult to forecast with accuracy, without an unders and overs mechanism **nbn** may experience either significant windfall gains (where demand is above forecast) or be exposed to substantial potential losses (where demand is below forecast). To the extent these gains or losses are caused by uncontrollable uncertainty and natural error in forecasting, rather than matters within **nbn**'s control, they are not a desirable feature. Exposing **nbn** to gains or losses of this form – even if symmetric – increases cash flow volatility with no effective benefit to end-users. Moreover, unders and overs mitigates incentives that **nbn** might otherwise have to use conservative demand forecasts as this would lead to higher prices.[108]
3. **Reasonable allocation of demand risk between nbn, RSPs and consumers:** The standard form of revenue cap allows the regulated firm to increase its prices so long as these do not lead to revenues or forecast revenues exceeding the cap, and to decrease prices if revenues are likely to exceed the cap. This means the risk that actual demand will be different from forecast demand sits with consumers. However, this is not the case under **nbn**'s proposal. ACCC oversight on **nbn**'s initial prices, and the price controls that apply to services once introduced, prevent **nbn** from setting inflated prices initially or raising prices in response to lower-than-expected demand. Additionally, **nbn** will only be able to roll over 50% of under-recoveries into future Regulatory Cycles, while in the event of over-achieving the revenue cap, 50% of the additional revenue will be removed from the subsequent revenue cap. Hence, under the proposed mechanism **nbn** will face significant demand risk while the operation of the price controls will mean that consumers are protected from potential price shocks. As noted above, the benefit to **nbn** of any under-recovery that is rolled into the revenue cap in any given Regulatory Cycle will lessen over time.
4. **nbn's proposal will promote economic efficiency:** **nbn** considers that the revenue cap with shared unders and overs, when combined with the pricing constraints that **nbn** is proposing and competition from alternative network operators, will promote economic efficiency. It should both facilitate the recovery of efficient investments and promote the efficient operation and use of the network. Revenue caps (with unders and overs) offer incentives to be productively (cost) efficient as revenues that can be earned in a Regulatory Cycle are delinked from actual costs.[109] Over-spending on operating expenses is penalised and under-

[108] Noting that **nbn**'s proposal to use the 50% risk sharing mechanism does create some incentive to forecast conservatively.

[109] "Delinking" refers to, and occurs when, forecasts of cost and demand are used in setting the prices/revenues that will apply to the regulated firm for any Regulatory Cycle, thereby delinking any actual costs that will be incurred from prices/revenues. This delinking creates an incentive for the regulated firm to cut costs early in a determination period in an effort to retain cost savings for a longer period of time before being passed through to consumers in lower prices. The delinking also creates a counter-incentive to delay cost saving until the start of the following Regulatory Cycle that would have been made later

spending rewarded, and similar incentives apply for capex.[110] This is considered further below as part of the broader revenue cap.

As set out and discussed in detail in the Frontier Efficiency Incentives Report on these issues,[111] the proposals promote efficient use of the network. **nbn** faces strong incentives to set efficient prices and introduce new and better services as this will give it the greatest chance of recovering its revenue cap, and it cannot rely on regulation insulating it from demand risk. Greater pricing certainty for RSPs will also allow for greater complementary investments and higher network use.

The proposals can also be considered to promote efficient investment as they are consistent with providing **nbn** with the best opportunity of recovering its efficient sunk and future costs, while penalising expenditure in excess of the efficient cost allowances set *ex-ante*.

The risk sharing revenue cap described above has been developed in the wider context of issues the Variation is attempting to achieve a balanced solution for. Its incentive features and design need to be considered in light of related measures introduced in the Variation, which work in conjunction with each other to provide certainty to RSPs and end-users, while providing **nbn** with appropriate regulatory certainty that it will be afforded the opportunity to generate sufficient revenues to achieve its legitimate business interests, including those expectations placed on it by government. The unders and overs mechanism proposed in the Variation works together with a range of other commitments made by **nbn** to address concerns that have been raised in relation to **nbn**'s long-term regulatory framework.

The other parts of this integrated approach include: identification of a portion of the RAB and ABBRR attributable to **nbn**'s Core Regulated Services; crystallisation of **nbn**'s ICRA as at the end of the Initial Regulatory Period; defined and constrained recovery of that ICRA over the Subsequent Regulatory Period; an enhanced role for the ACCC in relation to the capex included in the RAB; the methodology adopted in relation to return on capital (WACC); the adoption of straight-line depreciation as required by the ACCC, rather than the use of a tilted (back-loaded) approach to depreciation which would have reduced the need for any unders and overs mechanism; and the requirement that **nbn** sets its prices to not exceed its revenues in each Regulatory Cycle. Changing any of these inter-dependent mechanisms in the SAU would require **nbn** to revisit the operation of the other parts of this framework, including the proposed unders and overs mechanism.

13.4 Revenue cap with risk sharing balances increased pricing certainty with efficient cost recovery

nbn recognises that in discussion with the industry and ACCC, some concern was expressed with the use of a revenue cap as the primary form of revenue constraint. This concern included that a revenue cap does not, of itself, offer strong incentives to set efficient prices or otherwise incentivise increases in total demand (for example, the number of AVCs or throughput of data).

nbn understands that the reason for the concern regarding the incentive properties of a revenue cap is because, ordinarily, a firm under a revenue cap is not motivated to increase demand as it would not benefit from any

in the current Regulatory Cycle (capturing a full Regulatory Cycle of margin or price/revenue above cost). The longer the Regulatory Cycle the longer the time before actual costs and revenues are reset and therefore the stronger is the delinking/cost efficiency incentive.

[110] The incentive lessens further into the Regulatory Cycle because the gains cannot be kept for as long. It is for this reason that incentive sharing schemes that are now widely used in the energy sector have been developed.

[111] See: Frontier Efficiency Incentives Report.

increase, and in fact would benefit from higher prices and lower demand where that reduces costs. However, this is not applicable in **nbn**'s circumstances, where:

1. it cannot arbitrarily increase prices as all products remain under individual price caps and face intense competition and substitution risk; and
2. its overall cost recovery is uncertain up to its revenue cap, meaning **nbn** can only meet its revenue cap by finding prices that maximise take-up and network use.

In this regard, **nbn** notes that the market for telecommunications services is more dynamic and competitive than those for other regulated industries where revenue caps are considered. The availability of alternative services on competitive infrastructure (e.g., 4G and 5G wireless, alternative fixed line networks, low earth orbit satellites, etc.) imposes additional incentives on **nbn** in relation to cost efficiency and in developing products and services valued by consumers at prices they are willing to pay. This means that it is not solely the task of the regulatory framework to deliver appropriate incentives and constraints on **nbn**'s behaviour – market conditions are also a relevant countervailing force to any potential inefficiencies or lack of innovation on **nbn**'s part.

nbn does not have the ability to restrict supply.

It would be impossible for **nbn** to price excessively with the intention of suppressing demand to decrease cost and increase profit. Such a "demand suppression" strategy is simply unavailable to **nbn**. This is because **nbn** is subject to the Category B SAOs and as the default SIP is the infrastructure provider of last resort. In broad terms this means that **nbn** has a legislative and policy obligation to supply services upon reasonable request, including to extend, expand and potentially enhance its network (and services) to meet these obligations.

The risks arising from these circumstances are exacerbated by the proposed 50:50 sharing arrangement of unders and overs. Under-performance will result in material losses to **nbn** even if it can in future recover a 50% share of its unders, which is by no means certain.

Uncertainty of demand

A second issue that has arisen around revenue caps is whether they efficiently allocate demand risks. **nbn**'s view is that a risk-sharing approach of the kind proposed in the Variation offers a reasonable and efficient allocation of risks. In coming to this view, **nbn** highlights that:

1. The basic economic principle is that risks, including demand risks, should be borne by the party that is best able to manage or mitigate the risk. This principle is consistent with the objective of efficient production and long-term cost minimisation.
2. Exposing a regulated firm to demand risk will only promote economic efficiency if the firm is well placed to manage the risk.
3. **nbn** faces many risks which it is not well placed to manage.

On the first point, **nbn** notes that, for example, cost risks usually sit with the regulated firm as it is in the best position to reduce its costs or reorganise its resources to minimise the impact of input cost increases (e.g., by substituting for another input). However, not all cost risks usually sit with the regulated firm, because some costs cannot be controlled or mitigated. For example, changes to tax rates, or disruptions to external supply chains.

Secondly, exposing a regulated firm to demand risk may or may not promote economic efficiency. This will depend on how controllable or manageable the risk is. For example, if demand fluctuates due to unpredictable factors that are outside of the firm's control (for example, due to weather conditions), then it can result in windfall gains or losses. These windfalls have no obvious efficiency benefit, and may increase the regulated firm's

cost of capital.[112] On the other hand, if demand fluctuates due to factors within the firm's control (for example, from increases in service quality, or from mispricing of services), then it would be more efficient for the firm to bear demand risk.

Thirdly, there is a material component of **nbn**'s demand risk that cannot readily be managed or mitigated by **nbn**, as its sources are outside of **nbn**'s control. These factors include:

- technological developments relating to potential Competitive Services including 5G deployment and low earth orbit satellites;
- RSPs that also operate networks for mobile broadband services and can compete to supply services to some of **nbn**'s customers; and
- how consumers' willingness to pay for very high-speed services changes over time, which is in part dependent on the availability of new applications that require such high speeds and quality.

As **nbn** does not have a direct relationship with its end-users as a result of its wholesale-only obligations, it faces an information asymmetry on end-user behaviour compared to RSPs. This creates challenges for **nbn**'s ability to effectively mitigate these demand risks. Additionally, **nbn**'s NDOs limit its ability to directly influence end-user consumption choices, leading to significant reliance on **nbn**'s downstream channel partners (i.e., RSPs), who are in some circumstances also **nbn**'s competitors, to influence end-user consumption behaviour. These constraints work in concert to limit the instruments at **nbn**'s disposal to mitigate certain demand risks in market.

These factors suggest that **nbn**'s proposed 50:50 risk-sharing revenue cap offers an appropriate sharing of the demand risk between **nbn** and consumers. A revenue cap with unders and overs may appear at first glance to pass all the demand risk to consumers for a Regulatory Cycle, but **nbn** has stringent controls on its prices that mean that it will not be able to raise prices in future Regulatory Cycles to offset insufficient demand in the First Regulatory Cycle, along with the countervailing market forces of alternative broadband service options. This is reinforced by the 50:50 sharing of unders and overs. To the extent that the risk turns out to result in a permanent shift towards other sources of demand, **nbn** will bear (potentially all) demand risk.

[112] This depends on whether the demand risks that are borne are correlated with market risks and so cannot be diversified.

14 Regulatory Asset Base and **nbn**'s cost allocation approach

nbn's RAB includes the prudent investments made by **nbn** in relation to all its networks. Over the Initial Regulatory Period, capex has been incorporated into the RAB on the basis of actual expenditure incurred in accordance with the prudency requirements in Module 1.

The RAB at the end of the Initial Regulatory Period is rolled forward as the opening RAB value in the Subsequent Regulatory Period, and then rolled forward from one Regulatory Cycle to the next using well-established mechanisms.

To address concerns raised about the potential for **nbn** to cross-subsidise services provided in competitive markets, the Variation introduces a cost allocation approach that identifies the portion of the RAB that is attributable to Core Regulated Services. This portion is referred to as the Core Services RAB Portion. In this manner, **nbn** is able to provide the ACCC and RSPs with reassurance that Core Regulated Service and Competitive Service costs and revenues are kept separate. This in turn will promote competition in communication markets as well as encourage the efficient use of, and investment in, communications infrastructure.

Through the Subsequent Regulatory Period, commencing in 2023, **nbn**'s RAB and the newly established Core Services RAB Portion will follow a standard regulatory model of **nbn** proposing forecasts of capex for an upcoming Regulatory Cycle, with the ACCC either including expenditure in the forecasts or determining alternative values. The ACCC will have the ability to perform an ex-post review of the amount of capex to be included in the RAB and Core Services RAB Portion at the end of each Financial Year of the then-current Regulatory Cycle, for the purposes of being rolled forward into the next Regulatory Cycle.

14.1 Overview of the Regulatory Asset Base

nbn's RAB aggregates the actual amount of capex permitted under the SAU incurred on any **nbn** Relevant Assets by **nbn** or any of its related bodies corporate since the commencement of **nbn**'s operations. During the Initial Regulatory Period, such capex must be incurred in accordance with the Network Design Rules and the Procurement Rules. The Relevant Assets include **nbn**'s fibre, wireless and satellite networks, any other telecommunications networks, network elements, platforms, systems and any other assets owned, controlled or operated by or on behalf of NBN Co or a related body corporate. Thus, **nbn**'s investments in the MTM networks have also been included in the RAB since their introduction.

In the Subsequent Regulatory Period commencing on 1 July 2023 the SAU moves to a more standard model of utility regulation, with **nbn** proposing, and the ACCC either accepting or varying, forecasts of **nbn**'s proposed expenditures.

Consistent with the proposal for the SAU to differentiate between Core Regulated Services and Competitive Services, the Variation establishes a mechanism for calculating a Core Services RAB Portion, being the portion of the RAB attributable to Core Regulated Services.

The Variation also contains additional efficiency incentives governing the capex that contributes to the RAB, in line with feedback from the ACCC, including a significant and material concession giving the ACCC the power to determine, on an ex-post basis, the amount of the capital expenditure to be included in the RAB (and Core Services RAB Portion) and to be rolled forward to the next Regulatory Cycle.

The RAB and Core Services RAB Portion each play a central role within the LTRCM as they form the basis for calculating the return on capital and return of capital (depreciation) components of the BBM described in chapter 15 below.

This section provides an overview of:

- the classification of Core Regulated Services and Competitive Services;
- the RAB and Core Services RAB Portion roll-forward mechanism as it applies at different stages of the SAU term;
- Cost Allocation Principles and role of the Cost Allocation Manual (**CAM**); and
- cost pass-through mechanism.

14.2 Classification of Core Regulated Services and Competitive Services

While all of **nbn**'s eligible services are declared and subject to regulation, not all eligible services are subject to the terms of the SAU in the same way. **nbn** proposes that all Core Regulated Services (regardless of whether they fall within the scope of the 'NBN Access Service' or 'Ancillary Services' declared under the SAU) will be covered by the SAU Core Services Revenue Cap. However, services such as Sky Muster Plus and Continuity Services, which do not fall within the scope of the NBN Access Service or Ancillary Services, are not and will not be subject to the SAU's pricing and product development / withdrawal provisions.

nbn™ Enterprise Ethernet will continue to be covered by the SAU (as it falls within the scope of the 'NBN Access Service'). However, **nbn** proposes that it will be classified as a Competitive Service and will not be subject to the same SAU obligations as Core Regulated Services. The key differences are that **nbn**™ Enterprise Ethernet, as a Competitive Service, will not be covered by the product development and withdrawal processes, the obligation to publish a Tariff List, nor be subject to Maximum Regulated Prices or a revenue cap. As such, **nbn** proposes that the price of **nbn**™ Enterprise Ethernet and other services not included in the Core Services RAB Portion will be agreed commercially with RSPs. **nbn** notes that **nbn**™ Enterprise Ethernet and other Competitive Services will still be subject to **nbn**'s statutory obligations, including its NDOs and standard access obligations, which together ensure that these services will be provided on a non-discriminatory basis to all RSPs, with transparency of the terms of supply. This is still a greater level of regulation than for the services against which **nbn** competes in the relevant markets. Further, these Competitive Services will continue to be provided on a wholesale-only basis, and in a manner consistent with **nbn**'s line of business restrictions.[113]

A summary of **nbn**'s proposed classification of Competitive Services and Core Regulated Services under the SAU is outlined in Table 5 below.

[113] Sections 17-19 of the NBN Companies Act place restrictions on the services that may be supplied by **nbn**,

Table 5. Summary of Competitive Services and Core Regulated Services under the SAU

	Competitive Services	Core Regulated Services
Captured under the NBN Access Service or Ancillary Services service descriptions	Enterprise Ethernet	TC-1, TC-2, TC-4 Ancillary services (NPIS, the Sandpit) Facilities Access Service Cell site access service
Not captured by the NBN Access Service or Ancillary Services service descriptions	Business Satellite Service (Layer 3) Satellite Mobility for Large Commercial Passenger Aircraft (LCPA) (Layer 3)	SkyMuster Plus (Layer 3) Continuity Services (HFC and Copper – Layer 1) Fibre TV

New products and services which fall within the scope of an existing Competitive Service or Core Regulated Service will automatically be deemed to be such a Competitive Service or Core Regulated Service (as the case may be). Otherwise, products and services can be categorised (or, for existing products and services, re-categorised) as follows:

- **nbn** may, following consultation with RSPs, decide whether to categorise any proposed new product or service as a Core Regulated Service or Competitive Service, with a consequential allocation of building block costs consistent with the SAU's Cost Allocation Principles and the CAM.
- The ACCC may, within 60 Business Days, disallow either the categorisation or the cost allocation proposed by **nbn** and determine its own categorisation and/or cost allocation, consistent with the SAU's Cost Allocation Principles and having regard to the CAM.
- **nbn** may propose the categorisation of a new product or service, or the re-categorisation of an existing product or service, as a Core Regulated Service or Competitive Service in a RMA.
- The ACCC must, in any ACCC Replacement Module Determination for the relevant Regulatory Cycle, determine the categorisation of that product or service, and any consequential allocation of costs, consistent with the SAU's Cost Allocation Principles and having regard to the CAM.

nbn proposes that the ACCC may, in a ACCC Replacement Module Determination, re-categorise an existing product or service as a Core Regulated Service or Competitive Service, regardless of whether **nbn** proposed any re-categorisation in the relevant RMA for the relevant Regulatory Cycle.

The categorisation and re-categorisation of products and services will also involve consequential adjustment to various inputs to **nbn**'s Adjusted Forecast Core Services Revenue Cap, including, principally, to the Core Services RAB Portion and Core Services ABBRR.

These mechanisms ensure that the differential treatment of Core Regulated Services and Competitive Services remains appropriate over time, having regard to the dynamic market conditions under which **nbn** operates.

14.3 RAB and Core Services RAB Portion roll-forward mechanism

Under the varied SAU there are three key elements of the RAB roll-forward mechanism to be considered:

- roll forward of the RAB and Core Services RAB Portion from the end of the Initial Regulatory Period to the commencement of the Subsequent Regulatory Period (i.e., from 30 June 2023 to 1 July 2023);
- roll forward of the RAB and Core Services RAB Portion within a Regulatory Cycle to determine their values at the start of each year in that Regulatory Cycle (i.e., 1 July 2023, 1 July 2024), noting that these values are established following ex-post review by the ACCC at the end of each Regulatory Cycle; and
- roll forward of the RAB and Core Services RAB Portion between Regulatory Cycles within the Subsequent Regulatory Period (e.g., from 30 June 2025 to 1 July 2025).

How the roll forward mechanism applies to each of these transitions is described below.

14.3.1 Roll forward of the RAB and Core Services RAB Portion from the end of the Initial Regulatory Period to the commencement of the Subsequent Regulatory Period

14.3.1.1 Roll forward of the RAB to 1 July 2023

The value of the RAB at the commencement of the Subsequent Regulatory Period (i.e., 1 July 2023) will be equal to the RAB at the end of the Initial Regulatory Period (i.e., 30 June 2023). This reflects the RAB roll-forward mechanism under the existing fixed principle in the accepted SAU.

14.3.1.2 Roll forward of the Core Services RAB Portion to 1 July 2023

Consistent with the approach to rolling forward the RAB, the Core Services RAB Portion at the commencement of the Subsequent Regulatory Period will be equal to the Core Services RAB Portion at the end of the Initial Regulatory Period.

nbn recognises that it has not previously calculated (and the ACCC has not previously made an LTRCM Determination in respect of) any portion of the RAB attributable to Core Regulated Services. For this reason, the Variation specifies the following detailed methodology for the roll-forward of the Core Services RAB Portion from 30 June 2023 to 1 July 2023:

- a value for the Core Services RAB Portion is initially calculated by applying a cost allocation methodology to the value of the RAB as at 30 June 2020 as specified in the LTRCM Determination for FY20 issued by the ACCC. As at 30 June 2020, the real value of the Core Services RAB Portion is $25,203,513,944;
- the real value of the Core Services RAB Portion as at 30 June 2020 is rolled forward to 1 July 2020; and
- the Core Services RAB Portion as at 30 June 2020 is then rolled forward for each of FY21, FY22 and FY23 using a methodology consistent with the calculation of the RAB, i.e., taking the real value of the Core Services RAB Portion as at 1 July 2020 and making the following adjustments from the immediately preceding Financial Year:

a. adding the amount of real capital expenditure in connection with Core Regulated Services in that preceding Financial Year, determined by applying the same cost allocation methodology to the amount of real capital expenditure added to the RAB as specified in the relevant LTRCM Determination by the ACCC;

b. subtracting the real value of disposals of Relevant Assets included in the Core Services RAB Portion in that preceding Financial Year; and

c. subtracting the real value of depreciation applicable to the opening value of the Relevant Assets included in the Core Services RAB Portion at the start of that preceding Financial Year,

with the last such roll-forward resulting in a real value for the Core Services RAB Portion for 1 July 2023.

The Variation also provides that, where the ACCC makes an ACCC Replacement Module Determination in respect of the second Regulatory Cycle commencing on 1 July 2025, the ACCC must specify the value of the Core Services RAB Portion calculated in accordance with the above methodology, as a key input into calculating the Core Services RAB Portion at the start of that Regulatory Cycle.

This methodology has been designed by **nbn** to be consistent with the existing methodology for calculation and roll-forward of the RAB, including utilising as inputs where relevant the value of the RAB as determined by the ACCC in respect of FY20 to FY23 during the Initial Regulatory Period. **nbn** considers that this is a reasonable and transparent approach to adopt, given the inclusion of the Core Services RAB Portion as a new feature of the SAU that has not previously been determined by the ACCC.

14.3.2 Roll forward of the RAB and Core Services RAB within Regulatory Cycles

14.3.2.1 Roll forward of the RAB within Regulatory Cycles

nbn proposes that the real value of the RAB as at the beginning of the second or subsequent year in a Regulatory Cycle will be determined by adjusting the real value of the RAB as at the beginning of the immediately preceding year in that Regulatory Cycle as follows:

1. identify the real value of the RAB at the start of that preceding Financial Year;
2. add the amount of real capital expenditure in that preceding Financial Year, as determined by the ACCC at the end of that Regulatory Cycle;
3. deduct the real value of depreciation in that preceding Financial Year, as determined by the ACCC at the end of that Regulatory Cycle; and
4. deduct the real value of any disposals of relevant assets in that preceding year, as determined by the ACCC at the end of that Regulatory Cycle.

This approach is consistent with the existing fixed principles term and condition in the accepted SAU, but significantly expands the ACCC's role by conferring on the ACCC the power to make ex-post determinations on capital expenditure to be included into the RAB, as described in further detail in section 14.3.5.

14.3.2.2 Roll forward of the Core Services RAB Portion within Regulatory Cycles

nbn proposes that the real value of the Core Services RAB Portion as at the beginning of the second or subsequent year in a Regulatory Cycle will be determined by adjusting the real value of the Core Services RAB Portion as at the beginning of the immediately preceding year in that Regulatory Cycle as follows:

1. identify the real value of the Core Services RAB Portion at the start of that preceding Financial Year;
2. add the amount of real capital expenditure in connection with Core Regulated Services in that preceding Financial Year, as determined by the ACCC at the end of that Regulatory Cycle;
3. deduct the real value of depreciation in connection with Core Regulated Services in that preceding Financial Year, as determined by the ACCC at the end of that Regulatory Cycle; and
4. deduct the real value of any disposals of Relevant Assets included in the Core Services RAB Portion at the commencement of that preceding Financial Year, as determined by the ACCC at the end of that Regulatory Cycle.

Again, the ACCC's role in determining the values of the Core Services RAB Portion, and inputs into the Core Services RAB Portion, is described in further detail in section 14.3.5.

14.3.3 Roll forward of the RAB and Core Services RAB Portion between Regulatory Cycles

Finally, **nbn** proposes that the value of the RAB and Core Services RAB Portion at the start of a Regulatory Cycle (other than the First Regulatory Cycle) will be calculated by applying the same methodology referred to in sections 14.3.2.1 and 14.3.2.2 above (respectively).

14.3.3.1 Nominal RAB and Nominal Core Services RAB Portion

The values of the RAB and Core Services RAB Portion for the purposes of the roll-forwards described above are real values.

The Variation therefore includes a mechanism under which an equivalent nominal RAB value is calculated for the purposes of being used as an input into **nbn**'s ABBRR and Core Services ABBRR calculations. Under that mechanism, each of the forecast and actual "real" RAB and "real" Core Services RAB Portion are adjusted into nominal terms by applying a Cumulative Inflation Factor. The "nominal" RAB and "nominal" Core Services RAB Portion are then used as an input into **nbn**'s ABBRR and Core Services ABBRR (respectively).

This is consistent with how the current SAU distinguishes between the "real" RAB and the inflation-adjusted "nominal" RAB and therefore **nbn** considers it remains a reasonable approach.

14.3.4 nbn's depreciation approach

The method for determining the RAB and Core Services RAB Portion at the end of each Financial Year during the First Regulatory Cycle will be real straight-line depreciation. This is a significant concession given:

- **nbn** considers that there is a misalignment between the SAU's depreciation / allowable revenue profile and IOP revenue projections, resulting in actual revenue being forecast to be significantly below allowed revenue under the Variation for approximately five to six years.
- The shortfall between actual and allowed revenue which would have been added to the ICRA under the current SAU will no longer be the case under the Variation.

nbn initially sought to address this misalignment differently by proposing a tilted approach to depreciation (i.e., back-loading), allowing permitted cost recovery to more closely match **nbn**'s expected revenue profile over time. However, the ACCC has indicated that it does not currently support such an approach.

Therefore, this will need to be addressed through the unders and overs mechanism.

The SAU affords **nbn** a choice of adopting a default straight-line depreciation method or an alternative method. Any alternative depreciation methodology chosen must promote the LTIE and be consistent with **nbn** achieving a reasonable likelihood of long-term recovery of its prudently and efficiently incurred costs.

nbn had initially proposed adopting a linear back-loaded depreciation approach for the first and subsequent Regulatory Cycles. However, from discussions in the ACCC Working Groups, it became apparent that the use of a back-loaded depreciation profile was not supported by the ACCC. **nbn** has taken onboard the feedback received and proposes to adopt straight-line depreciation for the First Regulatory Cycle, as outlined in section 14.3.4.1.

The economic literature highlights that while a range of depreciation methods could be efficient under limited conditions,[114] **nbn** submits that the best depreciation path for allocative efficiency is one that results in prices that minimise the distortion in consumption over time.[115] This requires a process of matching the depreciation profile with the present value of the income that the asset is expected to generate over the remainder of its useful life, based on forecasts of willingness to pay and volumes.

[114] Historically, the ACCC has required the use of economic depreciation when setting access charges for Telstra. However, what has happened in practice in large part for reasons of simplicity by the ACCC and other state-based regulators of other utilities, such as IPART, ESC and ESCOSA, has been the use of straight-line depreciation.

[115] Laffont and Tirole, *Competition in Telecommunications,* MIT Press, 2000, pp. 60-67.

Back-loaded depreciation approach

nbn continues to consider that back-loading depreciation would better promote allocative efficiency. [116] Backloading would better match depreciation allowances with forecasts of willingness to pay and traffic volumes, which are both expected to increase over time. It would also produce a more balanced capital charge on a unit or per-customer basis, reflecting the existing capacity in the network and be more 'equitable' over time.

In contrast, straight-line depreciation will produce equal real depreciation amounts over the life of the asset, resulting in total capital charges that are in fact decreasing in value over time. This will result in prices rising initially and falling over the SAU period. **nbn** submitted that such a price path is unappealing since prices are not aligned with willingness to pay (or the value that users are expected to derive from the assets), resulting in allocative inefficiency and exposing **nbn** to a higher chance of asset stranding risk.

As a result of adopting straight-line depreciation, **nbn**'s need for an appropriate unders and overs arrangement becomes more important, because there will be a period of initial misalignment between actual revenue and allowed regulatory revenue that is significantly greater than would have been the case had a back-loaded depreciation profile been adopted.

14.3.4.1 Depreciation for roll forward of the RAB and Core Services RAB Portion under the Variation

In the Variation, **nbn** proposes to adopt a traditional real straight-line depreciation approach, based on the value of capital expenditure rolled into each of the RAB and Core Services RAB Portion in the First Regulatory Cycle.

The primary support for straight-line depreciation is its simplicity. Accordingly, **nbn** considers adopting this approach for the First Regulatory Cycle is appropriate and reasonable.

nbn has also proposed amendments in the Variation such that the default method for determining depreciation in the Subsequent Regulatory Period will be straight-line depreciation based on actual capital expenditure, unless another method is specified in the RAB Roll Forward Arrangements applicable to a given Regulatory Cycle.

Rolling forward on the basis of actual depreciation provides additional incentives to **nbn** to deploy capital expenditure efficiently, as **nbn** would retain the benefit of any capital expenditure underspends (subject to ex-post determination by the ACCC).

14.3.5 Ex-post determination by the ACCC of the RAB and Core Services RAB Portion

nbn recognises that moving to a new ex-ante / forecasting approach used in the BBM coupled with the high degree of demand uncertainty (including due to substitution risk) may result in uncertainty about the level of **nbn**'s capital expenditure needed to prudently and efficiently respond to future demand.

Accordingly, **nbn** proposes to confer on the ACCC an ex-post review power which significantly expands the ACCC's role in Module 2 of the current SAU, which currently only contemplates a role for the ACCC to assess actual capital expenditure by **nbn** which exceeds an approved forecast. This is a material and significant concession by **nbn**.

[116] **nbn** had proposed that the backloaded depreciation approach take the form of an inclining sum-of-years-digits approach from 1 July 2023 for the remainder of the SAU Term. In practice this would have meant that the proportion of the RAB recovered each year through the depreciation allowance would be equal to the sum of the number of years from 2023 divided by the total sum of 1 to 17 years of the SAU period to 2040 (i.e., 153).

14.3.5.1 Overview of the ex-post review and determination role

The Variation confers on the ACCC the power to review and make a determination on the following matters at the conclusion of a Regulatory Cycle, regardless of whether **nbn** spends under or over its forecast capital expenditure for that Regulatory Cycle:

1. the value of the RAB and Core Services RAB Portion at the end of each Financial Year within the Regulatory Cycle;
2. the value of the RAB and Real Core Services RAB Portion at the start of the first Financial Year within the Regulatory Cycle (which previously would only have been estimated for the purpose of determining the Core Services Revenue Cap for that Regulatory Cycle);
3. the amount of capital expenditure to be added to the RAB and Core Services RAB Portion for each Financial Year within the Regulatory Cycle;
4. the real value of depreciation on the relevant assets included in the RAB and Core Services RAB Portion for each Financial Year within the Regulatory Cycle; and
5. the real value of any disposals of relevant assets included in the RAB and Core Services RAB Portion for each Financial Year within the Regulatory Cycle.

The ACCC must determine these matters at least 20 Business Days before the end of the relevant Regulatory Cycle and after the ACCC has either accepted the RMA proposed by **nbn** or made an ACCC Replacement Module Determination for the upcoming Regulatory Cycle.

In the absence of any provision to the contrary, this may result in a consistency issue where the forecast opening values of the RAB and Core Services RAB Portion at the start of a Regulatory Cycle, as stated in the Replacement Module or ACCC Replacement Module Determination for that Regulatory Cycle, may not equal the estimated closing values of the RAB and Core Services RAB Portion at the end of the previous Regulatory Cycle as determined by the ACCC in ex-post review.

Accordingly, the Variation provides for those opening RAB and Core Services RAB Portion values in the relevant Replacement Module (or ACCC Replacement Module Determination) for an upcoming Regulatory Cycle to be updated to reflect the estimated closing values determined by the ACCC in ex-post review for the then-current Regulatory Cycle.

In addition, the forecast opening values of the RAB and Core Services RAB Portion at the start of an upcoming Regulatory Cycle will impact specific elements of the Forecast Nominal ABBRR and Forecast Nominal Core Services ABBRR for that Regulatory Cycle (being the forecast regulatory depreciation and tax allowance for each year of that Regulatory Cycle). Accordingly, the Variation provides for:

- the ACCC to determine those specific elements for an upcoming Regulatory Cycle at the same time as making an ex-post review determination in respect of the then-current Regulatory Cycle, including by using the inputs and methodologies in the Replacement Module or ACCC Replacement Module Determination for the upcoming Regulatory Cycle; and

- the values of those specific elements in the Replacement Module (or ACCC Replacement Module Determination) for the upcoming Regulatory Cycle to be updated to reflect the values determined by the ACCC following its ex-post review for the then-current Regulatory Cycle.[117]

These mechanisms allow the ACCC to conduct ex-post review of **nbn**'s capital expenditure while retaining the propose-respond style of regulation established in the SAU involving **nbn** making Replacement Module Applications to the ACCC which may be accepted or rejected by the ACCC as a variation to the SAU.

14.3.5.2 Matters to be taken into account by the ACCC

nbn proposes that in making an ex-post review determination in respect of the values of the RAB and Core Services RAB Portion in each Financial Year of that Regulatory Cycle, the ACCC will:[118]

- take into account the same Expenditure Factors that it considered when determining whether **nbn**'s forecasts of capex were prudent and efficient;
- have regard to **nbn**'s capex forecasts for each Financial Year of that Regulatory Cycle (whether specified in the Replacement Module or ACCC Replacement Module Determination for that Regulatory Cycle, as applicable);
- recognise capital expenditure at specified times, depending on whether an Annual Construction In Progress Allowance is included in the Core Services ABBRR for that Regulatory Cycle;
- include all actual capital expenditure that the ACCC determines was or is likely to be incurred (or would have been incurred, to the extent actual capex is not known or is otherwise not included) prudently and efficiently by **nbn**, acting in accordance with good industry practice, in achieving the Expenditure Objectives. This is the equivalent of the test that must be applied by the ACCC when assessing **nbn**'s forecasts in a RMA (or when making an ACCC Replacement Module Determination), with rules specifying when capital expenditure is incurred efficiently and prudently for this purpose;
- to the extent that the ACCC does not include actual capital expenditure, instead include an amount of capital expenditure which the ACCC determines would have been (or would be) incurred prudently and efficiently by **nbn**, acting in accordance with good industry practice, in achieving the Expenditure Objectives;
- apply the prudency and efficiency test above based on the circumstances existing, and information and analysis that **nbn** could reasonably have been expected to have considered or undertaken, at the time **nbn** made its investment decision (i.e., the ACCC should not conduct a "hindsight review" of decisions made by **nbn**). That is, in making decisions as to the level of prudent and efficient capex that should be included in the RAB, the ACCC should place itself in the same position as a prudent and efficient firm acting in accordance with good industry practice in achieving the Expenditure Objectives;
- to be subject to a rule that capital expenditure will be deemed to be prudently incurred (but will be assessed separately for efficiency) where incurred or likely to be incurred on a project or program which is the subject of a Government Policy Project Notice, as described in section 14.3.6; and
- the ACCC may cap capital expenditure to be included in the RAB and Core Services RAB Portion in respect of a project or program at any relevant maximum amount specified in the relevant Government Policy Project Notice to which that project or program relates.

[117] Variation, cls 2C.9.7, 2C.9.8 and 2C.3.1(a).

[118] Variation, cl 2C.9.7(c).

These provisions and constraints in the Variation are reasonable and necessary, as it would lead to a significant reduction in certainty for **nbn** if it could not have confidence that any decisions by the ACCC to determine the RAB and Core Services RAB Portion were not bound by consistent and robust criteria that reflected the real-world decisions that **nbn** is required to make in the highly dynamic sector in which **nbn** operates. If these provisions and constraints were not present, the consequent uncertainty would lead to a significant chilling of **nbn**'s investment incentives, and result in adverse outcomes for end-users and industry, squarely at odds with the promotion of the LTIE.

14.3.5.3 Procedural elements applicable to ex-post review and determination by the ACCC

The proposed ex-post review and determination power of the ACCC is designed to integrate with the existing procedures and timeframes applicable to RMAs by **nbn** and ACCC Replacement Module Determinations by the ACCC.

In particular, as noted above, the ACCC's ex-post determination in respect of the values of the RAB and Core Services RAB Portion at the end of each Financial Year within a Regulatory Cycle must be issued at least 20 Business Days prior to the end of that Regulatory Cycle. This aligns with the time by which the ACCC must issue an ACCC Replacement Module Determination if the ACCC has not accepted **nbn**'s RMA for the next Regulatory Cycle.[119]

In addition, ahead of making an ex-post determination in respect of those values, **nbn** proposes that the ACCC must:

- issue a draft decision (referred to as a 'RAB roll-forward draft decision') in respect of the current Regulatory Cycle within five calendar months of receiving a RMA from **nbn** for the upcoming Regulatory Cycle;
- consult with **nbn** before issuing a draft RAB roll-forward decision, and take into account information and submissions provided by **nbn** within any time limit specified by the ACCC; and
- consult with **nbn** on the draft RAB roll-forward decision for at least two calendar months from the date of issue to **nbn**, taking into account information and submissions provided by **nbn** within that period.[120]

nbn considers that this proposed consultation and draft decision process is reasonable. It will ensure that **nbn** is afforded a reasonable opportunity to provide information and submissions to the ACCC regarding the considerations that underpinned capital expenditure across a given Regulatory Cycle, particularly in circumstances where the ACCC proposes not to roll that expenditure into the RAB or Core Services RAB Portion. **nbn** considers that this process is critical for the preservation of **nbn**'s investment incentives and the promotion of the LTIE, and reflects that **nbn** is the party best placed to provide information on:

- the investment decisions which **nbn** has made; and
- the circumstances existing, and information and analysis that **nbn** could reasonably have been expected to have considered or undertaken, at the time **nbn** made the decision to incur the relevant capital expenditure.

[119] A caveat is that the ACCC's ex-post review determination must be made after the ACCC has either accepted the RMA proposed by **nbn** or made an ACCC Replacement Module Determination for the upcoming Regulatory Cycle: see Variation clause 2C.9.7.

[120] Variation, cl 2C.9.7(d).

The proposed process is not dissimilar to the LTRCM process which has applied to date under Module 1 of the SAU, which requires the ACCC to issue a preliminary view regarding an LTRCM determination within 40 Business Days of **nbn** submitting the relevant regulatory information, and later to issue a draft LTRCM determination.[121]

14.3.6 Projects or programs to which a Government Policy Project Notice applies

14.3.6.1 Overview

As a GBE, **nbn** must undertake and make investments and operational decisions that support government policy objectives set out in legal obligations and policy instruments, as described in section 3.1. These projects may not always be commercial investments; for example, they may be on national or public interest grounds, or there may be a risk of disagreement about whether their costs are appropriately reflected in **nbn**'s prices.

nbn considers that it should be afforded the opportunity to recover the efficiently incurred costs that are associated with these government-required investments, as it would significantly harm **nbn**'s investment incentives and its ability to comply with its legal obligations and policy instruments if it were prevented from being able to do so.

The ACCC has expressed concerns that a straight pass-through or approval of these projects or programs without regulatory assessment can present risks of inefficient outcomes, which the ACCC has noted may arise due to information asymmetry, whether alternative options exist, consumer preferences or willingness to pay, and potential implications of these projects or programs on **nbn**'s prices, quality or demand for its services. However, **nbn** understands that the ACCC accepts that there are circumstances in which a full regulatory assessment should not be required for certain investments that may not otherwise be commercial in nature.

14.3.6.2 Government Policy Project Notices

In response to the ACCC's concerns, while seeking to preserve **nbn**'s investment incentives, **nbn** has proposed in the Variation a robust process and set of rules in respect of projects or programs which are the subject of a 'Government Policy Project Notice'.

First, a Government Policy Project Notice must meet the following requirements:

- the Communications Minister must issue to **nbn** a notice stating that it is a 'Government Policy Project Notice' issued for the purposes of **nbn**'s SAU, which notice must also be published on the Department of Communications Website;
- the notice must describe the scope of a relevant project or program that the Communications Minister has determined is reasonably required to achieve Government policy, taking into account the public interest of the project or program. The description of the scope must include:
    - the specific project or program that is the subject of the notice;
    - the key elements of the project or program and the expected outcomes;
    - any restrictions on the delivery of the project or program (e.g., as to technology);

[121] See current SAU, cl 1E.1.2. Also see, by way of example, the ACCC's preliminary view, and draft and final LTRCM determinations, for the Financial Year 2019-20. Access: https://www.accc.gov.au/regulated-infrastructure/communications/national-broadband-network-nbn/nbn-co-special-access-undertaking/ltrcm-2019-20.

- the expected timeframe for delivery of the elements and outcomes of the project or program;
- the forecast expenditure for the project or program and a description of how it will be funded; and
- a statement regarding **nbn**'s reporting requirements under the notice;

- a draft of the notice must be provided to the ACCC at least 14 calendar days before the day on which the notice is issued to **nbn**. In practice, **nbn** expects that the draft notice will be issued by Government to the ACCC; and
- **nbn** must provide to the ACCC a final copy of any such notice promptly upon receipt and promptly notify the ACCC of any update or withdrawal of the notice.

At the Communication Minister's sole discretion, a Government Policy Project Notice may also state the maximum amount of operating expenditure and/or capital expenditure associated with the project or program per Financial Year, provided that the aggregate of those amounts is equal to or less than the total forecast capital expenditure for the project or program. If any maximum amounts are specified, the notice must also specify the elements of the project or program's funding that are associated with those maximum amounts.

These rules directly address the ACCC's objective of ensuring there is a high degree of transparency and clarity over the nature and scope of government directed investments, to make clear that accountability for the project and its implications rest with government. Further, these rules make clear that the mechanism is not intended to bypass regulatory assessment for business-as-usual activities, which **nbn** also performs under its government policy mandate and may otherwise inadvertently be captured by less specific rules.

nbn has not proposed any minimum or indicative threshold for Government Policy Project Notices to be effective. **nbn** considers that this is reasonable from both a simplicity perspective (noting that many low-value projects taken together may in any event exceed any minimum threshold), and to preserve **nbn**'s investment incentives and regulatory certainty which would otherwise be harmed by any disallowed costs, in the promotion of the LTIE.

14.3.6.3 How Government Policy Project Notices are treated under the Variation

The Variation then sets out clear processes for how costs associated with projects and programs that are the subject of Government Policy Project Notices are to be treated for the purposes of **nbn**'s economic regulatory framework. These processes have been integrated with the existing processes set out in the SAU.

Where a Government Policy Project Notice is issued in respect of a project or program, the Variation provides that:

- operating and capital expenditure forecasts must reasonably reflect the expenditure that a prudent and efficient operator in **nbn**'s position, acting in accordance with good industry practice, would incur in implementing that project or program (noting that this is one of the Expenditure Objectives). While it is appropriate to deem those expenditures prudent, having regard to **nbn**'s legal obligations and policy objectives as a GBE, **nbn**'s expenditure on the project or program will be assessed separately for efficiency, i.e., whether the expenditure is likely to lead to the lowest Total Cost of Ownership or highest value outcome over time;
- similarly, for the purposes of the ACCC's ex-post review process, capital expenditure will be deemed to have been incurred prudently (but will be assessed separately for efficiency) when incurred (or likely to be incurred) on that project or program;

- similarly, where any cost pass-through events relate to that project or program, any associated costs will be deemed to have been incurred prudently, provided that the ACCC may cap the amount of any adjustment to an 'Adjustable Element' (e.g., **nbn**'s allowed revenues and revenue cap) at any relevant maximum amount specified in the Government Policy Project Notice; and
- the ACCC may, in an ex-post determination on capex to be included in the RAB and Core Services RAB Portion, cap the amount of such capex to be included in the RAB and Core Services RAB Portion at any relevant maximum amount specified in the Government Policy Project Notice.

The above processes have been developed having regard to discussions with the ACCC and Government and are reasonable and necessary to provide transparency and certainty to **nbn**, the ACCC, Government and industry alike where government directed investments are concerned.

14.4 Cost allocation between Core Regulated Services and Competitive Services

As outlined in section 14.3 under the Variation **nbn** will ensure the separation of Core Regulated Services and Competitive Services through the maintenance of the current RAB (capturing capex for all services) and identification of a separate Core Services RAB Portion (capturing capex for Core Regulated Services). Section 14.4.1 sets out the principles **nbn** will apply for allocating costs between Core Regulated Services and Competitive Services. These principles support efficient and transparent cost allocation procedures that will lead to outcomes consistent with the LTIE.

14.4.1 Attribution and allocation principles

The cost attribution and allocation principles defined in the Variation are set out below.

Cost Allocation Principles

- Costs that are directly attributable to a Core Regulated Service will be allocated to that Core Regulated Service.
- Costs that are directly attributable to a Competitive Service will be allocated to that Competitive Service.
- Shared costs (i.e., costs that are not directly attributable to a Core Regulated Service or Competitive Service) will be allocated to reflect causal relationships between supplying services and incurring costs, unless establishing a causal relationship would require undue cost or effort in which case an alternative suitable allocator will be used.
- All costs will be allocated.
- No cost should be allocated more than once to any service.

nbn uses (but does not define in the SAU) the following standard definitions of costs:

- 'Directly attributable costs' are costs that are specific to, and can be identified as belonging to, a specific service category. These costs are directly attributed to the service category to which they relate.
- 'Common costs' are costs that are not specific to one service category, or cannot be directly assigned to a specific service category. These costs are allocated to services through the application of a suitable allocator.

The cost information used by **nbn** during the cost allocation process will be extracted from **nbn**'s core financial systems, which are subject to an independent financial audit each year, which ensures that the cost data is reconcilable, transparent and subject to regular review.

14.4.2 Role of the Cost Allocation Manual

nbn has developed a CAM that provides further detail on how it has attributed and allocated costs between Core Regulated Services and Competitive Services. This manual describes the detailed methodology which **nbn** uses to allocate costs in accordance with the SAU's Cost Allocation Principles. A copy of the CAM will be provided to the ACCC around the time the Variation is lodged with the ACCC, and **nbn** is required to provide an updated copy of the CAM to the ACCC within 30 days after making any material changes to it.

The CAM also summarises aspects of the following, to give context to the cost allocation methodology:

- **nbn**'s network and access technologies;
- the categories of products and services supplied by **nbn** (i.e., Core Regulated Services and Competitive Services); and
- the role of cost allocation (including the Cost Allocation Principles and the CAM) under the SAU.

The Variation provides that the ACCC must have regard to the CAM when making cost allocation decisions under the SAU.

14.5 Cost pass-through mechanism

14.5.1 Overview

As part of the Variation, **nbn** proposes to introduce an ability for the revenue cap to be re-opened (and Maximum Regulated Prices adjusted) during a Regulatory Cycle in circumstances where **nbn** incurs (or is likely to incur) a material change in costs relative to the ABBRR for that Regulatory Cycle as the result of particular unexpected or exogenous events, or as the result of service standards improvements agreed with RSPs.

This proposal is reflected in the SAU as an ability for **nbn** to make 'cost pass-through' applications to the ACCC in response to particular events. The current SAU includes a similar mechanism in relation to Tax Change Events which applies in the Initial Regulatory Period.[122]

After carefully considering approaches taken in other comparable regulated sectors, among other factors, **nbn** proposes a cost pass-through mechanism that has the following key elements:

- clearly-defined events that trigger **nbn**'s right to pass through material changes in costs of supply, in addition to Tax Change Events (discussed in section 14.5.3 below);
- mandatory, time-bound obligations on **nbn** to pass through material decreases in costs of supply which result from certain events (discussed further in section 14.5.4 below); and

[122] Current SAU, Schedule 1G. The current SAU (clauses 4.5(e) and 4.6(g)) also foreshadows that such a mechanism may be included in Replacement Modules.

- a supervisory role for the ACCC to ensure that: (a) material changes in costs of supply which are passed through into **nbn**'s revenue cap reasonably reflect the costs which a prudent and efficient operator, acting in accordance with good industry practice, would incur in response to the relevant event; and (b) the manner in which **nbn** passes through such costs is reasonable (discussed further in section 14.5.5 below).

14.5.2 A calibrated cost pass-through mechanism incentivises appropriate expenditure

The RMA process facilitates periodic, *ex-ante* assessment by the ACCC of **nbn**'s forecast expenditure over the upcoming Regulatory Cycle. This means that any decision on the building block costs which inform **nbn**'s revenue cap is made prior to the start of the relevant Regulatory Cycle. This process is consistent with standard building block model incentive regulation, where allowances for capital and operating expenditure are established at the start of the relevant Regulatory Cycle and the regulated firm is incentivised to be cost efficient relative to those allowances.[123]

However, a challenge for **nbn** is the dynamism and unpredictability that exists in the telecommunications sector, which makes forecasting these future costs difficult. The consequent risk is that circumstances would arise for which **nbn** has not made allowance in its forecast expenditure, but which could have a significant impact on the costs actually faced by **nbn**. This, in turn, can result in a misalignment between the ex-ante determination of **nbn**'s revenue allowance and the actual revenue allowance required to reflect **nbn**'s costs that were efficiently incurred. The result is the possibility of windfall gains or, of more concern, windfall losses which dampens the regulated firm's incentive to "beat" the target set by an *ex-ante* revenue cap (and earn above-market returns on investment).[124] **nbn** submits that the best approach for mitigating this risk is the above calibrated cost pass-through mechanism that would realign revenue with efficient costs after a circumstance arises for which allowance has not been made in **nbn**'s forecast expenditure, with a supervisory role for the ACCC.

