2024 Regional Telecommunications Independent Review

NBN Co Limited Submission: Issues Paper, April 2024

August 2024

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The 2024 Regional Telecommunications Independent Review Committee (the Committee) published an Issues Paper in April 2024. That Issues Paper outlines the key areas of interest by the Committee and invites feedback on a set of questions relating to the Committee's Terms of Reference. In response to this Issues Paper, NBN Co Limited (NBN Co/ the Company) has structured its written response to align with each of the key themes and questions contained within the Issues Paper. In its response, NBN Co has referred to each of the Committee's questions of direct relevance to NBN Co in the following format, 'RTIRC Question [1-20]'. Only RTIRC Questions 8, 9 and 11 are not responded to by NBN Co. NBN Co has also proposed some recommendations in response to matters raised in the Issues Paper for consideration by the Committee.

1 Executive Summary

NBN Co Limited is pleased to have the opportunity to respond to the Regional Telecommunications Review 2024 call for submissions.

This year's review by the Committee is once again well-timed and of strategic importance. This is because it is occurring at around the same time as the Australian Government's review of universal telecommunications services and funding, and in parallel with emerging new satellite technologies in the Australian market. This presents new opportunities for optimising the performance, capacity and resilience of our networks, particularly in regional Australia, for the benefit of communities, households and businesses. Since the last Regional Telecommunications Review in 2021, there has been a significant shift in focus for NBN Co from completing the initial build of the national broadband network (**nbn** network) to upgrading and expanding access to the **nbn** network across Australia.

The **nbn** network now has more than 8.6 million premises connected[1] and accessing a service, which equates to over 20 million people relying on the **nbn** network every day. Regional Australia faces unique challenges in terms of participation in the digital economy and while significant investments in **nbn** infrastructure and services over the years has assisted in addressing these challenges, ensuring equity of access has become critical to enable many individuals, businesses, schools, hospitals, farms and communities in regional Australia to be connected and stay connected.

NBN Co continues to invest in the **nbn** network by pushing fibre deeper into communities and prioritising the delivery of high-speed broadband to regional, rural and remote Australia. As at 30 June 2024, approximately 70 per cent of homes and businesses in regional Australia are served by Fixed-Line technology. Of these, around 0.86 million premises in regional Australia are ready to connect to **nbn** full fibre (Fibre to the Premises (FTTP)). The Company's network upgrades are on track to enable approximately 1.6 million additional premises in regional Australia to upgrade to full fibre connections, and to enjoy access to its highest residential speed services by December 2025. Additionally, close to one million other homes and business

[1] https://www.**nbn**co.com.au/corporate-information/media-centre/media-statements/**nbn**-co-delivers-solid-hy24-financial-operational-results

in regional and remote Australia will benefit from the delivery of a $750 million investment to upgrade the Fixed Wireless and Satellite footprint, which includes a $480 million grant from the Commonwealth Government and an additional $270 million contribution from NBN Co.

2 Context

2.1 Network investment

In 2020, NBN Co allocated $3.5 billion to network investments that would benefit homes and small businesses across the Fibre-to-the-Node (FTTN), Fibre-to-the-Curb (FTTC) and Hybrid-Fibre-Coaxial (HFC) networks. This investment has enabled an estimated 75 per cent of homes and businesses in the **nbn** Fixed-Line footprint to have access to peak wholesale speed tiers of 500 Mbps to close to 1 Gbps at the end of 2023.

The momentum established in bringing forward planned network investments to help meet future demand for higher speed broadband services and enable Australia's economic recovery has continued with the Australian Government's commitment in 2022 to invest $2.4 billion to roll out more fibre to communities across Australia. This new investment is enabling an additional 1.5 million homes and businesses currently served by FTTN to upgrade to full fibre. NBN Co is using the existing fibre infrastructure already built to nodes and investing in the continued rollout of fibre deeper into community areas. Customers living or working in these areas will be able to place an order with any participating internet retailer for a higher speed **nbn** Home Fast, **nbn** Home Superfast or **nbn** Home Ultrafast broadband plan. At that point, NBN Co will complete the build of the fibre lead-in to the premises. NBN Co is on track to enable up to 10 million premises, or up to 90 per cent of Fixed-Line homes and businesses across Australia to access **nbn** Home Ultrafast offering wholesale download speeds of 500 Mbps to close to 1 Gbps, by the end of 2025.[2]