14.5.2.1 nbn operates in a highly dynamic and unpredictable environment

As the bushfires of late 2019/early 2020, the COVID-19 pandemic, extensive floods in eastern Australia in early 2022, and emergence of new technologies such as 5G and low earth orbit broadband satellite constellations show, **nbn** operates in a highly dynamic and unpredictable environment. **nbn**, therefore, faces challenges in forecasting future costs. Specifically, in distinguishing between cost impacts **nbn** can control, as opposed to cost impacts it cannot;[125] and, for cost impacts that **nbn** cannot control, how to address these cost impacts.

nbn addresses both of these challenges in the Variation:

- For the first challenge, through the way in which **nbn** has formulated the proposed cost pass-through events – that such cost pass-through events are clearly delineated into defined categories. The balance that such criteria seek to strike is outlined in section 14.5.3 below.

[123] See, for example: ACCC, *Statement of principles for the regulation of electricity transmission revenues – background paper*, December 2004, p. 76.

[124] See further discussions regarding the regulated firm's incentives, expressed in the electricity context, in: AER, *Statement of principles for the regulation of electricity transmission revenues – Position paper*, December 2005, p. 5.

[125] AER, *Statement of principles for the regulation of electricity transmission revenues – Position paper*, December 2005, p. 5.

- For the second challenge, by an appropriate risk allocation approach. **nbn** submits that relying solely on insurance coverage (including self-insurance), with the implication that **nbn** bears any residual risk that forecast expenditure does not adequately cover actual expenditure, would represent a poorly-calibrated set of incentives. Rather, **nbn** submits that the preferable approach is the above calibrated cost pass-through mechanism. This is discussed further in the next section.

14.5.2.2 A cost pass-through mechanism is an appropriate risk allocation approach

An inherent risk of relying on predictions that underpin these allowances is that unforeseen (and unforeseeable) or exogenous circumstances can infect the revenue allowances, which could, in turn, lead to dramatically different expenditure requirements during the Regulatory Cycle as compared to what was expected, no matter the degree of rigour put into establishing the forecasts. Among other issues, this could result in the regulated firm being unable to fund its business. **nbn** submits that, in the absence of a cost pass-through mechanism, the regulated firm would be incentivised to over-forecast its capital and operating expenditure for the subsequent Regulatory Cycle in each RMA (for example, to build in a 'risk premium' to insure against unforeseen and exogenous events). Alternatively, the regulated firm would be incentivised to avoid the increased expenditure, with consequent detrimental impacts for the level of service the firm provides. None of these outcomes are ideal and would not promote the LTIE.

In this regard, it is recognised that when there is a high degree of uncertainty about whether a significant event will eventuate in a Regulatory Cycle, it can be more efficient for customers to only pay if, and when, the event materialises, rather than pay the expected costs upfront[126] or, in **nbn**'s case, through expenditure allowances and a revenue cap set on an ex-ante basis ahead of the relevant Regulatory Cycle. **nbn** submits that the SAU should include a calibrated cost pass-through mechanism for reopening the revenue cap (and adjusting Maximum Regulated Prices) in particular circumstances (and only to the extent that circumstance causes a material departure from the ABBRR for that Regulatory Cycle.[127] This benefit is consistent with the views of other regulators, such as the Essential Services Commission of South Australia, which noted that "*…Pass-throughs create flexibility for regulated revenues to adjust for unforeseen events, which allow prices to remain cost reflective and, therefore, promotes economic efficiency*".[128]

14.5.3 Cost pass-through events should strike a balance between long-term flexibility and appropriate recovery

The pass-through mechanism should not allow **nbn** to over-recover or derive windfall gains from unforeseen or exogenous events. This can be ensured through sufficiently certain and detailed criteria which prevents risk being passed on to customers without **nbn** first finding an effective way to manage those risks. At the same time, the criteria should be appropriately flexible, recognising that these rules will be in place over the long-term and should therefore accommodate changes in circumstances and future events. They should also allow **nbn** to respond quickly to unforeseen or exogenous events which have an immediate and adverse impact on a large number of end-users, with **nbn** not being afforded the luxury of a complete and systematic analysis of all options.

[126] For example: IPART, *Encouraging innovation in the water sector*, Discussion Paper, August 2021, p. 37.

[127] The alternative means by which a regulated firm's revenue allowance can be adjusted in response to a cost impact outside of that firm's control is to adjust the revenue allowance after the regulatory period in which the cost impact arises – to place the provider in a position as though the existing revenue allowance compensated for that event. The disadvantage of such an approach is that it places the regulated firm in a position of uncertainty as to whether cost impacts would be recovered at the end of the regulatory period (which could be a number of years in duration).

[128] ESCOSA, *SA Water's Water and Sewerage Revenues 2013/14 – 2015/16 – Final Determination – Statement of Reasons*, May 2013, p. 174.

The cost pass-through mechanism also needs to be calibrated so that it does not have a detrimental impact on demand. While BBM regulation does not necessarily translate directly into cost-based pricing, cost impacts that are dealt with via cost pass-through mechanisms ultimately have a flow-on impact on the prices charged by the regulated firm over the longer term. This, in turn, has an impact on demand for the products or services provided by that firm.

This was recognised by the ACCC in the context of the special access undertaking lodged by FANOC in 2007 relating to proposed fibre-to-the-node broadband access services. In that undertaking, pricing of such services included a "FANOC Component Charge" and a "Pass Through Component".[129] In its draft decision, the ACCC's preliminary view was that "*the estimated range of prices for the pass-through component [was] inextricably linked to the appropriateness of the pricing of the services…because the final demand for broadband services will depend on the final price, including the pass-through component, for those services.*"[130] This lends support to the notion that a reasonable cost pass-through mechanism must be cognisant of its impacts on the prices charged by the access provider (and, by extension, the resultant impact on demand). Further, the individual price controls that apply to **nbn**'s offers provide additional protections against potential price shock as a result of a cost pass-through event. It is also open to **nbn** to propose new Maximum Regulated Prices in the event of a cost past-through event, which will be subject to the ACCC's assessment.

Taken together, these considerations mean that in **nbn**'s context, only material changes in costs in response to particular types of events should be passed through into **nbn**'s revenue cap during a Regulatory Cycle. This is consistent with the approach taken for cost pass-through mechanisms that exist in other regulated contexts.[131]

Accordingly, **nbn** proposes that, in addition to tax change events, expenditure incurred on three key types of events will be considered as cost pass-through events, namely, (a) legislative and regulatory changes; (b) service level improvements agreed with RSPs and industry; and (c) force majeure events. These are described in Table 6 below.

[129] FANOC, Special Access Undertaking to the ACCC under Division 5 of Part XIC of the *Trade Practices Act 1974* (Cth) in respect of the Broadband Access Service, cl 7.1. The Pass Through Component related to third party costs such as ULLS access charges, which would be directly passed through.

[130] ACCC, *Assessment of FANOC's Special Access Undertaking in relation to the Broadband Access Service - Draft Decision*, December 2007, p. 89.

[131] See, for example, Essential Services Commission of South Australia, Price Determination – SA Water's water and sewerage retail services: 1 July 2020 – 30 June 2024 (1 July 2020), as well as the materiality thresholds set out for cost pass-through events prescribed in the National Electricity Rules.

Table 6. Description of cost pass-through events

Cost pass-through event	Explanation
Regulatory change event	As a highly regulated firm, legal and regulatory changes can have a significant impact on **nbn**'s business. Whilst **nbn** can influence the nature and extent of regulatory change, the ultimate decision is out of its control. This is especially true given **nbn**'s role as an instrument of government policy and critical communications infrastructure. As such, **nbn** proposes where changes in regulatory requirements (including the introduction of new regulatory requirements) impose a material impact on **nbn**'s costs of supply—and such impacts have not been accounted for in its approved expenditure forecasts—**nbn** should be permitted to apply for such cost impacts to be passed through into its revenue cap. Such an allowance is recognised in other regulatory systems and **nbn** submits that a comparable approach is reasonable.[132] Further, given **nbn**'s role as an instrument of government policy, the Variation also defines 'regulatory requirements' to include: • any policy, or direction to **nbn**, issued or maintained by a Government Agency, including any Statement of Expectations; and • a Government Policy Project Notice. This recognises **nbn**'s role as a GBE and the exogenous nature of such policies, directions and notices.
Service level improvements agreed with RSPs and industry	**nbn** recognises that RSPs expect continual improvements to the terms of access to the **nbn**™ network, whether it be new and/or improved products and services or service standards associated with such products. As a wholesale-only service provider entirely reliant on RSPs for its success, **nbn** has strong underlying incentives to respond to RSPs on these issues. The periodic WBA renewal processes allow for **nbn** and RSPs to settle via commercial negotiation the terms of access to the **nbn**™ network with the most up-to-date regulatory landscape in mind. Such periodic commercial negotiation is consistent with the legislative intent behind the statutory order of precedence when determining the applicable terms of access,[133] and acknowledges that the economics of the network and regulatory environment often rapidly evolves.[134] This was demonstrated in the NBN Wholesale Service Standards Inquiry concluded in December 2020, in which the ACCC was comfortable that commercially-negotiated outcomes in WBA4 created incentives to "*improve the economically efficient operation of the NBN*".[135] Over the course of its operations in the last decade, **nbn** has delivered ongoing improvements to its service standards and products, continuing to invest in new approaches and systems in response to the needs of RSPs and end-users. However, **nbn** notes that a step-change in the service standards offered by **nbn** will typically translate into increased capital and/or operating expenditure to stand up the necessary people, processes, materials and technology to deliver such improvements. The nature of commercial negotiations and their interaction with the

[132] See, for example, section 6A.7.3(a1)(1) of the National Electricity Rules (captured as a 'regulatory change event'); ESCOSA, Price Determination – SA Water's water and sewerage retail services: 1 July 2020 – 30 June 2024, July 2020 at p. 3 (captured as a 'change in a legal obligation event').

[133] CCA, s 152AY.

[134] For example, see: ACCC, *Inquiries into NBN access pricing and wholesale service standards – Final report*, November 2020, p. 5.

[135] ACCC, *Inquiries into NBN access pricing and wholesale service standards – Final report*, November 2020, p. 52.

Cost pass-through event	Explanation
	proposed cadence of WBA renewals in the Subsequent Regulatory Period (where the WBA renewal process will lag the RMA process so that there is certainty in relation to the regulatory arrangements that will apply going forward) means that such future step changes in service standard improvements and the associated implementation costs may not always be captured in **nbn**'s forecasts submitted for the Regulatory Cycle in which the relevant service standards improvement is agreed. Furthermore, the wholesale prices that applied prior to the service standards improvement are necessarily referable to the service standards applying at the time, and do not take into account such step changes. Therefore, **nbn** submits that a regulated cost pass-through event covering such service standards improvements would incentivise **nbn** to develop and offer improvements to its products and services to RSPs. As discussed above, a cost pass-through regime provides flexibility in adjusting its revenue allowances to account for unforeseen circumstances, one of which is the dynamic nature of the telecommunications industry in which **nbn** operates. By building in a cost pass-through event for service standards improvements, **nbn** will have ongoing incentives to work constructively with RSPs to identify and implement service standards improvements that benefit end-users. It is also reasonable to ensure there is appropriate ACCC supervision of such cost pass-throughs, so that there is not inefficient investment in service levels that has the potential to unnecessarily increase costs to end-users. **nbn** recognises that only those improvements that are valued by RSPs and end-users should be implemented, and submits that ACCC oversight in relation to these decisions should take into account whether (and how many) RSPs have agreed to the service standards improvement in question. **nbn** considers that such a mechanism is reasonable and notes that in regulatory regimes applying to less dynamic, less competitive industries, in which service standards are set by regulation, changes in those service standards are a common type of cost pass-through event.[136]
Force majeure events	**nbn** also proposes that it should be allowed to pass through material increases in costs in connection with certain force majeure events. Such events should be ones that: (a) are not within **nbn**'s reasonable control; and (b) **nbn** could not have prevented or mitigated the cost impacts, acting as a prudent and efficient operator (including by recovering under any prudently- and efficiently-obtained insurance cover). Consistent with exclusions that commonly exist in supply agreements, **nbn** proposes that such force majeure events do not include events that arise from **nbn**'s negligence or an inability by **nbn** to pay. **nbn** has developed the criteria included in the Variation after careful consideration of comparable pass-through events in other regulated sectors and the considerations that underpinned those practices. **nbn** submits that the force majeure cost pass-through event is a natural evolution of the framework that currently exists in Module 1 of the SAU governing capital expenditure that is permitted to be rolled into the RAB (in the form of Permitted Variations to the Network Design Rules required in connection with force majeure events).[137]

[136] An example is the regime for service standard events applying under the National Electricity Rules.

[137] Current SAU, cl 1D.7.2(a)(v). Under Schedule 1D of the current SAU, a Permitted Variation will satisfy the Prudent Design Condition, which is a precondition to relevant capital expenditure being rolled into the RAB. This is, in effect, a form of cost pass-through.

Relevantly, the Variation requires that the change in costs of supply resulting from pass-through events be 'material', in the sense that the changed costs for at least one Financial Year must be a material proportion of the relevant ABBRR for that Financial Year.[138] The Variation does not set a monetary or percentage threshold for assessing what is a 'material proportion' – instead, materiality will be assessed on the merits of each application. **nbn** considers this position to be reasonable and notes that this position has received support from Australian regulators at various times.[139]

14.5.4 nbn is required to pass-through certain negative cost changes

While **nbn** anticipates that generally, unforeseen or exogenous events will have material adverse cost impacts on **nbn** that will need to be dealt with via the cost pass-through provisions included in the Variation, there is scope for such events to lead to material decreases in **nbn**'s costs. Obvious examples of such events could be a reduction in applicable tax rates (where **nbn** is in a tax-paying position), or regulatory changes that reduce obligations placed on **nbn**, but other scenarios are possible.

The Variation acknowledges this by incorporating an obligation on **nbn** to seek to pass-through reduced costs. If an unforeseen event such as a reduction in tax rates or regulatory obligations (these two cases being defined as **Mandatory Negative Change Events**) occurs, then **nbn** must provide a Cost Pass-Through Event Application to the ACCC within three months of it becoming both aware of the occurrence of the event and being able to reasonably ascertain the cost saving attributable to the event (unless a longer timeframe is agreed with the ACCC). The ACCC may also notify **nbn** of a Mandatory Negative Change Event if **nbn** has not submitted a cost pass-through application within the required time.

These Mandatory Negative Change Events (and any other negative change events notified by **nbn**) will be assessed by the ACCC in the same manner as any other cost pass-through applications made by **nbn**.

These arrangements in the Variation ensure that there is appropriate **nbn** response to, and ACCC oversight of, circumstances in which **nbn** may have otherwise faced the possibility of a windfall gain as the result of unforeseen changes to its operating environment.

14.5.5 The ACCC will have a supervisory role in nbn's proposed cost pass-throughs

Consistent with established regulatory practice, **nbn** proposes a supervisory role for the ACCC to ensure that the manner in which **nbn** passes through costs is reasonable and that only prudent and efficient costs that meet the Expenditure Objectives in response to a cost pass-through event are able to be passed through. In this regard, **nbn** notes that where costs are incurred in relation to projects or programs that are the subject of a Government Policy Project Notice (discussed further in section 14.3.6), they will be deemed prudent, but will be assessed for efficiency in a similar manner as other cost pass-through events. The ACCC's supervisory role is discussed in section 14.3.5.

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[138] This reflects the approach taken by the AER in recent cost pass-through event applications – for example, see: AER, *Determination - 500kV Transmission Line Tower Collapse cost pass through (AusNet Services),* September 2020, section 4.2.1.

[139] For example, in 2013, ESCOSA stated that: '*The Commission will assess materiality on a case-by-case basis rather than pre-set an arbitrary quantified threshold (either by percentage or discreet value), as a quantified threshold is likely to prove problematic. For example, were the Commission to adopt a dollar amount threshold before a pass-through would be considered, there might be an inequity in the exclusion of the impacts of an event just shy of that threshold. Further, in that circumstance, [the regulated entity] might have an incentive to inflate the costs related to the pass-through event so that the threshold was passed.*' See: ESCOSA, *SA Water's Water and Sewerage Revenues 2013-2016*, Draft Determination: Statement of Reasons, February 2013.

15 nbn's Building Block Model

Consistent with other regulated utility firms, **nbn** has implemented a BBM as a central feature of the SAU framework. Module 1 of the SAU has used a BBM as a key input to the annual LTRCM process, using actual expenditure and revenue, including in relation to the MTM technologies.

As contemplated by the current SAU, this Variation extends the operation of the BBM into the Subsequent Regulatory Period, with a revised approach to the BBM to establish **nbn**'s efficient cost base going forward. This more closely follows standard forward-looking BBMs used in other industries. This BBM informs the calculation of **nbn**'s ABBRR and Core Services ABBRR.

nbn also proposes to revert to a standard WACC methodology in the Subsequent Regulatory Period, implementing an approach that should give rise to stable and reliable estimates of the market cost of capital in each Regulatory Cycle, adopting the capital asset pricing model (**CAPM**) approach used by IPART. As set out in **nbn**'s LTRCM proposal in section 17.2, **nbn**'s nominal rate of return on capital for the First Regulatory Cycle will be 7.2% (FY24) and 7.1% (FY25) using this methodology. **nbn**'s proposed WACC methodology is reasonable, will promote the LTIE and will encourage the economically efficient investment in the **nbn**™ network.

A new feature of the Variation is the introduction of a benchmark financeability test to provide insight into **nbn**'s financial sustainability and ability to raise the funds required to manage its activities in each Regulatory Cycle. This test will only be applied to **nbn**'s Core Regulated Services (consistent with the introduction of a binding revenue cap in relation to those same services which incorporates the outputs of the BBM). Should the Core Services ABBRR be set too low to allow **nbn** to pass the financeability test, the Variation outlines a range of corrective actions to ensure that this is addressed.

The LTRCM is based on a building block model commonly adopted in regulated utilities. The LTRCM currently set out in the SAU was developed to ensure that details of **nbn**'s ABBRR, RAB and ICRA were transparent during the Initial Regulatory Period when **nbn** was focused on building out its networks and migrating users onto the network. The operation of the LTRCM means that expenditures on all **nbn**™ networks (including MTM networks) have been included in the RAB, and thus the LTRCM model, and the RAB and ICRA values determined annually by the ACCC include the totality of **nbn**'s prudently incurred costs and the revenues earned across all technologies.

As contemplated by the current SAU, and detailed in chapters 13 and 14, **nbn** now proposes to enhance the LTRCM BBM in the Subsequent Regulatory Period with a revised BBM in order to establish the efficient cost base to be recovered and ensure productive efficiency in the provision of **nbn**'s services going forward. The revised BBM developed by **nbn**:

- is a forward-looking model, with opening values based on historical information;
- provides the basis for calculating the ABBRR and long-term cost recovery and provides more detail on an asset level basis;
- provides appropriate transparency regarding the costs allocated to Core Regulated Services versus Competitive Services;
- introduces both WACC and financeability calculations. More detail on the calculation of the WACC and regulatory financeability test to be applied is discussed in sections 15.1 and 15.2 below;
- allocates costs to groups of services. **nbn**'s proposed Cost Allocation Principles and methodology is discussed in further detail in section 14.4;
- will be used to set **nbn**'s revenue allowance for the Regulatory Cycle (see section 13.2); and

- will inform **nbn**'s pricing decisions both in terms of structure and price levels (see chapter 12).

This chapter provides additional detail regarding the BBM. Specifically, the WACC methodology and the financeability test.

15.1 Return on capital (WACC)

Under the varied SAU, **nbn** proposes to revert to a standard WACC methodology in the Subsequent Regulatory Period (commencing 1 July 2023). The WACC methodology proposed by **nbn** is guided by the following principles:

- the method should be capable of producing **reliable estimates of the market cost of capital** for a benchmark entity in a wide range of plausible market conditions; and
- the method should promote **stability in the allowed return on capital, and prices for consumers**, over time.

Consistent with the current SAU framework for Module 2, **nbn** proposes the use of a nominal vanilla WACC to determine the allowed rate of return on capital for each forecast year. The vanilla WACC is to be determined according to the following formula:

$$WACC = Return\ on\ equity \times (1 - Gearing) + Return\ on\ debt \times Gearing$$

where:

$Return\ on\ equity$ represents the cost of equity capital – the return that investors must expect to receive in order to commit equity capital to the firm;

$(1 - Gearing)$ represents the relative proportion of equity capital;

$Return\ on\ debt$ represents the cost of debt capital – the return that investors must expect to receive in order to commit debt capital to the firm; and

$Gearing$ represents the relative proportion of debt capital.

Consistent with standard regulatory practice in Australia, the return on equity, return on debt and gearing applied in the WACC formula above, to determine the allowed rate of return, are estimates for a benchmark efficient business in **nbn**'s circumstances rather than a reflection of **nbn**'s actual cost of equity and debt finance or capital structure.

The product of the vanilla WACC and the RAB delivers a post-tax return on equity capital and a pre-tax return on debt capital. This represents the cash flows required by equity and debt investors, respectively. The revenues required in order for the regulated business to meet its corporate tax obligations are provided through a separate tax building block, rather than through the return on capital allowance.

Return on equity

The return on equity allowance represents an estimate of the minimum return that equity investors would require in order to:

- commit capital to a benchmark efficient business delivering the regulated services provided by **nbn**; and
- leave that capital invested in the business rather than allocating it to another investment opportunity of comparable risk.

The return on equity cannot be observed because it represents a forward-looking, expected/required return. It must therefore be estimated using financial models. In practice, the most common approach to estimating the required return on equity is the Capital Asset Pricing Model (**CAPM**):

$$Return\ on\ equity = Risk\text{-}free\ rate + Equity\ beta\ \times Market\ risk\ premium\ (MRP)$$

where:

> $Risk\text{-}free\ rate$ represents the 'risk-free rate of return.' This is the return that is available to investors on an investment that is completely free of risk. Commonwealth government bonds are usually assumed to be such a risk-free investment;
>
> $Market\ risk\ premium$ (MRP)represents the 'additional return over and above the return on a risk-free asset) that investors would require for investing in the average asset; and
>
> $Equity\ beta$ represents the 'equity beta,' which indicates the extent to which the particular investment has more or less risk than average. For example, an equity beta of 0.7 indicates that the investment is 30% less risky than average, in which case it would require a risk premium that is 30% less than would be required for an investment of average risk.

The CAPM is used extensively in practice. All economic regulators in Australia, including the ACCC, use the CAPM to estimate the required return on equity capital.

Internally consistent implementation of the CAPM is in the LTIE

When implementing the CAPM, it is important to ensure that parameters are estimated in an internally consistent manner. In particular, the risk-free rate and MRP parameters can each be estimated as prevailing, forward-looking parameters or as long-run average parameters, and a consistent approach to this must be taken. For example:

- Prevailing estimates of the risk-free rate and MRP will produce an estimate of the prevailing, forward-looking return that investors require; and
- Long-run average estimates of the risk-free rate and MRP will produce an estimate of the long-run average of the returns that investors might require from time to time.

When parameters are estimated inconsistently, the result is an output that is not economically meaningful. For example, using a prevailing, forward-looking estimate of the risk-free rate and a long-run historical average estimate of the MRP produces an output that has no obvious economic interpretation and produces implausible outcomes over time, as explained in the Frontier WACC Report.

IPART has considered this issue in some detail and has concluded that:[140]

> *We consider it would be invalid to combine a current risk-free rate with a historic MRP, because the result of that calculation would not represent the state of the equity market at any point of time. By combining a current estimate of the risk-free rate with a current MRP estimate, we can approximate the current market price of equity. Likewise, by combining a historic estimate of the risk-free rate with a historic MRP estimate, we can approximate the historic average market price of equity. Either of these benchmarks would be a valid point of reference. When we combine the risk-free rates and MRP estimates in this time-consistent way, the current cost of equity is closer to the historic average cost of equity than either of them is to the time-inconsistent sum.*

[140] IPART, *Review of our WACC methodology*, February 2018, pp. 51-52.

nbn submits that the (internally consistent) IPART approach to estimating the CAPM should be adopted. In summary, this approach involves:

- pairing prevailing, forward-looking estimates of the risk-free rate and MRP to produce a prevailing estimate of the required return on equity;
- pairing long-term average estimates of the risk-free rate and MRP to produce a long-term average estimate of the required return on equity; and
- applying 50% weight to each estimate.

Return on debt

The return on debt allowance represents the minimum cost of debt that would be incurred by a benchmark efficient business delivering the regulated services provided by **nbn**, if it were to manage its debt portfolio in an efficient and prudent manner.

nbn's proposed approach to determining the efficient return on debt allowance involves identifying:

- an efficient and prudent debt management strategy for a benchmark efficient business with characteristics similar to **nbn**; and
- a cost of debt commensurate with that efficient and prudent debt management strategy.

There is now almost universal consensus between regulators in Australia that an efficient and prudent debt management strategy for regulated infrastructure businesses such as **nbn**, which typically have large debt portfolios, is to stagger the issuance of debt – rather than refinancing the entire debt portfolio at the same time – in order to minimise refinancing risk (i.e., the risk that debt markets are disrupted or closed at the time the business needs to refinance).

In recognition of the efficiency and prudence of a staggered debt issuance policy, nearly all regulators in Australia have now adopted the so-called 'trailing average' approach to setting the return on debt allowance. Under this approach, the regulated business is assumed to:

- issue 10-year debt (which is the most common tenor of debt issuance by Australian corporates); and
- refinance 10% of its debt portfolio annually.

At any point in time, the cost of debt faced by a regulated business that followed such a debt management approach would be a 10-year average of the prevailing rates at which the business had refinanced in each of the previous 10 years.

Gearing

nbn proposes a benchmark gearing assumption of 40%, consistent with the gearing assumption adopted by the ACCC in its 2015 fixed line services Final Access Determination for Telstra.[141] This gearing assumption is supported by empirical evidence on the gearing of a broad sample of domestic and overseas comparator firms, as explained in the Frontier WACC Report.

[141] ACCC, *Public inquiry into final access determinations for fixed line services – Final Decision*, October 2015.

Gamma

Under Australia's tax system, dividends that are paid out of profits that have been taxed in Australia attract franking credits that can be used by resident investors to reduce personal taxes, thereby allowing investors to avoid being taxed twice—once through corporation tax and again through personal tax. The estimate of the value of dividend imputation franking credits is typically referred to as the parameter 'gamma'.

The Variation uses gamma to make a deduction to the building blocks regulatory tax allowance rather than the allowed rate of return on equity. However, since gamma is related closely in concept to the overall return required by equity investors, it is addressed in the varied SAU alongside the rate of return.

In this context, Australian regulators have concluded that resident equity investors in Australian companies receive additional return to the required return on equity in the form of imputation tax credits. The steps in the regulatory approach to setting allowed returns in Australia is to:

1. estimate the total required return on equity;
2. deduct the regulator's estimate of the value of the dividend imputation franking credits that investors are expected to receive; and
3. set the regulatory allowance such that the firm is able to provide the balance to investors in the form of dividends and capital gains.

nbn proposes a gamma estimate of 0.25, consistent with:

- the principle that gamma should be interpreted as the market value placed by the marginal investor on dividend imputation franking credits; and
- the latest and most reliable empirical evidence from dividend-drop-off studies that estimate the market value of franking credits to equity investors.

nbn notes that IPART has adopted a gamma estimate of 0.25 and reaffirmed the use of that estimate when it last reviewed its WACC methodology in 2018.[142]

Inflation forecast methodology

Under the SAU, for the forthcoming regulatory period, the Real RAB would need to be indexed using actual (i.e., outturn) CPI to compute the Nominal RAB. Furthermore, the Forecast Nominal ABBRR must specify and include a return on capital that is determined using:

- a nominal vanilla WACC; and
- a forecast nominal RAB.

In order to avoid compensating investors twice for inflation (which would occur as a result of applying a nominal WACC to a forecast nominal RAB), the SAU requires the use of forecast nominal regulatory depreciation (determined using a forecast of inflation over the Regulatory Cycle).

To derive the forecast nominal RAB and forecast nominal regulatory depreciation, a forecast of inflation over the regulatory period is required.

nbn proposes the following inflation forecasting approach, adopted recently by the QCA:

[142] IPART, *Review of our WACC methodology*, February 2018.

1. For a two-year Regulatory Cycle, inflation would be forecast by computing the geometric average of the RBA's inflation forecasts for years 1 and 2.
2. For a five-year Regulatory Cycle, inflation would be forecast by computing the geometric average of five numbers:
   - forecasts for years 1 and 2 would be obtained from the RBA; and
   - the figures for years 3 and 4 would be determined by a linear glidepath to the 'anchor point' estimate in year 5.
3. The 'anchor point' estimate in year 5 would be determined using the following decision rule:
   - if the RBA's 2-year ahead forecast is less than or equal to 2.0%, the anchor point would be set at 2.25%;
   - if the RBA's 2-year ahead forecast is between 2.0% and 3.0%, the anchor point would be set at 2.5%; and
   - if the RBA's 2-year ahead forecast is greater than or equal to 3.0%, the anchor point would be set at 2.75%.
4. For a three-year or four-year Regulatory Cycle, inflation would be forecast by computing the geometric average of the following:
   - forecasts for years 1 and 2 would be obtained from the RBA; and
   - the figure for year 3 (and 4, if relevant) will be determined by a linear interpolation between the year 2 forecast and the year 5 'anchor point' estimate, determined using the approach outlined in the previous dot point.

Further detail on the inflation forecasting approach is set out in the Frontier WACC Report.

The proposed approach is in the LTIE and is consistent with standard regulatory practice

Standard regulatory practice involves setting the allowed rate of return in line with the best estimate of the market cost of capital, for the following reasons:

- investors in all businesses require a return on investment that would be sufficient to compensate them for the opportunity costs and risk they bear when committing capital to the business; and
- the minimum return that a business must pay its investors, in order to attract and retain the capital necessary to finance efficient and prudent investments, is the cost of capital associated with that investment.

Utilising the assumption that an efficient benchmark business would finance itself through a mix of debt and equity capital, determining the best estimate of the market cost of capital involves deriving the best estimate of the WACC.

This approach is consistent with the statutory criteria set out in the CCA. Section 152CBD of the CCA outlines the criteria for accepting an access undertaking and requires, among other considerations, that an access undertaking can only be accepted if its terms and conditions are "reasonable." Section 152AH of the CCA states that, when determining whether particular terms and conditions are reasonable, regard must be had to matters including the LTIE and to the economically efficient operation of the service.

The AER recently considered the approach to the allowed return on capital that best promotes the long-term interests of consumers and concluded that the allowed return should be set at "the expected efficient return,

consistent with the relevant risks involved in providing regulated network services". Like the ACCC, the AER reinforced the importance of the efficient use of network services for the long-term interests of consumers.[143]

nbn supports the conclusion that the allowed rate of return should be set in line with the best possible estimate of the market cost of capital. This is the approach adopted by **nbn** in the Variation, and as a result, **nbn** considers that its WACC methodology and the estimates of WACC in the First Regulatory Cycle are both reasonable and promote the LTIE.

15.2 Financeability

nbn proposes that the adequacy of any ABBRR amount proposed by **nbn** and/or approved by the ACCC be tested by means of a 'regulatory financeability test', akin to the 'benchmark financeability test' applied by IPART and other regulators in Australia. **nbn** considers the application of a regulatory financeability test is consistent with sound regulatory practice.

To determine the forecast ABBRR, an assumption is made about the benchmark level of gearing, cost of debt and credit rating of the hypothetical, efficient (i.e., 'benchmark') business in **nbn**'s circumstances. The purpose of the benchmark financeability test is to test the internal consistency of the ABBRR determination. That is, the test assesses whether a notional efficient business that receives a revenue allowance in line with the forecast ABBRR based on the underlying assumptions, would be able to maintain the benchmark credit rating used to determine the ABBRR, all else being equal**.**

If the ABBRR is insufficient for the hypothetical efficient firm to service its efficient debt obligations and maintain the benchmark credit rating, this implies there is an internal inconsistency (i.e., an error) in the regulatory decision that needs to be addressed by increasing the ABBRR.

In summary, the essential features of the proposed test are that the test will:

- apply symmetrically to **nbn** when proposing its ABBRR, and to the ACCC when making a determination on **nbn**'s ABBRR;
- be conducted using only the information on a benchmark efficient business in **nbn**'s circumstances, derived from the BBM used to set the ABBRR and *not* to **nbn**'s actual business;
- exclude revenues related to recovery of the ICRA;[144] and
- be only quantitative in nature, focussing on the quantitative financial metrics, weighting factors, and approach to converting metrics into an overall credit rating set out in Moody's Rating Methodology for Communications Infrastructure.

The benchmark efficient business would be deemed to have failed the regulatory financeability test in any Financial Year within a Regulatory Cycle if the credit rating of the benchmark efficient business implied by ABBRR is lower than the benchmark credit rating assumed when setting the ABBRR.

A failure of the regulatory financeability test will be remedied by:

1. determining if the cause of the financeability concern is due to there being too low an allowance for the return on equity, or regulatory depreciation or both; and

[143] AER, *Assessing the long-term interests of consumers*, May 2021, p. 12.

[144] A business without access to these revenues could not rely on those revenues to address a financeability problem caused by the ABBRR being set too low.

2. addressing the specific cause of the failure of the regulatory financeability test by adjusting the ABBRR by increasing:
    - the allowed return on equity up to the upper bound of the return on equity range; and/or
    - the depreciation allowance in an NPV-neutral way.

Further details of the proposed regulatory financeability test are provided in the Frontier WACC Report.

15.3 Cumulative Inflation Factor calculation correction

Under the Variation **nbn** proposes to correct an error in the formula under which the Cumulative Inflation Factor (**CIF**) is calculated in Module 1 for the purposes of **nbn**'s revenue controls.[145] This addresses an error in the formula used to calculate the CIF in respect of years prior to the First Financial Year (2013-14). It also clarifies that the first LTRCM Determination made immediately after the Variation is accepted will apply the corrected CIF formula to the values of the RAB, ABBRR and ICRA as though that formula had applied from the SAU commencement date.

[145] Variation, cl 1E.8.4(c).

16 Replacement Module provisions

16.1 Purpose of the existing Replacement Module framework

The modular framework established by the current SAU provides the mechanism by which **nbn** can propose, and the ACCC can assess, forecasts of **nbn**'s expenditures and its required regulatory revenue allowances at regular intervals. Every three to five years, **nbn** makes a Replacement Module Application (RMA) to the ACCC with its then current forecasts, which establish the key regulatory settings for **nbn** over the following Regulatory Cycle.

This approach strikes a balance between a commercially driven investment and expenditure process by **nbn** and an appropriate regulatory oversight role for the ACCC, by providing the ACCC with sufficient information for the effective operation of the LTRCM and RAB roll-forward mechanisms. This approach will provide a degree of regulatory certainty and predictability thereby encouraging economically efficient investment decisions by **nbn**. Such propose-respond arrangements are common in utility regulation and are reasonable in the context of **nbn**.

Each Replacement Module operates as a variation to the SAU and is governed by the process and principles applicable to SAU variations under the CCA. If the ACCC does not accept a RMA by **nbn**, the ACCC must issue an ACCC Replacement Module Determination addressing the same matters as those required to be included by **nbn** in a RMA.

The Replacement Module provisions in the current SAU[146] set out a process by which **nbn** will seek to incorporate a Replacement Module into the SAU, by way of an application to vary the SAU under section 152CBG of the CCA. A RMA must include a proposed term for the Replacement Module (i.e., three, four or five-year Regulatory Cycle), an LTRCM proposal and a RAB roll forward proposal.[147]

Each Replacement Module operates as a variation to the SAU and is governed by the process and principles applicable to SAU variations under section 152CBG of the CCA.[148] The ACCC must assess each RMA, including the specific regulatory settings applying in each Regulatory Cycle, and ultimately accept or reject the RMA under section 152CBG of the CCA, which incorporates the reasonableness criteria in section 152CBD of the CCA.[149] In addition to these conditions in the current SAU, under changes proposed in the Variation, when determining whether to accept or reject a RMA, for the purposes of (but without limiting) subsection 152AH(2) of the CCA, the ACCC must also have regard to the Expenditure Objectives and Expenditure Factors.[150] The ACCC must also hold a public consultation before accepting each RMA, providing an opportunity to stakeholders (including RSPs) to give input on the content of the application.[151]

[146] Current SAU, cls 4.4 to 4.8.

[147] Current SAU, cl 4.5(e).

[148] Current SAU, cl 4.4(c)(i).

[149] See CCA, s 152CBG(4) which states that section 152CBD applies to the variation in a corresponding way to the way in which it applies to an undertaking (with an exception for a variation of a minor nature to paragraph 152CBD(2)(d).

[150] Variation, cl 4.5(d).

[151] CCA, s 152CBD(2)(d).

If the ACCC does not accept a RMA by **nbn**, the ACCC must issue an ACCC Replacement Module Determination addressing the same matters as those required to be included by **nbn** in a RMA at least 20 Business Days prior to the end of the then current Regulatory Cycle.[152] The ACCC must make an ACCC Replacement Module Determination in accordance with the same SAU rules and LTRCM provisions that apply in respect of RMAs, thus providing regulatory certainty over the SAU period.

16.2 Changes to the Replacement Module provisions in the SAU and role played by the ACCC

nbn has retained the existing Replacement Module process set out in the SAU, as **nbn** considers that the modular approach in the SAU (including the Replacement Module framework) remains fit-for-purpose and appropriate. Nonetheless, **nbn** is proposing a number of targeted changes to implement the outcomes of discussions at the ACCC Working Groups, including to provide the ACCC with a number of additional powers in relation to the review of **nbn**'s expenditure and to address potential timing issues associated with the new commitments that **nbn** is making in relation to pricing.

nbn has varied the existing Replacement Module provisions of the SAU to introduce a revenue cap in relation to **nbn**'s Core Regulated Services, which will apply to **nbn** before the ICRA is extinguished. This Core Services Revenue Cap comprises "standard" building block revenue requirements in respect of Core Regulated Services, plus a portion of the ICRA. This approach:

- reflects the fact that the ICRA is not a financial asset from which **nbn** may derive value; and
- is consistent with the objectives underpinning the SAU, and the statutory criteria by which SAU variations are assessed (i.e., it provides **nbn** with the opportunity to recover its efficiently incurred costs and supports efficient investment in the **nbn**™ network, as well as efficient use of the network).

The Variation also addresses a potential "gap" in the current process that would only arise in the unlikely event that the ACCC does not make a decision to accept **nbn**'s RMA or to make an ACCC Replacement Module Determination within the timeframes specified by the SAU.

nbn considers that the Replacement Module process remains fit-for-purpose and appropriate, and has therefore retained the modular framework in the varied SAU. In particular, **nbn** believes that the modular approach in the SAU (including the Replacement Module framework) and the Variation strikes an appropriate balance between, on the one hand, ensuring long-term regulatory certainty for **nbn** and the industry and, on the other hand, providing the ACCC with sufficient oversight to ensure that the regulatory settings applicable to **nbn** under the SAU are able to adapt to changing circumstances over time.

In particular, **nbn** notes that while the current SAU has been developed within the context of **nbn**'s role as a GBE, the modular structure of the SAU, and the Replacement Module process should provide an appropriate means of addressing any future change of ownership of **nbn**, should that occur. As provided in the relevant legislation that would apply to any future privatisation process,[153] this process could only take place over a number of years. Prior to privatisation, the Productivity Commission is required to conduct an inquiry into regulatory, budgetary, consumer and competition matters relating to **nbn**, a Parliamentary Joint Committee must consider the findings of that report, and the Minister for Finance must make a disallowable declaration that conditions are suitable to sell **nbn** (which must then not be disallowed by Parliament). Any sale process could only commence after that

[152] Current SAU, cl 4.8.

[153] NBN Companies Act, Part 3.

time. This extended process would provide the ACCC, **nbn** and other stakeholders an opportunity to identify and address any potential changes required to be made to either **nbn**'s governing legislation or to the SAU. In the case of the latter, this could be implemented either as part of a "standard" Replacement Module process, or via a bespoke variation to the SAU.

nbn has amended the existing Replacement Module provisions relating to revenue constraints in the Variation but has not amended any of the existing provisions setting out the powers conferred on the ACCC. The rationale for the amendments proposed by **nbn** is set out below.

16.2.1 Revenue constraints

Under the SAU, the existing revenue cap is set using the ABBRR in respect of all products and services supplied by **nbn**, and does not apply until the ICRA is extinguished. Irrespective of whether **nbn**'s RMA applies, or the ACCC's ACCC Replacement Module Determination applies, there would be little practical consequence in terms of a binding revenue constraint on **nbn**, given the size and likely trajectory of **nbn**'s ICRA.[154]

To address these concerns **nbn** has varied the existing Replacement Module provisions to introduce a revenue cap comprising of "standard" building block revenue requirements in respect of Core Regulated Services, plus a proportion of the total amount of ICRA. See chapter 13 for further detail on **nbn**'s proposed revenue constraints, which will apply only in respect of Core Regulated Services.

16.2.2 Role of the ACCC

The ACCC plays a key role in future Regulatory Cycles. The ACCC establishes the timing of the lodgement of any future RMA, by providing **nbn** with no less than 12 months' notice of the due date for submission of a RMA, which must be no less than nine months and no more than 18 months prior to the end of the then current Regulatory Cycle. The ACCC must then decide whether to accept or reject any SAU variation lodged by **nbn** that contains a Replacement Module. This requires the ACCC to carry out an assessment of the variation under section 152CBD of the CCA. The legislative framework relevant to the ACCC's assessment of such variations is discussed in chapter 22. **nbn** does not seek any variation of those powers conferred on the ACCC by the existing SAU. **nbn** considers that the powers established in the existing SAU, in conjunction with the various regulatory arrangements which apply to **nbn**, provide an appropriate framework that allows the ACCC to ensure the appropriateness of **nbn**'s revenue constraints in each Regulatory Cycle.

However, in response to feedback from the ACCC, and reflecting the significant changes that are being made to the LTRCM, **nbn** is proposing a number of additional functions and powers for the ACCC in this Variation. **nbn** proposes that the ACCC has the ability to perform functions and exercise powers to review **nbn**'s capital expenditure, cost pass-through events and changes to existing pricing constructs proposed by **nbn**; disallow the categorisation of, and re-classify, new products as Core Regulated or Competitive Services; and to conduct a review to determine whether **nbn**'s revenue control and system of individual price caps should be replaced with a WAPC. These new functions and powers are described in more detail in chapter 20.

16.2.3 Issuance of a Draft Core Services Revenue Cap Decision

The Variation provides that by 31 March of the last Financial Year of each Regulatory Cycle, the ACCC must publish a 'Draft Core Services Revenue Cap Decision', stating:

[154] ACCC, *ACCC Industry Roundtable on regulatory arrangements under NBN Co's Special Access Undertaking*, p. 3.

- the ACCC's preliminary view regarding whether the ACCC intends to make an ACCC Replacement Module Determination in respect of the upcoming Regulatory Cycle; and
- if so, the ACCC's preliminary view regarding the LTRCM Proposal to be determined as part of any such ACCC Replacement Module Determination.

nbn considers that this requirement to publish a draft decision is reasonable and is consistent with regulatory frameworks applying to other sectors in Australia. The proposed process is not dissimilar to the LTRCM process which has applied to date under Module 1 of the SAU, which requires the ACCC to issue a preliminary view regarding an LTRCM determination within 40 Business Days of **nbn** submitting the relevant regulatory information, and later to issue a draft LTRCM determination.[155]

This requirement to publish a draft decision also facilitates the requirement described in section 13.2 above that, at the start of the *first* Financial Year of each Regulatory Cycle, **nbn** must price its Core Regulated Services so that forecast core services revenue over the Regulatory Cycle does not materially exceed the Adjusted Forecast Core Services Revenue Cap for that Regulatory Cycle as set out in the ACCC's Draft Core Services Revenue Cap Decision.[156]

16.2.4 Deeming of ACCC Replacement Module Determination

The Variation provides that if the ACCC does not make an ACCC Replacement Module Determination within 20 Business Days prior to the last day of a Regulatory Cycle, and the ACCC has not accepted **nbn**'s RMA for the upcoming Regulatory Cycle, the ACCC will be deemed to have made an ACCC Replacement Module Determination for that upcoming Regulatory Cycle, in which the matters that the ACCC would otherwise have been required to determine will be determined in accordance with **nbn**'s RMA for that upcoming Regulatory Cycle.

This means that in the above circumstances, the length of the upcoming Regulatory Cycle, and the values, inputs and methodologies in the LTRCM Proposal and RAB Roll Forward Proposal, as proposed by **nbn** in the RMA for the upcoming Regulatory Cycle, will apply to that Regulatory Cycle, except to the extent different from any values determined by the ACCC in connection with its ex-post review of capital expenditure.

This mechanism is required to prevent the occurrence of any regulatory "gap" where the ACCC has not accepted **nbn**'s RMA but has not made an ACCC Replacement Module Determination at least 20 Business Days before the start of the next Regulatory Cycle. In the unlikely scenario that the ACCC makes an ex-post determination but does not make an ACCC Replacement Module Determination, the "deemed" ACCC Replacement Module Determination under this mechanism will be used to determine the inputs, values and methodologies based on which the ex-post determination must be made.

In the absence of this provision, **nbn** may inadvertently be placed in a position of extreme regulatory uncertainty, which would be detrimental to **nbn**, access seekers and end-users alike. It is therefore reasonable for this mechanism to be included in the SAU.

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[155] See Current SAU, cl 1E.1.2. Also see, by way of example, the ACCC's preliminary view, and draft and final LTRCM determinations, for the Financial Year 2019-20. Access: https://www.accc.gov.au/regulated-infrastructure/communications/national-broadband-network-nbn/nbn-co-special-access-undertaking/ltrcm-2019-20.

[156] Or as set out in **nbn**'s RMA, if the ACCC has not issued a draft decision by 31 March of the preceding Financial Year – see clause 2C.5.4 of the Variation. As noted above, this accounts for the fact that **nbn** is required to publish a Tariff List for the first Financial Year of a Regulatory Cycle on or before 1 May of the preceding Financial Year, at which point in time the ACCC may not have accepted an RMA or made an ACCC Replacement Module Determination for the upcoming Regulatory Cycle. This position is not dissimilar to the position applying to electricity transmission networks – see clause 6A.24.4 of the National Electricity Rules.

16.3 Length of Regulatory Cycles

Under the existing SAU, to provide **nbn** with a degree of flexibility to account for uncertainties and changing circumstances, **nbn** may propose a Regulatory Cycle term of either three, four or five years for each Replacement Module (with the possible exception of the final Regulatory Cycle in the term of the SAU, which may be shorter if less than three years remain). The ability to propose a three to five-year Regulatory Cycle provides appropriate flexibility to promote efficient and prudent investment in infrastructure and the LTIE more broadly, and **nbn** does not propose to vary this framework in the SAU.

However, in this Variation, **nbn** seeks a one-time modification to these arrangements, to provide for an initial two-year Regulatory Cycle given:

- **nbn** faces a higher level of demand and revenue uncertainty over the period FY24 and FY25;
- the two-year Regulatory Cycle proposed as part of this first RMA will be the first period in which the binding Core Services Revenue Cap will be in effect in the SAU; and
- a key input to this RMA is relevant and robust financial forecast information. A two-year initial Regulatory Cycle aligns the Replacement Module process with **nbn**'s current Integrated Operating Plan (**IOP**), which was approved by **nbn**'s Shareholder Departments and Shareholder Ministers in August 2021, and only captures forecast expenditures to the end of FY25.

16.3.1 Initial two-year Regulatory Cycle

Under the existing SAU, **nbn** may propose a Regulatory Cycle term of either three, four or five years for each Replacement Module.[157]

This mechanism is intended to provide **nbn** with a degree of flexibility in relation to the term of each Replacement Module so that **nbn** can account for uncertainties (e.g., demand and revenue uncertainty) that may exist at the time the particular RMA is lodged, or to reflect other relevant changes in external circumstances that support a particular length for a Regulatory Cycle.

nbn does not propose to vary the three to five-year Replacement Module framework in the SAU, including the ACCC's ability to determine a different length of Regulatory Cycle than that proposed by **nbn**. However, in this Variation **nbn** seeks an initial, one-off two-year Replacement Module, to be followed by the existing three to five-year Regulatory Cycles currently contemplated in the SAU for the remainder of the Subsequent Regulatory Period.

nbn submits that there are two key principles that should inform the ACCC's assessment of **nbn**'s proposed variation to provide for an initial, once-off two-year Regulatory Cycle:

- **Level of uncertainty:** **nbn** expects a higher level of demand and revenue uncertainty over the period FY24 and FY25. Where forecasts are subject to a higher level of risk, a shorter Regulatory Cycle (i.e., two years) is preferable to mitigate the potential risks of regulatory error.

[157] Current SAU, cl 4.5(e)(i).

- **Specific terms and conditions of the Replacement Module:** The ACCC has acknowledged the relationship between the length of a Regulatory Cycle and the specific circumstances facing **nbn** at the time of such Regulatory Cycle. In its 2013 SAU decision, the ACCC mentioned that the ability to set different lengths for each Replacement Module "*allows for different incentives to apply to NBN Co depending on the circumstances at the time*" and that the "*ACCC considers it appropriate to determine these issues at the time, considering NBN Co's circumstances*".[158]

  Where a Replacement Module contains terms that increase the flexibility and adaptability of the settings in such Replacement Module, a longer Regulatory Cycle may be appropriate, even in circumstances where uncertainty is high. Conversely, a lower level of flexibility within a Replacement Module may require a shorter Regulatory Cycle (e.g., two or three years), to minimise the risk of the settings in the Replacement Module becoming outdated and not fit-for-purpose if underlying circumstances change.

nbn submits that an initial shorter Regulatory Cycle is appropriate for the first two-year period (being the initial period in which the binding Core Services Revenue Cap will be introduced in the SAU). A two-year initial Regulatory Cycle will align the Replacement Module process with **nbn**'s current IOP, which only captures forecast expenditures to FY25. If this two-year term is accepted, the initial binding Core Services Revenue Cap will apply to **nbn** for the FY24 to FY25 period. **nbn** proposes to include FY22 and FY23 forecast expenditures for visibility in the supporting materials provided in respect of this first SAU RMA (discussed in further detail in chapter 17) noting that for FY22 and FY23, Module 1 will continue to operate, meaning that the LTRCM will continue to use actual, rather than forecast values for those years. **nbn** anticipates the varied SAU will be in effect for approximately three years until the second Replacement Module takes effect in July 2025.

16.3.2 Three to five-year Regulatory Cycles for subsequent Replacement Modules

Notwithstanding the initial two-year Regulatory Cycle proposed in this Variation, **nbn** believes that the existing three to five-year Regulatory Cycle regime provides appropriate flexibility for the remainder of the Subsequent Regulatory Period and **nbn** is not proposing any variation to these arrangements. **nbn** expects that the level of uncertainty, and therefore the appropriate length of each Regulatory Cycle, will change over the course of the Subsequent Regulatory Period (between 2023 and 2040). A maximum five-year Regulatory Cycle ensures that the settings applicable to Replacement Modules can be regularly reviewed, and provides an ongoing oversight role for the ACCC. The duration of each Regulatory Cycle must also be expressed in full Financial Years (i.e., three, four or five years),[159] to ensure that the forecasts and revenue controls within each Replacement Module apply on a full Financial Year basis.

In its 2013 SAU decision, the ACCC recognised that a three to five-year period for Regulatory Cycles was reasonable and that the conduct in these provisions would promote the LTIE.[160] The ACCC also accepted that three to five-year Regulatory Cycles are in line with the length of declarations under Part XIC of the CCA. **nbn** submits that this remains the case.

[158] ACCC, *NBN Co Special Access Undertaking – Final Decision*, December 2013, p. 12.

[159] Current SAU, cls 4.5(e)(i), 4.8(b)(i).

[160] ACCC, *NBN Co Special Access Undertaking – Final Decision*, December 2013, p. 64.

16.4 Term of SFAAs

nbn is committing to a maximum term for its standard forms of access agreements (**SFAAs**) both for the First Regulatory Cycle and beyond.

The current SAU regulatory framework provides that, during the Initial Regulatory Period, any SFAAs published by **nbn** must include an expiry date of no longer than two years (although this does not preclude **nbn** publishing an SFAA which includes the option of extending the term of an access agreement based on that SFAA beyond two years by agreement).

The two-year period was designed to balance providing certainty to RSPs and **nbn** over the terms of supply for a set period, and ensuring that access agreements (picking up the terms of the SFAA) would not continue for so long that they exclude the regulatory oversight and recourse contemplated by Part XIC of the CCA.

In practice, however, two years has proven too short a period. Negotiating an access agreement requires significant time and resource commitments from both RSPs and **nbn**. Consequently, most access agreements have been extended beyond their initial two-year term to three years or more by agreement between RSPs and **nbn**, an option which the existing SAU commitment expressly permits. Furthermore, **nbn**'s current regulatory framework provides that, from 1 July 2023, **nbn** will move to Regulatory Cycles of between three to five-years. That framework does not include a similar commitment regarding the expiry date of SFAAs published after 1 July 2023.

16.4.1 Maximum term proposal

nbn recognises that a maximum SFAA term commitment gives RSPs certainty that they will have an ongoing opportunity to negotiate access agreements with **nbn** at regular intervals, allowing such access agreements to change and reflect the prevailing industry and market conditions at the time of supply. In that context, and to align with the shift in **nbn**'s regulatory framework from 1 July 2023, **nbn** proposes to extend this commitment with amendments such that:

1. for the First Regulatory Cycle (which will be for a period of two years), each published SFAA will specify an expiry date that results in a term that is, measured from the commencement date of the SFAA, no longer than the duration of the Regulatory Cycle plus three months; and
2. for each subsequent Regulatory Cycle, each published SFAA will specify an expiry date that results in a term that is, measured from the commencement date of the SFAA, no longer than the duration of the Regulatory Cycle.

The additional three-month buffer beyond the end of the First Regulatory Cycle allows time for RSPs and **nbn** to consider the updated regulatory settings for the new Regulatory Cycle and then, factoring in those new settings, to negotiate new access agreement terms that **nbn** will reflect in the next SFAA. For example, if by the end of the First Regulatory Cycle, **nbn** has committed to new NBN Offers for the Second Regulatory Cycle, a buffer from the start of that Second Regulatory Cycle will allow the WBA to be finalised with those new NBN Offers and any consequential changes.

This is illustrated in Figure 6 below. For background, the existing WBA under which **nbn** supplies most of its services is the fourth iteration of the WBA – WBA4. WBA4 is currently due to expire on 30 November 2022. **nbn** has proposed to RSPs to extend this to 30 September 2023, to allow the next WBA to be finalised shortly after the start of the First Regulatory Cycle. This initial buffer is also illustrated below.

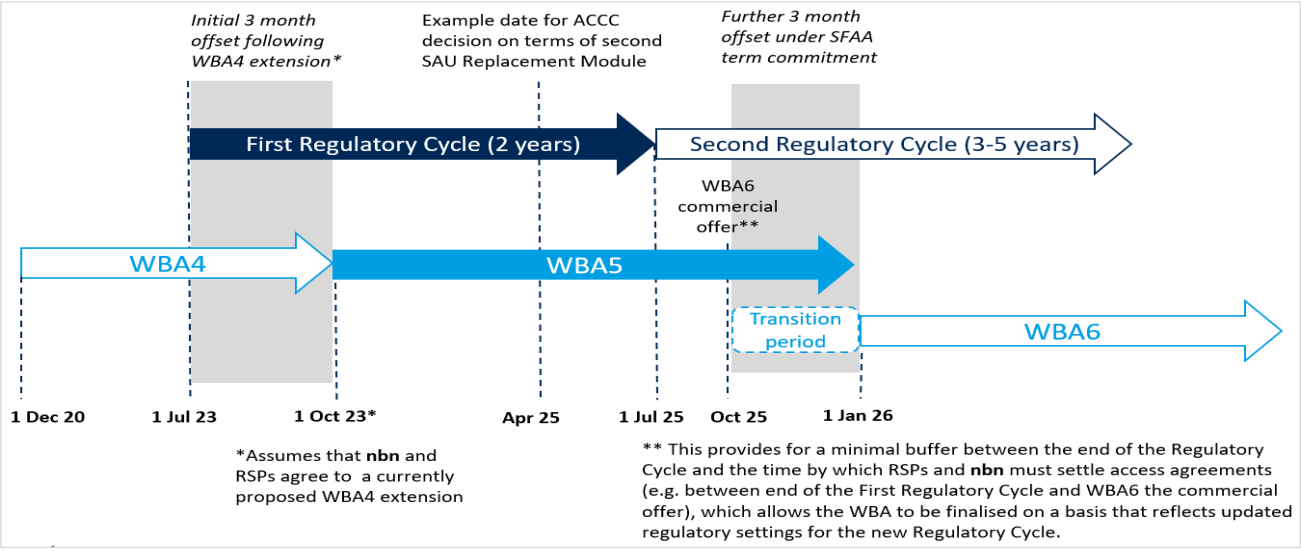

Figure 6. Maximum SFAA Term

For future Regulatory Cycles, **nbn** is committing to a default maximum term of any SFAA published being equal to the length of the Regulatory Cycle in which it is published. As the term of SFAAs published in the First Regulatory Cycle should establish an appropriate buffer or offset to the start and end of the Regulatory Cycles, subsequent SFAA terms need only be long enough to maintain that offset and need not add to it.

These commitments appropriately balance the efficiency and certainty of commercial negotiations with an ongoing commitment to the regulatory oversight created by the ACCC's ability to periodically inquire into the ongoing appropriateness of terms of supply for declared services and whether there is a need for regulatory intervention in the form of an AD or BRoC.

17 nbn's Replacement Module Application (FY24 – FY25)

A central element of **nbn**'s Variation is its proposed RMA. This sets out **nbn**'s detailed proposals in relation to the length of the First Regulatory Cycle, its LTRCM Proposal and RAB Roll Forward Proposal, consistent with clause 4.6(e) of the Variation.

In its RMA, **nbn** is proposing that the length of the First Regulatory Cycle is two years, reflecting the specific circumstances of **nbn** at this time.

nbn's LTRCM Proposal provides the forecast values (generally in both real and nominal terms) for key components of the LTRCM for the FY24 and FY25 years, including the ABBRR, Core Services ABBRR, Core Services Revenue Allowance and Core Services Revenue Cap. It also provides the forecasts of the inputs to those values, including the expected rate of inflation, RAB, Core Services RAB Portion, depreciation, Disposals, Operating Expenditure, Nominal Annual Drawdown of ICRA and Annual Construction in Progress Allowance.

The RAB Roll Forward Proposal includes **nbn**'s proposed method of depreciation used to roll forward the RAB and Core Services RAB Portion from the Initial Regulatory Period into the beginning of the Second Regulatory Cycle.

More details on the three elements of the RMA outlined above are provided in the first three sections of this chapter. The remaining sections provide further detail on key elements of **nbn**'s LTRCM Proposal, namely:

- Forecast opening RAB and Core Services RAB Portion;
- Forecast Core Services Revenue Cap and Annual Core Services Forecast Revenue;
- expenditure forecasts;
- demand forecasts; and
- WACC.

17.1 Proposed Regulatory Cycle of two years

nbn is proposing a two-year term for the First Regulatory Cycle (i.e., FY24 and FY25). **nbn** considers that this approach is reasonable because:

- **nbn** faces a higher level of demand and revenue uncertainty over the period FY24 and FY25;
- the First Regulatory Cycle will be the first period in which the binding Forecast Core Services Revenue Cap will be in effect in the SAU, together with new pricing structures and Maximum Regulated Prices and constraints on discounting; and
- a two-year period aligns with **nbn**'s current Integrated Operating Plan, which was approved by **nbn**'s Shareholder Departments and Shareholder Ministers in August 2021, and only captures forecast expenditures to the end of FY25.

17.2 LTRCM Proposal

The SAU sets out that an LTRCM Proposal must contain the following for each of the Financial Years in the proposed Regulatory Cycle:

- the Forecast Nominal ABBRR, Forecast Real ABBRR, Forecast Nominal Core Services ABBRR and Forecast Real Core Services ABBRR;
- the Forecast Annual Core Services Revenue Allowance, Forecast Core Services Revenue Cap and the Adjusted Forecast Core Services Revenue Cap;
- inputs required for the calculation of each of the above, including the rate of return and taxation parameters; and
- the Annual Core Services Forecast Revenue.

nbn's LTRCM Proposal in respect of the First Regulatory Cycle is set out in Table 7 below. While **nbn** is proposing a Regulatory Cycle of two years (FY24 and FY25), **nbn** sets out the equivalent values (where relevant) in respect of FY22 and FY23 for reference only.

Table 7. nbn's LTRCM Proposal in respect of the First Regulatory Cycle[161]

Item	SAU Clause	Units	2021-22	2022-23	2023-24	2024-25
Estimated average annual rate of inflation expectations over the Regulatory Cycle (π)	2C.1.5(b)	Percentage	2.250%	2.250%	2.375%	2.375%
(forecast) Cumulative Inflation Factor	2C.1.5(b)	Factor	1.147	1.173	1.201	1.229
Statutory company taxation rate	2C.16.2	Percentage	30.00%	30.00%	30.00%	30.00%
Gamma	2C.16.4	Number	0.25	0.25	0.25	0.25
Nominal Forecast RAB (start period)	2C.9.11(b)	$'000	28,622,607	28,586,767	28,729,456	28,139,975
Nominal Forecast RAB (end period)	2C.9.11(b)	$'000	28,586,767	28,729,456	28,139,975	26,726,720
Real Forecast RAB (start period)	2C.9.9	$'000	25,514,596	24,921,905	24,495,161	23,435,956
Real Forecast RAB (end period)	2C.9.9	$'000	24,921,905	24,495,161	23,435,956	21,742,563
Nominal Forecast Capital Expenditure	-	$'000	2,807,961	3,108,782	2,557,125	1,816,759
Real Forecast Capital Expenditure	2C.9.9	$'000	2,447,977	2,650,594	2,129,663	1,477,959
Real Forecast Disposals	2C.9.9	$'000	-	-	-	-

[161] Note: Real values included in this table are in FY14 terms, reflecting the terms of the SAU.

Item	SAU Clause	Units	2021-22	2022-23	2023-24	2024-25
Nominal Forecast Disposals	-	$'000	-	-	-	-
Real Forecast Depreciation	2C.9.9	$'000	3,040,668	3,077,339	3,188,867	3,171,353
Forecast Nominal Tax Depreciation	2C.16.1	$'000	3,170,658	3,188,799	3,265,150	3,215,191
Forecast nominal regulatory depreciation	2C.2.4(a); 3C.3.2(c)(i)	$'000	2,843,801	2,966,093	3,146,606	3,230,014
Forecast Nominal Operating Expenditure	2C.2.1(a)(i); 3C.2.1	$'000	3,065,358	2,775,561	2,666,448	2,639,749
Nominal Forecast Construction in Progress (start period)	2C.8.1(b)	$'000	1,148,404	1,140,266	1,114,623	530,638
Forecast Annual Construction in Progress Allowance (nominal)	2C.8.1(b); 3C.2.1	$'000	59,717	59,294	80,253	37,675
Forecast Tax Allowance (nominal)	2C.2.1(a)(iv); 2C.16.2; 3C.2.1	$'000	-	-	-	-
Forecast Nominal ABBRR	2C.2.1; 3C.2.1	$'000	7,457,252	7,287,459	7,961,827	7,905,376
Forecast Real ABBRR	2C.2.4(f)	$'000	6,501,222	6,213,396	6,630,888	6,431,135
Core Regulated Services						
Forecast Nominal Core Services RAB Portion (start period)	2C.9.12(b)	$'000	28,450,215	28,364,403	28,465,755	27,840,405
Forecast Nominal Core Services RAB Portion (end period)	2C.9.12(b)	$'000	28,364,403	28,465,755	27,840,405	26,394,263
Forecast Real Core Services RAB Portion (start period)	2C.9.10	$'000	25,360,924	24,728,049	24,270,325	23,186,464
Forecast Real Core Services RAB Portion (end period)	2C.9.10	$'000	24,728,049	24,270,325	23,186,464	21,472,104
Nominal Forecast Core Services Capital Expenditure	-	$'000	2,746,689	3,053,038	2,504,306	1,765,152
Real Forecast Core Services Capital Expenditure	2C.9.10	$'000	2,394,560	2,603,066	2,085,674	1,435,976
Nominal Forecast Core Services Disposals	-	$'000	-	-	-	-
Real Forecast Core Services Disposals	2C.9.10	$'000	-	-	-	-
Real Forecast Core Services Depreciation	2C.9.10(b)	$'000	3,027,436	3,060,789	3,169,536	3,150,335
Forecast Nominal Tax Depreciation in connection with the forecast Nominal Core Services RAB Portion	2C.16.1; 2C.16.3(d)	$'000	3,156,242	3,170,577	3,243,665	3,191,595

Item	SAU Clause	Units	2021-22	2022-23	2023-24	2024-25
Forecast nominal regulatory depreciation in connection with the forecast Nominal Core Services RAB Portion	2C.2.4(a); 3C.3.2(c)(ii)	$'000	2,832,502	2,951,685	3,129,657	3,211,293
Nominal Forecast Core Services Operating Expenditure	2C.2.2(a)(i); 3C.2.2	$'000	3,043,503	2,748,729	2,633,790	2,600,833
Nominal Forecast Construction in Progress in connection with Core Regulated Services (start period)	2C.8.1(c)	$'000	1,123,345	1,119,819	1,091,600	515,564
Forecast Annual Construction in Progress Allowance (nominal) in connection with Core Regulated Services	2C.8.1(c); 3C.2.2	$'000	58,414	58,231	78,595	36,605
Forecast Core Services Tax Allowance (nominal)	2C.2.2(a)(iv); 2C.16.3; 3C.2.2	$'000	-	-	-	-
Forecast Nominal Core Services ABBRR	2C.2.2; 3C.2.2	$'000	7,413,830	7,233,594	7,891,576	7,825,400
Forecast Real Core Services ABBRR	2C.2.4(f)	$'000	6,463,367	6,167,470	6,572,381	6,366,073
Nominal Annual Drawdown of ICRA	2C.5.2(c)	$'000			120,726	247,187
Forecast Annual Core Services Revenue Allowance	2C.5.2(c)	$'000			8,012,302	8,072,587
Forecast Core Services Revenue Cap	2C.5.1(a)	$'000			16,084,889	
Annual Core Services Forecast Revenue	4.7(a)(vi)	$'000	5,069,585	5,268,749	5,651,938	5,950,251

17.3 RAB Roll Forward Proposal

The SAU provides that a RAB Roll Forward Proposal in respect of the First Regulatory Cycle must include a method for accounting for depreciation in rolling forward the RAB and the Core Services RAB Portion to the beginning of the Second Regulatory Cycle.

nbn proposes to use depreciation on actual capex to roll forward the RAB and the Core Services RAB Portion from the First Regulatory Cycle to the Second Regulatory Cycle. This approach will provide strong incentives for **nbn** to achieve efficiency gains and underspend its capex allowance, for the following reasons:

- rolling forward the RAB and the Core Services RAB Portion on the basis of actual depreciation will provide **nbn** with additional incentives to incur capex efficiently, as **nbn** will retain the benefit of any capex that it underspends; and
- by rolling forward the RAB and Core Services RAB Portion based on actual depreciation, **nbn** has a strong incentive to minimise any extent to which actual capex exceeds forecast capex – this is in addition to the efficiency incentives created by:
    - the ACCC's role in reviewing the efficiency and prudency of **nbn**'s capex on an ex-post basis; and

- **nbn**'s ability to only earn a rate of return during the Regulatory Cycle on forecast capex, as opposed to actual capex, even where that capex is deemed prudent and efficient by the ACCC on an ex-post basis (with the exception of capex incurred (or avoided) in connection with a cost pass-through event, as described in section 14.5).

17.4 Opening RAB and Core Services RAB Portion

17.4.1 Real Forecast RAB and Real Forecast Core Services RAB Portion

In accordance with clause 2C.9.2 of the Variation,[162] the opening value of the Real RAB at the start of the Subsequent Regulatory Period is the same as the closing value of the Real RAB as at 30 June 2023. This clause is a fixed principles term and condition under the existing SAU. This means the ACCC must not reject an SAU variation (e.g., in the form of the RMA) for a reason that concerns the fixed principles term and condition (i.e., the opening value of the RAB).

nbn has derived the opening Forecast Real Core Services RAB Portion for FY24 in accordance with 2C.9.3 of the Variation. This is discussed further in section 23.3.3. The Forecast Real RAB and the Forecast Real Core Services RAB Portion as at the start of FY24 and FY25 are shown in Table 8.

17.4.2 Forecast Nominal RAB and Nominal Core Services RAB Portion

The forecast Nominal RAB and forecast Nominal Core Services RAB Portion as at the start of FY24 and FY25 are key inputs into the Forecast Nominal ABBRR and Forecast Nominal Core Services ABBRR for those Financial Years. These values are based on the forecast Real RAB and forecast Real Core Services RAB Portion and are converted into nominal terms in accordance with clauses 2C.9.11 and 2C.9.12 of the Variation, respectively.

Table 8. Forecast Opening RAB and Core Services RAB Portion[163]

Opening values ($,000)	FY24	FY25
Forecast Real RAB	24,495,161	23,435,956
Forecast Nominal RAB	28,729,456	28,139,975
Forecast Real Core Services RAB Portion	24,270,325	23,186,464
Forecast Nominal Core Services RAB Portion	28,465,755	27,840,405

[162] Note: this is clause 2C.7.2 in the current SAU.

[163] Note: Real values included in this table are in FY14 terms, reflecting the terms of the SAU.

17.5 Forecast Core Services Revenue Cap and Annual Core Services Forecast Revenue

As described in chapter 13, **nbn**'s Forecast Annual Core Services Revenue Allowance for a Financial Year comprises the sum of the Forecast Nominal Core Services ABBRR and the Nominal Annual Drawdown of ICRA, in respect of that Financial Year.

nbn's Forecast Core Services Revenue Cap for a Regulatory Cycle is equal to the sum of the Forecast Annual Core Services Revenue Allowance for each Financial Year within that Regulatory Cycle.

As shown in Table 7, **nbn**'s Forecast Core Services Revenue Cap for the First Regulatory Cycle is $16,085 million, while **nbn**'s Core Services Forecast Revenue over that period is $11,602 million. That is, based on the forecasts lodged by **nbn** as part of this RMA, **nbn** expects to earn Core Services Revenue over the First Regulatory Cycle that is $4,483 million less than its Forecast Core Services Revenue Cap for that period. **nbn**'s Core Services Forecast Revenue includes RBS Third Party Contribution Amounts, as well as RBS NBN Co Competitive Services Contribution Amounts, as defined in the Variation.

17.6 Expenditure forecasts

This section provides an overview of **nbn**'s expenditure forecasting for the purposes of this RMA for the First Regulatory Cycle (FY24 and FY25). Appendix B provides a breakdown of the Capital Expenditure and Operating Expenditure forecasts.

17.6.1 Context for nbn's expenditure forecasting

As discussed in **nbn**'s FY22 Corporate Plan, with the initial build of the **nbn**™ network completed, **nbn** is embarking on the next stage of its evolution to continually enhance this critical communications asset on behalf of the Commonwealth Government for all Australians. In addition to managing the progressive transition from building to running the **nbn**™ network, last year **nbn** announced a set of major network upgrade initiatives that have now commenced.

In support of this, **nbn**'s Shareholder Ministers issued a new Statement of Expectations to **nbn** on 26 August 2021 placing obligations and requirements on **nbn** in a number of areas, including major initiatives.

In satisfying the Statement of Expectations, **nbn** faces existing intrinsic incentives to plan and undertake expenditure only where it is both prudent and efficient. These incentives derive from the level of accountability and oversight **nbn** faces as a GBE, in addition to a range of underlying commercial incentives, which are complemented by several provisions within the SAU.

- **nbn**'s intrinsic incentives arise from several sources including: oversight from Shareholder Ministers and Parliament; capital constraints; competition from rival networks (fixed, mobile and satellite); and uncertainty whether future revenues will be sufficient to recover costs over the long-term given evolving technology, applications and demand.
- Module 1 of the SAU includes a prudent design condition and a prudent cost condition that **nbn** satisfies by aligning its capex with a published set of Network Design Rules (as updated over time under the SAU) and undertaking all expenditure consistent with a set of Procurement Rules as provided to the ACCC (and updated over time under the SAU). These requirements are embedded within **nbn**'s expenditure governance and planning processes.

17.6.2 nbn's overall approach

nbn has based its expenditure forecasts, in real FY14 terms, for this initial (FY24 and FY25) RMA on the Integrated Operational Plan that underpins **nbn**'s FY22 Corporate Plan. The IOP covers the years FY22 to FY25, inclusively, and is the outcome of a bottom-up planning process. The IOP has already been reviewed and approved/endorsed by **nbn**'s Executive Committee, Board, Shareholder Departments and Shareholder Ministers.

The IOP expenditure forecasts are appropriate for use within the SAU's LTRCM as they account for the progressive transition from building to running the **nbn**™ network, include only prudent costs and factor in future efficiency gains. Given the nature and extent of the ongoing transition (as discussed in more detail in Appendix B), the IOP's bottom-up approach is expected to result in a more accurate forecast over the period to FY25 as compared to traditional top-down approaches such as the base-step-trend technique for forecasting opex, as used in regulating other infrastructure sectors.

In addition, **nbn** notes that the IOP's bottom-up approach effectively includes base-step-trend type adjustments but does so at a detailed level from the bottom up rather than at the aggregate level from the top down. Consistent with this, the IOP already factors in anticipated productivity gains on individual programs and there is therefore no need to apply a top-down productivity growth factor (such as the 0.5% per year used by the AER after adjusting for growth in input prices and output). Indeed, to do so would be logically inconsistent with the IOP's bottom-up methodology (or, in other words, it would duplicate the productivity gains already factored into the IOP).

From a practical perspective, the dominant factors for expenditure over the period to FY25 are the transition from building to running the **nbn**™ network together with the major network upgrade initiatives. Nonetheless, as set out in more detail in Appendix B, **nbn** is continuing to pursue productivity gains across all areas of activity, including as part of making the transition – by way of example:

- **nbn** has forecast productivity gains in the areas of Network Power and Service Assurance despite increases in the volume of network traffic and the number of activated premises requiring assurance;
- labour costs, which are forecast to [**Commercial-in-Confidence**] due to the transition, have been subject to top-down benchmarking and bottom-up analysis of requirements, and involve a [**Commercial-in-Confidence**]; and
- **nbn** has also forecast capex-related productivity gains that will reduce the quantity of inputs required to deliver network outputs over time, with some prime examples including the truck roll reduction program (relevant to Customer Connect), management of the triggers for capacity augmentation, and the IT Simplification Initiative.

17.6.3 nbn's forecasting methodology

The methodology for developing the IOP expenditure forecasts is summarised below:

- The governance process that surrounds the IOP's development each year is rigorous and worked through over several months prior to the plan being finalised. As part of that process, **nbn**'s Executive Committee, Board, Shareholder Departments and Shareholder Ministers have formal roles to play in reviewing and endorsing the plan.
- The methodology is re-applied each year on a bottom-up basis to chart a detailed operational and financial course starting from an actual base year (e.g., FY21) and forecasting forward four years (e.g., FY22 to FY25) in a manner that best meets **nbn**'s expenditure objectives (many of which are long-term in nature).
- Although it covers only four years, the IOP is informed by and aligned with much longer term (10 year) product and network roadmaps that are built on long-term demand forecasts.
- There is a strong focus within the IOP on driving operational efficiency improvements and on the prudency of all planned expenditure (in respect of meeting both the current and future needs of end-users).

The bottom-up operational and financial planning that is at the core of the methodology makes it highly flexible, such that it can better account for changes of context such as those **nbn** is now going through with the transition from building to running the **nbn**™ network.

17.6.4 Expenditure objectives

17.6.4.1 Statement of Expectations

As a GBE, the principal responsibility of **nbn** is to build and operate the **nbn**™ network in accordance with the SOE – the current version having been issued by **nbn**'s Shareholder Ministers on 26 August 2021. The SOE is broadly expressed, requiring **nbn** to meet the current and future broadband demand of households and businesses while achieving certain service, competition, commercial, stakeholder and transparency objectives (within the parameters of its relevant legal and regulatory obligations). The SOE is updated over time to reflect the evolution of government policy, with **nbn** having previously received SOEs from its Shareholder Ministers in 2010, 2014 and 2016. **nbn**'s expenditure objectives are principles-based and are expected to be able to be applied in response to any changes in detail in successive SOEs.

For the purposes of applying the IOP expenditure forecasting methodology, the Statement of Expectations serves to define **nbn**'s expenditure objectives generally and in many cases specifically, as is evident in the (non-exhaustive) selection of points extracted from the current SOE below:

- **Overall objective:** **nbn** will reliably and affordably meet the current and future broadband needs of households and businesses, including in regional and remote Australia, foster productivity and innovation, and support the Government's goal for Australia to be a leading digital economy and society by 2030.
- **Minimum requirements:** **nbn** is the default Statutory Infrastructure Provider (SIP) for all of Australia and, where it is the SIP, it must meet legal obligations, including in relation to minimum service speed and network performance requirements.
- **Upgrades over time:** Within its capital constraints, **nbn** will continue to upgrade the network technologies to support retailers to meet demand from end-users which exceeds these minimum requirements, including implementing current plans to expand access to peak download speeds of up to 1Gbps.

- **Services for businesses:** **nbn** should act pro-competitively in supplying wholesale broadband services to retailers to support business end-users' needs. The Company should earn commercial returns in supplying these services. In supplying business-grade services, **nbn** should aim to improve retail and infrastructure competition and access for businesses, including in less well served areas.
- **Improving consumer experience:** **nbn** will work with retailers to enhance and integrate systems and processes to enable timely and transparent provision of information to end-users, improve service quality, efficiently and effectively resolve faults and outages and, where they do occur, proactively manage complaints. **nbn** will also deliver a reliable, resilient and secure network.
- **Regional and remote:** **nbn** will improve its wholesale services and assist in addressing access challenges in regional and remote areas.
- **Efficiency:** **nbn** will be efficient in its own operations.
- **Operating commercially:** Taxpayers have made a substantial investment in **nbn** and the Company will operate its business commercially.

17.6.4.2 Relationship to approach for future Replacement Modules

nbn's current expenditure objectives as described above, underpin the approach **nbn** has proposed for inclusion in the SAU (see section 8.1.2) to guide the assessment of the prudency and efficiency of **nbn**'s expenditure in future RMAs.

nbn considers that the Expenditure Objectives proposed in the Variation are commercially reasonable and reflect **nbn**'s context, including **nbn**'s accountabilities as a GBE, as expressed in policy, **nbn**'s SOE and legislation. In respect of each Regulatory Cycle, **nbn** commits to ensure that its opex and capex reasonably reflects what a prudent and efficient operator, acting in accordance with good industry practice in **nbn**'s position would incur in achieving the following objectives (**Expenditure Objectives**):[164]

> *a) meeting or managing the expected demand for products and services during the Regulatory Cycle;*
>
> *b) complying with, and otherwise responding as reasonably necessary to give effect to or prepare for, any relevant Regulatory Requirements or Regulatory Change Events applicable to **nbn** providing products and services;*
>
> *c) implementing a project or program in relation to which the Shareholder Ministers have issued a notice to **nbn** stating that the project or program is endorsed by the Shareholder Ministers and is consistent with Government policy;*
>
> *d) maintaining the quality, reliability, safety, security and integrity of supply of any products and services, taking into account current and reasonably anticipated future market conditions (including the extent to which **nbn** must adjust quality to meet competition); and*
>
> *e) maintaining a national network coverage that provides ubiquitous access to all Australian residential and business premises.*

[164] Variation, cl 2C.2.5(a)(iii).

17.6.5 Prudency and efficiency concepts

17.6.5.1 General

Consistent with the requirements of clause 2C.2.5 of the Variation, **nbn** submits that the expenditure forecasts developed through the IOP reflect the expenditure that a prudent and efficient operator in **nbn**'s position, acting in accordance with good industry practice, would incur in achieving the Expenditure Objectives, as described above.

The SAU provides that expenditure will be:

- the expenditure that a prudent operator in **nbn**'s position, acting in accordance with good industry practice, would incur if the expenditure reflects a reasonable choice amongst available alternatives; and
- the expenditure that an efficient operator in **nbn**'s position, acting in accordance with good industry practice, would incur if the expenditure is likely to lead to the lowest Total Cost of Ownership or highest value outcome over time.

These definitions are a generalisation of those applied by Analysys Mason in its 2012 report for **nbn** on the prudency and efficiency of the network design, which used the following framework:

- *in reviewing the 'prudency' of network design decisions made by NBN Co, we have had regard to whether those decisions have been made with care and thought for the future based on various factors, such as scalability, resilience and flexibility of the relevant element of the network design*
- *in reviewing the 'efficiency' of the network design decisions made by NBN Co, we have had regard to whether those decisions are likely to achieve the maximum result with minimum wasted effort or expense in the circumstances.* [165]

It is important to note that **nbn**'s Expenditure Objectives as described above are non-discretionary in nature, which in practice constrains the basis on which expenditure is considered for prudency and efficiency. As described by the ACCC in 2013 in relation to applying its framework for assessment of the SAU price-related terms and conditions:

> *Of note, in this context, the ACCC refers to a 'constrained efficiency' — that is, the ACCC is not considering the efficiency of the Government's directions to NBN Co about the infrastructure that NBN Co should build, the services that it should supply, and the timeframe in which this should be done. Rather, it is considering whether the implementation of that policy is efficient.*[166]

nbn submits that this same concept of 'constrained efficiency' remains just as relevant and applicable as it was when the ACCC was assessing the SAU in 2013. This is because the network that **nbn** is currently operating, maintaining and upgrading is the product of past and current Government directions, and how **nbn** evolves the network over time will likewise be the product of current and future Government directions. In these circumstances, it is important for **nbn** to be certain that it will be allowed to generate revenues sufficient to support the opex and capex required to run the network as built and to upgrade it over time to meet end-user needs, consistent with the SOE.

[165] Analysys Mason, Review of the efficiency and prudency of NBN Co's fibre, wireless and satellite network design, September 2012, p. 15 – available at Microsoft Word - Analysys Mason fibre, fixed wireless and satellite design report (Public Version)_61003022.1 (accc.gov.au)

[166] ACCC, *Draft Decision about the 2012 NBN Co Special Access Undertaking*, April 2013, p. 98.

17.6.5.2 Telstra Arrangements and Optus Arrangements

Given the significance of the Telstra Arrangements and the Optus Arrangements to the development and ongoing operation of the **nbn**™ network and the very long-term nature of these arrangements, the SAU includes specific provisions relating to how the opex and capex associated with these arrangements should be treated within the LTRCM. Essentially, these provisions mean that any payments forecast to be made under the Telstra Arrangements and the Optus Arrangements for a given regulatory period should be included in the relevant forecast expenditure allowances without any prudency and efficiency assessment.

- Opex - clause 2C.2.1(a)(i) provides that the forecast opex to be included in the Annual Building Block Revenue Requirement "*is to include any Operating Expenditure to be incurred pursuant to the Telstra Arrangements or the Optus Arrangements*". This clause was in the SAU accepted by the ACCC in 2013.
- Capex - clause 2C.7.7(b) of the current SAU provides that the forecast capex to be included in the Forecast Real RAB for calculating Forecast Nominal ABBRR is to include "*any Capital Expenditure to be incurred pursuant to the Telstra Arrangements or the Optus Arrangements*." The same position is given effect in the Variation through clauses 2C.9.9 and 2C.2.5.

17.6.6 Product and network roadmaps

Informed by the long-term and short to medium-term demand forecasts, **nbn** maintains linked product and network roadmaps that extend out 10 years and are updated annually as input into the IOP development process.

The product roadmap considers market and technology trends and end-user needs for various product capabilities (including bandwidth). Although the later years of the roadmap are somewhat indicative, they serve to highlight lifecycle events/opportunities and emerging capacity/capability gaps in the **nbn**™ network and the timeframes within which decisions may be required in order to avoid issues arising from unmet demand.

The network roadmap considers how the **nbn**™ network will need to evolve to support the product roadmap and ongoing (business-as-usual) demand growth. In so doing, the network roadmap considers various options for how to coordinate lifecycle replacement and upgrades to newer and more capable generations of technology that may also have lower ongoing costs. The long-term view provided by the network roadmap is a key input into strategic investment decisions such as the Network Upgrade Initiative (as described in Appendix B).

17.6.7 Capex and Opex interactions

As part of the IOP, opex and capex are forecast on an integrated basis such that opex reductions that are expected from capex projects (such as the IT Systems Simplification Initiative and the Network Upgrade Initiative) are factored into the forecasts. More fundamentally, expenditure planning is undertaken with a view to minimising the Total Cost of Ownership over time, having regard to both up-front capex, ongoing opex and any subsequent capex required.

17.6.8 Risk and uncertainty

The IOP expenditure forecast represents a balanced scenario and is subject to several risks and uncertainties, including in regard to:

- demand (new developments, access speeds, busy hour traffic, high speed upgrades, business upgrades);
- the nature and extent of future competition (which will affect demand, and potentially also affect the timing of upgrade plans);

- technology change relating to the network itself and how it is used (which will affect the optimal upgrade path by changing both the supply and demand side, e.g., through advances in FTTP technology/cost, and video compression technology);
- timing and extent of projects under the Regional Co-Investment Initiative (as described in Appendix B); and
- future Commonwealth Government requirements.

To some degree, these risks and uncertainties are addressed through the choice of a relatively short period for this initial RMA. However, the SAU does also include a cost pass-through arrangement (see section 14.5), which provides for **nbn** to apply to the ACCC if certain cost pass-through events occur.

At the end of the Regulatory Cycle, **nbn**'s capex will be subject to an ex-post review of prudency and efficiency (see section 14.3.5). This assessment will be based on the information that was available to **nbn** at the time the relevant decisions were made, including information on the nature and extent of relevant risks and uncertainties.

17.6.9 Expenditure governance processes

After the IOP is completed each year there is a transition from planning to implementation, and **nbn**'s expenditure governance processes are applied to all opex and capex.

- All expenditure is subject to **nbn**'s procurement and delegation of authority policies. These policies meet the requirement under Module 1 of the SAU to maintain a set of Procurement Rules and their application provides the basis for **nbn** to satisfy the Prudent Cost Condition under Module 1 of the SAU.
- For opex, **nbn**'s Executive Committee provides oversight against business unit budgets, including in relation to achievement of key operational metrics and forecast efficiency improvements.
- For capex, **nbn**'s Investment Committee provides oversight of all projects, and no purchase order commitments can be made without prior Investment Committee approval. IT projects are subject to annual and half-year prioritisation exercises. The capex oversight process includes ensuring that **nbn** satisfies the Prudent Design Condition under Module 1 of the SAU.

17.7 Demand forecasts

17.7.1 Approach and methodology

nbn's key demand forecasts relate to expansion (with incremental demand from the competitive market to service new developments), take-up (including speed tier mix (**STM**)) and peak usage. These forecasts feed into and are interdependent with expenditure, revenue and price forecasts. The interdependent nature of the forecasts is a result of the inter-dependant relationship between prices, demand, expenditure, and the revenue requirement. **nbn** accounts for this by using an iterative approach.

Conceptually, this approach involves four steps. First, an initial revenue target is calculated based on an initial demand forecast that does not anticipate subsequent demand responses. Second, **nbn** develops prices (and differentiated speed tiers) that would recover the initial revenue target in such a way as to closely match the willingness to pay of each market segment, promoting efficient take-up and usage. In this step, **nbn** factors in the demand response from the suite of prices and iterates until the projected revenue is consistent with the initial revenue target. Third, the updated demand forecast from the last step is used to adjust the opex and capex forecasts to the extent that those forecasts are directly linked to the relevant demand changes. Fourth, the

revenue target is updated with the updated opex and capex forecasts. Steps 2 to 4 are repeated until the projected revenue from Step 2 and the updated revenue target from Step 4 are aligned.

nbn prepared demand forecasts as part of the IOP that underpins **nbn**'s FY22 Corporate Plan. The IOP relies on two sets of demand forecasts, as described further in Appendix C:

1. **High level, long-term demand forecasts** that drive the product and network roadmaps and strategic decisions on the evolution of the **nbn**™ network and condition expectations around future revenues and prices; and
2. **Detailed short to medium-term demand forecasts** that drive opex and capex activity levels (including on projects such as the Network Upgrade Initiative) and inform pricing intentions over the IOP period.

See Appendix C for more detail.

17.7.2 Forecasts

17.7.2.1 Long-term

nbn's long-term demand forecasts over the period to FY30 are summarised below. These include some subsequent updates to the IOP to account for recent experience and revised expectations in regard to STM and traffic per AVC activated.

- the number of TC-4 active services is forecast to grow by 18% overall from FY21 to FY30, with a CAGR of 2%. Over time, growth is driven largely by new developments;
- the TC-4 AVC STM is forecast to move upwards such that the percentage on higher speed tiers (100Mbps and above) in FY30 is in the range of 40% to 60% , as compared to 17% in FY21; and
- traffic per AVC activated is forecast to grow from June 2021 to June 2030 in terms of Mean Busy Hour Throughput (**MBHT**) by 204% (CAGR 13%) downstream and 231% (CAGR 14%) upstream, and in terms of Monthly Data Volumes by 199% (CAGR 13%) downstream and 290% (CAGR 16%) upstream.

See Appendix C for more detail.

17.7.2.2 Short to medium-term

nbn's key demand forecasts over the next four years are summarised below. These include some subsequent updates to account for recent experience and revised expectations in regard to STM and traffic per AVC activated.

- **Expansion:** premises ready to connect are forecast to grow by 5.1% overall, with a CAGR of 1.25 per cent driven by market demand to extend the **nbn**™ network into new developments.
- **Take-up and usage:** driven by market demand for connection, access speed and quality, and usage:
  - the number of premises activated (cumulative) is forecast to grow by 9.6% overall, with a CAGR of 2.3% but tapering to annual growth of 0.9% in FY25;
  - facilitated by the Network Upgrade Initiative, the TC-4 AVC STM is forecast to shift progressively towards higher speed tiers, with the percentage of services 100Mbps and above increasing from 17% in FY21 to 27% in FY25;

- take-up of business-grade (Enterprise Ethernet) services is forecast to [Commercial-in-Confidence] from around [Commercial-in-Confidence] in FY21 to [Commercial-in-Confidence] in FY25; and
- traffic per AVC activated is forecast to grow overall in terms of MBHT by 44% (CAGR 10%) downstream and 72% (CAGR 15%) upstream and in terms of the Monthly Data Volume (GB per AVC) by 43% (CAGR 9%) downstream and 85% (CAGR 17%) upstream.

See Appendix C for more detail.

17.8 WACC

Table 9 presents the WACC for the first Replacement Module.

Table 9. WACC for the first Replacement Module

Approach	'Current' estimate	'Long-term' estimate	Midpoint estimate
Risk-free rate	1.7%	5.0%	3.4%
Equity beta	0.7	0.7	0.7
Market risk premium	9.0%	6.5%	7.8%
Return on Equity (nominal, post-tax)	8.0%	9.6%	8.8%
Return on Debt (nominal, pre-tax; incl. allowance for debt raising costs; FY24)	4.9%	4.9%	4.9%
Return on Debt (nominal, pre-tax; incl. allowance for debt raising costs; FY25)	4.6%	4.6%	4.6%
Gearing	40%	40%	40%
Nominal vanilla WACC (FY24)	6.8%	7.7%	7.2%
Nominal vanilla WACC (FY25)	6.7%	7.6%	7.1%
Inflation (2-year regulatory period)	2.4%	2.4%	2.4%
Gamma	0.25	0.25	0.25

18 Service quality commitments

The Variation addresses the interaction between price and quality, and safeguards service quality expectations, through:

- the introduction of a utilisation management commitment to ensure that shared network resources within the transit backhaul component of the fixed line and fixed wireless networks continue to operate below an appropriate utilisation threshold. This commitment, and the associated reporting commitments, promote the LTIE through providing a transparent and robust quality of service commitment to ensure that RSPs and end-users know what to expect from **nbn** services. This will promote the take-up and use of the **nbn**™ network. The commitment also ensures **nbn**'s costs are incurred as efficiently as possible (through the appropriate utilisation threshold);
- express recognition of the service standard commitments on which new and continued prices have been set; and
- express recognition of the role of commercial negotiations and ACCC regulatory oversight in evolving service standard commitments over time.

nbn acknowledges the close interaction between price controls, revenue controls and quality measures applicable to the **nbn**™ network. This relationship was a key consideration in the ACCC Working Groups where discussions included the role of the SAU in capturing service or quality standards regarding the expected performance of services on the network. It is a standard practice within utility regulation that a network provider's allowable revenue is attached to a certain level of service quality – to ensure that the operator does not reduce service performance below the level reasonably expected by end-users in order to reduce costs and increase margins.

While **nbn** is not an unconstrained monopoly broadband provider, and faces increasing and evolving competition in its commercial operations, **nbn** considers it is important that end-users (and RSPs) have safeguards regarding expected service quality. Government policy supports this view, with the SIP framework enabling the Minister to make standards, rules and benchmarks in relation to the service performance and service levels provided by superfast broadband network operators who have been designated as SIP for a particular area (e.g., connections and repairs timeframes, appointment keeping, broadband speed). This is also supported by requirements placed on **nbn** under the TiND policy. The **nbn**™ network is the largest fixed line broadband network in Australia – built to bridge the digital divide and enhance the digital access and capability of all Australians and accordingly its RSPs and end-users rely critically on it. Having delivered on the commitment to make high speed broadband available to all Australians, it is imperative that the network's performance is maintained into the future.

The Variation addresses the interaction between price and quality, and safeguards service quality expectations, in two different ways. First, the Variation contains new commitments regarding network utilisation that effectively replace the implied quality outcomes that have previously been achieved through two-part AVC/CVC pricing. Second, the Variation expressly recognises the service standard commitments on which new and continued prices have been set, and expressly recognises the role of commercial negotiations and ACCC regulatory oversight in evolving service standard commitments over time.

Additionally, the Variation contains reporting commitments, which are set out in chapter 19 that will ensure ongoing transparency to guide the evolving service standard commitments.

Utilisation commitments

Under the current SAU, the two-part CVC/AVC price structure implies a certain level of quality. RSPs directly pay for usage of the network and CVC is delivered on a committed information rate (**CIR**) basis. This enables RSPs and end-users to have confidence regarding the bandwidth that will be made available at the network level.

With the transition to AVC-only pricing for higher speed tiers and associated changes described in section 18.1, there will no longer be a necessary and direct link between usage payments and network capacity provisioning, and CVC TC-4 will no longer be delivered on a CIR basis.

To give RSPs and end-users confidence that these changes will not lead to a degradation in network quality, the Variation includes a new utilisation management commitment. This commitment will ensure that shared network resources (the elements of the network where CVC operates) will continue to be provisioned with sufficient capacity to support the bandwidth needs of RSPs and end-users.

Detailed service levels in the WBA, complemented by continued ACCC oversight

Part of the service quality discussion in the ACCC Working Groups focused on the role of the SAU in establishing service level commitments for services supplied on the **nbn**™ network. In response to opposing views the ACCC has expressed support for inclusion of certain WBA4 service levels within the SAU.[167] As outlined in section 18.3, **nbn** maintains that these service levels are best addressed in the WBA – and that appropriate incentives and safeguards exist to ensure that end-users continue to receive the level of service that end-users should expect on the **nbn**™ network. **nbn** also submits that any failures to ensure that WBA service levels continue to be fit-for-purpose can be addressed by the ACCC through its existing regulatory powers.

18.1 Transition of CVC TC-4 from CIR to PIR

Under the changes captured in the Variation, CVC TC-4 will necessarily be provisioned on a PIR basis. This is a direct consequence of the key pricing driven changes set out in sections 18.1.1 to 18.1.3 below.

18.1.1 Zero-rating CVC for AVC-only speed tiers

As discussed in chapter 12, **nbn** has addressed RSP needs for long-term pricing certainty through the introduction of TC-4 AVC-only Offers and TC-4 Bundled Offers. In order to minimise the product and operational impact on RSPs, TC-4 AVC-only speed tiers will be implemented by zero-rating CVC TC-4 on the relevant speed tiers. RSPs will continue to be responsible for ordering CVC in relation to all **nbn**™ Ethernet services, including TC-4 AVC-only speed tiers. This will provide RSPs with the continued ability to manage throughput on their services – while removing the variable CVC charge attached to TC-4 AVC-only services.

By retaining CVC as a product and network construct, RSPs will have the choice of shaping CVC bandwidth traffic and providing network performance differentiation, or instead shaping traffic at the NNI and minimising CVC management. In addition to minimising the changes required to introduce TC-4 AVC-only speed tiers, **nbn** appreciates that maintaining control over provisioned CVC is important for RSPs. While some RSPs may prefer to 'set and forget' CVC at the maximum bandwidth available, backhaul costs or other considerations may be factors in RSPs not operating services on an uncontended basis.

[167] ACCC, *NBN Co Special Access Undertaking - Summary of industry wording group outcomes,* 22 December 2021, p. 3.

18.1.2 Utilisation-based billing to achieve simplicity

In addition to the zero rating of CVC on TC-4 AVC-only Offers, **nbn** is transitioning the billing model for CVC TC-4 so that CVC for TC-4 Bundled Offers will be charged based on CVC capacity that is utilised rather than CVC capacity that is provisioned. This provides a benefit by enabling the same CVCs to be used by RSPS for all (non-satellite) TC-4 services regardless of whether they are supplied under TC-4 AVC-only Offers or TC-4 Bundled Offers. This outcome is enabled by utilisation-based CVC billing because RSPs do not have to specify how much capacity is being provisioned for TC-4 AVC-only Offers and TC-4 Bundled Offers to enable different billing treatment. Instead, for billing purposes **nbn** will measure utilisation of capacity by TC-4 Bundled Offers and discard utilisation by TC-4 AVC-only Offers.

This shift offers significant additional benefits to RSPs, who will no longer be required to actively forecast and manage CVC provisioning to manage charges and will only be charged for CVC that is actually utilised, without idle provisioned headroom. In addition to reducing operational resourcing for CVC management, this is expected to reduce RSP costs through removing the potential that RSPs will pay for unused capacity provisioned to meet unpredictable unforecast demand.

18.1.3 Overbooking of CVC TC-4 on NNI Group capacity

In order to maximise the benefits of TC-4 AVC-only Offers, utilisation-based CVC billing, and promote efficient use of the network, **nbn** is introducing the ability for RSPs to over-provision CVC TC-4 bandwidth such that the sum of the TC-4 CVC bandwidth may exceed capacity of the NNI Group (as defined in the WBA) with which a group of CVCs is associated. In addition to simplifying provisioning requirements, this will increase the potential for more traffic to move efficiently from the RSP network to the **nbn**™ network.

This is shown in Figure 7 below. Today, total CVC bandwidth cannot exceed capacity of the associated NNI Group. For example, a RSP may connect 10 CVCs of 1GB each to a 10GB NNI as the combined CVC total is equivalent to the capacity of the NNI. This ensures that each of the CVCs could operate at full capacity and not be constrained by the NNI. While this provides certainty in relation to the bandwidth allocated to each CVC, the restriction may result in certain inefficiencies if particular CVCs are operating at full bandwidth while others on the same NNI are underutilised but contributing to the NNI capacity available.