In addition to fibre upgrade investments, NBN Co continues to deliver enhancements to its Fixed Wireless and Satellite services. NBN Co is upgrading its existing Fixed Wireless towers with the installation of new technology along with software enhancements to help deliver overall enhanced **nbn** network speeds and coverage to regional Australia. The upgrades are being enabled by a $750 million investment program – $480 million from the Australian Government and an additional $270 million from NBN Co – in the **nbn** Fixed Wireless network. To date, these network upgrades mean more than 700,000 homes and businesses can now access faster **nbn** network speeds with **nbn** Fixed Wireless.[3]

The enhanced coverage and extended maximum range for some of NBN Co's Fixed Wireless towers will result in an expansion of the **nbn** Fixed Wireless footprint coverage by up to 50 per cent enabling approximately 120,000 former Satellite-only eligible premises to access

[2] https://www.nbnco.com.au/corporate-information/media-centre/media-statements/two-million-more-australian-households-ready-to-order-nbns-fastest-home-internet
[3] https://www.nbnco.com.au/corporate-information/media-centre/media-statements/fixed-wireless-speed-boost

nbn Fixed Wireless services by the end of December 2024. For those homes and businesses that remain on **nbn** Satellite, NBN Co has delivered more options for uncapped data use for all their internet activities (subject to fair use policy and shaping), following the launch of its new **nbn** Sky Muster Plus Premium Satellite plans in June 2023.[4] In addition to the new plans, NBN Co is also introducing other new features for Sky Muster Plus and Premium users such as the option to purchase dedicated static IP (internet protocol) addresses for users who wish to do things like remotely access their network from outside their property.

NBN Co continues to dedicate significant capital and resources on enhancing connectivity, capacity and capability in regional and remote Australia. This includes:

- participating in Commonwealth and State/Territory grant and co-investment programs which are enabling technology flips from Satellite to either Fixed Wireless or FTTP in regional Australia and positively impacting more than 40,000 premises;
- boosting opportunities for education and training, employment, jobs and business and improving access to services and information through partnering with the Australian Government to deliver free Community-Wide Wi-Fi over NBN Co's Sky Muster Satellite in around 20 eligible remote communities by December 2024; and
- supporting the implementation of the Australian Government's School Student Broadband Initiative (SSBI) to provide up to 30,000 eligible households, including in regional and remote areas, with free broadband access through their chosen participating internet provider over the **nbn** network until the end of December 2025.

The Company remains committed to helping drive digital inclusion across the nation and is collaborating with communities and government with the aim of improving digital inclusion and availability of high-speed broadband, including to areas of society most in need. To support First Nations communities, NBN Co has concentrated its efforts on activities guided by its Reconciliation Action Plan – which has overseen the deployment of **nbn** Community Wi-Fi services in more than 100 First Nations communities, and includes a team of Digital Champions that provide digital literacy support to the communities.

This is all part of a nation-wide upgrade program to deliver better broadband for homes and businesses across regional and remote Australia.

2.2 Digital inclusion and social impact outcomes

The economic benefit of broadband in Australia has recently been estimated by Accenture. Using an Australian dataset, the NBN Co commissioned research[5] has, for the first time, derived statistically significant estimates of the relationship between average broadband speed and key economic indicators including Gross Domestic Product (GDP), employment and business counts. The research found that, from 2012 to 2022, every 1 Mbps increase in average broadband speed enabled an average uplift in GDP of 0.04 per cent. This increase translates to

[4] https://www.nbnco.com.au/corporate-information/media-centre/media-statements/nbn-unveils-nbn-sky-muster-plus-premium-offering-even-more-connectivity-options-for-australia

[5] Accenture economic modelling reveals GDP benefits of faster, stronger NBN | nbn (nbnco.com.au)

an **nbn**-enabled GDP uplift of $122 billion between 2012 to 2022 and is forecast to generate an additional $399 billion of GDP uplift between 2023 and 2030. In productivity terms, this impact equates to one-quarter of all growth in Australia's multifactor productivity over the decade. Importantly, the impact on GDP was found to be 16 times greater in remote areas of Australia and two times greater in regional areas relative to the major cities and five times greater in the most socioeconomically disadvantaged communities compared to more affluent communities This outsized productivity impact of faster broadband speeds in more isolated regions is attributed to remote and regional areas of Australia starting from a much lower base in terms of average broadband speeds.