Under the amended construct, total bandwidth of all TC-4 CVCs connecting to an NNI may exceed the capacity of that NNI Group. The benefits to both RSPs and end-users of this change are clear: allowing RSPs more control, reducing operational inefficiencies, optimising the use of available capacity and potentially reducing RSP costs which could be passed onto end-users. While there may be RSP specific factors that lead RSPs to not implement overbooking TC-4 CVCs on an NNI (e.g., backhaul costs), enabling the overbooking capability is an important and significant change accompanying the TC-4 AVC-only Offers and TC-4 Bundled Offers that are committed to in the Variation.

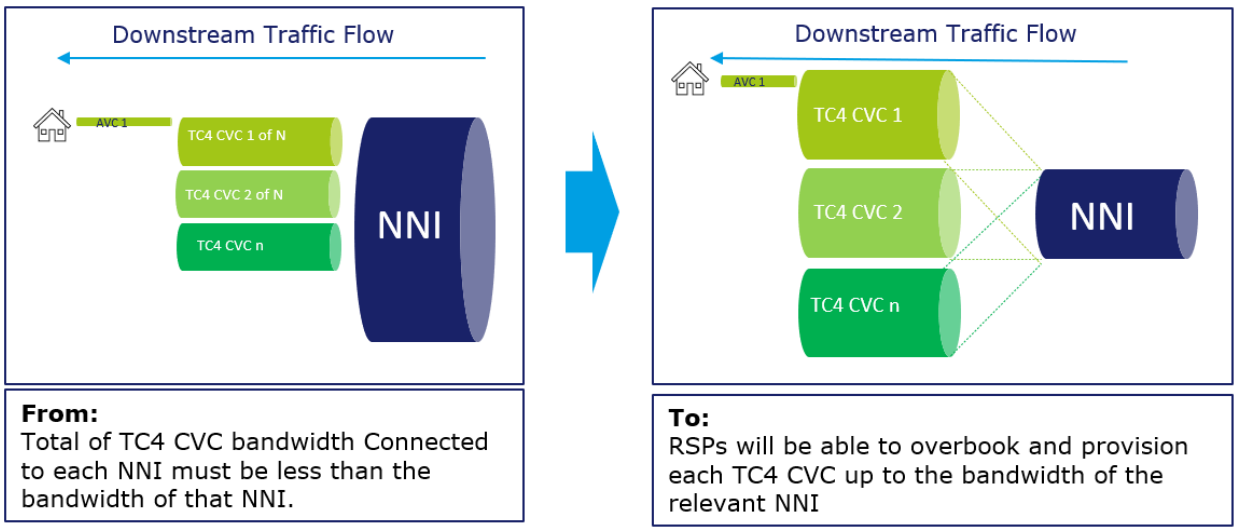

Figure 7. CVC From/To Provisioning diagram

Making this change necessarily means that CVC TC-4 is no longer delivered as CIR. For example, overbooking of the NNI Group means that individual TC-4 CVCs will not be able to all operate at their full 'ordered' bandwidth in the circumstance where each TC-4 CVC is provisioned to match the capacity of the NNI. As a consequence of allowing aggregate CVC TC-4 capacity to exceed the capacity of the NNI, with the benefits discussed above, CVC capacity is delivered as peak information rate (**PIR**) rather than CIR. This change to CVC TC-4 is included in the Variation and **nbn** proposes to make consequential changes to the WBA as part of a package of changes to implement the Variation upon its acceptance.

Beyond RSP management of the relationship between CVC and NNI to minimise contention in their network, the next potential contention point to consider as a result of the PIR change to TC-4 CVC is the underlying capacity of the **nbn** transit network. It is therefore important that the capacity of the transit links continue to provide sufficient capacity to accommodate the potential demand – without creating capacity commitments that would generate inefficient investment in the network.

The quality commitment described in section 18.2 ensures that **nbn** will continue to manage and augment the network to provide sufficient capacity in the delivery of services with the move to a PIR commitment for TC-4 CVC.

18.2 Network utilisation management commitment

The network management practices implemented by **nbn** to date have allowed **nbn** to deliver a world-class network with negligible network congestion, even under the 35%+ increase in traffic experienced during COVID-19 lockdowns in 2020 and 2021. This is evidenced by congestion figures that are reported under **nbn**'s Monthly Progress Report, which show that over the 12-month period from 1 January 2020 approximately 0.0637% of premises on the fixed line network may have experienced some degree of congestion unrelated to RSP decisions of CVC provisioning, a figure that is reduced to 0.0068% over the 12-month period from 1 January 2021. Notably in six of the months over this latter period, **nbn** recorded that 0% of premises on the network should have experienced non-CVC related congestion.[168]

[168] See: https://www.nbnco.com.au/corporate-information/about-nbn-co/updates/dashboard-january-2022 (accessed 17 March 2022).

The impact on **nbn**'s transit links of the transition to TC-4 AVC-only pricing and overbooking of TC-4 CVC on NNI is difficult to accurately predict, but it is critical the SAU establishes an appropriate service quality metric that:

- **provides confidence in the ongoing capacity of the network:** the service quality commitment should ensure that RSPs and end-users continue to have access to a service that meets customer expectations. The commitment should provide appropriate incentive for **nbn** to continue augmenting capacity in the network to address increasing demand on the network;
- **avoids inefficient investment in the network:** while ensuring there is appropriate headroom in the transit network, it is important that the service quality commitment does not require capacity augmentation before it is reasonably required. This could lead to inefficient capex spend if **nbn** is obliged to increase transit capacity too early or in response to infrequent or unreasonable use of the network; and
- **operates at an appropriate level of the network:** the SAU should contain a service quality commitment that is effective but not overly prescriptive in relation to service performance. Service offerings evolve over time, and it would be counterproductive for the SAU to lock-in the specifics of these offerings – potentially inhibiting changes that could be in the interests of customers and the industry more broadly. In the future, to the extent that **nbn** proposed changes removed functionality or features of an existing service offering, the product withdrawal provisions of the SAU provide an essential protection for RSPs and end-users.

In addition to the existing service quality commitments (e.g., expected speed capability of particular speed tiers and whether services are offered on a CIR or PIR basis) and clarity regarding the technical design of the network (the role played by the Network Design Rules) **nbn** has therefore established the utilisation management commitment set out in section 18.2.1 below. **nbn** considers that this quality commitment strikes the appropriate balance of providing RSPs and end-users with confidence in minimal congestion on the **nbn**™ network, avoiding inefficient investment, and operating at a sufficiently high level to allow **nbn**™ Ethernet to evolve in response to industry and end-user needs over time.

18.2.1 Utilisation management commitment

In recognition of the importance to RSPs and end-users of the reliability and scalability of the **nbn**™ network, particularly with the introduction of AVC-only services, and utilisation-based billing for CVC TC-4, **nbn** will introduce new commitments in the SAU requiring **nbn** to take corrective measures where utilisation of its shared network resources exceeds a specified threshold. Specifically, these commitments will apply where utilisation of certain shared network resources in the transit backhaul network exceeds 95% for 15 minutes or more on three separate days in a 30-day period.

nbn also commits in the SAU to produce regular reporting regarding **nbn**'s network augmentation activities to give RSPs confidence that **nbn** is continuing to invest in the **nbn**™ network.

The Variation introduces a new utilisation management commitment in the SAU in relation to the transit backhaul component of the **nbn**™ network.[169] Under the Variation the utilisation commitment will apply to the following shared network resources within the transit backhaul component of the fixed line and fixed wireless networks:

- **NBN Co Fibre Network and NBN Co FTTC Network:** Network between the POI and the optical line terminator.

[169] The WBA also makes commitments regarding these components of the network, in section 15.4 of the **nbn**™ Ethernet Service Levels Schedule and discussed in section 18.2.2. The WBA commitment will be aligned with the SAU utilisation management commitment following acceptance of the Variation.

- **NBN Co FTTB Network and NBN Co FTTN Network:** Network between the POI and the access aggregation switch.
- **NBN Co HFC Network:** Network between the POI and the cable modem termination system.
- **NBN Co Wireless Network:** Network between the POI and the combined packet gateway.

Under the new utilisation management commitment if utilisation of a shared network resource exceeds a 95% utilisation threshold (according to the calculation methodology set out in 18.2.2.1), **nbn** must within 15 Business Days take such measures as it considers appropriate to return the shared network resource to below the utilisation threshold, subject to certain exclusions e.g., that network use is inconsistent with the WBA or one off events that drive unanticipated network utilisation. The 95% threshold is not intended to function as the business-as-usual trigger for **nbn** to commence augmentation on all shared network elements. Rather, **nbn** will continue to monitor and manage shared network resources with the aim of ensuring they do not exceed the 95% threshold – but the utilisation commitment will operate to ensure that augmentation occurs within an appropriate timeframe in the event that this threshold is exceeded.

This commitment will be accompanied by reporting on shared network resources exceeding 95% utilisation, including planned augmentation to address shared network resources that remain above 95%. **nbn** will also provide quarterly reporting on augmentation activity undertaken in the preceding three-month period, to provide increased transparency regarding continued investment in network capacity and performance.

nbn considers that the utilisation commitment ensures a level of performance which strikes an appropriate balance between efficient use of the **nbn**™ network and efficient investment in the network.

18.2.2 Utilisation metric focused on transit network

As noted above, the inclusion of a utilisation metric within the SAU is a consequence of the transition in the pricing construct to include TC-4 AVC-only Offers and the correlated change in the nature of TC-4 CVC from CIR to PIR. As CVC is a function of the transit network, it is appropriate that the utilisation metric is specific to this part of the network – identified in Figure 8 below.

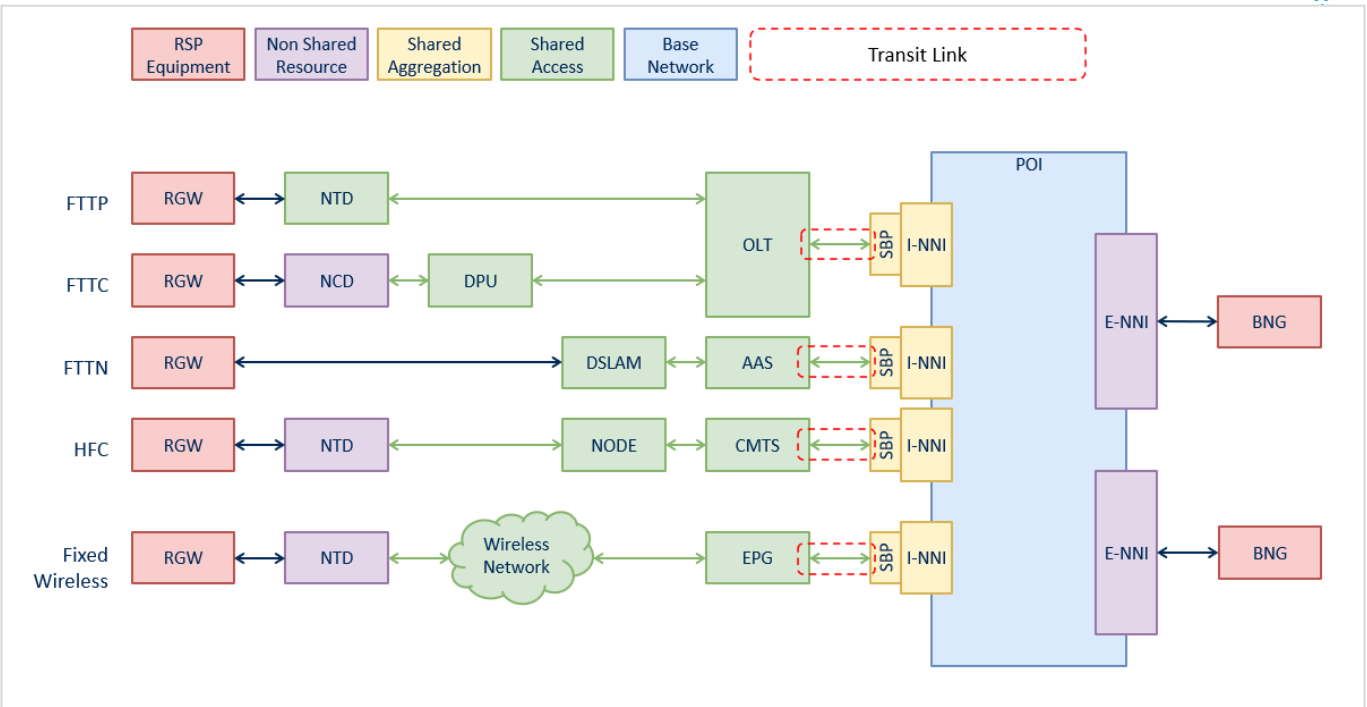

Figure 8. Transit network

In its Framing Paper released in June 2021 the ACCC noted that "aspects of technical quality have been controlled by access seekers via connectivity virtual circuit (**CVC**) and network to network interface (**NNI**) purchase decisions. This includes the busy hour speed and other performance characteristics that access seekers can provide to their customers."[170]

This interpretation of the role of CVC, as a RSP controlled determinant of service quality, is an accurate characterisation. The amount of CVC provisioned by RSPs in a given CSA will impact the bandwidth available to each service in that CSA. It is therefore important to understand any changes to how CVC operates when TC-4 AVC-only services are introduced, and whether there is a transition in the control of service quality from RSPs to **nbn** that would warrant a performance commitment from **nbn** to ensure end-users on the network continue to receive the quality of service provided under the existing CVC-AVC price construct.

CVC is ordered in respect of a particular NNI at a POI and effectively determines the capacity available to a RSP in the transit links identified in the above diagram. As noted, CVC will still be ordered by RSPs under the existing operational process and therefore RSPs will still control the level of CVC available to their customers in a particular CSA. However, as CVC will no longer be provisioned on a CIR basis, there will be an enhanced focus on the capacity **nbn** provides at this part of the network. If the transit links or shared network resources identified in section 18.2.1 are provisioned with sufficient capacity, the transition of higher speed tiers to TC-4 AVC-only Offers will not result in a degradation in the performance of these services.

18.2.2.1 Measuring utilisation

nbn will measure utilisation of a shared network resource based on the average utilisation in consecutive 15-minute periods, as shown in Figure 9. A shared network resource will be considered to have exceeded the 95%

[170] ACCC, *ACCC Industry Roundtable on regulatory arrangements under NBN Co's Special Access Undertaking*, June 21, p. 5.

utilisation threshold if the 15-minute average utilisation exceeds 95% on at least three separate days within a rolling 30-day period.

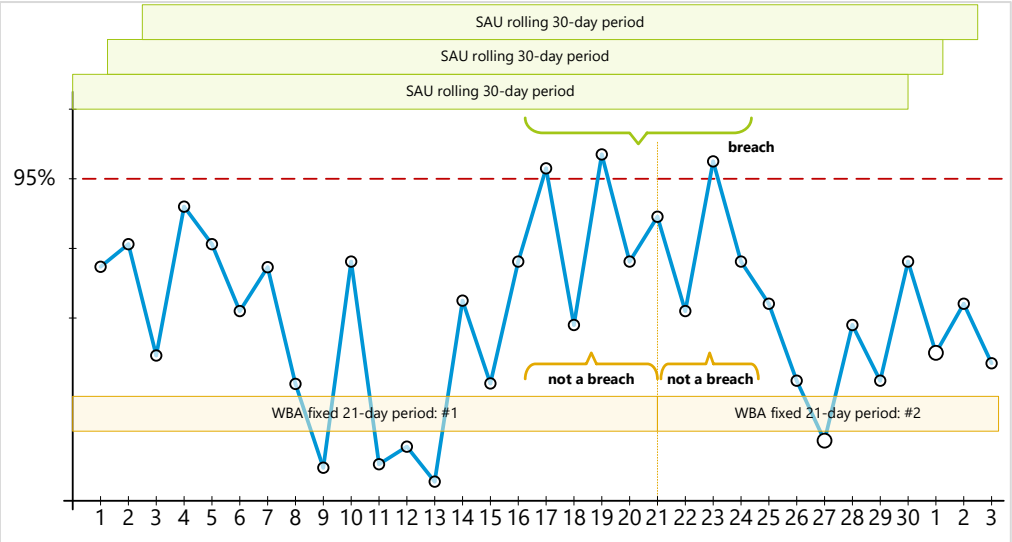

Figure 9. Utilisation measurements

When compared with the method for measuring against the existing utilisation threshold in WBA4, measuring utilisation based on these rolling periods provides a more comprehensive view of utilisation events that could cause potential congestion on the network. While the WBA utilisation threshold is lower at 70% (discussed further in section 18.2.3 below) that calculation is based on a fixed 21-day window. The Variation offers the following improvements:

- **nbn** is widening the measurement window from 21 days to 30 days, which will increase the scope of events that may constitute potential congestion on the network; and
- where the first or first two events of utilisation exceeding the utilisation threshold occur at the end of the fixed 21-day period under the WBA, these cannot be combined with events in the subsequent 21-day period to trigger the relevant performance objective. By applying a rolling window, as the new SAU utilisation commitment does, the equivalent scenario would trigger augmentation requirements (subject to any applicable exceptions) as long as the first event was within 30 days of the third event. Again, this increases the number of events (where the utilisation threshold is exceeded) that may cumulatively constitute congestion on the network.

18.2.3 Determining the utilisation threshold

Determining the appropriate Utilisation Threshold is critical to ensuring that quality of service and customer experience is maintained while avoiding inefficient investment in the network from capacity upgrades triggered too early. Implementing a threshold of 95% is based on: (a) the historical performance and experience of the **nbn**™ network; (b) international standards established by the Metro Ethernet Forum; and (c) comparison with the New Zealand market.

a. **Historical performance and experience of the nbn™ network:** Since **nbn** launched its **nbn**™ Ethernet service in 2011, **nbn** has committed under the WBA to upgrading shared network resources when utilisation exceeded 70%.[171] This upgrade threshold was implemented during the early stages of the **nbn**™ network rollout when:

- migration onto the network was more dynamic and involved greater variation in the number of services being added to a particular CSA in a given week or month;
- network demand and usage patterns were significantly less predictable as demonstrated by the significant increase in demand on the network generated by video on demand services; and
- the size of transit links was smaller. As transit links have increased to a standard of 10Gbps, the impact of a spike in traffic is less pronounced than on historically smaller links. That is, today's larger transit links can run at a higher utilisation threshold as the available capacity on a 10Gbps link running at 90% utilisation is 1Gbps vs a 1Gbps link running at 90% utilisation that would only have 100Mbps capacity available.

A 70% threshold was not based on the performance impacts that may occur at that level. Rather, it was implemented as a highly precautionary measure in the event that mass migration, combined with evolving usage patterns and the historical size of transit links, led to the number of services in a particular CSA escalating without **nbn** having sufficient time to respond to address the potential impact on capacity.

This 70% threshold may still provide a useful leading indication of network utilisation that **nbn** should continue to consider internally for capacity planning, but as migration onto the network has stabilised, it is unlikely that new services attached to a particular shared network resource would be activated at such an accelerated volume to require that **nbn** ensure no shared network resource exceeded 70%. Rather, implementing this utilisation threshold under the SAU, particularly in conjunction with the more representative measurement windows described in section 18.2.2.1, would embed a threshold that would lock in long-term unnecessary network augmentation and cost.

b. **Metro Ethernet Forum:** The MEF-23.2 Standard, albeit it a few years old, provides some guidance on what (frame loss) applications can tolerate (e.g., interactive video: 1%, STD/HD video: 0.1%).[172] This is at least in the same order of magnitude as the frame loss Chorus observed on its network over the 90-95% utilisation point.[173] Today applications like Netflix are using all kinds of innovative approaches to operate under even worse conditions. While **nbn** would endeavour to avoid such conditions becoming persistent in its network, it demonstrates that should they occur in rare occasions where demand from multiple end-users is at exactly the same sub-second time interval, impact on the end-user will not be severe. It is only when utilisation persistently exceeds 95% that frame loss becomes sufficiently large to disrupt most of the modern applications used by the majority of end-users on the network.

As noted above, **nbn** will continue to utilise leading triggers to identify where shared network resources should be augmented; with the intention to avoid resources exceeding the threshold. The SAU commitment then provides a safeguard as to the steps **nbn** must take in the instance that a resource passes this threshold.

[171] Section 15.4(b) of the WBA **nbn**™ Ethernet - Service Levels Schedule.

[172] Metro Ethernet Forum, *Implementation Agreement MEF 23.2, Carrier Ethernet Class of Service – Phase 3*, August 2016.

[173] Chorus, *Congestion Free Networks - Technical White Paper*, 2016, p. 11. Access: https://sp.chorus.co.nz/node/2207.

c. **Comparison with New Zealand:** While there are key points of distinction, the Chorus network in New Zealand provides a useful comparison to the proposed utilisation management commitment **nbn** will implement under the Variation. Chorus has historically operated its fibre and copper networks network on the basis of a 95% maximum utilisation threshold with respect to port utilisation.[174]

   While the NZCC has mandated a 90% maximum utilisation threshold in its recent price-quality determination[175], **nbn** considers that 95% is the appropriate maximum threshold – consistent with the view put forward by Chorus in that process. While end-users may experience some level of performance impact as utilisation approaches 95%, and 90% may again provide a key internal indicator for network operators regarding limited headroom, the anticipated impact on services at 90% should be minimal.[176]

   When considering the recent price-quality regulation established for Chorus and comparison to **nbn**'s utilisation commitment, it is critical to acknowledge the evolving product and pricing construct underlying **nbn**'s Variation – the impacts of which will not be known for certain until the changes have been implemented and tested over a period of time.

18.3 Relationship between service levels and the SAU

Broadly, **nbn**'s current SAU does not contain service standards or service levels. Instead, service levels are set in **nbn**'s WBA and determined through commercial negotiations between RSPs and **nbn**. **nbn** maintains the view that this is the most appropriate mechanism for determining detailed service levels.

18.3.1 Importance of commercial negotiation

The approach under the current SAU ensures that detailed operational considerations that inform, and give meaning to, **nbn**'s service standards are appropriately set by commercial negotiation. For example, in the lead up to WBA4 negotiations, RSPs and **nbn** worked closely to develop processes and service levels to address "performance incidents" – these are primarily service issues that are intermittent or inconsistent and which require a different approach to monitoring and issue isolation than standard service faults, and which therefore require different service levels and process flows as between end-users, RSPs and **nbn**. Committing to these service levels in the WBA required changes to existing service level definitions and commitments for standard faults. **nbn** continues to expand and improve on its performance incident service levels and other fault and incident related commitments which may be reflected in future WBAs.

Setting out service levels in the SAU, even as a baseline — as considered in the ACCC Working Groups – would hamper such developments, unduly restricting the benefits of commercial flexibility that Part XIC – the regulatory framework in the CCA – seeks to establish by placing access agreements at the top of the legislative hierarchy of supply terms. Further, given that the WBA includes detailed service level commitments across a range of issues informed by the recent ACCC Wholesale Service Standards Inquiry, there should be no suggestion that WBA

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[174] Chorus, *Congestion Free Networks - Technical White Paper*, 2016. Access: https://sp.chorus.co.nz/node/2207.

[175] NZCC, *Chorus' price-quality path from 1 January 2022 – Final decision – Reasons paper,* 16 December 2021. Access: https://comcom.govt.nz/__data/assets/pdf_file/0028/273475/ChorusE28099-price-quality-path-from-1-January-2022-Final-decision-Reasons-paper-16-December-2021.pdf. To comply with the performance quality standard for a regulatory year, the percentage of Chorus's aggregation ports experiencing port utilisation, upstream or downstream, equal to or exceeding 90% in any five-minute interval in one or more calendar months, must not exceed 0.12%.

[176] Chorus, *Submission on price-quality path draft decision (public version),* 8 July 2021, access: https://comcom.govt.nz/__data/assets/pdf_file/0026/259352/Chorus-Submission-on-Chorus-price-quality-path-from-1-January-2022-draft-decision-8-July-2021.pdf; Chorus, *Cross-submission on Price-Quality draft decision*, 3 August 2021, access: https://comcom.govt.nz/__data/assets/pdf_file/0022/262237/Chorus-Cross-submission-on-Fibre-PQ-draft-decisions-5-August-2021.pdf.

service levels are inappropriate for current circumstances. Further embedding those service levels for a longer term in the SAU would constrain future negotiations without guaranteeing countervailing benefits.

This is consistent with the ACCC's response to the SAU lodged by **nbn** in 2012 (which was later withdrawn) which included provisions regarding service levels. **nbn** removed those provisions in the SAU it lodged in 2013 (which was accepted by the ACCC) following suggestions made by the ACCC in its draft decision on the 2012 SAU. At the time, the ACCC stated that removal of those provisions would facilitate effective commercial negotiation and allow such terms to be the subject of later ACCC regulatory determinations. The same commercial and regulatory settings continue to be appropriate, due to the continuing evolution of the **nbn**™ network and industry processes and technologies for service delivery and assurance activities with the potential for increasing customer satisfaction and greater efficiency.

If **nbn** and RSPs fail to agree appropriate service levels beyond WBA4, the option of committing to further service levels in the SAU in future Regulatory Cycles would remain open.

The Variation supports both future commercial negotiations and any necessary regulatory determinations through reporting commitments discussed in chapter 19 below.

18.3.2 Appropriate regulatory backstops will continue

To supplement the significance placed on commercial negotiation, it is appropriate that regulatory mechanisms exist which ensure that if regulatory action is required to address market failures in relation to service levels, this can be addressed. In this respect, two key mechanisms exist to ensure service levels meet consumer expectations:

- **Statutory Infrastructure Provider:** As to a regulatory "backstop" in the short term, **nbn** notes the Government is currently consulting on standards, rules and benchmarks under the legislative SIP framework. To the extent that the Government determines it is necessary, those standards, rules and benchmarks are likely to impose a regulatory baseline for service standards.
- **ACCC powers:** Under the current regulatory structure, the ACCC plays a key role in ensuring that service levels, and the consequences of complying with these service levels, are appropriate. **nbn** notes that as a result of the negotiation of WBA4 and the finalisation of the ACCC's Wholesale Service Standards Inquiry in 2020, significant RSP favourable changes were delivered regarding service level performance and rebates payable for missed service levels. From this baseline, **nbn** expects that future WBA negotiations will continue to deliver well-calibrated evolutions for service levels that provide improved end-user outcomes on an efficient basis. By allowing for such evolution to occur without including detailed service levels in the SAU, the ACCC's ability to make determinations to rectify any future WBA negotiation failures is also preserved.

18.3.3 Pricing approach linked to service levels

The Variation expressly recognises the well-established relationship between quality and price by expressly stating that the price and Maximum Regulated Prices for **nbn**'s core regulated products have been set by reference to the service standard commitments contained in the WBA. This makes explicit the link between quality and price and sets a baseline that allows for any future change to price or quality (whether through commercial negotiation or regulatory determination) to be considered holistically. More specifically, the Variation allows for improved service standard commitments negotiated by RSPs and **nbn** to be accounted for in the SAU through cost pass-through adjustments to **nbn**'s permitted revenue requirements and Maximum Regulated Prices as discussed in section 14.5.

19 Service level reporting and transparency

In recognition of the importance to RSPs and end-users of the reliability of the network, and to provide a transparent fact base to inform the future evolution of WBA service levels, **nbn** will commit to a wide range of reporting on the performance of the **nbn**™ network for **nbn**™ Ethernet, including network capability to achieve certain speeds, network congestion, outages, service faults and performance incidents, recurring faults, right first-time installations and network availability.

Newly introduced reports on network capability, outages and recurring faults will be provided to the ACCC on a six-monthly basis, while existing monthly reports that **nbn** provides in relation to congestion, network availability and connection and assurance performance will continue to be provided to RSPs or published on **nbn**'s website.

These commitments promote the LTIE and address the outcomes of the ACCC Working Groups. Specifically, an enhanced service standards reporting framework will provide a transparent, clear and robust quality of service basis to ensure that RSPs and end-users know what to expect from **nbn** services and support their evolution over time. This will promote the take-up and use of the **nbn**™ network.

Reporting on the **nbn**™ network and service performance at a network level is a key change introduced in the Variation, and one which complements the service quality commitments discussed in chapter 18. **nbn** already provides extensive reporting to RSPs regarding performance against WBA service levels, and public reporting regarding key performance metrics on the **nbn** website. Beyond this existing reporting, industry consultation has highlighted that embedding enhanced transparency commitments in the SAU will provide industry and the ACCC with increased confidence in the long-term performance of the network. Details of the new reporting commitments under the Variation are set out in section 19.2 below.

19.1 Objective of SAU reporting commitments

In determining what reporting commitments should be included in the SAU, it is essential that the underlying purpose of those commitments is clear. The fundamental role of any SAU reporting commitment is to demonstrate an appropriate minimum level of performance on the network is maintained. As with minimum quality standards – such as the newly proposed utilisation management threshold – regulatory commitments to report on network performance are intended to protect RSPs and end-users from any commercial incentive to reduce maintenance costs or investment in network upgrades, resulting in reduced network quality. It promotes the LTIE for the ACCC and RSPs to have visibility over appropriate network performance measurements as a check that investment to maintain quality (which will need to be recovered through pricing) is effective in maintaining network performance.

On this basis, **nbn** considers the following network performance indicators are central to demonstrating the **nbn**™ network continues to meet a minimum level of performance:

a. Ability of the network to support designated speeds;

b. Capacity of the **nbn**™ network to support the volume of services supplied (i.e., potential congestion on the network);

c. Volume and impact of intentional outages;

d. Availability of the **nbn**™ network;

e. Performance of **nbn** in connecting services;

f. Performance of **nbn** in assuring services; and

g. Volume of services experiencing recurring faults.

In determining appropriate reporting on these network performance indicators, it is important that enhanced transparency reflects the existing commitments and performance of the **nbn**™ network. While **nbn** continually works with RSPs to improve customer experience, embedding performance commitments above those that exist in the SAU and current WBA will drive additional cost into **nbn**. If through consultation on the Variation or WBA RSPs are seeking different performance commitments, the impact on costs would need to be reflected in revised forecasts or a cost pass-through application (see sections 17.6 and 14.5.3 respectively). The proposed reporting commitments set out in section 19.2 are therefore based on **nbn** delivering on existing performance objectives in the WBA and otherwise continuing to achieve existing performance levels.

19.2 New SAU reporting commitments

nbn has reviewed in detail reporting proposals put forward through the ACCC Working Groups against existing reporting processes, with a view to determining what additional commitments may be appropriate to include in the SAU. Based on the network performance indicators outlined in section 19.1, **nbn** is committing in the Variation to the following reporting for the **nbn**™ network in respect of **nbn**™ Ethernet:

a. **Network capability:** **nbn** will provide a six-monthly report to the ACCC outlining the number and percentage of **nbn**'s fixed line network capable of achieving specified speeds (i.e., 50Mbps, 100Mbps, 1Gbps). Due to the varied speeds available on copper-based services, premises serviced by FTTN/B/C without an active service are necessarily subject to a calculated estimate when **nbn** reports on the availability of these speeds on the network. **nbn** will also report on the actual number of premises receiving an active service on the fixed line network which were capable of achieving the same specified speeds.

b. **Network congestion:** **nbn** will continue to provide monthly progress reporting on its public website in relation to potential congestion experienced on the network. This includes:

- average network bandwidth congestion (potential congestion experienced on the network as a result of CVC provisioned by RSPs);
- fixed line network congestion (potential congestion experienced on the fixed line network other than as a result of CVC-related network bandwidth congestion);
- fixed wireless busy hour cell performance (the percentage of cells with a monthly busy hour cell performance of 6Mbps or more); and
- fixed wireless busy hour backhaul performance (the percentage of cells connected to a backhaul transmission link with a 28-day busy hour packet loss of less than 0.25%).

c. **Intentional outages:** **nbn** will provide a six-monthly report to the ACCC outlining the number of intentional outages (planned and emergency) which occurred within the reporting period, including the number of services impacted, the percentage of planned outages that met notification requirements, and the percentage of planned outages restored within the scheduled maintenance window.

d. **Network Availability:** **nbn** will continue to provide monthly reporting to RSPs (available to the ACCC on request) in relation to its performance against the Network Availability performance objectives contained in the WBA. This is intended to reflect the reliability of the **nbn**™ network by measuring, as unavailable time, the time during which ordered products supplied across the **nbn**™ network experience total loss of connectivity (with separate calculations reported for the satellite network). The performance objectives exclude interruptions to connectivity due to the following circumstances, which do not reflect the reliability of the **nbn**™ network:

   - interruptions to connectivity that do not reflect the resilience of the **nbn**™ network, such as planned outages and emergency outages; and
   - failures that occur due to factors outside of **nbn**'s control such as force majeure events.

e. **Performance of nbn in connecting services:** **nbn** will continue to provide monthly reporting on its public website in relation to its installation and connection performance. This includes:

   - right first-time installations (the percentage of homes and businesses that have their **nbn**™ equipment installed without additional work from **nbn** the first time the installation is attempted); and
   - faults after connection completed (the percentage of faults on the **nbn**™ network per month excluding faults within 10 Business Days of the connection).

f. **Performance of nbn assuring services:** **nbn** will continue to provide monthly reporting to RSPs in relation to its performance against the Service Fault Rectification and End User Incident rectification performance objectives in the WBA.

g. **Recurring faults:** **nbn** will provide the ACCC with a six-monthly report outlining the number of recurring faults on the **nbn**™ network (including any three or more end-user faults affecting a single ordered product in a 60-day period or any four or more end-user faults affecting a single ordered product in a 12-month period).

It is important to note that when considering network performance, reporting certain fluctuations between individual reporting periods should be expected. Seasonal impacts, and one-off events, should be taken into consideration and trends considered against previous years, not solely between consecutive reports. This complete view is necessary to ensure that, for example, short term seasonal impacts are not interpreted as a trend.

The reporting commitments are made with respect to the remainder of the Initial Regulatory Period and First Regulatory Cycle, with the expectation that similar or evolved reporting commitments will form part of subsequent Regulatory Cycles.

19.3 Operational commitments beyond the role of the SAU

As part of the industry consultation, there were proposals put forward for SAU reporting commitments that went beyond transparency of performance at a network level (e.g., investment to enhance operational support systems to provide real time view of congestion on all links of the **nbn**™ network and services impacted). While **nbn** understands the need to provide RSPs with appropriate information to support RSP interactions with customers and identify potential issues with a given service, enhancements in this area should continue to be addressed through PDF consultation and commercial negotiation – not through embedding of new operational requirements under the SAU.

Under the existing SAU framework, **nbn** has continued to develop enhancements to operational systems to support RSPs in ensuring that customers receive the service that they pay for. The various operational and reporting enhancements that **nbn** has introduced include:

a. **Site Qualification (SQ) Estimated Speed (Layer 2 Estimated Line Rate upstream and downstream):** This functionality is available by performing a site qualification for a location in respect of available **nbn** products (and is typically utilised by RSPs at the point of sale). It provides an estimate of the performance capability of the network for a FTTN, FTTB or FTTC location for RSPs. An estimation is needed for these copper-based networks as **nbn** cannot definitively determine performance capability on individual links of such a network while it is not delivering an active service.

b. **Dynamic Site Qualification (DSQ):** This functionality utilises an interpolation of 21 days of observed service performance data once a service has been activated, which enables **nbn** to update the SQ estimates for the relevant downstream and upstream achievable line rate at that location. The observed line rate data is translated into the new DSQ estimated speed range, which replaces the minimum and maximum SQ estimated speed range values otherwise provided.

c. **Actual Layer 1 Data Rate Downstream/Upstream (FTTN/FTTB/FTTC), and Attainable Layer 1 Data Rate Downstream/Upstream (FTTN/FTTB, not relevant for FTTC):** This functionality is available via the **nbn**™ Test & Diagnostics Platforms. It was built to enable RSPs to investigate performance and assure **nbn**™ services. The functionality can be used by RSPs to extract performance data for each of their active FTTN/FTTB/FTTC services. For FTTN and FTTB, the Line State Diagnostics (**LSD**) and Line Quality Diagnostics (**LQD**) tests retrieve the latest line rate information for a service. For FTTC, the DPU port status test enables this information to be retrieved. When initially introduced, this test enabled the RSP to test whether a service achieved the maximum rate for the 25-50/5-20Mbps or 25-100/5-40Mbps speed tiers. In March 2019 the test was enhanced to report on the actual line rates achieved.

d. **Service Health Summary FTTN/FTTB/FTTC:** **nbn**'s service health summary provides an improved and simplified interface via the **nbn** Service Portal and Application Programming Interfaces (**APIs**) for retrieving service health information for a given service. This includes the relevant line rate information for FTTN, FTTB and FTTC services.

e. **Weekly FTTN/FTTB/FTTC Speed Reports (per RSP):** **nbn** provides a weekly speed report to each RSP on-boarded to acquire FTTB, FTTN and FTTC services. The report contains all the RSPs' services in operation. This report contains summary information of the layer 1 speeds which each FTTN and FTTB service is achieving on the **nbn**™ network measured for each service. This provides RSPs with an ongoing summary of the performance of their services without the need to query the **nbn** Test and Diagnostics or SQ platforms where the information is also available.

f. **Enhanced Weekly FTTN/FTTB Service Reports (per RSP):** This report provides RSPs with an enhanced version of the weekly line rate reporting. This includes additional fields including the seven-day rolling average of the downstream and upstream attainable line rates for each service as well as new fields that estimate the percentage of the theoretical optimal or maximum information rate for the provisioned speed tier range achieved by the service based on the downstream seven-day rolling average attainable net data rate. For example, a 25-100/5-40Mbps service achieving an average attainable net data rate of 80Mbps in the downstream would be reported as achieving approximately 80% of the maximum information rate for the provisioned speed tier.

g. **FTTN/FTTB/FTTC Service Health Reporting:** In June 2020, **nbn** made available the line rate information from the weekly line rate reporting in the new strategic Service Health Reporting framework. This enabled RSPs to move out of the historical file sharing portal and consume the information in modernised interfaces, including via APIs if desired, enabling improved integration of the report data into RSP systems and processes. The reports also made the data available daily rather than weekly, with RSPs able to retrieve up to 30 days of historical records. In April 2021 **nbn** introduced the rolling seven-day average actual line rates downstream and upstream for FTTC Service Health Reporting.

nbn maintains that the Variation should not be used to embed additional commitments in relation to operational support systems and processes. The SAU already establishes an appropriate baseline that **nbn** must deliver with respect to ordering and assurance systems (the NBN Co Platform Interfacing Service) commitments, and RSPs are protected from changes that would remove or negatively impact existing service portal and B2B functionality through the existing PDF consultation requirements and product withdrawal requirements under the SAU.

20 nbn proposes an expanded role for the ACCC

The legislative framework provides for an SAU to confer functions and powers on the ACCC, to be exercised and performed in accordance with the relevant SAU.

nbn proposes that the ACCC have the ability to perform functions and exercise powers to review **nbn**'s investments, cost pass-through events and changes to existing pricing constructs proposed by **nbn**; disallow the categorisation of, and re-classify, new products into Core Regulated Services and Competitive Services; and to conduct a review to determine whether **nbn**'s revenue control and system of individual price caps should be replaced with a WAPC.

These proposed functions and powers are complementary and additional to the existing functions and powers the ACCC has under the SAU that will continue until 2040.

Part XIC provides that an SAU may confer functions and powers on the ACCC, and that the ACCC may perform such functions, and exercise such powers, in accordance with the relevant SAU.[177] This is "intended to permit special access undertakings to operate flexibly, by ensuring that an undertaking can provide for the ACCC to make decisions on particular matters at a future time".[178]

The current SAU provides the ACCC with several specific functions and powers, including:

- to make a determination to change the Maximum Regulated Price of a new product or the Maximum Regulated Price of a new Other Charge within 24 months of introduction;
- to review and change **nbn**'s Maximum Regulated Prices in a revenue neutral manner; and
- to veto the withdrawal of an **nbn** service.

These roles give the ACCC the ability to directly address inefficient pricing and unreasonable product withdrawals. Their application is limited under the SAU to services supplied by **nbn** over its FTTP, Fixed Wireless and satellite networks. **nbn** proposes, in this Variation, to extend the operation of these roles to all of **nbn**'s technologies, including the multi-technology mix networks (i.e., FTTC, FTTN, FTTB and hybrid fibre coaxial (**HFC**)).

The Variation also proposes the following material functions and powers for the ACCC in addition to the ACCC's current and ongoing roles under the SAU:

- ex-post capex review;
- supervisory role regarding cost pass-through events;
- review any changes to existing pricing constructs proposed by **nbn**;
- disallow the categorisation of, and re-classify, new products into Core Regulated Services and Competitive Services and the consequential cost allocation flowing from that; and
- ability to conduct a review to determine whether **nbn**'s revenue control and system of individual price caps should be replaced with a WAPC.

[177] CCA, s 152CBA(10A).

[178] Explanatory Memorandum to the *Telecommunications Legislation Amendment (Competition and Consumer Safeguards) Bill 2010*, p. 203. See also the Final 2013 Decision, pp. 23, 54.

20.1 Ex-post review

nbn proposes to combine the SAU's current ex-ante forecasting approach with an ex-post capex review role for the ACCC. This will give the ACCC the ability to scrutinise the efficiency and prudency of **nbn**'s investments, providing further incentives for **nbn** to incur costs efficiently.

The current SAU provides indicative rules for rolling forward **nbn**'s RAB in the period in which the ICRA has been extinguished and **nbn** is subject to a binding revenue cap set by reference to the ABBRR. Those rules provide that:

- where **nbn**'s actual capex is *less* than the forecast capex allowance for a given Regulatory Cycle, all actual capex for that cycle will be rolled into the RAB; and
- where **nbn**'s actual capex *exceeds* the forecast capex allowance for a given Regulatory Cycle, then at least the forecast capex allowance for that cycle will be rolled into the RAB, and any capex in excess of the allowance may be rolled into the RAB at the discretion of the ACCC, in accordance with any powers conferred on the ACCC for that Regulatory Cycle.[179]

nbn considers that such rules would be a reasonable position to adopt in the Variation as part of introducing a binding revenue cap before the ICRA is extinguished. However, following discussions with the ACCC including as part of the ACCC Working Groups, **nbn** now proposes that the ACCC have the ability to conduct ex-post reviews of **nbn**'s capex at the end of each Regulatory Cycle, regardless of whether **nbn**'s actual capex for a given cycle exceeded the forecast capex allowance for that cycle. This concession recognises that moving to an ex-ante / forecasting approach to economic regulation under the SAU, in circumstances where there is a high degree of demand uncertainty (including due to substitution risk), may result in uncertainty about the level of **nbn** capex needed to respond prudently and efficiently to future demand and meet other expenditure objectives.

The proposed ex-post review process will provide the ACCC with a role to review actual capex for a Financial Year within each Regulatory Cycle within the scope of certain parameters. This promotes the LTIE (primarily efficient investment) by providing a clear framework by which efficiency and prudency will be evaluated, while giving the ACCC the opportunity to confirm ex-post that the requirements of the framework are met before investments are added to the RAB. To ensure the review process promotes efficiency without undermining regulatory certainty, features of the ex-post review process include that:

- the review will be conducted by reference to the circumstances existing and the information reasonably available to **nbn** at the time **nbn** made the decision to incur the capex; and
- the same efficiency and prudency principles used to assess expenditure forecasts will be applied to the ex-post review (including that capex incurred on projects which are the subject of a Government Policy Project Notice will be deemed prudent).

nbn submits that this ex-post review function gives **nbn** a level of commercial flexibility in relation to **nbn**'s capex while giving the ACCC significant regulatory oversight. This ex-post review will complement the current decision-making processes about **nbn**'s capex forecasts.

Further, **nbn** commits in the First Regulatory Cycle to provide the ACCC with a report by 31 October each Financial Year of the First Regulatory Cycle in respect of **nbn**'s capex and opex incurred in that Financial Year, including as it compares to the forecast information provided by **nbn** to the ACCC in support of the relevant RMA, and whether

[179] Current SAU, cl 2C.7.4.

the prices charged for **nbn**'s offers and other charges in that Financial Year were in accordance with **nbn**'s regulatory commitments in the SAU. Reporting of this kind proposed for Module 2 has been done by **nbn** to date to support the Module 1 LTRCM compliance reporting and a similar approach to ex-post transparency is therefore reasonable.

20.2 Cost pass-through supervision

nbn proposes a supervisory role for the ACCC to ensure that the manner in which **nbn** passes through costs is reasonable and that only efficiently and prudently incurred costs are passed through.

nbn proposes to introduce an ability for the revenue cap to be re-opened (and Maximum Regulated Prices adjusted) during a Regulatory Cycle in circumstances where **nbn** incurs (or is likely to incur) a material change in costs as the result of particular unexpected or exogenous events, or as the result of service standards improvements agreed with RSPs, where those costs are not reflected in the relevant Replacement Module or ACCC Replacement Module Determination for that Regulatory Cycle. **nbn**'s proposed cost pass-through mechanism is discussed in more detail in section 14.5.

The proposed cost pass-through mechanism includes a supervisory role for the ACCC to ensure that the manner in which **nbn** passes through such costs is reasonable and that only efficiently and prudently incurred costs are passed through. Regulators in other regulated sectors play a similar role in determining whether cost pass-through events have arisen and the appropriate adjustments to the regulated firm's maximum allowed revenue. For example, in the electricity and gas contexts, the regulated firm may apply to the AER to adjust its revenue cap to make allowances for particular unanticipated or exogenous events.

Drawing on such regulatory precedent, **nbn** proposes a supervisory role for the ACCC which has the following key features:

- the ACCC will have a role in examining: (a) whether the cost pass-through event has arisen, (b) whether the relevant change in costs is material and is not already accounted for in **nbn**'s revenue cap, (c) whether the relevant costs were prudently and efficiently incurred, as well as (d) whether the cost impacts have been passed through in a reasonable manner;
- **nbn** must make a cost pass-through application to the ACCC within a set timeframe in relation to material decreases in costs arising from tax changes or regulatory changes. This will ensure that material cost savings arising from such events will be reflected in **nbn**'s revenue cap; and
- any cost pass-through applications for service standards improvements will also be subject to a time limit which, when combined with the realities of commercial negotiation, will mean that **nbn** is incentivised to formulate appropriate and cost-effective service standards improvements, expeditiously secure agreement with RSPs, and engage with the ACCC.

nbn submits that this proposed supervisory role for the ACCC as part of the cost pass-through mechanism is appropriate and consistent with established regulatory precedent.

20.3 Changes to pricing constructs

nbn proposes a mechanism by which it can replace an offer pricing construct with an alternative price construct, subject to the provision of notice to RSPs and the ACCC and consultation with RSPs. The ACCC is provided with the ability to object to any proposed pricing construct changes.

nbn commits to only replace an **nbn** offer pricing construct with an alternative price construct (e.g., replacing a TC-4 Bundled Offer with AVC-only pricing) subject to:

- giving RSPs and the ACCC at least six months' notification, including the reasons why **nbn** considers the change should apply and specify the proposed price for the replacement and the earliest date on which the change will take effect;
- having regard to existing demand for the offer to be replaced and the replacement offer, effective price of the offer to be replaced compared to the replacement offer and any change to the allocation of bandwidth demand risk;
- having consulted with RSPs, commencing no more than one month after the date of notice; and
- the ACCC not objecting to the proposed change.

The current SAU does not include any in-built mechanism to change **nbn** offer pricing structures without withdrawing the underlying product, which requires providing 12 to 24 months' notice as well as consultation and ACCC objection powers. **nbn** submits that the ability for the ACCC to object to a proposed change will ensure that **nbn** does not make changes to pricing constructs that are not within the LTIE and without giving RSPs an opportunity to comment on how the proposed changes may impact their own product offerings. The ability for the ACCC to object to a proposed change will also make transparent any proposed changes to **nbn**'s pricing constructs.

20.4 Categorisation of new products into Core Regulated Services and Competitive Services

As described in section 14.2 above, the Variation includes a mechanism that allows for new **nbn** services to be categorised as either Core Regulated Services or Competitive Services (unless they fall within the scope of an existing Core Regulated Service or Competitive Service).

In particular, the Variation allows **nbn**, in the first instance and following consultation with RSPs, to:

- determine whether a new product should be categorised as a Core Regulated Service or a Competitive Service; and
- determine a consequent allocation of building block costs consistent with the SAU's Cost Allocation Principles and CAM (with corresponding adjustments to the Core Services RAB Portion and Core Services ABBRR), if a non-trivial proportion of shared and common building block costs is attributable to a new Competitive Service.

To complement this process, **nbn** proposes to confer a power on the ACCC to disallow **nbn**'s categorisation of new services and/or the allocation of building block costs to new Competitive Services products within 60 days. In that event, if the ACCC:

- disallows **nbn**'s categorisation of a new service as a Core Regulated Service; or

- disallows **nbn**'s allocation of building block costs for a new Competitive Service,

the ACCC must then determine the appropriate allocation of building block costs for that new Competitive Service, consistent with the Cost Allocation Principles set out in the SAU and having regard to **nbn**'s Cost Allocation Manual.

The Variation also includes a mechanism that allows for existing services to be re-categorised as part of the Replacement Module process, which would also involve an adjustment to the Core Service RAB Portion and Core Services ABBRR. This may be proposed by **nbn** in a RMA or determined by the ACCC in an ACCC Replacement Module Determination.

nbn submits that providing the ACCC with these functions and powers will provide greater comfort to the ACCC and RSPs that **nbn** is not cross-subsidising the costs of supplying its business-grade services from revenues earned from the supply of residential-grade services. This transparency and certainty will further promote competition in the wholesale and retail supply of business-grade services. It will also ensure that the prices of **nbn**'s Core Regulated Services are set at efficient levels, while providing **nbn** with the opportunity to recover the efficient costs of those services. In turn, this will promote the efficient use of, and investment in, infrastructure used by **nbn** to supply those services.

20.5 Path to a WAPC

nbn proposes a review mechanism by which the ACCC may consult with industry on the introduction and form of a WAPC in a future Regulatory Cycle. The ACCC will also have the ability to direct **nbn** to lodge an SAU variation that introduces a WAPC (replacing the revenue cap and individual price controls) provided that the form of WAPC will afford **nbn** a reasonable opportunity to achieve recovery of costs incurred prudently and efficiently in achieving its Expenditure Objectives, including an appropriate proportion of the ICRA. This represents a significant concession to the ACCC.

As discussed in Appendix A, **nbn** does not believe that it is appropriate to move to a WAPC at this time. **nbn** acknowledges that there is some support within the ACCC Working Groups for the ACCC's illustrative proposal of an annual WAPC. The ACCC considers that a binding regulatory control of this nature is necessary to protect customers from excessive pricing, to encourage efficient use of and investment in the network and to improve certainty for RSPs and end-users.

nbn considers that these objectives are met by the binding revenue constraint and price controls in the Variation. While demand remains uncertain, a revenue cap meets the reasonableness requirements and remains an appropriate form of economic control on **nbn**. **nbn** appreciates that a WAPC is one form (but not the only form, as discussed above) of regulation affording **nbn** pricing flexibility which may facilitate efficient pricing. As the ACCC noted in the Final 2013 Decision, the "reasonableness" of a term or condition is not determined by reference to whether it is the best possible term or condition or whether it could be improved. A revenue cap is stable under the dynamic demand conditions faced by **nbn**. The revenue cap will be combined with individual price controls as supplementary protections where revenue sufficiency risk may not in itself impose sufficient constraint on **nbn**.

However, **nbn** recognises that the SAU is a long-term regulatory instrument and a WAPC may be appropriate to introduce at some later stage during its term. In a significant concession to the ACCC, the Variation includes a mechanism by which the ACCC may require a move to a WAPC in future Regulatory Cycles.

nbn, therefore, has committed to a framework for a potential future transition to a WAPC including giving the ACCC the function and power to issue a written notice to **nbn** to commence a public inquiry into whether it is

appropriate for **nbn** to be subject to a WAPC instead of **nbn**'s revenue control and system of individual price caps. **nbn** submits that this approach is appropriate at this time and gives the ACCC, **nbn** and other stakeholders additional time to assess and test the implications of **nbn** transitioning to a WAPC as market conditions evolve.

Under the proposed framework, the ACCC may commence, subject to certain conditions, a public inquiry into whether it is appropriate for **nbn** to be subject to a WAPC instead of **nbn**'s revenue control and system of individual price caps. Such a review must be performed on the same basis as, and in accordance with the same processes and powers applicable to, a public inquiry by the ACCC under Part 25 of the Telecommunications Act. The ACCC must consider as part of its inquiry whether the transition to a WAPC is reasonable and promotes the LTIE.

Following the publication of the report by the ACCC, the ACCC may, by notice in writing no earlier than 1 July 2023, request that **nbn** lodge an SAU variation to replace the revenue cap and individual price controls as the primary form of economic regulation with a WAPC. No later than 12 months after the start of the Regulatory Cycle commencing after the date of receipt of a written request from the ACCC (such Regulatory Cycle being the **'Next Regulatory Cycle**'), **nbn** must prepare and lodge with the ACCC an SAU variation application setting out the design, form and scope of a WAPC to replace the revenue cap and individual price controls. The SAU variation lodged by **nbn** is subject to a range of principles, including that the WAPC must take effect no later than the start of the Regulatory Cycle commencing immediately after the Next Regulatory Cycle, and that the form of WAPC proposed by **nbn** will afford **nbn** a reasonable opportunity to achieve recovery of costs incurred prudently and efficiently in achieving its Expenditure Objectives, including an appropriate proportion of the ICRA. The SAU variation lodged by **nbn** will only take effect if accepted by the ACCC under section 152CBG of the CCA.

20.6 What are the ACCC's powers under the current SAU?

The current SAU grants the ACCC various powers and **nbn** proposes to retain these powers in the Variation.

In developing the Variation **nbn** has reviewed and considered the ongoing appropriateness of these powers. **nbn** submits that to date, these powers have been appropriate, and they continue to be relevant and appropriate going forward. **nbn** notes that many of these powers are similar to those powers of the Australian Electricity Regulator and other regulatory agencies in the context of other regulated infrastructure sectors.

In the current SAU, these powers apply to **nbn**'s services which meet the SAU service descriptions and which are supplied over **nbn**'s FTTP, Fixed Wireless and Satellite networks. An effect of the Variation is to extend these ACCC powers to apply to such services to the extent they are supplied over **nbn**'s MTM networks.

The ACCC's powers under the current SAU are as follows:

- **Pricing of new products / price increases:** The ACCC may make a determination to change the Maximum Regulated Price of a new product or the Maximum Regulated Price of a new Other Charge within 24 months of introduction, or where **nbn** seeks to introduce a price for a previously zero-priced product or Other Charge.

- **Price review:** Under the SAU, either the ACCC or **nbn** may instigate a Price Review of the Maximum Regulated Prices applicable to **nbn** Offers or Other Charge by issuing a Price Review Notice. Within 120 calendar days of either **nbn** or the ACCC initiating a Price Review, **nbn** must submit to the ACCC a proposal for the Maximum Regulated Prices identified in the Price Review Notice. The ACCC can either accept or reject **nbn**'s proposal. Where the ACCC rejects **nbn**'s proposal, the ACCC has the power to make an alternative determination or request that **nbn** make changes to its proposal. Whether initiated by the ACCC or **nbn**, the outcomes of the Price Review process must satisfy the Price Review Criteria specified in the SAU.

  The ability for the ACCC (in addition to **nbn**) being able to initiate a price review under the SAU ensures that Maximum Regulated Prices can be adjusted appropriately if the ACCC is concerned that prices for particular services are not encouraging efficient use of, and investment in, **nbn**'s network.

- **Product withdrawal:** The current Product withdrawal provisions under the SAU require **nbn** to provide 12 or 24 months' notice of a Product withdrawal (except where the withdrawal of a Product is required by law or a Shareholder Minister or **nbn** is prohibited from providing the Product under section 41(3) of the NBN Companies Act). The ACCC has the ability to object to a Product withdrawal where the continued provision of the Product would promote the LTIE.

- **Dispute resolution:** The current dispute resolution process in the SAU for the Initial Regulatory Period includes independent mechanisms, such as the appointment of a dispute resolution pool of adjudicators. Under the SAU, **nbn** confers powers on the ACCC to approve the appointment of the resolution advisor and the members of the pool of adjudicators, as well as their terms and any proposed termination. These measures ensure that the dispute resolution process operates independently and robustly. As discussed further below, the Variation carries forward this dispute resolution process into the First Regulatory Cycle, subject to minor adjustments to reflect feedback from RSPs.

21 Carry over Module 1 commitments

nbn commits to extend non-price related commitments currently set out only in Module 1 (together with any amendments to those commitments) relating to dispute resolution; Product Development Forum arrangements; closure, relocation and new POIs; and provisions relating to what activities comprise a Standard Installation. These commitments have already been assessed by the ACCC in the Final 2013 Decision as compliant with the applicable statutory criteria

nbn will extend the following commitments currently set out only in Module 1 of the SAU (together with any amendments to those commitments):

1. **Dispute management provisions:** **nbn** is carrying forward the SAU dispute resolution measures which applied during the Initial Regulatory Period into the First Regulatory Cycle. These measures cater for **nbn**'s regulatory obligations, particularly the NDOs. They are also similar to arrangements in other regulated settings (for example, the Telstra SSU). The SAU confers powers on the ACCC to approve the appointment of a resolution advisor and the members of a pool of adjudicators, as well as their terms and any proposed termination. These measures ensure that the dispute resolution process operates independently and robustly.

   Under the Variation, only minor adjustments will be made during the remainder of the Initial Regulatory Period and the First Regulatory Cycle. These adjustments reflect feedback from RSPs and comprise:

   - permitting **nbn** to appoint an additional Resolution Advisor or additional Nominated Person in respect of an existing Resolution Advisor where necessary, and after notifying the ACCC;[180]
   - clarifying that a Resolution Advisor may be a body corporate;
   - permitting **nbn** to appoint new Pool members after the establishment of the initial Pool at such times as **nbn** reasonably considers that to be required; and
   - permitting the Resolution Advisor to appoint Panel Members from outside the Pool, provided it is necessary to do so, in accordance with the Dispute Resolution Rules and notified to the ACCC and **nbn**.

2. **Product development Forum arrangements:** For all technologies, **nbn** commits to continuing its existing Product Development Forum process commitments into the First Regulatory Cycle, with only minor changes to remove the Product Ideas Register. **nbn** understands the Product Ideas Register to be of limited benefit to the industry.

3. **Closure, relocation and establishment of Points of Interconnection:** Under Module 2, **nbn** commits to carry over the obligations to provide RSPs with 12 months' notice of the establishment, relocation or closure of a POI. Given the established nature of **nbn**'s POIs **nbn** considers it is not necessary to carry the Point of Interconnect Plan commitment over to Module 2.

4. **Provisions relating to what activities comprise a Standard Installation across each access technology:** The definitions of what constitute a standard and non-standard installation for each access technology are relevant to the Maximum Regulated Price commitments set out in the SAU. As the Variation maintains Maximum Regulated Prices with respect to standard and non-standard installations under Module 2, it is appropriate that the descriptions of these activities are also carried over to Module 2.

[180] A Nominated Person is a responsible individual within a Resolution Advisor that is a body corporate.

22 Role of the ACCC

The ACCC has various telecommunications-specific functions under the CCA. These functions are aimed at promoting competition, remedying market failure, enabling access to essential infrastructure, and protecting consumers. One such function is its power to accept an SAU or SAU variation, or reject an SAU or SAU variation.

22.1 Legislative framework for assessing the Variation and the new fixed principles terms and conditions

The ACCC must assess the Variation to the SAU against the legislative criteria in subsection 152CBD(2) of the CCA. The ACCC must decide to accept or reject the Variation based on this assessment.

The ACCC must not accept the Variation unless:

- the terms and conditions specified in the Variation relating to compliance with the Category B SAOs in section 152AXB are consistent with those obligations and are reasonable;
- conduct that is specified in the Variation relating to access referred to in subsection 152CBA(3B) will promote the LTIE, and the related terms and conditions of the SAU are reasonable;
- conduct that is specified in the Variation relating to the matters referred to in subsection 152CBA(3C) will promote the LTIE; and
- the Variation is consistent with any Ministerial pricing determination.

Consistent with the approach adopted by the ACCC in its consideration of variations to the SAU proposed by **nbn** in 2016 and 2019,[181] **nbn** submits that the task of the ACCC under section 152CBG is to assess the variation to, rather than the existing provisions of, the SAU against the criteria in section 152CBD (as they apply to variations). This includes an assessment of the interaction of the subject matter of the variation with the existing SAU provisions.

Reasonableness

The ACCC and the Tribunal have noted that the “reasonableness" of terms and conditions is not determined by reference to whether they are the best possible terms and conditions or whether different terms and conditions would be “more reasonable”.[182]

Part XIC of the CCA provides that the ACCC must have regard to the following non-exclusive list in determining whether particular terms and conditions are reasonable:

- whether the terms and conditions promote the LTIE of carriage services or of services supplied by means of carriage services;
- the legitimate business interests of the access provider concerned, and the access provider’s investment in facilities used to supply the declared service concerned;
- the interests of persons who have rights to use the declared service concerned;

[181] See: ACCC, *NBN Co Special Access Undertaking variation, Final decision* (April 2021), where the ACCC assessed only the varied provisions of the SAU (the "expired provisions"). See also: ACCC, *Variation to NBN Co Special Access Undertaking, Draft decision,* March 2017, p. 11: "*As stated in the consultation paper, the ACCC’s assessment of the SAU variation is not a reassessment of each existing provision in the SAU. The scope of the ACCC’s assessment is limited to an assessment of the varied terms, the effects of the varied terms, and the interaction of the varied terms with unchanged provisions in the SAU*".

[182] Final 2013 Decision, p. 50; *Telstra Corporation Limited* [2006] ACompT 4 at [150]. See also: *Seven Networks Limited (No 4)* (2005) ATPR 42-056 at [119]; *Re Telstra Corporation Ltd (No 3)* [2007] ACompT 3 at [404].

- the direct costs of providing access to the declared service concerned;
- the operational and technical requirements necessary for the safe and reliable operation of a carriage service, a telecommunications network or a facility; and
- the economically efficient operation of a carriage service, a telecommunications network or a facility.

See section 22.1.3 below for further detail on the assessment of reasonableness.

Promoting the LTIE

In considering whether particular terms and conditions or conduct promote the LTIE, regard must be had to the extent to which the terms and conditions or conduct (as relevant) are likely to achieve the following objectives:

- promoting competition in markets for listed services;
- achieving any-to-any connectivity in relation to carriage services that involve communication between end-users; and
- encouraging the economically efficient use of, and the economically efficient investment in: (i) the infrastructure by which listed services are supplied; and (ii) any other infrastructure by which listed services are, or are likely to become, capable of being supplied.

See section 22.1.3.1 below for further detail on the promotion of LTIE.

Fixed Principles terms and conditions

Where the SAU (or variation) specifies a new fixed principles term or condition, then the ACCC must refuse to accept the SAU, if the ACCC considers that:

- the fixed principles term or condition should not be a fixed principles term or condition;
- the notional fixed period for the fixed principles term or condition should not be the notional fixed period;
- if the SAU provides that one or more specified circumstances are qualifying circumstances in relation to the fixed principles term or condition – those circumstances should not be qualifying circumstances; or
- if the SAU does not provide that particular circumstances are qualifying circumstances, those circumstances should be qualifying circumstances in relation to the fixed principles term or condition.

Where **nbn** lodges an SAU variation (within the notional fixed period) that contains an identical fixed principles term or condition (with a notional fixed period that ends at or before the original notional fixed period and also includes identical qualifying circumstances (if applicable)) then, unless those qualifying circumstances exist, the ACCC must not reject the SAU variation for a reason that concerns that fixed principles term or condition, its notional fixed period or the specification of those qualifying circumstances.

See section 22.1.6 below for further detail on fixed principles terms or conditions.

Timing

If the ACCC does not make a decision about the Variation within six months after receiving the Variation, it will be taken to have made, at the end of that six-month period, a decision under subsection 152CBG(3) to accept the Variation (subject to the "clock-stopping" provisions in subsection 152CBG(8), which provide that certain days are to be disregarded when calculating the six-month period).

The ACCC may extend the period for consideration of the Variation for a period of no more than three months upon written notice to **nbn** with that notice explaining why the ACCC has been unable to make a decision within the time period. The ACCC may subsequently further extend the period for consideration of the Variation by further periods of no more than three months.

22.1.1 Overview

The ACCC must assess a variation to the SAU against the legislative criteria outlined in subsection 152CBD(2) of the CCA.[183] After considering the variation, the ACCC must decide either to accept or reject the variation.[184]

The ACCC must not accept an SAU unless the ACCC is satisfied that:

- the terms and conditions specified in the variation relating to compliance with the Category B SAOs in section 152AXB are consistent with those obligations and are reasonable;
- conduct that is specified in the variation relating to access referred to in subsection 152CBA(3B) will promote the LTIE, and the related terms and conditions of the SAU are reasonable;
- conduct that is specified in the variation relating to the matters referred to in subsection 152CBA(3C) will promote the LTIE; and
- the SAU is consistent with any Ministerial pricing determination.

Under Part XIC of the CCA, the ACCC cannot refuse an SAU for particular reasons related to fixed principles terms and conditions, as outlined in further detail in section 22.1.6 below.

22.1.2 Consistency with the Category B SAOs

The ACCC must not accept the Variation unless the terms and conditions specified in the Variation relating to compliance with the Category B SAOs in section 152AXB are consistent with those obligations and are reasonable.[185]

Relevantly, the Category B SAOs under section 152AXB of the CCA impose:

- a requirement for an NBN corporation to supply a declared service on request to a service provider in order that the service provider can provide carriage services and/or content services;[186] and
- a requirement for an NBN corporation to permit interconnection to telecommunications facilities it owns or controls, if requested to do so by a service provider, for the purpose of enabling the service provider to be supplied with declared services in order that the service provider can provide carriage services and/or content services.[187] and

The requirements for an NBN corporation to comply with the Category B SAOs are subject to a number of exceptions including where there are reasonable grounds to believe that:

[183] CCA, ss 152CBG(4).

[184] CCA, ss 152CBG(3).

[185] CCA, ss 152CBA(3A), 152CBD(2)(b)(i).

[186] This requirement does not impose an obligation to the extent (if any) the obligation would lead to preventing a service provider who already has access to the declared service from obtaining sufficient amount of the service to be able to meet the service provider's reasonably anticipated requirements; preventing an NBN corporation from obtaining sufficient amount of the service to meet its reasonably anticipated requirements, or preventing a person from obtaining (via the exercise of a pre-request right) a sufficient level of access to the declared service (See ss 152AXB(3) of the CCA). In addition, the Category B SAOs include a requirement for an NBN corporation that supplies a declared service by means of conditional-access customer equipment to supply on request any related service that is necessary to enable a service provider to supply its relevant retail service and/or Content Services by means of the declared service and using the equipment.

[187] CCA, ss 152AXB(4).

- the Access Seeker would fail to materially comply with the terms and conditions on which the NBN corporation complies, or is reasonably likely to comply with the relevant obligations.[188] The CCA provides a non-exhaustive list of examples of exceptions including evidence that an Access Seeker is not credit worthy and repeated failures by an Access Seeker to comply with the terms and conditions on which the same or similar Access Seekers have been provided;[189] or
- the Access Seeker would not protect the integrity of a telecommunications network or the safety of individuals working on, or using services supplied by means of, a telecommunications network or a facility.[190]

22.1.3 Assessment of reasonableness

As stated above, the ACCC must not accept the Variation unless the terms and conditions specified in the Variation relating to compliance with the Category B SAOs in section 152AXB are consistent with those obligations and are reasonable.[191] Part XIC of the CCA provides that, in assessing whether particular terms and conditions are reasonable, regard must be had to the following matters:[192]

1. whether the terms and conditions promote the LTIE of carriage services or of services supplied by means of carriage services;
2. the legitimate business interests of the access provider concerned, and the access provider's investment in facilities used to supply the declared service concerned;
3. the interests of persons who have rights to use the declared service concerned;
4. the direct costs of providing access to the declared service concerned;
5. the operational and technical requirements necessary for the safe and reliable operation of a carriage service, a telecommunications network or a facility; and
6. the economically efficient operation of a carriage service, a telecommunications network or a facility.

These matters do not limit the matters to which the ACCC may have regard to in considering reasonableness.[193]

The ACCC noted in the draft FANOC Decision that in order to have "regard" to particular matters, it is required to take the matters in section 152AH of the CCA into account and give weight to them as fundamental elements in making its determination.[194]

Further, the ACCC noted in the Final 2013 Decision that the "reasonableness" of terms and conditions is not determined by reference to whether they are the best possible terms and conditions or whether they could be improved.[195] This approach is supported by the Australian Competition Tribunal (**Tribunal**), which in the context

[188] CCA, para 152AXB(6)(a).

[189] CCA, ss 152AXB(7).

[190] CCA, para 152AXB(6)(b).

[191] CCA, ss 152AH(1) and (2).

[192] CCA, ss 152AH(1).

[193] CCA, ss 152AH(2).

[194] ACCC, *Assessment of FANOC's Special Access Undertaking in relation to the Broadband Access Service – Draft Decision*, December 2007, p. 2. See also: *Re Telstra Corporation Ltd (No 3)* [2007] ACompT 3 at [281]-[282]; *Telstra Corporation Limited v Australian Competition Tribunal* [2009] FCAFC 23 at [267]; *Application by Telstra Corporation Limited* [2010] ACompT 1 at [143].

[195] Final 2013 Decision, p. 50

of assessing the reasonableness of Telstra's pricing methodology in *Telstra Corporation Limited* [2006] ACompT 4*,* noted that:[196]

> *In this analysis we are limiting ourselves to asking whether Telstra's charge term and its cost allocation method is reasonable having regard to the statutory matters. We are not concerned to enquire whether any other price term or cost allocation method is more reasonable.*

In relation to price-related terms and conditions which are informed by a service provider's costs, the ACCC has noted that there is no one correct figure in determining reasonable costs as this will entail matters of judgment. However, the ACCC's assessment will entail determining whether the submitting party's method or approach to calculating its costs is reasonable having regard to the statutory criteria.[197]

In addition, it is established that applying a "with or without" or counterfactual test may assist in a broader assessment of what is "reasonable", but that such a test cannot substitute for consideration of each of the statutory criteria and that ultimately, "reasonableness" is not determined by reference to what would exist in the counterfactual scenario where the relevant undertaking is not accepted.[198] In that context, the ACCC has indicated previously that it may apply a "with and without" test when doing so facilitates (as opposed to determines) the ACCC's analysis in determining the overall reasonableness of the relevant terms and conditions.[199]

The elements involved in assessing reasonableness are discussed further below. The ACCC noted in the Final 2013 Decision that many of these elements are often inter-related and may involve trade-offs that need to be weighed up. Additionally, as the ACCC has recognised,[200] there is significant overlap between:

- the "reasonableness" test that applies to assessing the terms and conditions of the variation in relation to compliance with the Category B SAOs and the terms or conditions applicable to conduct in relation to access; and
- the "long-term interests of end-users" test that applies to conduct in relation to access and conduct in relation to activities specified in subsection 152CBA(3).

22.1.3.1 Promotion of the long-term interests of end-users

Subsection 152AB(2) provides that in considering whether terms and conditions of an SAU promote the LTIE, regard must be had to the extent to which the terms and conditions are likely to achieve the following objectives:

- promoting competition in markets for listed services;
- achieving any-to-any connectivity in relation to carriage services that involve communication between end-users; and

[196] *Telstra Corporation Limited* [2006] ACompT 4 at [150]. See also: *Seven Networks Limited (No 4)* (2005) ATPR 42-056 at [119]. See also: *Re Telstra Corporation Ltd (No 3)* [2007] ACompT 3 at [404].

[197] ACCC, *Assessment of FANOC's Special Access Undertaking in relation to the Broadband Access Service – Draft Decision*, December 2007, p. 22; *Re Optus Mobile Pty Limited & Optus Networks Pty Limited* [2006] ACompT 8 at [19]; *Telstra Corporation Limited* [2006] ACompT 4 at [120]; *Application by Vodafone Network Pty Ltd & Vodafone Australia Limited* [2007] ACompT at [12]; *Re Telstra Corporation Ltd (No 3)* [2007] ACompT 3 at [189].

[198] *Re Seven Network Ltd (No 4)* [2004] ACompT 11 at [119]; *Re Telstra* [2010] ACompT 1 at [145] – [146].

[199] ACCC, *Final Decision: Assessment of Foxtel's Special Access Undertaking in relation to the Digital Set Top Unit Service*, March 2007, p. 122.

[200] ACCC, *Final Decision on the Special Access Undertaking lodged by NBN Co on 19 November 2013*, p. 50.

- encouraging the economically efficient use of, and the economically efficient investment in: (i) the infrastructure by which listed services are supplied; and (ii) any other infrastructure by which listed services are, or are likely to become, capable of being supplied.

The Full Court of the Federal Court in *Telstra Corp Ltd v Australian Competition Tribunal* (2009) 175 FCR 201 reinforced the importance of treating each of the above factors as '*a central or fundamental element in the making of the relevant decision*'.[201] The Full Court acknowledged that there may be tension between the objectives, and that one may carry more weight in a given case than the others, but found that they must all be considered and weighed in every case.[202] In that case, the Full Court ultimately held that the Tribunal had made an error of law in impermissibly confining itself to consideration of the promotion of competition, and that the error vitiated the Tribunal's decision in its entirety.[203]

For the purposes of applying the LTIE test, the Tribunal has confirmed that:

- "*end-users*" include actual and potential customers;
- "*interest*" should be interpreted in the sense that end-users would obtain lower prices, increased quality of service and increased diversity and scope in product offerings; and
- "*long-term*" means the period over which the full effects of the decision will be felt.[204]

The ACCC has previously stated that at a high level it considers the expression "long-term" to involve a balancing of the flow of costs and benefits to end-users over time in relation to the objectives in subsection 152AB(2) and that matters that the ACCC is required to take into account are often interrelated and may involve trade-offs that need to be weighed up.[205] Further, as stated above, in considering whether a proposed variation promotes the LTIE and is reasonable, the ACCC may have regard to the counterfactual scenario where the variation is not accepted (although doing so cannot substitute for consideration of each of the statutory criteria).[206] In that context, **nbn** notes that if the Variation is not accepted:

- the current SAU, as accepted by the ACCC in 2013 and varied in 2021, will remain in effect (noting that the expiry date of the current SAU is 30 June 2040);
- the product and pricing provisions of the existing SAU would continue to apply only to particular services provided over **nbn**'s FTTP, fixed wireless and satellite networks, and would not extend to services provided over **nbn**'s MTM networks – thereby continuing the prospect of regulatory inconsistency and ensuring long-term regulatory uncertainty;
- the existing SAU would continue to require **nbn** to offer two-part (AVC-CVC) pricing in respect of **nbn**™ Ethernet TC-4 services on its fixed line and fixed wireless networks;

[201] *Telstra Corp Ltd v Australian Competition Tribunal* (2009) 175 FCR 201 at [267].

[202] *Telstra Corp Ltd v Australian Competition Tribunal* (2009) 175 FCR 201 at [272].

[203] *Telstra Corp Ltd v Australian Competition Tribunal* (2009) 175 FCR 201 at [278].

[204] *Seven Network Limited (No 4)* [2004] ACompT 11 at [120]

[205] ACCC, *Variation to NBN Co Special Access Undertaking - Draft Decision*, May 2017; *Re Telstra* [2010] ACompT 1 at [143]. The ACCC adopts a similar approach when considering whether declaration of a service under Part XIC will promote the LTIE – see: ACCC, *Guideline for Part XIC declaration provisions for telecommunications services*, August 2016, section 5.2.1.

[206] See also: *Re Telstra* [2010] ACompT 1 at [145] – [146].

- the Maximum Regulated Prices for certain services under the SAU would continue to remain substantially above the effective prices charged by **nbn** under access agreements with RSPs; and
- the LTRCM in the existing SAU would remain unchanged – with the SAU continuing to provide **nbn** with the theoretical regulatory opportunity to recover the entirety of the ICRA over the term of the SAU, in circumstances where the ICRA would continue to grow with any regulatory losses (relative to **nbn**'s ABBRR) and continue to be indexed at **nbn**'s regulated rate of return on capital.

Promotion of competition

In considering whether competition will be promoted, subsections 152AB(4) and 152AB(5) of the CCA require that regard must be had to the extent to which the thing will remove obstacles to end-users of listed services gaining access to listed services. This consideration does not, however, limit matters to which regard may be had in considering the promotion of competition.

The ACCC has expressed the view that the key issue in determining whether a regulatory decision will promote competition is whether the decision will assist in establishing conditions by which an improvement in competition will be likely to occur.[207] The ACCC has also noted that it would typically consider the extent of the competitive impact and the likelihood of that extent.[208]

This reflects the view of the Tribunal in *Re Sydney International Airport*, on the expression "promote competition":[209]

> *The Tribunal does not consider that the notion of 'promoting' competition in s 44H(4)(a) requires it to be satisfied that there would be an advance in competition in the sense that competition would be increased. Rather, the Tribunal considers that the notion of 'promoting' competition in s 44H(4)(a) involves the idea of creating the conditions or environment for improving competition from what it would be otherwise. That is to say, the opportunities and environment for competition given declaration, will be better than they would be without declaration.*
>
> *[The expression "promote competition"] is concerned with the fostering of competition, that is to say it is concerned with the removal of barriers to entry which inhibit the opportunity for competition in the relevant downstream market. It is in this sense that the Tribunal considers that the promotion of competition involves a consideration that if the conditions or environment for improving competition are enhanced, then there is a likelihood of increased competition that is not trivial.*

The Tribunal's explanation of the meaning of the phrase "promote competition" has been consistently followed in subsequent Tribunal decisions. In *Telstra Corporation Ltd v Australian Competition Tribunal* (2009) 175 FCR 201, the Full Court of the Federal Court approved that understanding of the phrase as used in the telecommunications access regime in Part XIC of the CCA (at [224]-[225]).

[207] ACCC, *Assessment of FANOC's Special Access Undertaking in relation to the Broadband Access Service – Draft Decision*, December 2007, p. 33.

[208] ACCC, *Final Decision on the Special Access Undertaking lodged by NBN Co on 19 November 2013*, p. 47.

[209] *Re Sydney International Airport* [2000] ACompT 1 (1 March 2000) at [106].

Achieving any-to-any connectivity

The ACCC has noted that the objective of any-to-any-connectivity is particularly relevant when considering services that involve communications between end-users, and has stated that this criterion will be given less weight compared to the other objectives when considering other types of services (such as carriage services that are inputs to an end-to-end service or distribution services such as the carriage of pay television).[210]

Encouraging economically efficient use of, and economically efficient investment in, infrastructure

The ACCC has previously noted that the phrase "economically efficient use of, and economically efficient investment in, infrastructure"[211] requires considering three components of efficiency*:*

- **productive efficiency:** this is achieved where individual firms produce the goods and services that they offer at least cost;
- **allocative efficiency:** this is achieved where the prices of resources reflect their underlying costs so that resources are allocated to their highest valued uses (i.e., those that provide the greatest benefit relative to costs); and
- **dynamic efficiency:** this reflects the need for industries to make timely changes to technology and products in response to changes in consumer tastes and in productive opportunities.

In determining whether a particular measure results in economically efficient use of, and investment in infrastructure, subsection 152AB(6) of the CCA provides that regard must be had to the following:

- whether it is, or is likely to become, technically feasible for the services to be supplied and charged for, having regard to:
    - the technology that is in use, available or likely to become available;
    - whether the costs that would be involved in supplying, and charging for, the services are reasonable or likely to become reasonable; and
    - the effects, or likely effects, that supplying, and charging for, the services would have on the operation or performance of telecommunications networks;
- the legitimate commercial interests of the supplier or suppliers of the services, including the ability of the supplier or suppliers to exploit economies of scale and scope; and
- the incentives for investment in:
    - the infrastructure by which the services are supplied; and
    - any other infrastructure by which the services are, or are likely to become,capable of being supplied.

The above factors do not limit the matters to which regard may be had in considering whether a term or condition results in encouraging the economically efficient use of, and economically efficient investment in, infrastructure.

[210] ACCC, *ACCC advice to Government on NBN POIs,* November 2010, p. 82.

[211] See, for example, Appendix A to the ACCC's *Final Report in its Inquiries into NBN access pricing and wholesale service standards*, November 2020.

Subsection 152AB(7A) of the CCA provides that, for the purposes of determining incentives for investment, regard must be had to the risks involved in making the investment. This clarifying provision was inserted in 2005 to provide greater certainty to investors in telecommunications infrastructure, in circumstances where Australian telecommunications companies were on the verge of making significant investment decisions regarding the deployment of next generation networks.[212]

The ACCC noted in the Final 2013 Decision that the ACCC will also typically consider matters such as:

- whether the supplier has the opportunity to recover the prudent and efficient costs of building, operating and maintaining the infrastructure used to supply the declared service under consideration; and
- whether the supplier faces an incentive to invest efficiently in delivering a particular service quality.

22.1.3.2 Legitimate business interests

A "legitimate business interest" for a carrier or carriage service provider is the opportunity to recover the efficient cost of providing services and to earn an appropriate commercial return on its investment in the infrastructure used to supply those services.[213] In *Re Telstra Corporation Ltd,* the Tribunal stated that:[214]

> *... In the context of section 152AH (1)(b), the expression connotes something which is allowable and appropriate when negotiating access to the carrier's infrastructure.*
>
> *When looked at through the prism of a charge term and condition of access and its relationship to a carrier's cost structure, it is a reference to the interest of a carrier in recovering the costs of its infrastructure and its operating costs and obtaining a normal return on its capital.*

The Tribunal has also observed that no business has either legitimate business interest in (or a right to) revenues higher than those obtainable in a competitive market.[215] Carriers do, however, have a legitimate business interest in receiving a commercial return on their prudent (past) investment in the infrastructure used to supply services.[216]

22.1.3.3 Interests of persons who have rights to use the declared services

The ACCC has noted that access seekers have an interest in being able to compete for the custom of end-users on the basis of their relative merits: "*However, it is important to distinguish between the interests of access seekers to effectively compete to supply a service in a dependent market from the interests of access seekers being ensured of remaining profitable*".[217] **nbn** submits that, consistent with the approach taken by the ACCC with respect to the Final 2013 Decision, it is the former interest to which the ACCC is to have regard in assessing the terms and conditions of the variation.

22.1.3.4 Direct costs of providing access to the declared service

As the Tribunal has held, the "direct costs" to which paragraph 152AH(1)(d) refers include indirect costs and do not exclude a mark-up on incremental costs to cover the fixed and any common costs of supplying the relevant

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[212] Explanatory Memorandum to the *Telecommunications Legislation Amendment (Competition and Consumer Issues) Bill 2005*, pp. 22-25.

[213] ACCC, *Final Decision on the Special Access Undertaking lodged by NBN Co on 19 November 2013*, p. 50.

[214] *Re Telstra Corporation Limited* [2006] ACompT 4 (2 June 2006).

[215] *Re Telstra* [2010] ACompT 1 at [192].

[216] *Re Telstra* [2010] at [244]. See also the ACCC's Part XIC Declaration Guidelines, p. 44.

[217] ACCC, *Final Decision on the Special Access Undertaking lodged by NBN Co*, November 2013, p. 51.

service: "*Those direct costs are a reference to the total costs of providing access to the relevant declared service which ordinarily include an appropriate allocation of [fixed and common costs] because without the existence of the assets in respect of which the [fixed and common costs] are incurred, the relevant access could not be provide*".[218]

22.1.3.5 Safety and reliability

In examining this criterion in the context of an ordinary access undertaking submitted by Telstra, the Tribunal noted that a service provider will have sufficient incentive to ensure the safe and reliable operation of carriage services, telecommunications networks or facilities, as long as it receives sufficient revenue to cover the costs of ensuring safe and reliable operations. The Tribunal equated "sufficient revenue" with a price for the service that enabled recovery of efficient costs inclusive of a normal return on investment.[219]

22.1.3.6 Economically efficient operation of the network

In relation to examining this criterion, the ACCC has noted the following:

- the phrase 'economically efficient operation' embodies the concept of economic efficiency referred to above, including the concepts of productive, allocative and dynamic efficiency;
- the ACCC may consider whether particular terms and conditions enable a carriage service, telecommunications network or facility to be operated efficiently;
- it is relevant to consider the economically efficient operation of:
    - retail services provided by access seekers using the access provider's services or by the access provider in competition with those access seekers; and
    - the telecommunications networks and infrastructure used to supply these services. [220]

Similarly, the Tribunal has noted that: [221]

> *The factors that are likely to encourage the economically efficient use of, and the economically efficient investment in, the infrastructure … are similar to those factors which are likely to lead to the economically efficient operation of a carriage service, a telecommunications network or a facility.*

In addition, the ACCC noted in the Final 2013 Decision that the economically efficient operation of a carriage service, telecommunications network or facility will not be precluded where the carrier or carriage service provider has the opportunity to recover the efficient costs of providing services (and no more). The ACCC stated that if **nbn** is not able to recover its efficient or prudent costs, it may not be able to fund its operations and aspects of service quality may subsequently decline and/or the safe operation of the business may not be guaranteed.[222]

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[218] *Application by Optus Mobile Pty Limited & Optus Networks Pty Limited* [2006] ACompT 8 at [137].

[219] *Re Telstra Corporation Ltd (No 3)* [2007] ACompT 3 at [277].

[220] ACCC Final Report, *Inquiries into NBN access pricing and wholesale service standards*, November 2020, pp. 58-59, citing *Telstra Corporation Limited* [2006] ACompT 4 at [94]–[95].

[221] *Telstra Corporation Ltd (No 3)* [2007] ACompT 3 at [279].

[222] ACCC, *Final Decision on the Special Access Undertaking lodged by NBN Co*, November 2013, p. 51.

22.1.4 Consistency with any Ministerial pricing determinations

The Minister has not made a pricing determination in relation to **nbn**'s Access Service or the Ancillary Services.

22.1.5 Assessment of specified conduct in the SAU

22.1.5.1 Specified conduct in relation to access to the declared service

Subsection 152CBA(3B) provides that an SAU may state that the person giving the SAU will engage in specified conduct in relation to access to the relevant service and will do so on such terms and conditions as are specified in the SAU.

If such conduct is specified in the SAU,[223] then, in accordance with paragraph 152CBD(2)(ca) of the CCA, the ACCC cannot accept the SAU (or a variation to the SAU) unless it is satisfied that the conduct specified will promote the LTIE and that the related terms and conditions are reasonable.

22.1.5.2 Specified conduct in relation to a listed activity

Under subsection 152CBA(3C) **nbn** may outline in the SAU (or in a variation to the SAU) that it will engage in specified conduct in relation to:[224]

- developing a new eligible service (within the meaning of section 152AL of the CCA); or
- enhancing a declared service; or
- extending or enhancing the capability of a facility or telecommunications network by means of which a declared service is, or is to be, supplied; or
- planning for a facility or telecommunications network by means of which a declared service is, or is to be, supplied; or
- an activity that is preparatory to the supply of a declared service; or
- an activity that is ancillary or incidental to the supply of a declared service; or
- giving information to service providers about any of the above activities.

If such conduct is specified in the SAU (or in a variation to the SAU), then in accordance with paragraph 152CBD(2)(cb) of the CCA, the ACCC cannot accept the SAU (or in a variation to the SAU) unless it is satisfied that the conduct specified will promote the LTIE of carriage services or of services supplied by means of carriage services.

22.1.6 Assessment of fixed principles terms and conditions

Section 152CBAA of the CCA states that an SAU may provide that a term or condition specified in the SAU is a "fixed principles" term or condition for a "notional fixed period". As noted in the Explanatory Memorandum to the *Telecommunications Legislation Amendment (Competition and Consumer Safeguards) Bill* 2010:[225]

[223] **nbn** has covered this aspect of the legislation framework for completeness, even though no such conduct is actually specified in the SAU Variation.

[224] CCA, paras 152CBA(3C)(a)-(g).

[225] Explanatory Memorandum to the *Telecommunications Legislation Amendment (Competition and Consumer Safeguards) Bill 2010*, p. 204.

> *The effect of specifying that a provision is a fixed principles term or condition is to permit the person submitting the undertaking to 'lock in' the matters dealt with in that term or condition for… the 'notional fixed period'.*

The "notional fixed period" of a fixed principles term or condition must set out the period for which the relevant term or condition is fixed – beginning when the SAU comes into operation and expiring at a time before, on or after the expiry of SAU itself. Under subsection 152CBAA(2) of the CCA, an SAU may provide that one or more special circumstances are "qualifying circumstances" in relation to a particular fixed principles term or condition.

Subsection 152CBAA(5) then sets out that if the ACCC has accepted an SAU containing a fixed principles term or condition and then, during the notional fixed period of that fixed principles term or condition, another SAU (or a variation to the accepted SAU) is given to the ACCC containing:

- an identical fixed principles term or condition;
- with a notional fixed period that ends at or before the end of the notional fixed period for the original fixed principles term or condition; and
- if applicable, any qualifying circumstances that are identical to the original qualifying circumstances,

then provided that none of the qualifying circumstances exist, the ACCC's assessment of the subsequent SAU (or variation) under section 152CBD of the CCA is conditioned as follows:

- the ACCC must not reject the subsequent SAU (or varied SAU) for a reason that concerns the fixed principles term or condition, the notional fixed period or qualifying circumstances;[226] and
- the ACCC does not need to be satisfied that the fixed principles term or condition, its notional fixed period and the qualifying circumstances are consistent with the SAOs, are reasonable, consistent with any Ministerial Determinations and if applicable, any specified conduct will promote the LTIE and is reasonable.[227]

Fixed principles enable the ACCC to provide greater regulatory certainty in certain circumstances.[228] The ACCC has, on a number of occasions, both in its own decision making, and in the context of policy debates, acknowledged this.[229]

Regulatory certainty is a well-accepted principle across all aspects of utility regulation. For example:

- the AER, in explaining its approach to reviewing the WACC parameters to apply to electricity transmission and distribution businesses, explained that regard is to be had "*to the desirability of regulatory certainty, which the AER considers is an important factor in achieving an outcome which is consistent with the National Electricity Objective*";[230]

[226] CCA, para 152CBAA(5)(h) and 152CBAA(6).

[227] CCA, para 152CBAA(5)(i).

[228] Final 2013 Decision, p. 107; Explanatory Memorandum to the *Telecommunications Legislation Amendment (Competition and Consumer Safeguards) Bill 2010*, p. 182.

[229] For example: Final 2013 Decision, p. 107; ACCC, *Final Report: Inquiry to make final access determinations for the declared fixed line services*, (July 2011), p. 127; ACCC, Submission to the Department of Broadband, Communications and the Digital Economy titled "*National Broadband Network: Regulatory Reform for 21st Century Broadband",*' June 2009, p. 11.

[230] AER, *Explanatory Statement – WACC Review*, December 2008, p. 50.

- in the Final 2013 Decision, the ACCC stated that "*Regulatory certainty is an important precursor to efficient investment. In particular, for NBN Co to invest efficiently, it needs to know it will be provided an opportunity to recover its efficient costs (including a return on investment) over time. The ACCC is satisfied that the SAU provides sufficient regulatory certainty to promote efficient investment in the NBN*";[231] and
- as part its review of the way it regulates water businesses in 2021, IPART stated that it makes a decision on the appropriate determination period by considering a range of factors, including "*the need for regulatory certainty and financial stability*".[232]

22.1.7 Assessment of future variations to the SAU and interaction with fixed principles terms and conditions

Given the 'modular' structure of the SAU, the fixed principles terms and conditions in the current SAU (and the new fixed principles terms and conditions proposed in the Variation) will affect the ACCC's future assessment of **nbn**'s RMAs.[233]

In particular, once an SAU variation containing a RMA is lodged by **nbn**, the ACCC will be required to make a decision to accept or reject the variation under subsection 152CBG(3) of the CCA. This requires the ACCC to carry out an assessment of the variation under section 152CBD of the CCA, the same section that applies to the assessment of an SAU. If the SAU (as varied up to that point) contains a fixed principles term and condition, and the proposed new variation to the SAU (i.e., the RMA) contains the same fixed principles term and condition, the ACCC's assessment under section 152CBD will be subject to subsection 152CBAA(6) of the CCA. In that context, in the Final 2013 Decision, the ACCC noted that in deciding whether to approve terms and conditions as fixed principles, it will:[234]

> … ***only approve terms and conditions as fixed principles*** *where these terms and conditions will not constrain it in a way that will prevent it from ensuring that the SAU only contains terms and conditions* ***which promote the long-term interests of end-users and are reasonable during the SAU term****.* (Emphasis added)

The ACCC also noted that fixed principles terms and conditions should not prevent it from rejecting future SAU variations which may not meet the statutory criteria at the time of assessing a new SAU or a varied SAU, and on that basis, terms and conditions that involve judgment and direction should not be accepted as fixed principles terms and conditions.[235]

22.1.8 Other relevant legislative provisions: nbn's non-discrimination obligations

Part XIC contains **nbn**-specific NDOs, which were a key consideration in the design of the current SAU.

In particular, subsection 152AXC(1) of the CCA states that an NBN corporation must not "discriminate between Access Seekers" in complying with its Category B SAOs. There are, however, limited circumstances in which discrimination in the supply of services is expressly permitted. This includes where **nbn** has reasonable grounds to

[231] Final 2013 Decision, pp. 61, 93-95.

[232] IPART, *Discussion Paper – Encouraging innovation in the water sector*, August 2021, p. 34.

[233] Final 2013 Decision, p. 108.

[234] Final 2013 Decision, p. 109.

[235] Final 2013 Decision, pp. 109-110.

believe that an Access Seeker would fail, to a material extent, to comply with the terms and conditions on which **nbn** complies, or on which **nbn** is reasonably likely to comply, with the relevant obligation.[236] Examples of such circumstances include where an Access Seeker is not creditworthy or has repeatedly failed to comply with the terms and conditions on which the same or similar access has been provided.[237]

Relevantly for the SAU, the Explanatory Memorandum to the NBN Access Bill states that the ACCC would refer to its explanatory material when assessing an SAU.[238]

In addition, subsection 152AXD(1) of the CCA prohibits **nbn** from discriminating between Access Seekers in the carrying on of activities related to the supply of declared services.

The relevant "related activities" are:

- developing a new eligible service;
- enhancing a declared service;
- extending or enhancing the capability of a facility or telecommunications network by means of which a declared service is, or is to be, supplied;
- planning for a facility or telecommunications network by means of which a declaredservice is, or is to be, supplied;
- an activity that is preparatory to the supply of a declared service;
- an activity that is ancillary or incidental to the supply of a declared service; and
- giving information to service providers about any of the above activities.

Section 152CJH of the CCA requires the ACCC, as soon as practicable after the commencement of the section, to publish on its website explanatory material relating to the non-discrimination provisions. On 29 September 2021, the ACCC released its 2021 guidelines on non-discrimination relating to section 152CJH of the CCA and Part 8 of the Telecommunications Act. The ACCC first issued explanatory material about the NDOs in Part XIC of the CCA in 2012. The revised 2021 guidelines were developed following amendments to the CCA and Telecommunications Act which were made as part of the *Telecommunications Legislation Amendment (Competition and Consumer) Act* (**Telecommunications Reform Package**). The concept of non-discrimination in the CCA is currently largely untested and it is likely that the guidelines may need to be periodically reviewed and refined to reflect circumstances that may arise.

[236] CCA, ss 152AXC(2).

[237] CCA, ss 152AXC(3).

[238] Revised Explanatory Memorandum to the *Telecommunications Legislation Amendment (National Broadband Network Measures – Access Arrangements Bill 2011*, p. 148.

23 Proposed fixed principles and assessment

The Variation retains the four existing fixed principles terms and conditions in the current SAU.

In addition, as outlined in chapter 1, **nbn** proposes to vary the SAU by specifying four new fixed principles terms and conditions:

- Clause 2C.2.2, which specifies the minimum building blocks which are used to calculate the Forecast Nominal Core Services ABBRR for a given Financial Year within a Regulatory Cycle;
- Clause 2C.4.4, which specifies how the value of the Real Core Services ICRA as at 1 July 2023 will be calculated, for the purposes of calculating the Forecast Core Services Revenue Cap for all Regulatory Cycles after the First Regulatory Cycle;
- Clause 2C.9.3 which ensures that the Real Core Services RAB Portion at the commencement of the Subsequent Regulatory Period will be the Real Core Services RAB Portion at the end of the Initial Regulatory Period; and
- Clause 2C.9.5(a) which specifies how the Real Core Services RAB Portion at the commencement of a Regulatory Cycle, other than the First Regulatory Cycle, will be calculated by rolling-forward the Real Core Services RAB Portion from the immediately preceding Regulatory Cycle.

The proposed new fixed principles terms and conditions are consistent with and supplement the existing fixed principles terms and conditions. They have the same qualifying conditions as the existing fixed principles terms and conditions, and have a notional fixed period extending to the expiry of the SAU in 2040 (the same as the existing fixed principles terms and conditions).

nbn considers that the proposed new fixed principles terms and conditions:

- promote the LTIE and are reasonable;
- will not prevent the ACCC from ensuring that the SAU only contains terms and conditions which promote the LTIE and are reasonable; and
- are objectively ascertainable, do not involve discretion and are critical to ensuring long-term certainty of **nbn**'s network investment.

Accordingly, **nbn** submits that the ACCC should accept these four new fixed principles terms and conditions.

23.1 Fixed principles terms and conditions in current SAU

The current SAU establishes fixed principles terms and conditions which preserve and roll forward the value of the ICRA and the value of **nbn**'s RAB for the duration of the SAU term. Clause 5.3 of the current SAU specifies the following four fixed principles terms and conditions:

- Clause 2C.2.1(a), which specifies the minimum building blocks which are used to calculate the Forecast Nominal ABBRR must specify for a given Financial Year within a Regulatory Cycle;
- Clause 2C.5.4(a) (clause 2C.4.2(a) in the Variation), which specifies the methodology for rolling forward the ICRA in circumstances where the Subsequent Regulatory Period starts within the Initial Cost Recovery Period;
- Clause 2C.7.2 (clause 2C.9.2 in the Variation), which ensures that the Real RAB at the commencement of the Subsequent Regulatory Period will be the Real RAB at the end of the Initial Regulatory Period; and

- Clause 2C.7.3(a) (clause 2C.9.4(a) in the Variation), which specifies how the value of the Real RAB at the commencement of a Regulatory Cycle, other than the First Regulatory Cycle, will be calculated by rolling-forward the Real RAB from the immediately preceding Regulatory Cycle.

23.2 New fixed principles terms and conditions

nbn is proposing to vary the SAU by specifying four new fixed principles terms and conditions in clause 5.3 of the SAU:

- Clause 2C.2.2, which specifies the minimum building blocks which are used to calculate the Forecast Nominal Core Services ABBRR for a given Financial Year within a Regulatory Cycle;
- Clause 2C.4.4, which specifies how the value of the Real Core Services ICRA as at 1 July 2023 will be calculated, for the purposes of calculating the Forecast Core Services Revenue Cap for all Regulatory Cycles after the First Regulatory Cycle;
- Clause 2C.9.3, which ensures that the value of the Real Core Services RAB Portion at the commencement of the Subsequent Regulatory Period will be the Real Core Services RAB Portion at the end of the Initial Regulatory Period; and
- Clause 2C.9.5(a), which specifies how the Real Core Services RAB Portion at the commencement of a Regulatory Cycle, other than the First Regulatory Cycle, will be calculated by rolling-forward the Real Core Services RAB Portion at the commencement of that immediately preceding Regulatory Cycle.