In Australia, data demand and usage is expected to grow, driven by increased use of high and super-high-definition streaming, increased gaming, and the proliferation of cloud computing, generative AI, virtual reality, and augmented reality, and as people continue to expect higher quality video conferencing and computing capabilities while working and studying at home.

NBN Co is firmly committed to the idea that no matter where an Australian lives, studies or works, they should have access to fast and reliable communications services. Ubiquitous access to better broadband has the potential to expand the customer reach of e-commerce entrepreneurialism, provide better online access to work and education, help to profoundly change Australia's workforce demographics, and deliver an overwhelmingly positive impact on personal wellbeing, particularly in regional and remote Australia, with some of the greatest impacts helping to lift lower socioeconomic areas.

The Government's review of universal telecommunications services and funding together with the Committee's review on adequacy of telecommunications in regional Australia is important and timely for identifying opportunities to improve ubiquity of services, particularly noting that copper, other legacy technologies, and NBN Co's Sky Muster Satellites will reach end-of-life in the coming years.

Currently, Australians in regional, rural and remote parts of the country have access to fast and reliable broadband through the **nbn** Fixed-Line, **nbn** Fixed Wireless or **nbn** Satellite networks,[6] and access to voice services provided by Telstra under its Universal Service Obligation (USO). However, new and emerging technologies such as Low Earth Orbit (LEO) Satellites, and enhancements to NBN Co's Fixed Wireless network, are accelerating progress towards modernised universal telecommunications services. In this context, it is critical to consider how regional, rural and remote Australians are using their telecommunications services, how they should best be served using modern technologies, and how universal service policy and regulation can support the delivery of the latest communications technology going forward, recognising that legacy networks and regulation cannot remain in place indefinitely.

NBN Co has put forward its views on these matters to the Government in submissions on *Better Delivery of Universal Services* (March 2024) and *Funding of Telecommunications Services* (May 2024). NBN Co's response to the Committee's Issues Paper has partly drawn on the material set out in detail in related submissions, and includes information relevant to the

[6] Australians also have access to voice capable broadband networks in the Fixed Line and Fixed Wireless networks as required by the SIP legislation.

Committee's questions that either specifically apply to NBN Co or seek its views on areas of potential further participation in the future.

Regional Australia will always be a key focus area for NBN Co. This includes restoring and providing essential communication services that families can rely on to stay in contact with each other and emergency services. As a critical infrastructure owner and operator, NBN Co acknowledges the inherent risks climate change poses to its operations, network continuity and service obligations.

Together with the Commonwealth, NBN Co, as an Australian owned and operated business, will continue to drive innovation in connectivity, and stretch and maximise the capabilities of its network infrastructure to help meet the evolving needs of homes and businesses in regional Australia.

3 Telecommunications consumers

NBN Co recommendations

1. **That Government continues to fund the Regional Tech Hub (RTH) and increase its accessibility by providing it with additional resources to extend its reach across regional, rural and remote Australia, and through increased promotion of its services.**
2. **That Government continues to focus on closing the digital inclusion gap for First Nations people achieved through deploying solutions in partnership with industry such as the nbn Community-wide Wi-Fi program. Any further expansion of NBN Co's Community-wide Wi-Fi program to scale it across Australia should explore options for sustainably funding these services over the longer-term.**
3. **That Government explores options for telecommunications companies to pool operational resources with similar skills requirements to facilitate better response times.**

NBN Co is committed to lifting the digital capability of Australia and understands its role in providing enhanced connectivity to help deliver social and economic benefit to all Australians, particularly those located in regional, rural and remote Australia.

Following the 2018 Regional Telecommunications Review recommendations, NBN Co established a business unit known as Regional Development & Engagement (RDE) dedicated to lifting the digital capability of regional Australians. With a substantial regional presence, NBN Co's RDE team consists of technical and stakeholder engagement professionals, focused on developing and delivering fit-for-purpose product enhancements for regional Australians.