These new fixed principles terms and conditions relate to the separation of costs incurred in connection with Core Regulated Services into the Core Services RAB Portion, Real Core Services ICRA and Core Services ABBRR, as described in section 13.2.

These fixed principles terms and conditions have direct analogies with existing fixed principles terms and conditions applicable to the RAB, ICRA and the Forecast Nominal ABBRR and extend no further than those existing fixed principles terms and conditions.

The qualifying circumstances and the notional fixed period applicable to the new fixed principles have the same effect as those applicable to the existing fixed principles terms and conditions under the SAU.

23.3 The new fixed principles are reasonable and should be accepted

As discussed in section 13.2, **nbn** has separately allocated costs into the Core Services RAB Portion and provided for a separate revenue control to apply to Core Regulated Services. **nbn** has also separately allocated costs into the Real Core Services ICRA. **nbn** has performed these allocations to:

- promote greater confidence that **nbn** does not cross-subsidise particular business-grade services from its Core Regulated Services; and
- ensure that **nbn**'s revenue cap applies only to **nbn**'s Core Regulated Services.

nbn submits that it is appropriate to include the four new fixed principles terms and conditions as they are critical to ensuring long-term certainty of **nbn**'s network investment.

In the ACCC's Draft Decision in relation to the SAU in 2012, the ACCC noted:

> *As a general proposition, the ACCC considers that only those matters which are reasonably necessary for providing certainty about long-term cost recovery should be specified as fixed principles.*

This statement aligns with the Explanatory Memorandum to the Bill when fixed principles terms and conditions were introduced into Part XIC which specified that fixed principles terms and conditions are intended "*to provide greater regulatory certainty in certain circumstances*" and gave the example that a fixed principle could be used to "*lock in a regulated asset base for the requisite period*".[239] The effect of a term or condition being a fixed principle is described in chapter 22.

As mentioned above, each of the four new fixed principles terms and conditions have analogues or equivalents with the existing fixed principles terms and conditions applicable to the calculation of the value of the RAB, ICRA and the ABBRR (when treated as a whole). The ACCC accepted these fixed principles terms and conditions in 2013. In doing so, the ACCC noted that:[240]

> *…the only matters in the SAU that should be specified as a fixed principle are those:*
>
> - *relating to long-term cost recovery in Module 2 and the content of replacement modules; and*
> - *where there is limited scope for multiple interpretations such that the term or condition could be implemented or operationalised in a future SAU in a manner which does not meet the statutory criteria.*

nbn notes that specifying matters relating to long-term cost recovery as fixed principles terms and conditions was considered by the ACCC to operate consistently with the ACCC's approach to fixed principles provisions in the 2011 Fixed-Line Services Final Access Determinations and the AER's approach in the gas access arrangements.[241]

nbn submits that the four new fixed principles terms and conditions satisfy both of these criteria. The proposed fixed principles terms and conditions, consistent with the existing fixed principles terms and conditions, are also objectively ascertainable and do not involve discretion. **nbn** submits that each of the proposed new fixed principles terms and conditions will still be reasonable in the context of a future assessment of a new SAU or a proposed variation to the SAU. **nbn** addresses the four new fixed principles terms and conditions in more detail below.

23.3.1 New clause 2C.2.2 – Forecast Nominal Core Services ABBRR

New clause 2C.2.2 specifies the minimum building blocks which are used to calculate the Forecast Nominal Core Services ABBRR for a given Financial Year within a Regulatory Cycle.

Relevantly, the Forecast Nominal Core Service ABBRR represents a level of Core Services Revenue which would allow **nbn** to earn an appropriate return on the forecast Core Services RAB Portion and cover forecast depreciation, opex and taxation expenses attributable to Core Regulated Services. The Forecast Nominal Core Service ABBRR will be included in each Replacement Module and just as the Forecast Nominal ABBRR calculation is important for **nbn**'s long-term certainty, the Forecast Nominal Core Services ABBRR calculation is similarly important. The Forecast Nominal Core Services ABBRR is calculated in clause 2C.2.2 the same way (i.e., at a minimum, taking into account specified elements) as the Forecast Nominal ABBRR is calculated in existing fixed principles clause 2C.2.1(a), albeit in the narrower context of determining **nbn**'s revenue allowance from Core

[239] Explanatory Memorandum to the *Telecommunications Legislation Amendment (Competition and Consumer Safeguards) Bill 2010*, p. 180. While this reference was in relation to fixed principles for access determinations, rather than special access undertakings, the concept of fixed principles for access undertakings has the same function.

[240] ACCC, *Explanatory Statement on Variation of NBN Co SAU*, October 2013, p. 93.

[241] Final 2013 Decision, pp. 111-112.

Regulated Services. That is, the formula used to calculate the Forecast Nominal Core Services ABBRR is specified in the Variation with the same level of specificity, detail and certainty as the existing fixed principles formula for the Forecast Nominal ABBRR.

23.3.2 New clause 2C.4.4 – opening value of Real Core Services ICRA

New clause 2C.4.4 specifies how the value of the Real Core Services ICRA as at 1 July 2023 will be calculated, for the purposes of calculating the Forecast Core Services Revenue Cap for all Regulatory Cycles after the First Regulatory Cycle.

In the same manner as the rolling forward of the ICRA, specified in existing fixed principles clause 2C.5.4(a) (clause 2C.4.2(a) in the Variation), is essential to **nbn**'s regulatory certainty, **nbn** believes specifying how the value of the Real Core Services ICRA as at 1 July 2023 will be calculated, for the purposes of calculating the Forecast Core Services Revenue Cap in all Regulatory Cycles after the First Regulatory Cycle, specified in clause 2C.4.4, is also essential for regulatory certainty and the promotion of long-term cost recovery. The value of the Real Core Services ICRA as at 1 July 2023 will be calculated by relying on processes set out in Module 1 of the current SAU (i.e., applying a cost allocation methodology to the values determined in the LTRCM Determinations issued by the ACCC to determine an amount of unrecovered costs attributable to Core Regulated Services in Financial Years 2020/21, 2021/22 and 2022/23) and by anchoring the value of the Nominal Core Services ICRA at 1 July 2023 to the 1 July 2020 Nominal Core Services ICRA, which is specified in dollar terms in the Variation.

23.3.3 New clauses 2C.9.3 and 2C.9.5(a) – opening value of Real Core Services RAB Portion

New clause 2C.9.3 ensures that the value of the Real Core Services RAB Portion at the commencement of the Subsequent Regulatory Period will be the Real Core Services RAB Portion at the end of the Initial Regulatory Period. Further, new clause 2C.9.5(a) specifies how the Real Core Services RAB Portion at the commencement of a Regulatory Cycle, other than the First Regulatory Cycle, will be calculated by rolling-forward the Real Core Services RAB Portion at the commencement of that immediately preceding Regulatory Cycle.

In the same manner as the value of the RAB (both the commencing value and the rolling value) specified in clauses 2C.7.2 (clause 2C.9.2 in the Variation) and 2C.7.3(a) (clause 2C.9.4(a) in the Variation), is essential to **nbn**'s long-term certainty, **nbn** believes the value of the Core Services RAB Portion (the commencing value and the rolling value) specified in clauses 2C.9.3 and 2C.9.5(a) is also essential. The value of the Core Services RAB Portion is a key input into the Forecast Nominal Core Services ABBRR. The value of the Real Core Services RAB Portion at the commencement of the Subsequent Revenue Period is also anchored to the Real Core Services RAB Portion at 1 July 2020, which is specified in dollar terms in the Variation, and therefore objectively ascertainable. Specifying the value of the Core Services RAB Portion, along with the rolling forward of the Core Services RAB Portion, **nbn** is fundamentally ensuring that the value of the Core Services RAB Portion cannot be reopened at some future time (absent a re-categorisation of services as being either Core Regulated Services or Competitive Services), which could lead to windfall gains or losses to **nbn** giving rise to significant regulatory uncertainty.

23.4 Notional fixed period and qualifying circumstances

The notional fixed period applicable to the four new fixed principles terms and conditions is co-terminus with the notional fixed period applicable to the existing fixed principles terms and conditions. Such a period was considered to be reasonable by the ACCC and "*consistent with providing NBN Co with greater certainty about its ability to achieve long-term cost recovery over the term of the SAU*". [242]

Further, the qualifying circumstances applicable to the four new fixed principles terms and conditions are the same as those which apply to the existing fixed principles terms and conditions, and which were also considered to be reasonable in 2013.

[242] Final 2013 Decision, p. 111.

Appendices

Appendix A Decision not to adopt a WAPC at this time

The ACCC has suggested that **nbn** should adopt the use of a WAPC, and **nbn** has given detailed consideration to the suitability of doing so, both in the short and longer term. Based on **nbn**'s understanding of the ACCC's proposed form of a WAPC as well as the operational experience of WAPC arrangements in other sectors, **nbn** does not believe it is appropriate to move to a WAPC arrangement at this time.

nbn appreciates that a WAPC is one form (but not the only form) of regulation affording **nbn** pricing flexibility which may facilitate efficient pricing. Further, **nbn** agrees that there are in theory certain advantages to **nbn** from a WAPC. However, **nbn** is of the belief that a WAPC is not the appropriate design choice for a dynamic sector such as broadband at this time or in **nbn**'s current circumstances, particularly in the First Regulatory Cycle during which the theoretical conditions in which **nbn** could benefit from a WAPC have little to no prospect of arising. Rather **nbn** would face revenue sufficiency risk under a WAPC at this time.

First, one of the principal claimed benefits of a WAPC is that it affords access providers price flexibility to enable the efficient price discovery described in chapter 12. However, if the WAPC is combined with a wide range of far-reaching side constraints, as proposed by the ACCC, then this advantage is removed, i.e., by limiting the range of price constructs **nbn** can offer the market. By comparison, **nbn**'s proposal to adopt individual price controls with limits on **nbn**'s ability to discount provides more efficient price signals.

Secondly, a WAPC (as an alternative to a revenue control) depends on a particular view of demand, i.e., a stable, mature and symmetric long-term demand, and requires that **nbn** is in the best position to control demand and demand fluctuations. As broadly discussed in section 13.4, **nbn** does not see any compelling evidence suggesting this is a situation it will face, for at least the next SAU Regulatory Cycle. Moreover, as has been acknowledged in respect of other regulated entities in the broadband sector, a WAPC is inappropriate when there is actual demand side uncertainty, where the regulated entity does not control or manage that demand. This demand uncertainty for broadband services is particularly acute, given the substitution risks, the uncertainty associated with forecasting speed tier mix which is largely controlled by the RSPs themselves and the very significant demand uncertainties associated with **nbn** moving to a new AVC-only price construct.

Thirdly, demand uncertainty and gaming of historic demand has been one of the key reasons why other regulators, including the AER, have moved away from WAPCs, even in sectors with far more stable and predictable demand than broadband services. It is a recognised risk of a WAPC that the regulated entity may seek to set demand forecasts conservatively to manage its risk, thus enabling the capturing of revenue above the building block revenue. This regulatory gamble is an unfortunate consequence for all parties of a WAPC and is undesirable.

In its draft FANOC Decision, the ACCC noted four factors that impact the efficacy of a WAPC when applied in practice. The fourth reason related to "*significant differences between the market conditions in the energy and telecommunications sectors*". The ACCC noted that *"market conditions – such as cost and demand conditions – relevant to pricing access for gas and electricity assets are (to a large degree) reasonably well understood both by the regulator and market participants… Using a weighted average price cap in these circumstances is likely therefore to result in more stable and predictable adjustments to prices over time. This differs from the case of broadband services, where both the cost involved and the demand for the services are less certain, and may require substantial price variations over time to allow prices to adjust to evolving market conditions"*.

In New Zealand, Chorus must comply with a price-quality path set by the Commerce Commission with respect to its regulated fibre fixed-line access services. The *Telecommunications Act 2001* (NZ) requires that for the first regulatory period, the Commerce Commission must set that price-quality path by reference to a revenue cap and must not set maximum prices. The statutory obligation to use a revenue cap model in the first regulatory period arose from a telecommunications regulatory reform project by the Ministry of Business, Innovation and Employment (**MBIE**). In that project, the MBIE contemplated various forms of price control and ultimately recommended a revenue cap over a WAPC or other forms of control, given the demand uncertainty and competitive threats faced by Chorus as a national wholesale broadband provider.

Fourthly, as discussed above and in section 13.4, with **nbn**'s large and highly dynamic product and pricing set, it is more difficult to deliver price certainty to RSPs with a WAPC. In particular, the weighting for each individual RSP will be different to the industry weighted average used to determine whether the WAPC has been met or not. As a result, an allowable price increase (or decrease) under the WAPC could result in a RSP being afforded more or less price protection than anticipated, depending on whether its product weighting relative to the industry average means it is more or less affected by the particular range of price changes.

Finally, **nbn** believes that a WAPC will be highly administratively complex to set up front and potentially highly complex to comply with. Other than the fundamental issue of demand uncertainty described above, issues with a WAPC in a dynamic environment include selecting the services that fall within the scope of the WAPC in a multi-product environment, how new services are to be treated, how demand forecasts are to be developed, how pricing approval processes would work while permitting critical price discovery, and how the WAPC would deal with conditional discounting by **nbn** that is varied in nature and over time, amongst many other issues. Further, from a compliance perspective, it can be difficult for a regulated entity to know whether it has complied with the WAPC for some months after the end of the relevant regulatory control period because of the uncertainty of demand and how it is recorded.

However, **nbn** recognises that the SAU is a long-term regulatory instrument, and a WAPC may be suitable to introduce at some stage during its term. **nbn** has therefore included a mechanism for the price controls to potentially move to a WAPC, as described in section 20.5.

Appendix B Expenditure Forecasts

B.1 Overview of expenditure forecasting

This section provides an overview of **nbn**'s expenditure forecasting for the purpose of the RMA for the First Regulatory Cycle (FY24 and FY25). Subsequent sections provide a breakdown of the Capital Expenditure (capex) and Operating Expenditure (opex) forecasts.

This section is organised as follows:

- Section B.1.1 provides some relevant context for **nbn**'s expenditure forecasting;
- Section B.1.2 describes **nbn**'s overall approach;
- Section B.1.3 describes **nbn**'s forecasting methodology;
- Sections B.1.4 to B.1.10 unpack those elements of the forecasting methodology and its application that are common across capex and opex:
    - expenditure objectives;
    - prudency and efficiency concepts;
    - demand forecasting methodology;
    - product and network roadmaps;
    - capex and opex interactions;
    - risk and uncertainty; and
    - expenditure governance processes.

These forecasts are provided solely for the purpose of assisting the ACCC in its assessment of **nbn**'s RMA for the First Regulatory Cycle. They should not be relied upon for any purpose not related to this regulatory process. Forecasts in this document reflect **nbn**'s current views and assumptions (as at March 2022), including a considered assessment of present economic and operating conditions, and are subject to risks and uncertainties.

B.1.1 Context

As discussed in **nbn**'s FY22 Corporate Plan,[243] with the initial build of the **nbn**™ network completed, **nbn** is embarking on the next stage of its evolution to continually enhance this critical communications asset on behalf of the Commonwealth Government for all Australians. In addition to managing the progressive transition from building to running the **nbn**™ network, last year **nbn** announced a number of major network upgrade initiatives that are currently well underway.

In support of this, **nbn**'s Shareholder Ministers issued a new Statement of Expectations to **nbn** on 26 August 2021.[244] This statement places obligations and requirements on **nbn** in a number of areas, including major initiatives.

[243] See: **nbn**, Corporate Plan, 2022.

[244] Statement of Expectations issued to **nbn** on 26 August 2021.

In satisfying the Statement of Expectations, **nbn** faces existing intrinsic incentives to plan and undertake expenditure only where it is both prudent and efficient. These incentives derive from the level of accountability and oversight **nbn** faces as a GBE, in addition to a range of underlying commercial incentives, which are complemented by several provisions within the SAU.

- **nbn**'s intrinsic incentives arise from several sources including: oversight from Shareholder Ministers and Parliament; capital constraints; competition from rival networks (fixed, mobile and satellite); and uncertainty over whether future revenues will be sufficient to recover costs over the long-term given evolving technology, applications and demand.
- Module 1 of the SAU includes a prudent design condition and a prudent cost condition that **nbn** satisfies by aligning its capex with a published set of Network Design Rules (as updated over time under the SAU) and undertaking all expenditure consistent with a set of Procurement Rules as provided to the ACCC (and updated over time under the SAU). These requirements are embedded within **nbn**'s expenditure governance and planning processes. For each Financial Year in Module 1, **nbn**'s Chief Financial Officer provides a signed report to the ACCC which certifies **nbn**'s compliance with its SAU expenditure conditions, and **nbn**'s EGM of Procurement provides similar certification in respect of **nbn**'s Procurement Rules.

B.1.2 Overall approach

nbn has based its expenditure forecasts, in real terms, for this initial (FY24 and FY25) RMA on the Integrated Operational Plan that underpins **nbn**'s FY22 Corporate Plan. The IOP covers the years FY22 to FY25 and is the outcome of a bottom-up planning process. The IOP has already been reviewed and approved/endorsed by **nbn**'s Executive Committee, Board, Shareholder Departments and Shareholder Ministers.

The IOP expenditure forecasts are appropriate for use within the SAU's Long Term Revenue Constraint Methodology because they account for the progressive transition from building to running the **nbn**™ network, include only prudent costs and factor in future efficiency gains. Given the nature and extent of the ongoing transition (as discussed in more detail in section B.3), the IOP's bottom-up approach is expected to result in a more accurate forecast over the period to FY25 as compared to traditional top-down approaches such as the base-step-trend technique for forecasting opex, as used in regulating other infrastructure sectors.

In addition, **nbn** notes that the IOP's bottom-up approach effectively includes base-step-trend type adjustments but does so at a detailed level from the bottom up rather than at the aggregate level from the top down. Consistent with this, the IOP already factors in anticipated productivity gains on individual programs and there is therefore no need to apply a top-down productivity growth factor (such as the 0.5% per year used by the AER after adjusting for growth in input prices and output). Indeed, to do so would be logically inconsistent with the IOP's bottom-up methodology (or, in other words, it would duplicate the productivity gains already factored into the IOP).

From a practical perspective, the dominant factors for expenditure over the period to FY25 are the transition from building to running the **nbn**™ network together with the major network upgrade initiatives. Nonetheless, as set out in more detail in section B.3, **nbn** is continuing to pursue productivity gains across all areas of activity, including as part of making the transition – by way of example:

- **nbn** has forecast productivity gains in the areas of Network Power and Service Assurance despite increases in the volume of network traffic and the number of activated premises requiring assurance;

- labour costs, which are forecast to [**Commercial-in-Confidence**] due to the transition, have been subject to top-down benchmarking and bottom-up analysis of requirements, and [**Commercial-in-Confidence**]; and
- **nbn** has also forecast capex-related productivity gains that will reduce the quantity of inputs required to deliver network outputs over time, with some prime examples including the truck roll reduction program (relevant to Customer Connect), management of the triggers for capacity augmentation, and the IT Simplification Initiative.

B.1.3 Forecasting methodology

The methodology for developing the IOP expenditure forecasts is depicted at a high level in Figure 10 below. Key points to note include:

- The governance process that surrounds the IOP's development each year is rigorous and worked through over several months prior to the plan being finalised. As part of that process, **nbn**'s Executive Committee, Board, Shareholder Departments and Shareholder Ministers have formal roles to play in reviewing and endorsing the plan.
- The methodology is re-applied each year on a bottom-up basis to chart a detailed operational and financial course starting from an actual base year (e.g., FY21) and forecasting forward four years (e.g., FY22 to FY25) in a manner that best meets **nbn**'s expenditure objectives (many of which are long-term in nature).
- Although it covers only four years, the IOP is informed by and aligned with much longer term (10 year) product and network roadmaps that are built on long-term demand forecasts.
- There is a strong focus within the IOP on driving operational efficiency improvements and on the prudency of all planned expenditure (in respect of meeting both the current and future needs of end-users).

The bottom-up operational and financial planning that is at the core of the methodology makes it highly flexible, such that it can better account for changes of context such as those **nbn** is now going through with the transition from building to running the **nbn**™ network.

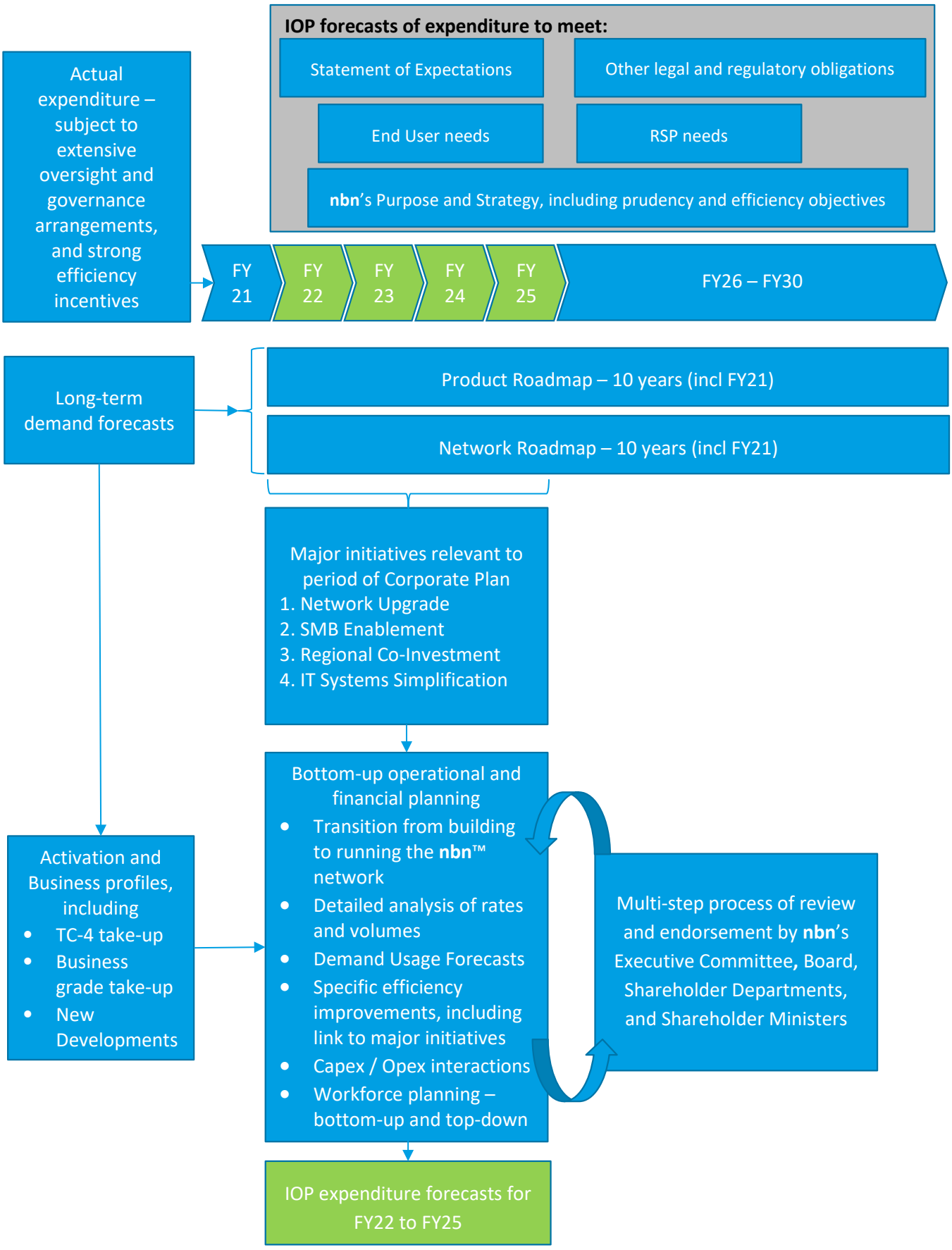


Figure 10. High level methodology for development of IOP expenditure forecasts

B.1.4 Expenditure objectives

Statement of Expectations

As a GBE, the principal responsibility of **nbn** is to build and operate the **nbn**™ network in accordance with the SOE – the current version having been issued by **nbn**'s Shareholder Ministers on 26 August 2021. The SOE is broadly expressed, requiring **nbn** to meet the current and future broadband demand of households and businesses while achieving certain service, competition, commercial, stakeholder and transparency objectives (within the parameters of its relevant legal and regulatory obligations). The SOE is not fixed, with **nbn** having previously received SOEs from its Shareholder Ministers in 2010, 2014 and 2016.[245] For the purposes of applying the IOP expenditure forecasting methodology, the SOE serves to define **nbn**'s expenditure objectives generally and in many cases specifically, as is evident in the (non-exhaustive) selection of points extracted from the current SOE below.

- **Overall objective:** **nbn** will reliably and affordably meet the current and future broadband needs of households and businesses, including in regional and remote Australia, foster productivity and innovation, and support the Government's goal for Australia to be a leading digital economy and society by 2030.
- **Minimum requirements:** **nbn** is the default Statutory Infrastructure Provider (SIP) for all of Australia and, where it is the SIP, it must meet legal obligations, including in relation to minimum service speed and network performance requirements.
- **Upgrades over time:** Within its capital constraints, **nbn** will continue to upgrade the network technologies to support retailers to meet demand from end-users which exceeds these minimum requirements, including implementing current plans to expand access to peak download speeds of up to 1Gbps.
- **Services for businesses:** **nbn** should act pro-competitively in supplying wholesale broadband services to retailers to support business end-users' needs. The Company should earn commercial returns in supplying these services. In supplying business-grade services, **nbn** should aim to improve retail and infrastructure competition and access for businesses, including in less well served areas.
- **Improving consumer experience:** **nbn** will work with retailers to enhance and integrate systems and processes to enable timely and transparent provision of information to end-users, improve service quality, efficiently and effectively resolve faults and outages and, where they do occur, proactively manage complaints. **nbn** will also deliver a reliable, resilient and secure network.
- **Regional and remote:** **nbn** will improve its wholesale services and assist in addressing access challenges in regional and remote areas.
- **Efficiency:** **nbn** will be efficient in its own operations.
- **Operating commercially:** Taxpayers have made a substantial investment in **nbn** and the Company will operate its business commercially.

Relationship to approach for future Replacement Modules

nbn's current expenditure objectives as described above, underpin the approach **nbn** has proposed for inclusion in the SAU (see section 8.1.2) to guide the assessment of the prudency and efficiency of **nbn**'s expenditure in future RMAs. **nbn** considers that the Expenditure Objectives proposed in the Variation are commercially

[245] An interim statement of expectations was also issued in 2013.

reasonable and reflect **nbn**'s context, including **nbn**'s accountabilities as a GBE, as expressed in policy, **nbn**'s SOE and legislation. In respect of each Regulatory Cycle, **nbn** commits to ensure that its opex and capex reasonably reflects what a prudent and efficient operator, acting in accordance with good industry practice in **nbn**'s position would incur in achieving the following objectives (**Expenditure Objectives**):[246]

a) *meeting or managing the expected demand for products and services during the Regulatory Cycle;*

b) *complying with, and otherwise responding as reasonably necessary to give effect to or prepare for, any relevant Regulatory Requirements or Regulatory Change Events applicable to **nbn** providing products and services;*

c) *implementing a project or program in relation to which the Shareholder Ministers have issued a notice to **nbn** stating that the project or program is endorsed by the Shareholder Ministers and is consistent with Government policy;*

d) *maintaining the quality, reliability, safety, security and integrity of supply of any products and services, taking into account current and reasonably anticipated future market conditions (including the extent to which **nbn** must adjust quality to meet competition); and*

e) *maintaining a national network coverage that provides ubiquitous access to all Australian residential and business premises.*

B.1.5 Prudency and efficiency concepts

General

Consistent with the requirements of clause 2C.2.5 of the Variation, **nbn** submits that the expenditure forecasts developed through the IOP reflect the expenditure that a prudent and efficient operator in **nbn**'s position, acting in accordance with good industry practice, would incur in achieving the Expenditure Objectives, as described above.

The SAU provides that expenditure will be:

- the expenditure that a prudent operator in **nbn**'s position, acting in accordance with good industry practice, would incur if the expenditure reflects a reasonable choice amongst available alternatives; and
- the expenditure that an efficient operator in **nbn**'s position, acting in accordance with good industry practice, would incur if the expenditure is likely to lead to the lowest Total Cost of Ownership or highest value outcome over time.

These definitions are a generalisation of those applied by Analysys Mason in its 2012 report for **nbn** on the prudency and efficiency of the network design, which used the following framework:

> *in reviewing the 'prudency' of network design decisions made by NBN Co, we have had regard to whether those decisions have been made with care and thought for the future based on various factors, such as scalability, resilience and flexibility of the relevant element of the network design*
>
> *in reviewing the 'efficiency' of the network design decisions made by NBN Co, we have had regard to whether those decisions are likely to achieve the maximum result with minimum wasted effort or expense in the circumstances.*[247]

[246] Variation, cl 2C.2.5(a)(iii).

[247] Analysys Mason, *Review of the efficiency and prudency of NBN Co's fibre, wireless and satellite network design*, September 2012, p. 15. Access: Microsoft Word - Analysys Mason fibre, fixed wireless and satellite design report (Public Version)_61003022.1 (accc.gov.au).

It is important to note that **nbn**'s Expenditure Objectives as described above are non-discretionary in nature, which in practice constrains the basis on which expenditure is considered for prudency and efficiency. As described by the ACCC in 2013 in relation to applying its framework for assessment of the SAU price-related terms and conditions:

> *Of note, in this context, the ACCC refers to a 'constrained efficiency' — that is, the ACCC is not considering the efficiency of the Government's directions to NBN Co about the infrastructure that NBN Co should build, the services that it should supply, and the timeframe in which this should be done. Rather, it is considering whether the implementation of that policy is efficient.* [248]

nbn submits that this same concept of 'constrained efficiency' remains just as relevant and applicable as it was when the ACCC was assessing the SAU in 2013. This is because the network that **nbn** is currently operating, maintaining and upgrading is the product of past and current Government directions, and how **nbn** evolves the network over time will likewise be the product of current and future Government directions. In these circumstances, it is important for **nbn** to be certain that it will be allowed to generate revenues sufficient to support the opex and capex required to run the network as built and to upgrade it over time to meet end-user needs, consistent with the SOE.

Telstra Arrangements and Optus Arrangements

Given the significance of the Telstra Arrangements and the Optus Arrangements to the development and ongoing operation of the **nbn**™ network and the very long-term nature of these arrangements, the SAU includes specific provisions relating to how the opex and capex associated with these arrangements should be treated within the LTRCM. Essentially, these provisions mean that any payments forecast to be made under the Telstra Arrangements and the Optus Arrangements for a given regulatory period should be included in the relevant forecast expenditure allowances without any prudency and efficiency assessment.

- Opex - clause 2C.2.1(a)(i) provides that the forecast opex to be included in the Annual Building Block Revenue Requirement "*is to include any Operating Expenditure to be incurred pursuant to the Telstra Arrangements or the Optus Arrangements*". This clause was in the SAU accepted by the ACCC in 2013.
- Capex - clause 2C.7.7(b) of the current SAU provides that the forecast capex to be included in the Forecast Real RAB for calculating Forecast Nominal ABBRR is to include "*any Capital Expenditure to be incurred pursuant to the Telstra Arrangements or the Optus Arrangements*." The same position is given effect in the Variation through clauses 2C.9.9 and 2C.2.5.

B.1.6 Demand forecasting methodology

The IOP expenditure forecasts rely on two sets of demand forecasts:

- high-level, long-term demand forecasts that drive the product and network roadmaps and strategic decisions on the evolution of the **nbn**™ network; and
- detailed short to medium-term demand forecasts that drive the business-as-usual opex and capex activity levels, including in relation to new initiatives (such as the Network Upgrade Initiative) once implemented.

The development of each of these, together with the forecasts themselves, is discussed separately in Appendix C.

[248] ACCC, *Draft Decision about the 2012 NBN Co Special Access Undertaking*, April 2013, p. 98.

B.1.7 Product and network roadmaps

Informed by the long-term and short to medium-term demand forecasts, **nbn** maintains linked product and network roadmaps that extend out 10 years and are updated annually as input into the IOP development process.

The product roadmap considers market and technology trends and end-user needs for various product capabilities (including bandwidth). Although the later years of the roadmap are somewhat indicative, they serve to highlight lifecycle events/opportunities and emerging capacity/capability gaps in the **nbn**™ network and the timeframes within which decisions may be required in order to avoid issues arising from unmet demand.

The network roadmap considers how the **nbn**™ network will need to evolve to support the product roadmap and, ongoing (business-as-usual) demand growth. In so doing, the network roadmap considers various options for how to coordinate lifecycle replacement and upgrades to newer and more capable generations of technology that may also have lower ongoing costs. The long-term view provided by the network roadmap is a key input into strategic investment decisions such as the Network Upgrade Initiative (as described in section B.2.5).

B.1.8 Capex and Opex interactions

As part of the IOP, opex and capex are forecast on an integrated basis such that opex reductions that are expected from capex projects (such as the IT Systems Simplification Initiative and the Network Upgrade Initiative) are factored into the forecasts. More fundamentally, expenditure planning is undertaken with a view to minimising the Total Cost of Ownership over time, having regard to both up-front capex, ongoing opex and any subsequent capex required.

B.1.9 Risk and uncertainty

The IOP expenditure forecast represents a balanced scenario and is subject to a number of risks and uncertainties including in regard to:

- demand (new developments, access speeds, busy hour traffic, high speed upgrades, business upgrades);
- the nature and extent of future competition (which will affect demand, and potentially also affect the timing of upgrade plans);
- technology change relating to the network itself and how it is used (which will affect the optimal upgrade path by changing both the supply and demand side, e.g., through advances in FTTP technology/cost, and video compression technology);
- timing and extent of projects under the Regional Co-Investment Initiative (as described in section B.2.5); and
- future Commonwealth Government requirements.

To some degree, these risks and uncertainties are addressed through the choice of a relatively short period for this initial RMA. However, the SAU does also include a cost pass-through mechanism (see section 14.5), which provides for **nbn** to apply to the ACCC if certain cost pass-through events occur.

At the end of the Regulatory Cycle, **nbn**'s capex will be subject to an ex-post review of prudency and efficiency (see section 14.3.5). This assessment will be based on the information that was available to **nbn** at the time the relevant decisions were made, including information on the nature and extent of relevant risks and uncertainties.

B.1.10 Expenditure governance processes

After the IOP is completed each year there is a transition from planning to implementation, and **nbn**'s expenditure governance processes are applied to all opex and capex.

- All expenditure is subject to **nbn**'s procurement and delegation of authority policies. These policies meet the requirement under Module 1 of the SAU to maintain a set of Procurement Rules and their application provides the basis for **nbn** to satisfy the Prudent Cost Condition under Module 1 of the SAU.
- For opex, **nbn**'s Executive Committee provides oversight against business unit budgets, including in relation to achievement of key operational metrics and forecast efficiency improvements.
- For capex, **nbn**'s Investment Committee provides oversight of all projects, and no purchase order commitments can be made without prior Investment Committee approval. IT projects are subject to annual and half-year prioritisation exercises. The capex oversight process includes ensuring that **nbn** satisfies the Prudent Design Condition under Module 1 of the SAU.

B.2 Capital Expenditure

B.2.1 Overview

This section provides a breakdown of **nbn**'s forecast capex for the First Regulatory Cycle (FY24 and FY25), including the rationale for the forecast. The forecast is based on **nbn**'s Integrated Operational Plan (IOP) for FY22 to FY25, which was developed using the methodology described in section B.1. The IOP includes only prudent costs and factors in future efficiency gains.

For context, FY21 actuals and FY22 and FY23 forecasts are presented throughout this section in addition to the FY24 and FY25 forecasts that are the subject of this initial RMA.

Forecast capex has been summarised into five categories relating to the purpose of the expenditure:

- **Expansion:** capex required to expand the coverage of the **nbn**™ network to complete the last parts of the initial build and cater for new developments (with capex for connecting individual premises to the network in the street captured as part of Take-up & Usage below);
- **Take-up & Usage:** capex required to connect individual premises on demand (in brownfield and greenfield areas) to the **nbn**™ network based on the network type as currently deployed in the street, and to augment shared capacity to accommodate increasing usage of the **nbn**™ network over time;
- **Maintaining:** capex required to maintain the existing capability of the **nbn**™ network;
- **Capability:** capex required to increase the capability of the **nbn**™ network to align with growing demand from end-users for access to higher speed TC-4 services and business-grade services; and
- **Other:** capex required across several other categories, including IT (Software Engineering).

In this section, capex is presented on an 'as incurred' basis, which is more meaningful for explaining the profile of spending over time. For use in the LTRCM, forecast capex is converted separately to an 'as commissioned' basis[249]

[249] This conversion is undertaken for forecast capex in nominal terms (noting that construction in progress is not indexed for inflation from year to year within the LTRCM) and assumes an average six-month lag between when capex is incurred and when it is commissioned. This is implemented using half year capex profiles – for example, as-commissioned capex for FY23 is equal to the sum of as-incurred capex in H2 FY22 and as-incurred capex in H1 FY23.

and broken into asset categories for depreciation purposes together with a start-of-year and end-of-year construction in progress balance.

As depicted in Figure 11 and set out in Table 10 below, **nbn**'s total capex is forecast to increase in real terms in FY22 and FY23 and then to decrease in FY24 and again (but to a lesser degree) in FY25.

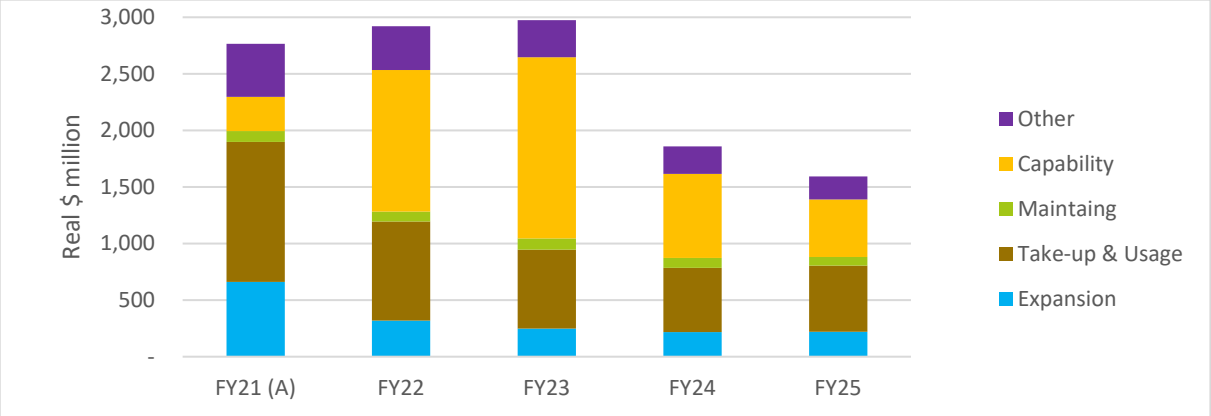


Figure 11. Capex by category, Real $million (June 2020)

Table 10. Capex by category, Real $million (June 2020)[250]

Capex by category	FY21 (A)	FY22	FY23	FY24	FY25
Expansion	660	320	249	218	222
Take-up & Usage	1,237	874	698	569	583
Maintaining	95	88	100	87	77
Capability	304	1,252	1,599	741	508
Other	468	388	329	244	203
Total Capex	**2,764**	**2,923**	**2,973**	**1,858**	**1,592**

Capex in FY25 is forecast to be 42.4% lower in real terms than in FY21, comprising:

- a 15.9% decrease in total capex due to lower Expansion capex – after the last remaining parts of the initial build are completed the ongoing growth in the coverage of the **nbn**™ network comes only from new developments;
- a 23.7% decrease in total capex due to reduced Take-up & Usage capex – following the end of the initial rollout, capex required to connect premises migrating from legacy networks to the **nbn**™ network is forecast to taper off, but there will still be substantial ongoing capex required to connect individual premises in new developments (on-demand), undertake other continuing activities in relation to connection and service assurance, and increase capacity in various parts of the **nbn**™ network to avoid local congestion issues (for example, in relation to a particular Fixed Wireless cell site) and to accommodate overall traffic growth;

[250] Real values presented in this Appendix B are on a June 2020 basis. As noted in chapter 17, the SAU refers to FY14 Real values, as that was the Financial Year in which the SAU was accepted.

- a 0.6% decrease in total capex due to lower Maintaining capex – given that the initial rollout of the **nbn**™ network has only just been completed, **nbn** does not face any major lifecycle replacements over the forecast period and Maintaining capex largely relates to ongoing Copper Remediation for the FTTN network to mitigate time-based degradation. The forecast accounts for the effect of the Network Upgrade Initiative (part of the Capability category below), without which there would be a greater need for Copper Remediation over time;
- a 7.4% increase in total capex due to higher Capability capex – the Network Upgrade Initiative and SMB Enablement Initiative involve ongoing capex for on-demand FTTP and direct fibre connections. Together with the Regional Co-Investment Initiative that finishes in FY24 and significant up-front Network Upgrade capex in FY22 and FY23, these Initiatives are aligned with growing demand from end-users for access to higher speed TC-4 services and business-grade services over the period to FY25 and beyond; and
- a 9.6% decrease in total capex due to reduced Other capex – this reflects the completion of several projects relating to Network Management and IT (including the IT Systems Simplification Initiative and projects that support the Network Upgrade Initiative and the SMB Enablement Initiative).

Subsequent sub-sections provide more description and breakdown of each of the capex categories including the rationale for the expenditure and the efficiencies that **nbn** is achieving across the categories.

A key focus for **nbn** over the forecast period is the progression and completion of four major initiatives.[251] These will deliver increased network capability to meet growing end-user demand, better quality of service, and ongoing efficiency gains. Each initiative is summarised in the relevant sub-section below.

B.2.2 Expansion

Expansion capex is required to increase the coverage of the **nbn**™ network to complete the last parts of the Initial Build and cater for new developments. The capex for connecting individual premises to the network in the street is captured as part of the Take-up & Usage category.

Over the period to FY25, Expansion capex is forecast to decrease 66% in real terms as the last remaining parts of the Initial Build are completed for both Fixed Line and Non-Fixed Line (see Table 11 below).

For FY24 and FY25, the forecast capex in relation to the Initial Build is at relatively minimal levels, and reflects:

- expenditure under the Telstra Arrangements for data and support requirements in relation to access and ownership transfer of relevant Telstra legacy assets (e.g., lead-in conduits); and
- resolution of serviceability issues for the small remaining group of first time connects to the **nbn**™ network that became held orders because of civil works needed to facilitate connection.

[251] The four major initiatives are the Network Upgrade Initiative, the SMB Enablement Initiative, the Regional Co-Investment Initiative and the IT Systems Simplification Initiative.

Table 11. Expansion capex, Real $million (June 2020)

Capex category	FY21 (A)	FY22	FY23	FY24	FY25
Initial Build	390	88	47	20	12
Fixed Line – Scale Build	*223*	*33*	*1*	*9*	*5*
Fixed Line – Serviceability	*133*	*38*	*45*	*11*	*6*
Fixed Line – MDU[a]	*8*	*5*	*1*	-	-
Fixed Wireless – Deployment	*25*	*12*	-	-	-
Satellite	-	-	-	-	-
New Developments - Build	271	232	202	198	211
Total – Expansion	**660**	**320**	**249**	**218**	**222**

a The capex for FY21 to FY23 in relation to Fixed Line – MDU relates to the migration from Managed Service Backhaul (MSB) Links to **nbn**'s own transit network for serving certain MDUs. This leads to cost savings over time that have been factored into the opex forecast.

In parallel with the winding down of the Initial Build, there is ongoing growth in the coverage of the **nbn**™ network from New Developments – Build. This is linked to **nbn**'s forecast of growth in premises ready to connect (see section C.4.2).

nbn competes with other network providers to service new developments consistent with the requirements of the TiND policy. As discussed in chapter 3, **nbn** is also subject to SIP obligations in all other areas, including those that may be commercially unattractive for other network providers to service (including SDU redevelopments in brownfield areas). **nbn**'s forecasts account for these different situations and include an assumption of expected market share in competitive areas.

Over time, the forecast of New Developments capex is related to two key metrics: Construction Commenced – the number of premises for which **nbn** will commence new development construction in a given year; and Cost per Premises –the cost per premises of construction in that year. Between FY21 and FY25, Construction Commenced is forecast to increase materially (driven by post COVID-19 increases in immigration) while Cost per Premises is forecast to decrease significantly in real terms.[252] The reductions in Cost per Premises reflect [**Commercial-in-Confidence**] and Fixed contract (On Demand Model) Overheads.

[252] Due to the phasing of capex over financial years the New Developments capex for a given year is not simply the product of the Construction Commenced and the Cost per Premises metrics.

B.2.3 Take-up & Usage

Take-up & Usage capex is required to connect individual premises on demand (in brownfield and greenfield[253] areas) to the **nbn**™ network based on the network type as currently deployed in the street, and to augment shared capacity to accommodate increasing usage of the **nbn**™ network over time.

Following the end of the initial rollout, capex required to connect premises migrating from legacy networks to the **nbn**™ network is forecast to taper off (see Table 12 below), with annual capex on Customer Connect (excluding FTTP Greenfields) forecast to decrease by over $500 million (92%) in real terms between FY21 and FY25. Associated with this, annual capex on Customer Service & Assurance is forecast to decrease by over $70 million (71%) in real terms over the same period.

[253] For new developments, the capex to deploy the **nbn**™ network in the street is covered under Coverage capex and is incurred up-front and in advance of premises being built or occupied. The capex to connect individual premises to the **nbn**™ network that has already been deployed in the street is incurred on demand, and often in the final stages of a premises being built.

Table 12. Take-up & Usage capex, Real $million (June 2020)

Capex	FY21 (A)	FY22	FY23	FY24	FY25
Connect & Assure	825	427	301	253	185
Customer Connect (ex FTTP Greenfields)	*592*	*228*	*106*	*86*	*49*
Customer Connect FTTP Greenfields	*64*	*71*	*93*	*98*	*84*
Reconnection Costs	*39*	*37*	*32*	*25*	*23*
Business & Complex Connections[a]	*28*	*12*	*2*	*-*	*-*
Customer Service & Assurance	*103*	*80*	*68*	*44*	*30*
Capacity	412	448	397	316	397
Proactive DFN (Distribution Fibre Network)[b]	*4*	*7*	*8*	*1*	*1*
FTTX Capacity	*13*	*33*	*62*	*24*	*67*
HFC - Capacity	*69*	*29*	*39*	*36*	*64*
FW – Capacity	*196*	*228*	*183*	*170*	*151*
Transit – Capacity	*130*	*150*	*105*	*84*	*115*
Total – Take-up & Usage	**1,237**	**874**	**698**	**569**	**583**

a This program, which finishes in FY23, includes connecting business premises in the HFC footprint via FTTB where it is more cost efficient.
b Proactive DFN efficiently delivers dark fibre on a coordinated basis in support of various network types based on demand in each area.

In parallel, there will still be substantial ongoing capex required to connect individual premises on demand in new developments (Customer Connect FTTP Greenfields), undertake other continuing activities in relation to connection and service assurance, and increase capacity in various parts of the **nbn**™ network to avoid local congestion issues (for example in relation to a particular FW cell site) and to accommodate overall traffic growth (see Figure 12 below, which is reproduced from the discussion of **nbn**'s demand forecasts in Appendix C below).

As discussed in Appendix C.4.2, **nbn** has recently updated its traffic forecasts relative to those used in the IOP. Based on Q1 FY22 updates to assumptions, these forecasts have been revised from the IOP forecasts used for capex planning over the period FY22 to FY25 based on recent experience as COVID-19 lockdowns end – forecast MBHT in June 2025 is 10% lower downstream but 6% higher upstream than in the IOP. There has been an increase in mobility with people spending less time in their homes during peak hours, coupled with a significant increase in the number of households going on extended holidays. Over recent years, as Australians have gone in and out of lockdown, **nbn** has observed a clear negative correlation between mobility and internet usage on its network.[254] Downstream traffic per AVC activated is expected to revert to the previous trend over the medium to long-term. There is no proposed change to the expenditure as forecast in the IOP because the change in traffic per AVC activated is not sufficiently large over the short to medium-term to affect the prudent level of capex given the lead-times involved, the optimal sizing of capex increments and the expected reversion to the previous trend in the medium to long-term.

[254] Mobility data is sourced from Apple Mobility Trends Reports, showing requests for directions.

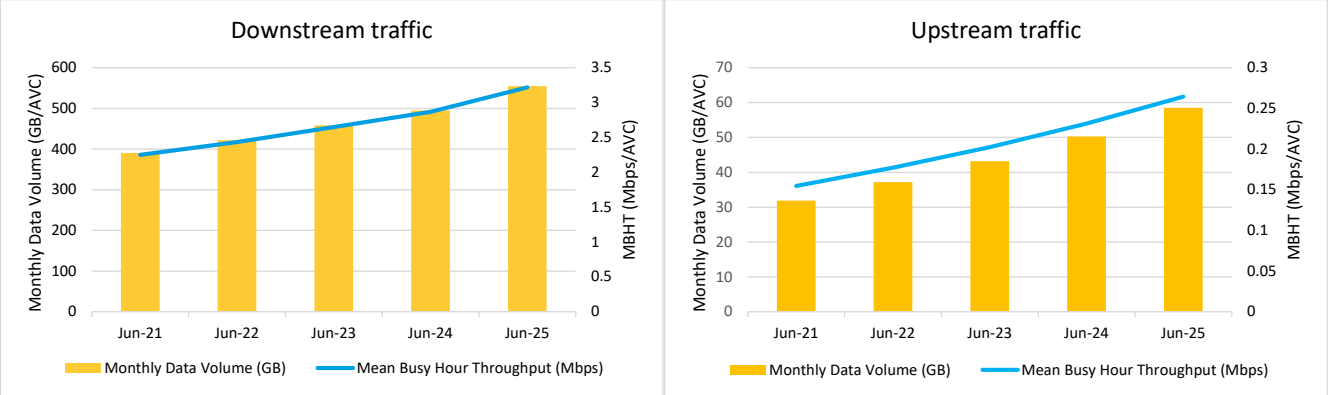


Figure 12. Traffic forecasts, FY21 to FY25

The forecast capex is based on contracted rates with delivery partners for the relevant work and reflects efficiencies identified as part of the development of IOP22 in the following areas.

- Customer Connect (including FTTP Greenfields)
  - There are forecast savings from the truck roll reduction program including reductions in the incidence of the end-user not being in attendance and repeat truck rolls more generally.
  - However, scale economies in making (new) connections are reducing because the overheads incurred by delivery partner (fixed costs) are broadly the same, but the annual volume of these connections is significantly declining. This leads to a rising total cost per connection.
- Reconnection[255] Costs
  - As with Customer Connect, there are savings from the truck roll reduction program. The average cost per Reconnection (weighted average of the cost of truck roll and Self Install Kit) is forecast to decrease over time in real terms.
- FTTX Capacity
  - Additional end-user port capacity will only be added to FTTX networks in line with demand. This covers **nbn**'s FTTN, FTTB, FTTC and FTTP networks and involves augmentation of FTTX Nodes and DFN Cables to correctly dimension for incremental end-user volumes. More specific details for each network type are set out below.
  - FTTN/FTTB – reactively deploy additional capacity through new DSLAMs, and only when 99% of DSLAM capacity is utilised and Held Orders exist.
  - FTTC – reactively deploy additional DPUs (Distribution Point Units) to meet new line requirements but build an FTTP Lead-in if it is more cost efficient (consistent with the approach for other activities such as Copper Remediation on the FTTN network given the Network Upgrade Initiative).

[255] Reconnections are required when the service to a premises is not active for a period of time, such as when an end-user moves premises. In FY21 there were over 1.2 million Reconnections, but 1.0 million of these were Logical Reconnections performed remotely. The remainder were achieved via a mix of Self Install Kits and Truck Rolls.

- FTTP – reactively deploy additional NTDs (Network Terminating Devices) and deploy incremental splitter cards when 99% of capacity is utilised.

- HFC Capacity
  - Delivery partner contracts have been renegotiated to drive savings in the cost of ongoing capacity upgrades on the HFC network, which are separate to making the network 1Gbps capable under the Network Upgrade Initiative.
  - As with FTTX, HFC Capacity will be added in line with demand by undertaking physical and virtual node splits. Gaining access to Telstra's remaining HFC spectrum and implementing DOCSIS 3.1 mean that fewer such node splits will be required over the period.
- FW Capacity
  - The ongoing program of FW capacity upgrades is required to keep up with forecast traffic growth for each cell and provide for a minimum average download speed per end-user of 6Mbps in the busy hour period. Given a three-year lead time, the upgrade program is prioritised on a cell-by-cell basis to ensure that supply keeps up with demand.
  - The incremental cost of FW capacity on a capex $ per Mbps of capacity upgraded basis is forecast to decrease over the forecast period. This is a result of scale economies from larger cell upgrades, insourcing of network capacity planning, and direct engagement with field delivery partners.
- Transit capacity
  - Capacity upgrades will be undertaken via a just-in-time delivery model, with work triggered only where required to meet forecast traffic growth.
  - This is facilitated by **nbn**'s Aggregation Evolution Program, which will deliver additional capacity and lifecycle upgrades to drive scalability and flexibility in the transit network. This will allow **nbn** to scale the processing and interfaces in the POIs as needed to meet forecast traffic growth to at least 2028, which will reduce costly migrations and network rearrangements and improve efficiency in terms of rack and power costs in non-TAND sites.

B.2.4 Maintaining

Maintaining capex is required to maintain the existing capability of the **nbn**™ network. Given that the initial rollout of the **nbn**™ network has only just been completed, **nbn** does not face any major lifecycle replacements over the forecast period. Consequently, the forecast of Maintaining capex comprises expenditure in only a relatively small number of areas (see Table 13 below): Copper Remediation on the FTTN network; Pole Replacement in those limited parts of the network deployed aerially on **nbn**-owned poles;[256] and a mixture of minor upgrades (e.g., security patches), minor lifecycle replacements (from FY23) and maintenance capex on the LTSS network.

In FY24 and FY25, Maintaining capex largely relates to ongoing Copper Remediation for the FTTN network to keep up with time-based degradation. This is aimed at reducing repeat Service Assurance incidents, resulting in lower opex than otherwise.

[256] Where the **nbn**™ network is aerial, the much more common practice is to use poles owned by the local electricity distribution network. **nbn** pays pole rental for that access, and this forms part of the Direct Operating Costs category within the opex forecast.

The forecast accounts for the reduction in Copper Remediation expected as a result of the Network Upgrade Initiative. Within the overbuilt footprint, the reduction occurs in two ways: via the number of premises forecast to migrate to a higher speed FTTP-based service that would otherwise require Copper Remediation; and via the number of premises that **nbn** forecasts it will migrate proactively because it is more prudent as compared to undertaking Copper Remediation in respect of those premises to address Service Assurance incidents.

Table 13. Maintaining capex, Real $million (June 2020)

Capex	FY21 (A)	FY22	FY23	FY24	FY25
Copper Remediation	73	56	56	73	69
Pole Replacement	1	1	1	1	1
Long Term Satellite Service (LTSS)	21	31	43	13	7
Total – Maintaining	**95**	**88**	**100**	**87**	**77**

B.2.5 Capability

Capability capex is required to increase the capability of the **nbn**™ network to align with growing demand from end-users for access to higher speed TC-4 services and business-grade services.

Over the period to FY25, almost all Capability capex (see Table 14 below) is accounted for by the combination of the Network Upgrade Initiative, SMB Enablement Initiative and Regional Co-Investment Initiative, each of which is explained further below.

Although some of this capex will be incurred up-front to build/upgrade the street infrastructure (for the FTTN to FTTP upgrade and the HFC upgrade) and to proactively migrate selected premises, some will be incurred only on-demand. Construction of most new FTTP lead-ins (for the FTTN to FTTP upgrade and the FTTC to FTTP upgrade) and all direct fibre connections (for the SMB Enablement Initiative) will be triggered by orders placed by end-users, via their RSPs, for the relevant upgraded services. The on-demand component of the capex forecasts is linked to **nbn**'s forecast of demand for higher speed tier services and business-grade services (see section C.4).

Over the period FY21 to FY25, the split of up-front to on-demand capex (combining the Network Upgrade Initiative and the SMB Enablement Initiative) is 61% / 39% in real terms, but for the years FY24 and FY25 relevant to this initial RMA the split reverses to 27% / 73% (but applies to a lower total capex amount). The on-demand capex will continue beyond FY25 as additional end-users place orders that trigger new FTTP lead-ins and direct fibre connections.

The forecast also includes some relatively small amounts of capex for:

- the ongoing Tech Choice program – this capex is to upgrade specific premises to the next most capable technology and is funded via an up-front contribution from the relevant end-user(s). The program is expected to have lower demand over time due to the Network Upgrade Initiative; and
- the Business Satellite Service (**BSS**) – this capex is to enable the BSS product via beam expansion, Telemetry Tracking and Control, platform and network build, and transit readiness.

Table 14. Capability capex, Real $million (June 2020)

Capex category	FY21 (A)	FY22	FY23	FY24	FY25
Network Upgrade Initiative – Build	152	963	1,034	209	94
FTTN to FTTP	*94*	*881*	*972*	*93*	*-*
HFC	*58*	*80*	*62*	*116*	*94*
Network Upgrade Initiative - Connect (on-demand, and selected proactive migration)	-	73	284	327	295
FTTN to FTTP	*-*	*61*	*233*	*254*	*240*
FTTC to FTTP	*-*	*12*	*52*	*73*	*54*
SMB Enablement Initiative (on-demand)	[CiC]	[CiC]	[CiC]	[CiC]	[CiC]
Regional Co-Investment Initiative	1	59	150	82	-
Other - Capability	[CiC]	[CiC]	[CiC]	[CiC]	[CiC]
Tech Choice	[CiC]	[CiC]	[CiC]	[CiC]	[CiC]
Business Satellite Service	[CiC]	[CiC]	[CiC]	[CiC]	[CiC]
Total – Capability capex	**304**	**1,252**	**1,599**	**741**	**508**

The forecast capex is based on contracted rates with delivery partners for the relevant work and reflects efficiencies identified as part of the development of IOP22 in the following areas.

- FTTN to FTTP Build – The scope of the Local Fibre Network (**LFN**) works is optimised to delay some lead-in specific costs until there is an upgrade order. Delivery partner contracts have also been renegotiated leading to a reduction in the unit cost for LFN build by 20%. As part of this, a new commercial model was established in June/July 2021, with improvements to cost management for risk items such as rock excavation costs.
- HFC Build – As above, delivery partner contracts have been renegotiated leading to a reduction in unit costs.
- FTTN to FTTP Connect – As above, delivery partner contracts have been renegotiated leading to a reduction in the Cost per Lead-in of 15-20%. This reflects scale economies from the large number of lead-ins expected to be constructed on demand once FTTP becomes available in an area.
- FTTC to FTTP Connect – As above, delivery partner contracts have been renegotiated leading to a reduction in the Cost per Lead-in. However, there are lower scale economies in each area than for FTTN to FTTP Connect, noting that an FTTC to FTTP connection is triggered by an order for a 250Mbps service or above (rather than 100Mbps or above for an FTTN to FTTP connection).
- SMB Enablement – Cost per site is forecast to reduce over time due to favourability in changes in the expected mix of small, medium and large size upgrades and a cost optimisation initiative to drive cost per site savings of [**Commercial-in-Confidence**] in FY23 and increasing to [**Commercial-in-Confidence**] in FY24 and FY25.

Network Upgrade Initiative

The Network Upgrade Initiative announced on 23 September 2020 involves a combination of up-front Build capex, and (generally) on-demand Connect capex that will meet current and future demand for higher AVC speeds by increasing the percentage of ready to connect premises that are up to 1Gbps capable (peak download speed) from 20% in FY20 to 75% in FY24.

The Initiative is being achieved through:

- building fibre deeper into parts of the FTTN and FTTC footprints, enabling premises to move to a FTTP service when they order a higher speed plan. Construction of fibre into a premises will be linked to demonstrated demand from the relevant residential or business end-user, with selected proactive migration (as discussed further below); and
- upgrading capacity on the HFC network to enable access by more customers on this network to **nbn**'s higher wholesale speed plans.

The Network Upgrade Initiative is justified on the basis that net incremental revenues are greater than or equal to net incremental costs (including a commercial cost of capital). The Initiative is aligned with the August 2021 SOE, which provides as follows in relation to Service Expectation (p. 1):

> ***Wholesale broadband services:*** *The NBN will continue to be a wholesale only access network that is available to all access seekers. NBN Co will support retailers to affordably and innovatively meet end user needs and offer products that promote the take up and use of the NBN. NBN Co is the default Statutory Infrastructure Provider (SIP) for all of Australia and, where it is the SIP, it must meet legal obligations, including in relation to minimum service speed and network performance requirements.* ***Within its capital constraints, NBN Co will continue to upgrade the network technologies to support retailers to meet demand from end users which exceeds these minimum requirements, including implementing current plans to expand access to peak download speeds of up to 1 gigabit per second****.* (Emphasis added)

FTTN upgrades

The FTTN to FTTP network upgrade program has been designed to enable up to two million premises to access the wholesale download speed tier of up to 1Gbps (**nbn**™ Home Ultrafast) on demand.

This fibre-deepening program re-uses the Distribution Fibre Network (**DFN**) that was deployed as part of the original FTTN build, which means **nbn** builds the LFN within the selected footprint and generally completes the lead-in to premises only when an order is placed for a higher speed tier (see the figure below). This allows **nbn** to prioritise investment to meet customer demand. **nbn** will also undertake selected proactive migration within the footprint where this is prudent as compared to alternative of undertaking remediation of existing facilities.

As discussed in Appendix C.4, **nbn** has recently updated its forecast of speed tier mix resulting in a shift in timing in the higher percentage of 100Mbps and above services as compared to the IOP. This timing shift relates to initial years only, and **nbn** still forecasts the same level of demand for higher speed services over the medium-term. Although the updated forecast results in a lower volume of higher speed services in the initial years, **nbn**'s forecast capex over this period for building of FTTP lead-ins under the Network Upgrade Initiative is not expected to reduce because:

- the selected proactive migration of some premises to FTTP means there is not expected to be any material change in the overall forecast capex; and

- the justification for the Network Upgrade Initiative, as described above already accounts for the uncertain nature of the timing and profile of demand. The updated speed tier mix forecasts are still well above the level needed for the project to break-even in net present value terms.

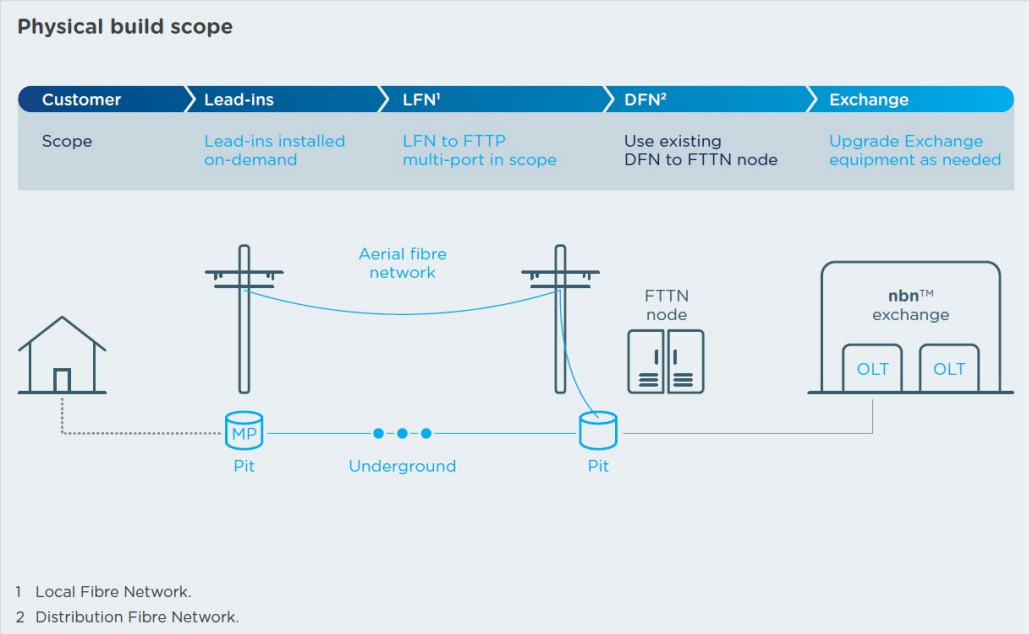


Figure 13. FTTN to FTTP – Physical build scope

nbn's selection criteria for the FTTN to FTTP upgrade program is based on areas where: **nbn** anticipates strong demand for higher speeds; it can deploy with speed and agility; it can provide maximum benefit to the most customers; and where its investment is most likely to spread and multiply economic activity across the nation. A governance process is in place to review and approve footprint selection consistent with the selection criteria.

The selection criteria recognise that **nbn** is capital constrained and account for the fact that costs to undertake an FTTN to FTTP upgrade vary substantially from area to area. If **nbn** were instead to focus on the areas of the network with the lowest speed performance[257], the average build distance and cost per premises would increase, as would the time taken to complete the overbuild. Given **nbn**'s capital constraints, this would lead to fewer premises being upgraded over the forecast period.

nbn expects to initiate a small-scale launch to enable the first customers to place orders with RSPs for fibre lead-ins and higher speed services in eligible areas in March 2022.

The relevant eligibility criteria are:

- Premises served by FTTN in eligible areas will need to order a plan based on wholesale speed tiers of 100/20 megabits per second or higher to qualify for a full fibre upgrade.
- Customers will be able to order higher speed tier services across selected parts of the FTTN footprint by the end of 2022.
- There is no plan for forced migration onto the FTTP upgrade. The existing FTTN network will continue to service customers who remain on this network.

[257] In any event, **nbn** is obliged to remediate services where the peak download speed falls below 25Mbps.

FTTC upgrades

nbn has implemented new plans to deliver its highest wholesale speed tiers in the FTTC footprint to ensure more homes and businesses can access the speed and capability achieved through deeper fibre deployment.

The FTTC to FTTP upgrade program will now deliver on-demand, full fibre upgrades to single-dwelling units and multi-dwelling units (up to 16 premises) in the FTTC footprint, which aims to improve customer experience and help generate a greater return on investment.

Using FTTP as the upgrade path for higher speeds in the FTTC footprint provides a range of advantages when considering long-term costs, operational cost savings through IT simplification, and consistency with **nbn**'s intention to deepen fibre deployment across its network.

The relevant eligibility criteria are:

- Premises served by FTTC will need to order a plan based on wholesale speed tiers of 250Mbps or higher to qualify for a full fibre upgrade.
- Customers will be able to order higher speed tier services across selected FTTC footprint in 2022. The entire 1.5 million premises currently served by FTTC will be available for the on-demand upgrades by the end of 2023.

HFC upgrades

The HFC upgrade program will provide access to **nbn**'s higher wholesale speed plan, **nbn**™ Home Ultrafast, across 95% of the HFC footprint of 2.5 million premises by December 2021 and to 100% of the footprint by March 2023.

To support this speed capability over time, HFC capex under the Network Upgrade Initiative in FY24 and FY25 relates to associated work on NMS (Network Management System) Simplification and Plant Modernisation.

SMB Enablement Initiative

First announced on 22 September 2020, the SMB Enablement Initiative is ongoing in nature and involves building direct fibre connections to business premises on demand once an order is placed for **nbn**™ Enterprise Ethernet.

Under this Initiative, **nbn** has defined 284 Business Fibre Zones[258] (171 metro and 113 regional, covering 90% of all business locations in Australia) within which 1 Gbps symmetrical business-grade broadband (**nbn**™ Enterprise Ethernet) will be available via RSPs. **nbn**'s CBD zone pricing will apply and **nbn** will not charge RSPs any up-front costs for orders involving a three-year commitment.

There is some upfront capex associated with IT, proactive DFN and transit, but the bulk of the capex is to be incurred over time, and only in response to orders.

The SMB Enablement Initiative is justified on the basis that net incremental revenues are expected to be greater than or equal to net incremental costs (including a commercial cost of capital). This is therefore expected to assist with recovering the costs of the initial rollout of the **nbn**™ network. The Initiative is aligned with the August 2021 Statement of Expectations, which provides as follows in relation to fostering competitive and efficient markets (p. 2):

> ***Services for businesses:*** *NBN Co should act pro-competitively in supplying wholesale broadband services to retailers to support business end users' needs. The Company should earn commercial returns in supplying these services. In*

[258] A further 11 Business Fibre Zones will be defined under an agreement with the Victorian Government announced on 26 August 2021.

supplying business grade services, NBN Co should aim to improve retail and infrastructure competition and access for businesses, including in less well served areas.

Regional Co-Investment Initiative

nbn's Regional Co-Investment Initiative complements the Network Upgrade Initiative and SMB Enablement Initiative through the creation of a $300 million fund to co-invest with federal, state, territory and local governments in programs designed to shift regional premises to more capable technologies to help meet the growing and diverse needs of Australian homes and businesses.

For an individual program, the extent of any co-investment will be subject to a positive business case for **nbn**.

The Regional Co-Investment Initiative is commercially justified on the basis that net incremental revenues are expected to be greater than or equal to net incremental costs (including a commercial cost of capital). The Initiative is aligned with the August 2021 Statement of Expectations, which provides as follows in relation to service expectations (p. 2):

> ***Regional and remote**: NBN Co will improve its wholesale services and assist in addressing access challenges in regional and remote areas. The Government recognises that, in meeting its obligations, NBN Co cannot generate a commercial return on all of its activities in parts of regional and remote Australia. It is expected the Company will support these activities through returns in other parts of its business, and contributions from the Regional Broadband Scheme. NBN Co will be transparent in delivering these activities and ensure its expenditure is efficient, and that it maintains flexibility to adopt future innovations and advancements. The Company will proactively engage with stakeholders and seek specific opportunities to improve outcomes in regional and remote areas. For example, by incorporating non metropolitan areas in upgrade plans where commercially prudent, **including through working with governments and other organisations to fund and deliver enhanced services in these areas**.* [Emphasis added]

B.2.6 Other

Other capex is required across several other categories, including IT (Software Engineering). Over the forecast period, Other Capex is forecast to decrease by $265 million (57%) – see Table 15. This reflects the completion of several projects under Other Network (relating to Network Management) and IT (including projects that support the Network Upgrade Initiative and the SMB Enablement Initiative). The IT Systems Simplification Initiative is also forecast to be completed during FY24 (this Initiative is explained further below).

In FY24 and FY25, there is ongoing Other capex required in the following areas.

- Other Network – this includes capex for Network Engineering and Security to: support network capacity upgrades, including the Aggregation Evolution program; run the **nbn** Innovation Lab, which ensures efficient testing of equipment and new initiatives prior to implementation in the live network; manage ongoing cyber-security risks; develop improvements to drive network efficiency; and undertake initiatives to automate processes to reduce human error and meet future regulatory requirements and increased warrant requests. There is also a small amount of Operations capex related to tools needed for **nbn**'s internal field workforce.
- IT – this relates to business-as-usual IT capex necessary to maintain and adapt IT systems over time. As mentioned above, with many IT projects coming to completion over the next few years the level of ongoing IT capex is much lower in FY25 than in FY21.
- Facilities & Other – this includes capitalised labour costs for business unit subject matter experts (SMEs) for time required to support various initiatives, including the upgrade of **nbn**'s ERP (Enterprise Resource Planning) system in FY23 and FY24.

- Commercial Works – these works are undertaken on a cost recovery basis. This is often at the request of third parties and may involve activities such as moving **nbn** infrastructure to allow for construction.

Table 15. Other capex, Real $million (June 2020)

Capex	FY21 (A)	FY22	FY23	FY24	FY25
Other Network	139	65	48	41	28
IT (Systems Engineering)	287	278	216	143	140
IT Simplification Initiative	*35*	*73*	*77*	*13*	-
IT – Other	*252*	*205*	*139*	*130*	*140*
Facilities & Other	24	21	35	34	10
Commercial Works	18	25	30	25	25
Total – Other	**468**	**388**	**329**	**244**	**203**

IT Systems Simplification Initiative

nbn's IT Systems Simplification Initiative involves spending $198 million of capex in real terms over FY21-FY24 to:

- reduce the number of IT applications by 160;
- simplify architecture to make future changes cheaper and easier for both **nbn** and RSPs; and
- save $41 million of opex in real terms annually from FY25.

The project commenced in FY21, with the ramp up later than initially planned because of the need to integrate with the Network Upgrade Initiative and other programs. Benefits are expected to start to flow in FY22 with $5 million of opex savings that ramp up during FY23 and FY24 as the Initiative proceeds. These savings have been factored into the IOP opex forecasts.

The IT Systems Simplification Initiative is justified on the basis that it reduces net incremental costs. The Initiative is aligned with the August 2021 Statement of Expectations, which provides as follows in relation to Service Expectations (pp. 1-2):

> ***Improving consumer experience:*** *The Company will, through its own activities and by working cooperatively with retailers, continue to improve consumer experience for households and businesses connecting to and using the NBN, and support retailers to meet their obligations to end users, including by:*
>
> *…*
>
> *Working with retailers* ***to enhance and integrate systems and processes*** *to enable timely and transparent provision of information to end users, improve service quality, efficiently and effectively resolve faults and outages and, where they do occur, proactively manage complaints.* (Emphasis added)

B.3 Operating Expenditure

B.3.1 Overview

This section provides a breakdown of **nbn**'s forecast opex for the initial RMA period (FY24 and FY25), including the rationale for the forecast. The forecast is based on **nbn**'s Integrated Operational Plan (IOP) for FY22 to FY25, which was developed using the high-level methodology described in section B.1. The IOP includes only prudent costs and factors in future efficiency gains.

For context, FY21 actuals and FY22 and FY23 forecasts are presented throughout this section in addition to the FY24 and FY25 forecasts that are the subject of the initial RMA.

Forecast opex has been summarised into five categories relating to the purpose and nature of the expenditure:

- **Infrastructure Payments:** opex required to pay for **nbn**'s use under the Telstra Arrangements of ducts, exchanges, dark fibre and towers that form an integral part of the **nbn**™ network;
- **Direct Operating Costs:** opex required to physically operate and maintain the **nbn**™ network, including **nbn**'s internal field workforce;
- **Labour Costs:** opex required for **nbn**'s internal (non-field) workforce;
- **Other Operating Costs:** opex required to support all other aspects of **nbn**'s operations (such as costs for non-network facilities and outsourced IT functions); and
- **Subscriber Payments:** opex required to pay for disconnections from legacy networks under the Telstra Arrangements and migrations from legacy networks under the Optus Arrangements.

As depicted in Figure 14 and set out in Table 16 below, **nbn**'s total opex (in real terms) is forecast to decrease each year over the period to FY25.

[**Commercial-in-Confidence**]

Figure 14. Opex, Real $million (June 2020)

Table 16. Opex by category, Real $million (June 2020)

Opex category	FY21 (A)	FY22	FY23	FY24	FY25
Infrastructure Payments	[CiC]	[CiC]	[CiC]	[CiC]	[CiC]
Direct Operating Costs	730	712	667	649	638
Labour Costs	[CiC]	[CiC]	[CiC]	[CiC]	[CiC]
Other Operating Costs	607	543	476	432	411
Subscriber Payments	1,214	198	43	-	-
Total Opex	**4,175**	**2,998**	**2,665**	**2,491**	**2,409**

Excluding Subscriber Payments, which are non-recurrent in nature and are currently not forecast beyond FY23 following the completion of the initial build and migration/disconnection of end-users from legacy networks,[259] total opex in FY25 is forecast to be 18.6% lower in real terms than in FY21, comprising:

- a [Commercial-in-Confidence] in total opex due to [Commercial-in-Confidence] Infrastructure Payments – over time, this reflects the relatively [Commercial-in-Confidence] of infrastructure under the Telstra Arrangements that **nbn** needs to add to the **nbn**™ network over the period to complete the last parts of the initial build. [Commercial-in-Confidence];
- a 3.1% decrease in total opex due to reduced Direct Operating Costs – even as take-up and usage of the **nbn**™ network continue to grow, Direct Operating Costs are forecast to decrease by 12.6% in real terms between FY21 and FY25 through efficiency measures that serve to contain or reduce costs in areas such as Network Power and Service Assurance. In addition, the (on-demand) migration of premises from FTTN to FTTP under the Network Upgrade Initiative is forecast to result in structural reductions in opex costs that are expected to become more significant over time;
- a [Commercial-in-Confidence] in total opex due to [Commercial-in-Confidence] – with the end of the initial build and the associated reduction in volumes for many activities as part of the progressive transition from building to running the **nbn**™ network, **nbn** is [Commercial-in-Confidence]. **nbn**'s Labour Costs are forecast [Commercial-in-Confidence] between FY21 and FY25; and

[259] While Subscriber Payments are not currently forecast beyond FY23, they still may be payable in certain circumstances for the next ten years.

- a 6.6% decrease in total opex due to reduced Other Operating Costs – driven by many of the same factors as Labour Costs, Other Operating Costs are forecast to decrease by 32.2% in real terms between FY21 and FY25, with reductions related to outsourced accounts payable and IT helpdesk functions, and marketing and product costs. In addition, annual savings from the IT Systems Simplification Initiative ramp up from an initial $5 million in FY22 to $41 million from FY25 (in real teams).

Subsequent sub-sections provide more description and breakdown of each of the opex categories, including the rationale for the expenditure and the efficiencies that **nbn** is forecasting to achieve.

B.3.2 Infrastructure Payments

Infrastructure Payments relate to the opex required to pay for **nbn**'s use under the Telstra Arrangements of ducts, exchanges, dark fibre and towers that form an integral part of the **nbn**™ network.

Given the significance of the Telstra Arrangements (and also the Optus Arrangements) to the development and ongoing operation of the **nbn**™ network, the SAU includes a specific provision in clause 2C.2.1(a)(i) that the forecast opex to be included in the Annual Building Block Revenue Requirement "*is to include any Operating Expenditure to be incurred pursuant to the Telstra Arrangements or the Optus Arrangements*".

Under the Telstra Arrangements, the amounts paid for each unit and type of infrastructure are CPI indexed so, in real terms, changes in the opex for Infrastructure Payments is related only to changes in the volume of relevant infrastructure used by **nbn**.

From FY21 to FY25, the opex for Infrastructure Payments is forecast to [**Commercial-in-Confidence**] in real terms (see Table 17 below). Over time this reflects the relatively [**Commercial-in-Confidence**] of infrastructure under the Telstra Arrangements that **nbn** needs to add to the **nbn**™ network over the period to complete the last parts of the initial build. [**Commercial-in-Confidence**].

Table 17. Infrastructure Payments, Real $million (June 2020)

Opex category	FY21 (A)	FY22	FY23	FY24	FY25
Infrastructure Payments	[CiC]	[CiC]	[CiC]	[CiC]	[CiC]

B.3.3 Direct Operating Costs

Direct Operating Costs relate to the opex required to physically operate and maintain the **nbn**™ network, including **nbn**'s internal field workforce. In broad terms, the level of opex in this category is a product of the **nbn**™ network's overall size and composition (with different technologies having different cost characteristics, e.g., FTTN is more maintenance intensive than FTTP). In addition, higher take-up and usage lead to higher amounts of electricity required to power the **nbn**™ network and higher volumes of Service Assurance and Network Assurance incidents, all else the same.

Over the period to FY25, Direct Operating Costs (see Table 18 below) are forecast to decrease by 12.6% in real terms while in parallel:

- the cumulative number of premises ready to connect is forecast to increase by 5.1% (due almost entirely to ongoing growth from new developments);
- the cumulative number of net premises activated is forecast to increase by 9.6%; and
- traffic (mean busy hour throughput) on the **nbn**™ network is forecast to increase by 44% downstream and 72% upstream (see the discussion of demand forecasts in Appendix C).

As unpacked further below, of the three categories that make up Direct Operating Costs, the largest overall contributor to the forecast decrease is the Assurance, Restoration and Maintenance category (forecast reduction of 18%), and this is followed by the Other Network Costs category (forecast reduction of 17%). Although the forecast reduction in the remaining category, Network Operating Costs, is only 2% in real terms, this masks a number of opex savings in areas such as Network Power that serve to offset unavoidable increases in other items such as additional Spectrum / Apparatus Licences needed to keep up with demand on the Fixed Wireless network.

Table 18. Direct Operating Costs, Real $million (June 2020)

Opex category	FY21 (A)	FY22	FY23	FY24	FY25
Network Operating Costs	234	232	229	229	229
Rack Power	*20*	*22*	*24*	*26*	*27*
Network Power	*75*	*72*	*64*	*60*	*54*
Pole Rental	*22*	*22*	*22*	*22*	*22*
Spectrum / Apparatus Licences	[CiC]	[CiC]	[CiC]	[CiC]	[CiC]
Fixed Wireless Site Rental	*47*	*50*	*52*	*55*	*57*
Site and Network Access[a]	[CiC]	[CiC]	[CiC]	[CiC]	[CiC]
Managed Service Backhaul	*13*	*10*	*6*	*5*	*5*
Assurance, Restoration and Maintenance	358	352	311	302	294
Service Assurance	*158*	*161*	*118*	*113*	*108*
FTTP	*11*	*11*	*11*	*12*	*13*
FTTN	*85*	*68*	*45*	*40*	*33*
FTTB	*3*	*2*	*1*	*1*	*1*
FTTC	*27*	*37*	*27*	*27*	*27*
HFC	*18*	*25*	*21*	*20*	*20*
Fixed Wireless	*7*	*9*	*6*	*6*	*6*
Satellite	*7*	*10*	*6*	*6*	*6*
Network Assurance	*151*	*144*	*152*	*148*	*145*
FTTP	*8*	*8*	*10*	*12*	*12*
FTTN	*28*	*19*	*18*	*16*	*15*
FTTB	*0*	*0*	*0*	*0*	*0*
FTTC	*8*	*5*	*5*	*4*	*4*
HFC	*24*	*24*	*23*	*21*	*20*
Fixed Wireless	*31*	*28*	*28*	*28*	*28*
Satellite	*52*	*60*	*68*	*66*	*65*
Network Maintenance	*44*	*44*	*39*	*39*	*40*
End User Not in Attendance costs	*4*	*2*	*2*	*2*	*1*
Other Network Costs	137	129	127	118	115
Freight Distribution and Supply Chain	*24*	*31*	*30*	*25*	*23*
Vendor Support Contract Costs	*43*	*51*	*55*	*54*	*53*
Other costs (including fleet vehicles)	*71*	*46*	*42*	*39*	*38*
Total – Direct Operating Costs	**730**	**712**	**667**	**649**	**638**

a This includes outgoings (excluding site rental and network power costs) on Fixed Wireless sites and outgoings, electricity (excluding network power costs) and facility maintenance of **nbn**-owned network sites (Transit Aggregation Nodes and Depots, and satellite earth stations).

The basis for the Direct Operating Costs forecast is as set out below, including efficiencies identified as part of the development of IOP22.

Network Operating Costs

- Rack Power – this relates to the cost of electricity to power **nbn** equipment in Telstra exchanges under the Telstra Arrangements. **nbn** recently installed electricity meters in order to accurately measure (and only pay for) its own Rack Power usage. In regard to the volume of power required, **nbn** has rationalised down the number of line cards by 17,000 but growth in network traffic is still forecast to drive a 39% increase in electricity use (kWh), which translates into a 38% increase in Rack Power costs in real terms.
- Network Power – this relates to the cost of electricity to power **nbn** equipment at network sites other than Telstra exchanges, including nodes on the FTTN and FTTB networks, power connections on the HFC network and Fixed Wireless sites. Network Power opex is forecast to decrease by 28% in real terms between FY21 and FY25. This reflects **nbn**'s ongoing efforts to reduce power usage (kWh) per site and seek out lower electricity rates ($ per kWh) through re-tendering of sites with metered electricity and renegotiating the rates for unmetered loads on the FTTN, FTTB and HFC networks.[260]
- Pole Rental – in areas where the **nbn**™ network is aerial, **nbn** has Pole Rental agreements with electricity distribution networks. These are long-term agreements and involve CPI-indexed charges based on the loading placed on each pole by the **nbn**™ network as deployed in each location.
- Spectrum / Apparatus Licences – **nbn**'s Fixed Wireless network depends on access to sufficient radio spectrum to keep up with forecast traffic growth for each cell and provide for a minimum average download speed per end-user of 6Mbps in the busy hour period. [**Commercial-in-Confidence**]. To limit the ongoing need to acquire additional scarce/expensive spectrum, **nbn**'s Fixed Wireless capacity program (as discussed in section B.2.3) is focussed on achieving scale economies from larger cell upgrades that use available spectrum more efficiently.
- Fixed Wireless Site Rental – **nbn** has long-term agreements with landowners for Fixed Wireless Site Rental. In addition, **nbn** leases space on third party-owned towers via co-location and this is associated with some increases in forecast opex over the period FY21 to FY25 as **nbn** adds Fixed Wireless capacity and takes up more space on these towers.
- Site and Network Access – this relates to costs for two types of network sites. For Fixed Wireless sites, the forecast opex includes outgoings except for site rental and network power costs, which are accounted for separately (see above). For satellite earth stations and Transit Aggregation Nodes and Depots, which are owned by **nbn**, the forecast opex includes outgoings, electricity (excluding network power costs) and facility maintenance. Opex in this category is relatively stable given its nature and the completion of the initial build. **nbn** is reducing mains power usage per site, including through the installation of additional solar panels at **nbn** facilities and 1,000 LED lights across Transit Aggregation Nodes and Depots.

[260] At this time, unmetered loads are not subject to retail contestability in the electricity market.

- Managed Service Backhaul – **nbn** leases backhaul links from third-party providers (selected via competitive tender) to service new developments and in some cases multi-dwelling units in brownfield areas. With the completion of the initial build in relevant areas, **nbn** is rationalising its use of Managed Service Backhaul and moving to **nbn**-owned transit links. This involves some up-front capex (as noted in section B.2.2) that is more than offset by ongoing opex savings.

Assurance, Restoration and Maintenance

- Service Assurance – this relates to opex associated with responding to Tickets of Work raised in respect of the service provided to individual premises. Costs are based on contracted rates with delivery partners for the relevant work and blended with the forecast cost of such work to be undertaken by **nbn**'s internal field workforce. **nbn**'s internal field workforce will undertake between 2% and 15% of Service Assurance work on **nbn**'s fixed-line networks (varying by network type). Work on the Fixed Wireless and Satellite networks is fully outsourced under medium-term contracts that were competitively tendered.

  The forecast reduction of 32% in Service Assurance opex in real terms between FY21 and FY25 is the result of the following factors.

  - **nbn** is taking steps to reduce the frequency of incidents requiring Service Assurance, improve the efficiency with which the Ticket of Work is provided to the technician, and improve efficiency in ensuring that the technician is able to complete the work required in the first instance.
  - For Service Assurance on the FTTN network, the effect of these measures is complemented by the Network Upgrade Initiative (as described in section B.2.5). As the Network Upgrade Initiative progresses and end-user take-up of FTTP services increases, the number of Service Assurance tickets raised is forecast to decrease, contributing to a 61% decrease in forecast opex for FTTN Service Assurance in real terms between FY21 and FY25.
  - This decrease in FTTN Service Assurance is forecast to be offset by only a 17% increase in FTTP Service Assurance opex (and from a relatively low base). This reflects the less maintenance-intensive nature of FTTP as compared to FTTN.

- Network Assurance – as with Service Assurance, the opex associated with Tickets of Work raised in respect of particular network issues (not specific to individual premises) is based on contracted rates with delivery partners for the relevant work and blended with the forecast cost of such work to be undertaken by **nbn**'s internal field workforce.

  The forecast reduction of 4% in Network Assurance opex in real terms between FY21 and FY25 is the result of the same factors driving the reduction in Service Assurance opex (except that Continuity Service Licences are not relevant for Network Assurance). Offsetting the overall reduction, Network Assurance on the Satellite network is forecast to increase, and this is mainly due to post-COVID-19 increases in volume related to the managed service arrangements that support **nbn**'s Satellite Mobility (LCPA) product.

- Network Maintenance – this relates to costs attributable to both proactive and reactive maintenance, which are forecast on a similar basis to Network Assurance. However, unlike Network Assurance, which involves responding to Tickets of Work arising from issues raised by RSPs (including on behalf of end-users), Network Maintenance involves **nbn** monitoring the performance of the network and responding where adjustments are required. This monitoring allows **nbn** to locate sources of signal leakage and speed degradation and take action to meet operational performance targets.
    - Over the forecast period, most Network Maintenance costs relate to the FTTN and HFC networks, parts of which are older and more susceptible to degradation than the other network types. Consistent with this, the Network Maintenance costs for FTTP are close to zero in the forecast period.
    - Overall, Network Maintenance opex is forecast to decrease by 10% in real terms between FY21 and FY25, with a decrease in relation to HFC more than offsetting an increase in relation to FTTN. The cost of maintaining the FTTN network is forecast to increase over time due to ongoing copper degradation. Under the Network Upgrade Initiative, the FTTN and the FTTP networks will be operating in parallel within the upgrade footprint and **nbn** needs to maintain service quality for those end-users who remain on the FTTN network.
- End User Not in Attendance – this relates to amounts **nbn** has to pay its delivery partners for truck rolls where the end-user is not at the premises when the technician arrives, and the Ticket of Work cannot be completed as scheduled. **nbn** has a program in place to reduce the incidence of these events, and this is reflected in the forecast reduction in End User Not in Attendance opex.

Other Network Costs

- Freight Distribution and Supply Chain – this relates to costs in relation to delivery of inventory, warehouse operations and freight costs, and the forecast is based on contracted rates with vendors.
- Vendor Support Contract Costs – these costs are related to warranty support payments to third parties for equipment that forms part of the **nbn**™ network. The forecast amount is made up of a large number of small contracts with multiple third parties. Although Vendor Support Contract Costs are forecast to increase by 24% in real terms between FY21 and FY25, this increase would have been higher except that **nbn** has factored in some reductions from FY23.
- Other Costs – these costs relate to a range of items including fleet vehicle costs, security costs and damages and recoverable works that are forecast based on contracted rates with vendors. Opex on Other Costs is forecast to decrease by 46% in real terms between FY21 and FY25, and this is largely due to the completion of some non-recurrent activities in FY21 as part of the transition to the new field service agreements.

B.3.4 Labour Costs

Labour Costs relate to the opex required for **nbn**'s internal workforce, which is comprised of a mixture of Full Time Equivalents (**FTEs**) and Temporary Staff Arrangements (**TSAs**) across the following business units:

- Operations (excluding the internal field workforce);
- Network Engineering & Security;
- Regional Development & Engagement;
- Systems Engineering & Operations (including IT);

- Customer Products & Marketing; and
- Corporate (including Finance, People & Culture, and other corporate teams).

[Commercial-in-Confidence]

Table 19. Labour Costs opex, Real $million (June 2020)

Opex category	FY21 (A)	FY22	FY23	FY24	FY25
FTE Costs – opex and capex	[CiC]	[CiC]	[CiC]	[CiC]	[CiC]
TSA costs – opex and capex	[CiC]	[CiC]	[CiC]	[CiC]	[CiC]
FTE and TSA Capitalisation	[CiC]	[CiC]	[CiC]	[CiC]	[CiC]
[Commercial-in-Confidence]	[CiC]	[CiC]	[CiC]	[CiC]	[CiC]
Total – Labour Costs (opex only)	[CiC]	[CiC]	[CiC]	[CiC]	[CiC]

[Commercial-in-Confidence]

B.3.5 Other Operating Costs

Other Operating Costs relate to the opex required to support all other aspects of **nbn**'s operations.

The forecast of Other Operating Costs (see Table 20 below) is based on contracted rates with vendors for the relevant work and services, and reflects efficiencies identified as part of the development of IOP22. Most of these efficiencies relate to reductions in the volume of activity due to completion of the initial rollout and the progressive transition from building to running the **nbn**™ network.

Table 20. Other Operating Costs opex, Real $million (June 2020)

Opex category	FY21 (A)	FY22	FY23	FY24	FY25
Outsourced Services	118	106	77	68	65
Advisory and Corporate Costs	24	24	18	14	14
IT and Software Costs	205	192	167	155	146
Marketing and Product Costs	88	54	47	42	41
Facilities Costs	88	76	68	64	59
TUSMA Levy	31	38	48	48	49
Insurance	15	16	18	19	23
Other Internal Expenses	36	37	33	22	15
Total – Other Operating Costs	**607**	**543**	**476**	**432**	**411**

Over the period to FY25, Other Operating Costs are forecast to decrease by 32.2% in real terms, comprising:

- a decrease of 8.7% in total Other Operating Costs due to a reduction in Outsourced Services – opex for Outsourced Services is forecast to decrease by 45% in real terms between FY21 and FY25. This relates to reductions in the volume of work associated with outsourced accounts payable functions (as total expenditure decreases), outsourced IT helpdesk functions ([**Commercial-in-Confidence**]), and extended workforce arrangements (also [**Commercial-in-Confidence**]);
- a decrease of 1.6% in total Other Operating Costs due to lower Advisory and Corporate Costs – opex for Advisory and Corporate Costs are forecast to decrease by 41% in real terms between FY21 and FY25. This relates to reductions in the volume of work associated with legal services (as there are fewer contracts and arrangements to review) and consulting services (as the operating environment looking ahead is less complicated);
- a decrease of 9.7% in total Other Operating Costs due to reduced IT and Software Costs – as a result of the IT Systems Simplification Initiative (as discussed in section B.2.6), **nbn** has forecast an initial $5 million of opex savings in FY22, ramping up to $41 million of opex savings each year from FY25 in real teams. Combined with further savings that follow [**Commercial-in-Confidence**] as part of the transition from building to running the **nbn**™ network, IT and Software Costs are forecast to decrease by 29% in real terms between FY21 and FY25;

- a decrease of 7.8% in total Other Operating Costs due to lower Marketing and Product Costs – opex for Marketing and Products Costs are forecast to decrease by 54% in real terms between FY21 and FY25. This accounts for some additional marketing costs associated with the Network Upgrade Initiative and the SMB Enablement Initiative (see section B.2.5) in order to work with RSPs to facilitate engagement with end-users in the upgrade footprint to inform them of the upgraded services available and the associated benefits. Overall, there are forecast to be large reductions in the volume of activity across Advertising & Media, Customer Marketing Programs, Direct Marketing & Partnerships, and Other Marketing and Product Costs;
- a decrease of 4.8% in total Other Operating Costs due to reduced Facilities Costs – in line with the [**Commercial-in-Confidence**], **nbn** will rationalise its office accommodation to reduce expenditure on rental payments and outgoings for non-network facilities. As a result, Facilities Costs are forecast to decrease by 33% in real terms between FY21 and FY25;
- an increase of 2.8% in total Other Operating Costs due to a higher TUSMA Levy – as **nbn**'s share of industry eligible revenue increases, the amount that **nbn** needs to pay towards the TUSMA Levy will increase. This is forecast to level out from FY23 as the rate of growth of **nbn**'s revenues slows following the completion of the initial rollout early in FY21;
- an increase of 1.2% in total Other Operating Costs due to higher Insurance costs – this covers insurance to protect **nbn** and its assets (excluding satellite insurance, which is included under Network Assurance), including professional indemnity, directors and officers insurance, general and public liability, and cyber liability. The cost of Insurance is forecast to increase over the period in real terms. This reflects the increasing premiums and perceived risk for areas such as cyber and property insurance. There will be a natural increase as the **nbn**™ network (and assets) grow, and during 2021 markets have been volatile due to COVID-19. **nbn** is looking at a range of options to manage the increased costs, including self-insurance/hybrid models (subject to risk assessments and Board approval); and
- a decrease of 3.6% in total Other Operating Costs due to lower Other Internal Expenses – this category includes accounting, tax and audit fees, recruitment costs, training and development, corporate communications, office supplies and subscriptions, travel and entertainment and other. As a result of the progressive transition from building to running the **nbn**™ network and the [**Commercial-in-Confidence**], there are reduced volumes in a number of these areas, leading to a decrease in Other Internal Expenses of 66% in real terms between FY21 and FY25.

B.3.6 Subscriber Payments

Subscriber Payments relate to opex required to pay for disconnections from legacy networks under the Telstra Arrangements and migrations from legacy networks under the Optus Arrangements.

The payments are non-recurrent in nature and are currently not forecast beyond FY23 following the completion of the initial build (see Table 21 below).[261]

[261] While Subscriber Payments are not currently forecast beyond FY23, they still may be payable in certain circumstances for the next ten years.

Table 21. Subscriber Payments, Real $million (June 2020)

Opex category	FY21 (A)	FY22	FY23	FY24	FY25
Subscriber Payments	1,226	198	43	-	-

Appendix C Demand Forecasts

C.1 Introduction

This section provides an overview of the demand forecasts used by **nbn** for the purposes of the RMA for the First Regulatory Cycle (FY24 and FY25).

- In this context, the key demand forecasts relate to expansion (with incremental demand from the competitive market to service new developments), take-up (including STM) and peak usage. These forecasts feed into and are inter-dependent with the expenditure forecasts; and
- the revenue and price forecasts.

The inter-dependent nature of the forecasts is a result of the inter-dependent relationship between prices, demand, expenditure, and the revenue requirement. **nbn** accounts for this by using an iterative approach.

Conceptually, this approach involves four steps. First, an initial revenue target is calculated based on an initial demand forecast that does not anticipate subsequent demand responses. Second, **nbn** develops prices (and differentiated speed tiers) that would recover the initial revenue target in such a way as to closely match the willingness to pay of each market segment, promoting efficient take-up and usage. In this step, **nbn** factors in the demand response from the suite of prices and iterates until the projected revenue is consistent with the initial revenue target. Third, the updated demand forecast from the last step is used to adjust the opex and capex forecasts to the extent that those forecasts are directly linked to the relevant demand changes. Fourth, the revenue target is updated with the updated opex and capex forecasts. Steps 2 to 4 are repeated until the projected revenue from Step 2 and the updated revenue target from Step 4 are aligned.

This section is organised as follows:

- Section C.2 describes **nbn**'s overall approach to forecasting demand;
- Section C.3 describes **nbn**'s forecasting methodology;
- Section C.4 sets out the following:
  - long-term demand projections – the period to FY30; and
  - demand forecasts for the short to medium-term – the period to FY25 set out in the IOP.

These forecasts are provided solely for the purpose of assisting the ACCC in its assessment of **nbn**'s RMA for the First Regulatory Cycle. They should not be relied upon for any purpose not related to this regulatory process. Forecasts in this document reflect **nbn**'s current views and assumptions (as at March 2022), including a considered assessment of present economic and operating conditions, and are subject to risks and uncertainties

C.2 Overall Approach

nbn prepared demand forecasts as part of the IOP that underpins **nbn's** FY22 Corporate Plan. The IOP covers the years FY22 to FY25 and is the outcome of a bottom-up planning process. The IOP has already been reviewed and approved/endorsed by **nbn's** Executive Committee, Board, Shareholder Departments and Shareholder Ministers.

Although it covers only four years, the IOP is informed by and aligned with much longer term (10 year) product and network roadmaps that are informed by long-term demand forecasts.

As discussed in the following sub-sections, **nbn's** demand forecasts include some subsequent updates to the IOP forecasts to account for recent experience with actual STM and proposed changes to **nbn's** pricing structure as reflected in the Variation.