This includes NBN Co's 'boots on the ground' team, **nbn** Local, that was established to support regional, rural and remote communities across Australia. By working closely with government and community stakeholders across the country NBN Co play an important role to educate local communities about how to connect to the **nbn** network and raise awareness of NBN Co's network upgrade programs by running targeted programs and events that lift the digital capability in communities.

Regional and rural Australia remains a key focus area for NBN Co, with a variety of innovations and initiatives underway to support these communities, including:

- Developing strong relationships and partnerships with peak industry bodies, advocacy groups and services such as the Regional Rural & Remote Communications Coalition (RRRCC), Better Internet for Regional Rural and Remote Australia (BIRRR), the Isolated Children's and Parents Association (ICPA), the Australian Communications Consumer Action Network (ACCAN) and the Regional Tech Hub (RTH). These relationships are important for informing and shaping NBN Co's approach to products and services as well as its longer-term plans for Satellite and Fixed Wireless, which predominantly serve regional and remote areas of Australia, in addition to Fixed-Line access technologies.

- Working closely with government agencies and emergency services to promote emergency preparedness and increase awareness of what communities can expect from NBN Co before, during and after emergencies. NBN Co does all that it can to keep its customers connected, assist residents evacuated from their homes and support emergency services on the ground during times of emergency. This includes use of NBN Co's temporary emergency management solutions, such as providing Disaster Satellite Services to evacuation centres and emergency operation centres under the Commonwealth's Strengthening Telecommunications Against Natural Disasters (STAND) program, **nbn** Road Muster Vehicles and other temporary network infrastructure.
- Active participation toward closing the digital inclusion gap for First Nations Australians. Through the Government's First Nations Digital Inclusion Advisory Group (FNDIAG), NBN Co continues to consult with communities and stakeholders and play a role in developing key artefacts such as the First Nations Digital Inclusion Roadmap. Additionally, NBN Co's First Nations Digital Inclusion Strategy is centred on improving access, affordability and ability. Key initiatives in this strategy include:
    - improving access through deploying free community Wi-Fi services to more than 100 communities, including the free Community-wide Wi-Fi services already piloted in four First Nations communities and now being expanded with the support of the Australian Government in around 20 additional eligible communities;
    - focusing on digital ability uplift through the introduction of **nbn** Digital Champions; and
    - deploying a purpose built Indigenous Online Skills Check and Resources tool (iOSCAR) and delivering uplift programs in community via **nbn** Local.
- Delivering and supporting a range of practical initiatives to improve digital inclusion and help remote and regional areas of Australia stay connected, including low-income, vulnerable, or isolated customers. This includes chairing the quarterly Low-Income and Digital Inclusion Forum (LIDIF), a further channel for NBN Co to actively engage with industry, not-for-profit organisations, government agencies, customer advocacy groups including First Nations representatives, and independent researchers on addressing access, affordability, and digital ability barriers for digitally excluded people nationwide including in regional Australia. It also includes supporting the delivery of the Australian Government's SSBI which is a national program, to provide up to 30,000 eligible families with school aged children and no broadband internet at home a free broadband service over the **nbn** network, until 31 December 2025. The National Referral Centre (operated by Anglicare Victoria) and nominating organisations across the country are working with NBN Co to deliver on the SSBI ambition. Support from participating retailer service providers (RSPs) has played an essential role in enabling the program to be successful. To date, NBN Co has provided access to fast, reliable internet under the SSBI to more

than 16,100 families[7], including in regional and remote Australia, who may otherwise be without this essential service.

- Delivering better broadband to more regional communities through co-investment. This includes participation in Commonwealth and State Government grant programs, such as Regional Connectivity Program (RCP) Round 3 where in December 2023, the Commonwealth announced funding of $18,699,582 (GST inclusive) towards 18 projects, of which seven will support multiple First Nations communities. Additional funding from the Queensland, the Northern Territory and Western Australian Governments has also been committed towards these projects. The projects[8] will see approximately 5,300 Satellite premises across Queensland, the Northern Territory and Western Australia transition to Fixed Wireless and support some of the most remote and complex builds undertaken in NBN Co's history. In previous grant opportunities (RCP Round 1 and RCP Round 2) NBN Co has delivered six projects in areas which have First Nations populations. NBN Co's guiding principles for these projects enables engagement with First Nations communities which is culturally appropriate, collaborative, co-designed and place based.