C.3 Methodology

The IOP relies on two sets of demand forecasts:

- high-level, long-term demand forecasts that drive the product and network roadmaps and strategic decisions on the evolution of the **nbn**™ network and condition expectations around future revenues and prices; and
- detailed short to medium-term demand forecasts that drive opex and capex activity levels (including on projects such as the Network Upgrade Initiative) and inform pricing intentions over the IOP period.

The development of each of these together with some observations on the accuracy of past forecasts is discussed in the following sub-sections.

C.3.1 Long-term demand forecasts

nbn forecasts long-term demand on the **nbn**™ network with a particular focus on those aspects of take-up and usage that will drive expenditure and revenue over time – that is, premises activated, peak (rather than average) usage and STM. The long-term forecasts incorporate the relevant IOP short to medium-term forecasts and for the years beyond the IOP's horizon (that is, for FY26 to FY30) are projections based on applying a sequence of reasonable and well-informed assumptions over time.

nbn has well developed methodologies for producing its long-term demand forecasts, as depicted below for example in relation to peak usage (Mbps per AVC TC-4 in the busy hour, also referred to as MBHT or mean busy hour throughput) and STM (see Figure 15 and Figure 16).

Looking out over a 10-year horizon, **nbn** draws on a wide range of domestic and international sources to inform its models, including insights from CableLabs, the BCAR, OOKLA, Comcast, Cisco VNI, Sony, Microsoft, Deloitte, Nokia MS-ISA Application awareness platform, Omdia (previously Ovum) and the Australian Bureau of Statistics (**ABS**).

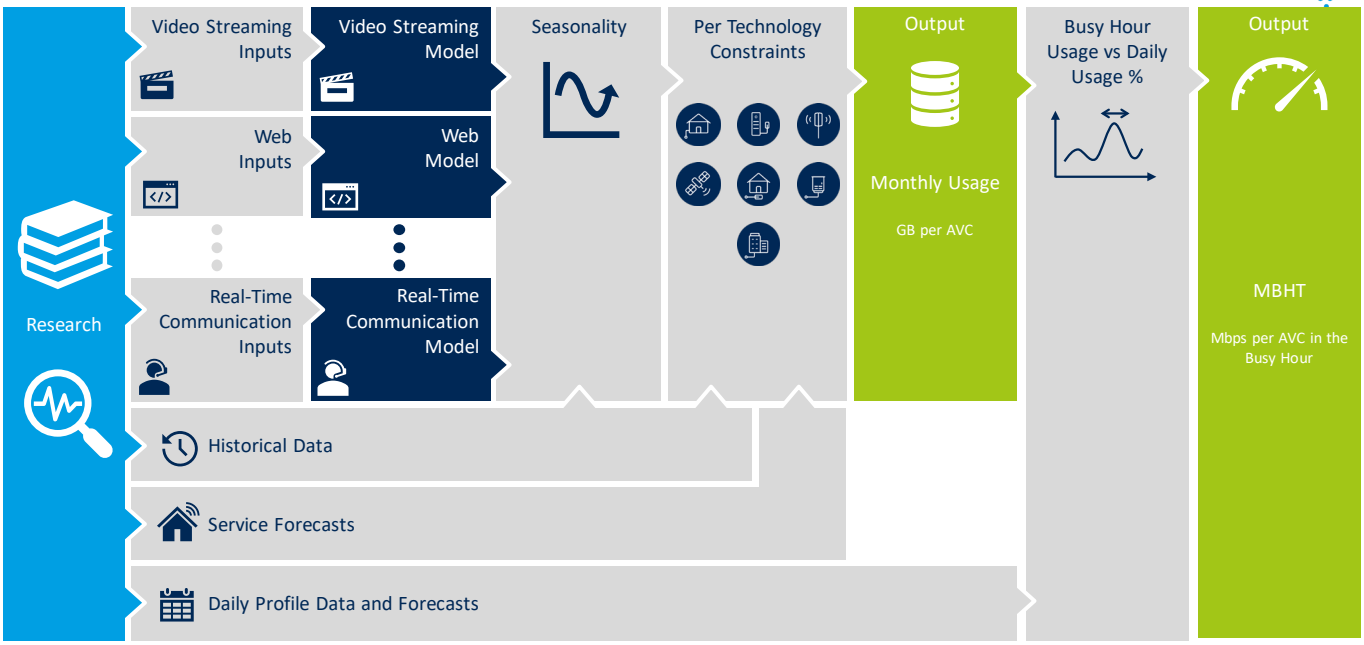


Figure 15. Forecasting methodology for usage

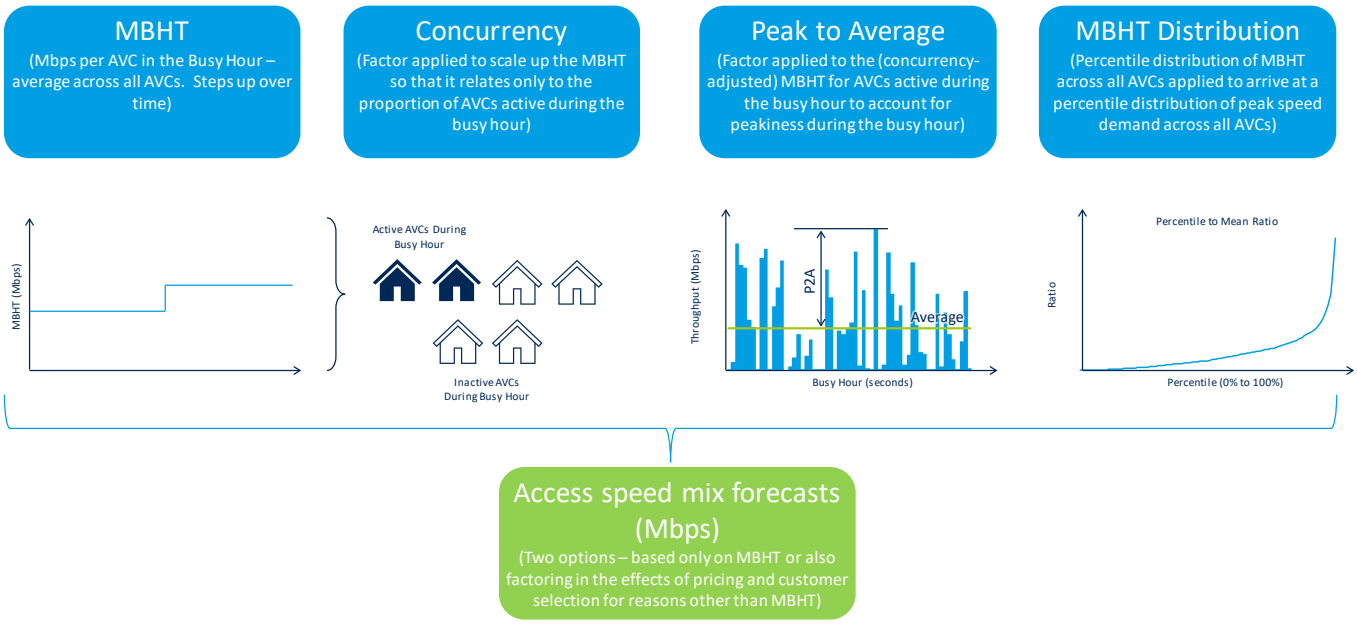


Figure 16. Forecasting methodology for access STM

nbn recognises that projecting long-term demand, particularly STM, is challenging because it relies on the interaction over time of various factors many of which can be difficult to predict.

- **Consumer adoption of new technologies:** demand for bandwidth is expected to increase substantially over time as consumers move their video streaming to 4K and 8K-enabled televisions and other devices. However, the rate of growth will also be heavily influenced by the availability of relevant content together with gaming and other applications that are compelling for Australian audiences.

- **Consumer willingness to pay for broadband:** residential consumers make decisions based on their individual budget constraints, and the share of wallet devoted to broadband will depend on the utility offered by available retail broadband services relative to all other goods and services. Over time, the relative utility that can be derived from broadband (and different speed tiers of broadband) will change and with it the consumer willingness to pay. The same is true for business consumers, but with willingness to pay related to how broadband supports business and commercial activities, for example by enabling productivity growth or otherwise adding value to the products and services offered in downstream markets.
- **Pricing of nbn's services over time:** **nbn**'s wholesale prices, including the price gradient across speed tiers, fixed vs. variable components of pricing and relativity to effective substitutes, will be a key driver of the retail pricing of broadband services and therefore consumer choices over whether to purchase **nbn**-based broadband, and which type and speed.
- **RSP marketing decisions:** as **nbn** is wholesale-only, the retail services that consumers can choose from are determined by the decisions made by RSPs in relation to how **nbn**-based services are priced, packaged, positioned and presented. These RSP marketing decisions may be influenced by **nbn** campaigns and incentives to promote increasing take-up and usage of the **nbn**™ network in such a way as to better align with apparent consumer preferences as revealed by willingness to pay studies.
- **Effective substitutes:** the geographic extent to which close substitutes to **nbn**'s services are available and the relative capabilities and pricing of those substitutes is subject to the decision making of **nbn**'s competitors (many of which are also RSPs) and ongoing development in substitute technologies. To the extent that **nbn**'s competitors are also RSPs, this may have implications for the RSP marketing decisions discussed above. Although **nbn** closely follows technology trends across all potential substitutes, there are always many possible scenarios around the extent to which these may manifest as competition to the **nbn**™ network over time, and increase risk of churn off the **nbn**™ network.
- **The nbn™ network:** in the short to medium-term, **nbn** has firm plans to upgrade the network (and make higher speed products available) in particular locations under the Network Upgrade Initiative. However, in the long-term, **nbn**'s plans will be subject to ongoing development with consideration given to the outcomes of network upgrades in the short to medium-term.

In applying its long-term forecasting methodology, **nbn** combines:

- internal forecasts based on industry best practice traffic forecasting techniques for usage and access speed; and
- external forecasts of demand and related research in regard to Australia and similar countries (such as NZ).

For STM, the long-term forecasting methodology is used to produce a demand range for the percentage of higher speed tier TC-4 AVCs as at the end of the 10-year horizon. Within this range, based on the experience of campaigns such as Focus on 50, or Focus on Fast, **nbn** sets a more targeted STM expectation and identifies changes to its pricing (and incentives to RSPs) required to deliver the target STM over time. Consistent with **nbn**'s purpose to "lift the digital capability of Australia", **nbn** targets an FY30 STM towards the upper bound of the forecast range and develops its year-on-year profile from the current STM based on expected network capability over time and current churn rates.

C.3.2 Short to medium-term demand forecasts

In concert with the long-term demand forecasts, **nbn** forecasts short to medium-term demand on the **nbn**™ network on a detailed month by month basis, seasonally adjusted, for the four years covered by the IOP.

In addition, **nbn** forecasts a range of other demand factors relevant to the IOP. For example, **nbn** prepares detailed month by month and location-specific forecasts in respect of:

- new developments – incremental premises ready-to-connect (**RTC**);
- TC-4 AVC premises activated;
- **nbn**™ Enterprise Ethernet;
- Demand Usage & Capacity; and
- High Speed Upgrades.

The drivers of demand in each case are different and **nbn** maintains forecasting models that integrate data and trends from a variety of sources. These forecast models also recognise that **nbn** faces competition for the provision of network build in new developments and the consequential supply of residential and business-grade services, as well as facing infrastructure-based competition from fixed, mobile and satellite networks.

By way of example, **nbn** has set out below the steps involved in forecasting premises activated and STM over the period of the IOP (FY22 to FY25).

Forecasting premises activated

Premises activated in each rollout region is forecast for the IOP using the following steps:

- Bottom-up predictions for each rollout region consist of two Machine Learning (ML) models, predicting terminal penetration as well as the weekly phasing for each rollout region. The models consider a number of factors associated with underlying demand, including demographic characteristics, historical order trends and legacy service take-up.
    - New Developments are factored in based on a ready to connect profile per region, which is determined from current development pipelines and long-term ABS forecasts of housing growth. Once the ready to connect profile is determined, the same bottom-up process set out above occurs to forecast premises activation in new footprints.
- The bottom-up predictions are overlayed with higher-level adjustments, including any demand generation campaigns and incentives currently or expected to be in market.
- Additional overlays such as RSP ordering behaviour is also considered, including order lifecycle metrics such as cancelled and rejected orders (applied using historical percentages at the service class level).
- Finally, the demand forecast is adjusted for supply side constraints. This is primarily in regard to the time needed from order to activation, which takes into account the complexity of the activation process based on technology, service class and labour constraints of **nbn** or delivery partners (as relevant).

Emerging mobile and fixed wireless competition adds additional layers of complexity to forecasting premises activated. **nbn** is carefully monitoring the potential impact it has on overall demand going forward and updates its forecasting models over time as the market develops.

Forecasting speed tier mix

STM is forecast over the period of the IOP on a basis that is consistent with but more detailed than the long-term forecasting methodology described above. Relevant inputs and tools used in the short to medium-term STM forecast include the following:

- **Premises activated and usage:** forecasts of net premises activated (accounting for customer churn), upstream and downstream monthly data volume (GB/AVC) and Mean Busy Hour Throughput are forecast for each technology type.
- **Current STM of the active base:** split by:
  - RSP;
  - product;
  - segment (residential and business); and
  - technology.
- **Technology mix across the footprint:** this is necessary to account for the constraints on maximum speeds attainable on some technologies.
- **"RSP cost minimisation" principles:** as **nbn** is wholesale-only, it is necessary to account for how RSPs minimise their costs by purchasing a pool of **nbn** products that can be transformed in various ways to minimise the cost of creating retail offerings that best meet the needs of each RSP's target market.
- **RSP 'go to market' STM history:** each RSP positions itself differently based on its target market, and this is reflected in which speed tiers a RSP chooses to promote over time and provides an indication of what mix they may promote into the future.
- **Current trading insights and in-market offers by respective RSPs:** at any point in time, each RSP will have particular retail offers in market in an effort to differentiate themselves and promote take-up and usage on a profitable basis. Observing the outcomes that RSPs achieve in the market provides useful insights into possible demand trends for **nbn**'s wholesale products.
- **CVC inclusions roadmap:** including increased CVC inclusions in **nbn**™ Ethernet bundles over time will affect the relative attractiveness of each speed tier over time because it can directly impact the Overage paid by a RSP. The potential effect of this on STM demand will be related to the RSP cost minimisation principles noted above.
- **Planned nbn campaigns or initiatives:** **nbn** will factor into its forecasts any upcoming campaigns or initiatives of its own that are expected to have an impact on STM, such as the Focus on Fast campaign which encouraged take-up of 100Mbps+ services, or the fibre upgrade program which will address technology speed constraints.

- **Willingness to pay studies:** **nbn** conducts an annual study of broadband decision makers (end-users) to understand choice drivers, price elasticity and 'willingness to pay' for different broadband features. The study captures responses across approximately 4,000 residential (metro and regional) and 2,000 business respondents (micro through to Enterprise). Focus group discussions feed into the questionnaire development to refine areas for a deeper understanding of evolving drivers. The study is used to inform and guide wholesale pricing decisions and to understand trends and market demand to support product development and portfolio optimisation. For example, the 2021 survey shows that as penetration of higher speeds has increased the proportion of respondents unaware of the speed tier they are currently subscribed to has declined from 53% in 2018 to 39% in 2021 (in respect of respondents that have a fixed line as their main connection).
- **Customer churn analysis:** **nbn** analyses a range of factors that may impact how customers churn between different speed tiers. This includes, for example, competition, pricing and availability of substitutes, and impacts from inter-RSP dynamics.

C.3.3 Forecast accuracy

nbn monitors the accuracy of its forecasts over time in order to inform the ongoing development and future application of the forecasting methodology.

In regard to the accuracy of previous take-up and usage forecasts, **nbn** makes the following observations.

Net premises activated (cumulative)

Over the period FY19 to FY21, the forecast of net premises activated (cumulative) from one year prior was within -0.05% and +3.60% of the actual number of such services for the relevant year. This range of accuracy is related to the initial rollout, which was still underway during that period and involved large numbers of premises being migrated to the **nbn**™ network each year (e.g., 1.7 million premises in FY20, which translates to annual growth of 31%). Looking ahead, with the initial rollout complete, forecast accuracy is expected to be in a tighter range because ongoing growth in net premises activated is forecast to be much lower – in the range of 1% to 4% per year over the period from FY22 to FY25.

Speed tier mix

As noted in previous sections, **nbn**'s STM is highly influenced by **nbn**'s own pricing and by RSP marketing and decisions. Over the last three years (FY19 to FY21), this has led at times to some material differences between the STM forecast one year prior and the actual STM that eventuated (see Table 22 below). STM is impacted by both active pricing campaigns (such as Focus on 50) and more implicit pricing incentives, such as changes to relative CVC inclusions, that impact the behaviour of RSPs and customers. The difference between forecast and actual STM in recent years is a function of both particular pricing campaigns that were devised and implemented after the forecast was made, as well as uncertainty in the implementation of and RSP response to pricing incentives over the forecast period. Looking ahead, **nbn** has developed a projection for the take-up of higher speed tiers by FY30 and will develop various pricing initiatives over time consistent with those projections (consistent with **nbn**'s purpose to lift the digital capability of Australia). **nbn** notes that the Variation proposes new pricing structures and revised price relativities (e.g., AVC-only and Bundled offers which charge for utilised CVC), which **nbn** has limited historical demand data for. This may initially impact on the accuracy of the forecasts for STM until direct experience of demand response to these pricing structures is gained.

Table 22. Speed tier mix, actual versus forecast 1 year prior – June 2019 to June 2021

	June 2019		June 2020		June 2021	
TC-4 AVC speed tier (downstream)	**Actual**	**Forecast**	**Actual**	**Forecast**	**Actual**	**Forecast**
12Mbps	17%	25%	15%	16%	12%	21%
25Mbps	19%	51%	16%	9%	14%	11%
50Mbps	55%	8%	60%	64%	57%	60%
100Mbps	9%	15%	9%	11%	9%	8%
250Mbps and above	0%	0%	0%	0%	8%	0%

Usage

Over the period June 2019 to June 2021, comparing **nbn**'s peak usage forecasts from one year prior and three years prior to the level of actual peak usage (downstream MBHT in Mbps per AVC) for the relevant year, the level of forecast accuracy is reasonably high taking into account the level of actual variability in the annual growth rate – see Figure 17 below. Accuracy on a one-year prior basis ranged from 89% to 95%, and on a three-year prior basis ranged from 84% to 93%. Over the same period, the one-year CAGR of actual peak usage ranged from 17% to 24%, which highlights the challenging nature of accurately forecasting usage over time (particularly in the last two years with demand affected by COVID-19).

Looking ahead, **nbn** expects to maintain a similar level of forecast accuracy in regard to peak usage as seen in past years.

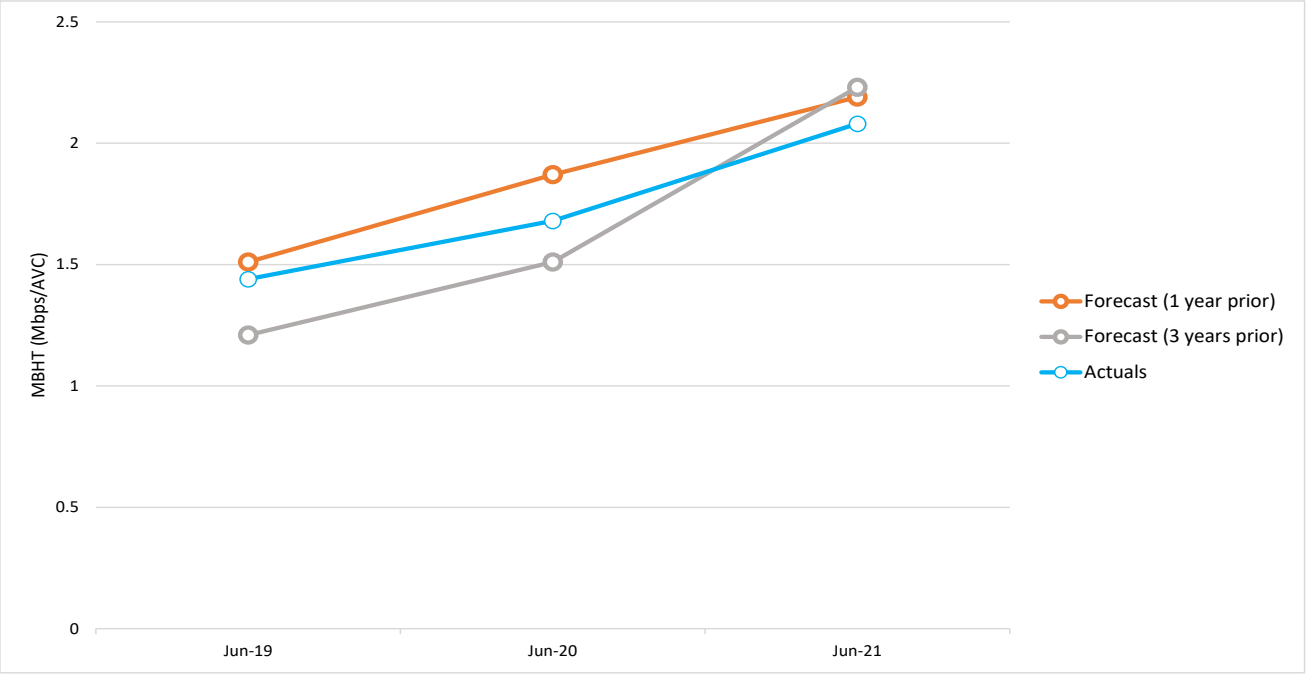


Figure 17. Accuracy of forecast peak usage

C.4 Forecasts

C.4.1 Long-term demand forecasts

nbn's long-term demand forecasts over the period to FY30 are as set out below in regard to take-up and usage. These include some subsequent updates to the IOP to account for recent experience and revised expectations in regard to STM and traffic per AVC activated.

- The number of TC-4 active services is forecast to grow by 18% overall from FY21 to FY30, with a CAGR of 2% (see Figure 18 below). Over time, growth is driven largely by new developments.
- The TC-4 AVC STM is forecast to move upwards such that the percentage on higher speed tiers (100Mbps and above) in FY30 is in the range of 40% to 60%, as compared to 17% in FY21 (end of year). This forecast range is based on:
    - **nbn**'s internal traffic forecasts;
    - BCAR's 2018-2028 estimates of demand for fixed line broadband in Australia;[262] and
    - Research from Omdia that projects STM for Australia from 2021 to 2026 and that (separately) analyses the STM in 2021 across a basket of 15 gigabit capable countries – given similarities in consumer behaviour between Australia and NZ, the current NZ mix provides a useful benchmark for higher speed tier take-up in Australia once **nbn**'s gigabit capability is expanded.

  Informed by this STM range, **nbn** is expecting 55% of TC-4 AVCs on higher speed tiers by end of FY30 (see Figure 18). This is at the upper end of the forecast range. It is an ambitious and achievable target that is consistent with **nbn**'s purpose, and achieving it would significantly uplift digital capabilities for Australian consumers and better position **nbn** in an increasingly competitive market.

  Although the short to medium-term forecast of STM includes some subsequent updates (as discussed in the next sub-section), the long-term demand forecast maintains the same end point, such that the STM forecast for FY30 is the same as that underlying the IOP. Once RSPs and their end-users have adjusted to the new wholesale pricing constructs in the Variation, **nbn** anticipates more active marketing of higher speed tier services over time, and in conjunction with improved network capabilities.
- Traffic per AVC activated is forecast to grow from June 2021 to June 2030 in terms of Mean Busy Hour Throughput (**MBHT**) by 204% (CAGR 13%) downstream and 231% (CAGR 14%) upstream, and in terms of Monthly Data Volumes by 199% (CAGR 13%) downstream and 290% (CAGR 16%) upstream (see Figure 19 and Figure 20). This growth reflects the interaction of many factors including consumer adoption of new technologies such as 4K and 8K enabled devices (as discussed above) and higher rates of working from home over time than pre-COVID-19. Similar to STM, although the short to medium-term forecast of traffic includes some subsequent updates (as discussed in the next section), the long-term demand forecast maintains a similar end point, with FY30 downstream MBHT and Monthly Data Volumes forecast to be only 4% and 5% lower respectively than in the IOP.

[262] BCAR, *Demand for fixed-line broadband in Australia 2018–2028*, Working paper, July 2020. Access: Demand for fixed-line broadband in Australia 2018–2028 (infrastructure.gov.au).

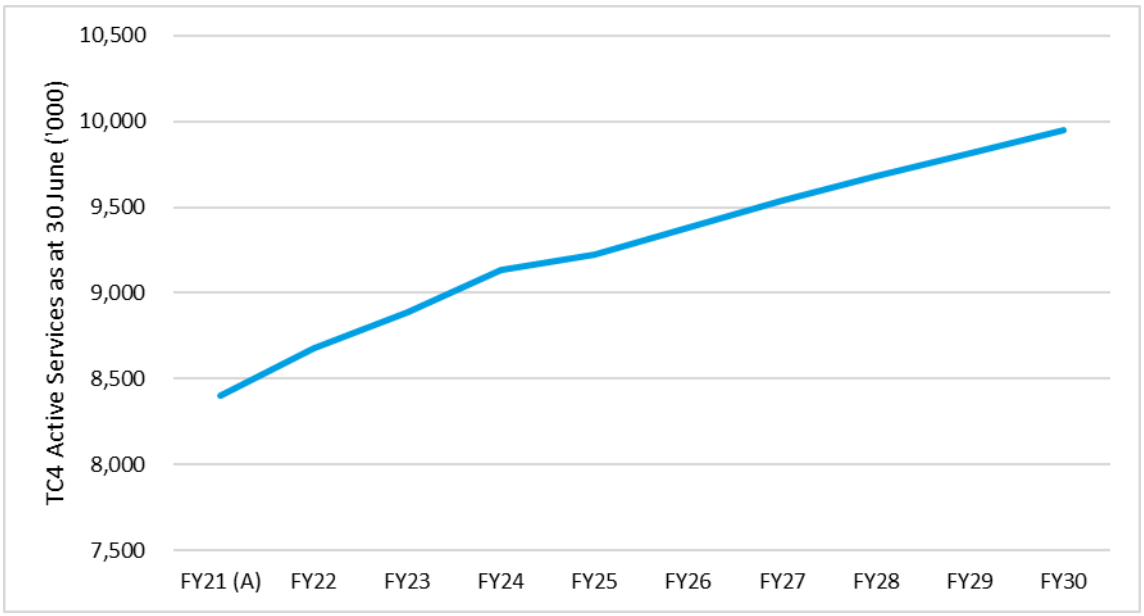
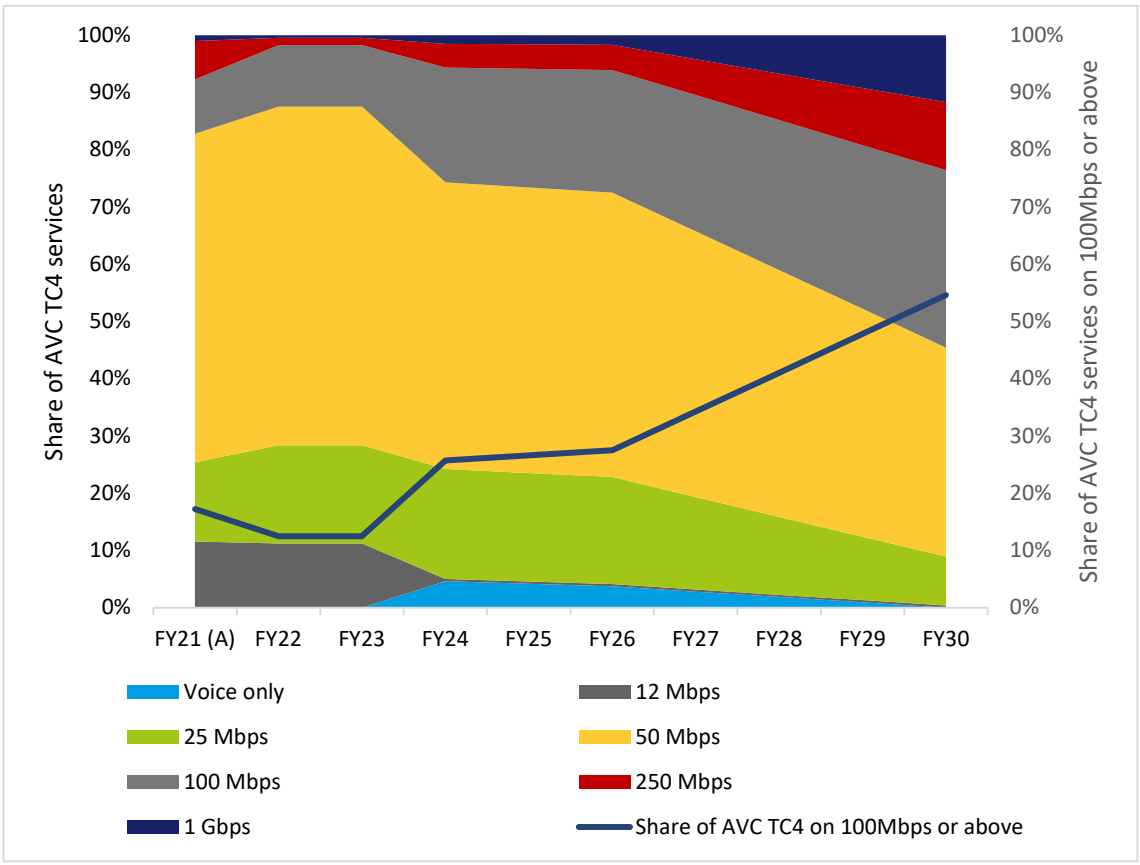


Figure 18. TC-4 active services – long-term forecast



Note: the Voice-only AVC TC-4 offer is expected to become available in FY24.

Figure 19. Speed tier mix – long-term forecast

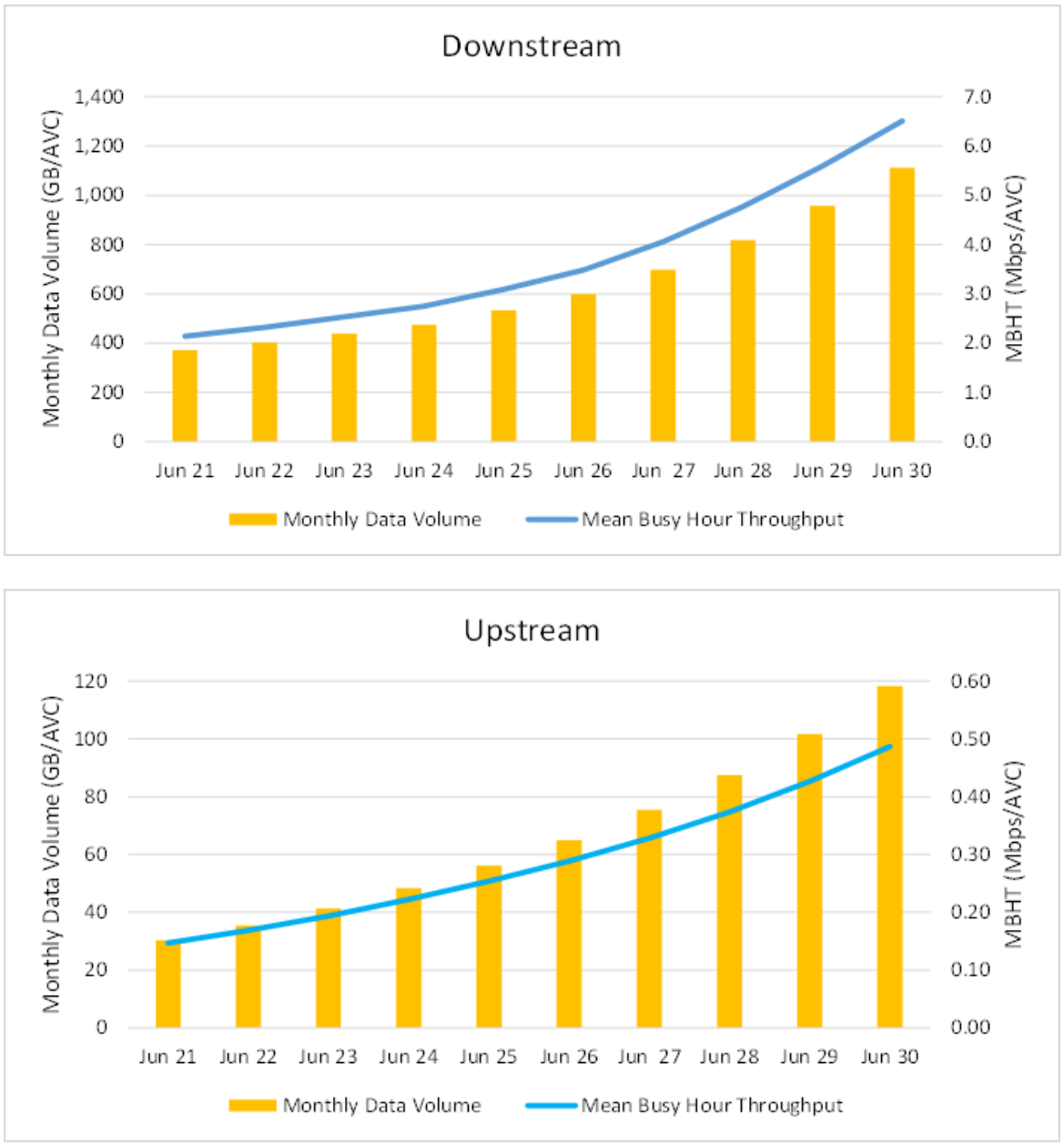
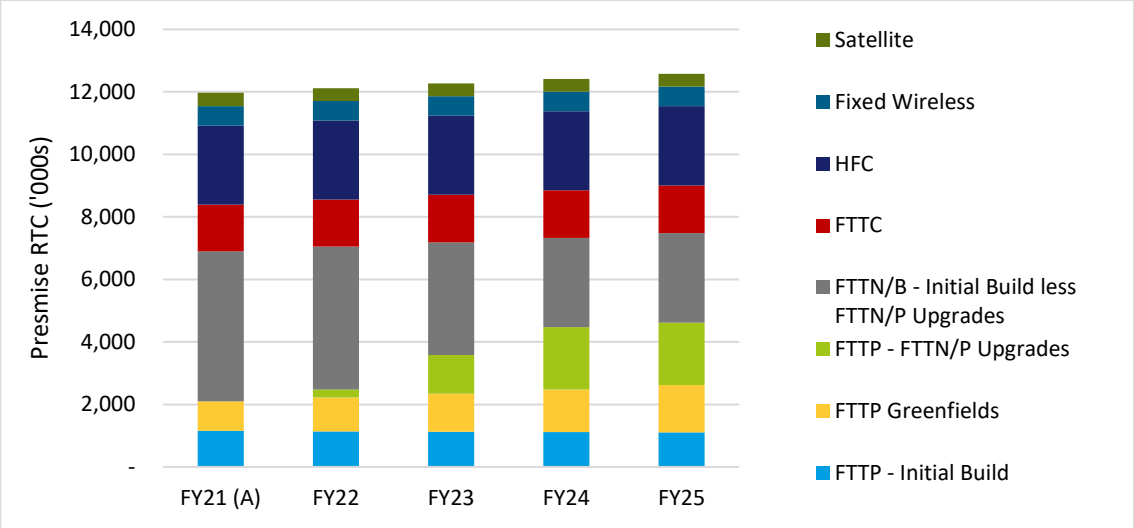


Figure 20. Traffic – long-term forecast

C.4.2 Short to medium-term demand forecasts

Under the IOP, the key demand forecasts over the next four years are as summarised below in regard to expansion, and take-up and usage. These include some subsequent updates to account for recent experience and revised expectations in regard to STM and traffic per AVC activated.

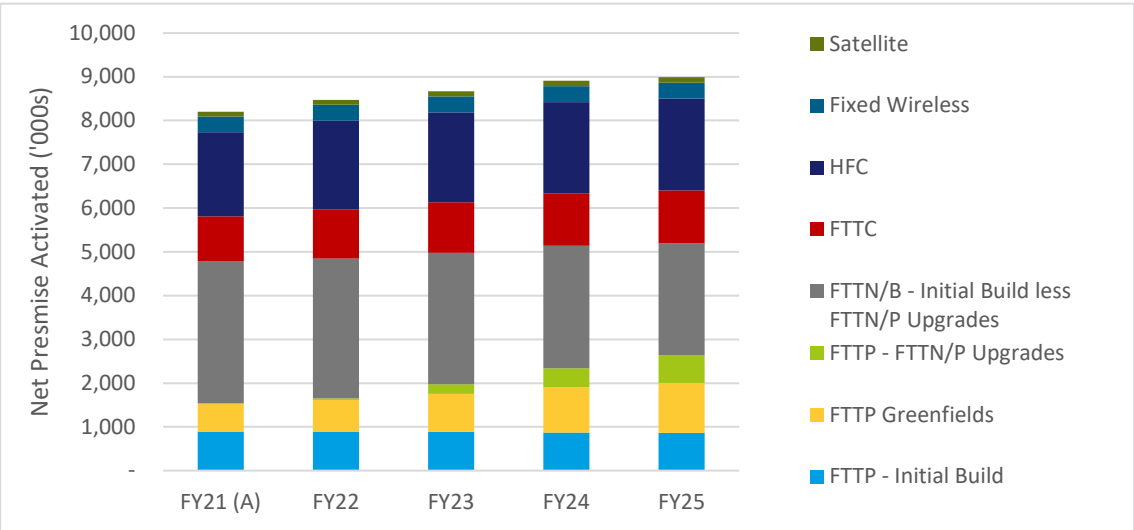
- **Expansion:** premises ready to connect (RTC) are forecast to grow by 5.1% overall, with a CAGR of 1.25 per cent driven by market demand to extend the **nbn**™ network into new developments (see Figure 21).



Note: FTTP – Initial Build reductions over time reflect clean-up of footprint (duplicates/invalids/vacant lands) and premises rebuilt as New Developments (knockdown rebuilds). FTTC to P Upgrades are included in FTTC volumes. HFC in FY21 reflects the impact of the Stop Sell. Satellite reductions reflect premises changed to fixed line.

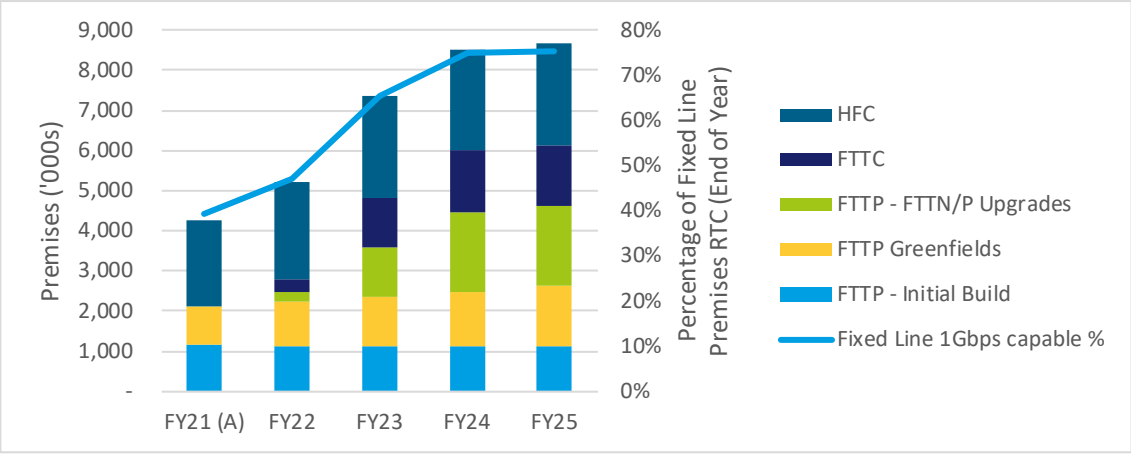
Figure 21. Premises RTC by technology, FY21 to FY25

- **Take-up and usage:** driven by market demand for connection, access speed and quality, and usage:
  - the number of premises activated (cumulative) is forecast to grow by 9.6% overall, with a CAGR of 2.3% but tapering to annual growth of 0.9% in FY25 (see Figure 22). Within this, there is a progressive (on-demand) migration of FTTN and FTTC services to FTTP within the footprint of the Network Upgrade Initiative – the percentage of all fixed line premises able to order TC-4 higher speed tier (**HST**) services of up to 1Gbps is forecast to grow from 39% to 75% (see Figure 23);



Note: FTTC to P Upgrades are included in FTTC volumes.

Figure 22. Net premises activated (cumulative) by technology, FY21 to FY25

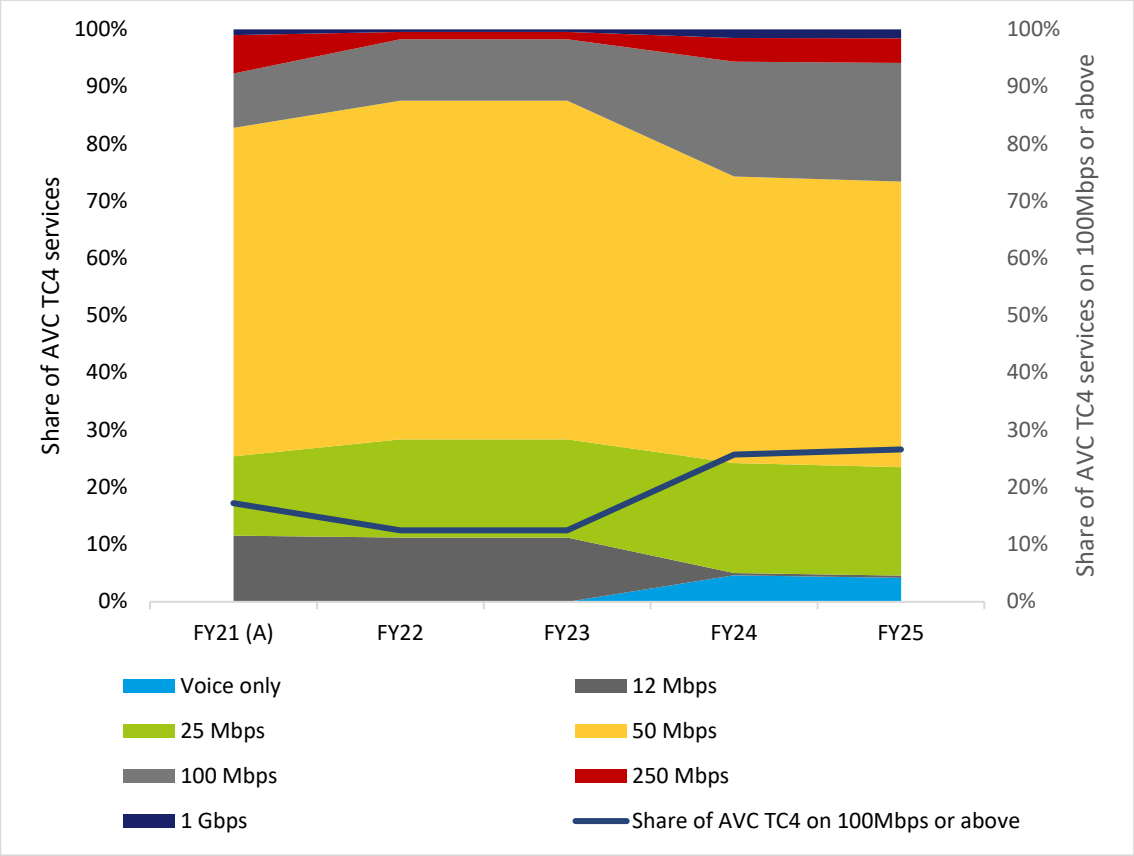


Note: At the end of FY20 (A), the Fixed Line 1Gbps percentage was 20%. FTTP – FTTC to P Upgrades are included in FTTC volumes.

Figure 23. Fixed Line Premises capable of 1Gbps by technology, FY21 to FY25

- facilitated by the Network Upgrade Initiative, the TC-4 AVC STM is forecast to shift progressively towards higher speed tiers, with the percentage of services 100Mbps and above increasing from 17% in FY21 to 27% in FY25 (see Figure 24). This forecast has been revised down from the IOP forecast (which was for 33% of services 100Mbps and above in FY25) based on experience with the Focus on Fast campaign and the expectation that proposed changes to **nbn**'s pricing under this SAU variation will dampen the rate of movement up the speed tiers relative to the original IOP forecast. Nonetheless, the shift to an AVC-only arrangement for 100Mbps and above is still expected to unlock existing latent demand for higher speed tiers, and the percentage of such services forecast to increase from 12% to 26% between FY23 and FY24.

  As part of the package of product and pricing changes, **nbn** will also introduce a new Voice-only option in FY24. This will be priced at $12 per month (ex-GST) on introduction and provided using the 12/1Mbps speed tier. The different prices applying to Voice-only 12/1 and broadband 12/1 is based on a threshold data test, where services utilising below a certain bandwidth threshold would be categorised as Voice-only services; while services that exceed the bandwidth threshold would be categorised as broadband services and charged accordingly. **nbn** will encourage RSPs to migrate broadband 12/1Mbps services to 25/5Mbps through a reduction in the 25/5Mbps price to align with the 12/1Mbps price of $26 per month (ex-GST);



Note: the Voice-only AVC TC-4 is expected to become available in FY24.

Figure 24. AVC TC-4 speed tier mix, FY21 to FY25

- take-up of business-grade (Enterprise Ethernet) services is forecast to grow rapidly from around [**Commercial-in-Confidence**] in FY21 to [**Commercial-in-Confidence**] in FY25 (see Figure 25). This reflects that **nbn**™ Enterprise Ethernet is becoming a more mature product from a pricing and capability perspective, with platforms to support scale take-up. Forecast growth in take-up is also associated with the SMB Enablement Initiative as described in section B.2.5;

[**Commercial-in-Confidence**]

Figure 25. Enterprise Ethernet take-up, FY21 to FY25

- traffic per AVC activated is forecast to grow overall in terms of MBHT by 44% (CAGR 10%) downstream[263] and 72% (CAGR 15%) upstream and in terms of the Monthly Data Volume (GB per AVC) by 43% (CAGR 9%) downstream and 85% (CAGR 17%) upstream (see Figure 26). In relation to the effects of COVID-19 on traffic/usage, downstream MBHT is forecast to continue to grow even as workers return to the office (because the residential downstream peak is in the evening rather than during business hours). Upstream MBHT is forecast to reduce at first when workers return to the office (because the residential upstream peak is during business hours), but with organic growth based on a higher rate of working from home than pre-COVID-19 there is still positive growth overall forecast from June 2021 to June 2022. Based on Q1 FY22 updates to assumptions, these forecasts have been revised from the IOP forecasts over the period FY22 to FY25 based on recent experience as COVID-19 lockdowns end – the forecast MBHT in June 2025 is 10% lower downstream but 6% higher upstream than in the IOP; and
- there has been an increase in mobility with people spending less time in their homes during peak hours, coupled with a significant increase in the number of households going on extended holidays. Over recent years, as Australians have gone in and out of lockdown, **nbn** has observed a clear negative correlation between mobility and internet usage on its network.[264] Downstream traffic per AVC activated is expected to revert to the previous trend over the medium to long-term. There is no proposed change to the expenditure forecast in the IOP because the change in downstream traffic per AVC activated is not sufficiently large over the short to medium-term to affect the prudent level of capex given the lead-times involved, the optimal sizing of capex increments and the expected reversion to the previous trend in the medium to long-term.

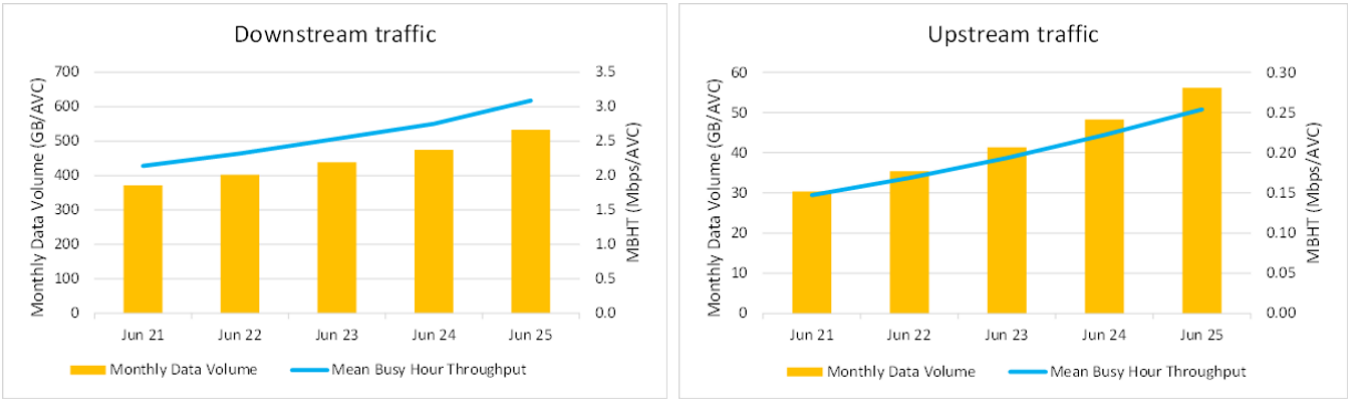


Figure 26. Traffic forecasts, FY21 to FY25

[263] These forward-looking estimates involve lower rates of growth than those observed in previous years, including during the traffic surge associated with working from home during COVID-19 lockdowns. This is because of continual improvement to video codec efficiency, the aftereffects of post lockdowns, including increased extended travel over the near to longer term, and the number of hours spent on real-time entertainment in a day reaching exhaustion.

[264] Mobility data is sourced from Apple Mobility Trends Reports, showing requests for directions.