3.1 Questions 1 to 4 referred to in the 'Telecommunications consumers' section of the Issues Paper

3.1.1 RTIRC Question 1: What initiatives or tools could be implemented by the telecommunications industry or the Australian Government to improve connectivity literacy and make it easier for regional consumers and businesses to understand their connectivity options and help them to choose affordable services that meet their needs?

NBN Co recognises the importance of digital connectivity literacy and digital capability in improving social and economic outcomes for regional, rural and remote Australian communities. Beyond its own activities to educate and raise awareness about NBN Co's technology options, NBN Co supports the ongoing role of that the RTH as an independent consumer advisor. NBN Co recommends the Government continue to fund the RTH and look to increase its accessibility by providing it with additional resources to extend its reach across regional, rural and remote Australia, and through increased promotion of its services.

NBN Co has seen firsthand the value the RTH can deliver to regional, rural and remote Australians and will continue to support the RTH through the development of tools and assets such as its Video Conferencing Troubleshooting Guide and the **nbn** Sky Muster Trouble Shooting Guide. NBN Co has close engagement with the RTH, keeping it informed of enhancements to **nbn** products and enabling access into NBN Co for escalating **nbn** related issues on their customer's behalf. Engagements in communities

[7] Information current as of 22 August 2024.
[8] The RCP projects mentioned above are still in negotiation and subject to contracts being signed.

and at events in partnership with the RTH and industry (NBN Co and others) has proven to be a successful model in addressing connectivity literacy. Scaling this type of joint program, alongside RSPs, can ensure consumers receive consistent, quality and independent advice.

NBN Co recognises the important position the RTH has as an independent advisor and encourages the RTH, with the Australian Government's support, to take a leading role in the development of a single common approach to addressing connectivity literacy for the industry to support.

In 2023, NBN Co participated in an industry Connectivity Literacy workshop facilitated by the RTH. Whilst there were many suggestions unearthed at this workshop, three areas of immediate focus were classed as priority actions for the RTH to progress, with support from the Australian Government. NBN Co remains supportive of these priority actions (outlined below) being addressed by the Government as this will reduce areas where information gaps exist for consumers and businesses:

1. **Defining exactly what Connectivity Literacy is**. Seek to understand the problem that industry is trying to solve. Many members of the working group have submitted applications for funding to deliver the research and resulting definition. To date they have not been successful with grant applications.
2. **Connectivity Literacy Modules.** Topics include "Different technology types", "Hardware 101", "Basic Troubleshooting", "In Home Optimisation" and more.
3. **Glossary of [consistent] Terminology**. There can be multiple terms for the same definition, this is incredibly confusing for customers. With definitions drawn from a range of resources, including NBN Co's glossary, and the On Farm Connectivity Guide. The objective is to develop one glossary of terms and potentially enter an Industry Memorandum of Understanding to utilise this agreed terminology across businesses and organisations' ways of working.

3.1.2 RTIRC Question 2: What further initiatives can be implemented to support First Nations communities in developing and leading their own digital inclusion solutions while ensuring cultural appropriateness?

Core to its purpose at NBN Co and its focus on regional, rural and remote Australia is the work that the Company does to support digital inclusion and First Nations communities. NBN Co has concentrated its efforts on activities guided by its Reconciliation Action Plan – which has overseen the deployment of **nbn** Community Wi-Fi services in more than 100 First Nations communities and the expansion of its Community-wide Wi-Fi services from an initial four communities to around 20 additional eligible communities with support from the Australian Government.

NBN Co welcomes:

- The growing focus and prioritisation of projects supporting First Nations communities as part of the Australian Government's RCP and is supportive of this trend continuing in future funding programs.

- The Australian Government's $16 million funding program to support a First Nations Hub and Digital Mentors program and stands ready to support in whichever capacity is deemed appropriate.
- The Australian Government's SSBI and its efforts to provide up to 30,000 eligible families with no broadband internet at home a free service via a participating internet provider, over the **nbn** network, until 31 December 2025.

In consultation with First Nations organisations and communities, NBN Co recommends that the Government continues to focus on needs of First Nations Australians living in regional, rural and remote areas through the FNDIAG. FNDIAG's approach to community consultation and options generation enables a concerted effort in addressing digital inclusion for First Nations people and facilitates the identification of solutions that are fit-for-purpose, placed based and collaborative which NBN Co will continue to play an active role to support.

The FNDIAG's Initial Report[9] highlighted that around 670 First Nations communities do not have adequate communications and would benefit from community Wi-Fi services - the scale of the problem is large. In that report the FNDIAG recommended Community Wi-Fi, such as that delivered by NBN Co, as a fit-for-purpose solution for closing the Digital Inclusion Gap in First Nations Communities.

NBN Co is pleased to be partnering with the Australian Government on expanding its Community-wide Wi-Fi Program to around 20 more communities, taking the total communities served to 120. Central to this initiative is the use of NBN Co's Sky Muster Plus Premium services to provide internet access, which will be supported by the installation of wireless access equipment throughout each community.

The **nbn** Community-wide Wi-Fi solution is one that truly embraces the principles for engaging with First Nations communities; collaborative, co-designed, place-based and community controlled. NBN Co maintains that the delivery of the technical component in distributing Wi-Fi signal throughout community is but part of the solution, the community-controlled aspect and ongoing engagement is what enables this model to be fit-for-purpose in addressing First Nations digital inclusion in a culturally appropriate way.

The **nbn** Community-wide Wi-Fi service model, which includes an **nbn** Digital Champion, ensures that the remotest of First Nations communities can connect to the **nbn** network with digital literacy support. By the end of calendar year 2024, NBN Co will have expanded its team of Digital Champions to around 27. These **nbn** Digital Champions provide basic IT and digital literacy support to community members in community at a time when they need it most and are typically paid First Nations people from community working within the community.

[9] https://www.digitalinclusion.gov.au/sites/default/files/documents/first-nations-digital-inclusion-advisory-group-initial-report.pdf

NBN Co is of the view that its community-wide Wi-Fi solution (or amended versions of this solution) has the potential to be a viable and cost-effective solution to replacing certain services under the Australian Government's USO (noting however that they don't currently provide access within individual premises).

NBN Co has seen firsthand the significant, positive impact on individuals, First Nations and the wider community that has been provided as a direct result of the investments made in Community Wi-Fi and recommends the Australian Government continue to expand the program as well as provide longer term sustainable funding to scale Community Wi-Fi programs across Australia.

3.1.3 RTIRC Question 3: How can government and industry address any misleading and inaccurate information surrounding telecommunications services in regional, rural and remote areas, to ensure consumers and businesses have access to reliable and unbiased information when making decisions about their connectivity options?

A primary objective for NBN Co is to improve awareness of **nbn** connectivity options within regional Australia so that consumers can make informed decisions for the connectivity solution that best meets their needs. This is particularly important in regional, rural and remote Australia as not all RSPs market the full suite of NBN Co's products, including **nbn** Fixed Wireless and **nbn** Satellite.

NBN Co has a particular focus on engaging with communities that are benefiting from technology upgrades such as through the **nbn** Fixed Wireless and Satellite Upgrade Program and area switches funded through **nbn**-investment with the Federal, State, and Local governments. The focus of this engagement is to educate the community on the benefits of the upgrades and how to transition to the new access technology. Additionally, from August 2022 through till December 2022, NBN Co undertook a comprehensive marketing campaign in regional, rural and remote Australia to raise awareness of **nbn** Sky Muster products, followed more recently by awareness campaigns aligned to the introduction of new entry and mid-tier and updated Sky Muster Plus Premium plans throughout 2023.[10]

Further to NBN Co's comments at RTIRC Question 1:

NBN Co supports the role of the RTH as an independent trusted advisor enabling regional, rural, and remote consumers to make informed decisions relating to their connectivity. Improved awareness of the RTH and its role and scaling of joint events and roadshows with the key industry players, including NBN Co, has the potential to support this outcome.

NBN Co is also of the view that regional, rural and remote Australia could benefit from an independent source of information that provides unbiased regulated and accurate

[10] 1 June 2023 Media release: nbn unveils nbn Sky Muster Plus Premium: offering even more connectivity options for Australia | nbn (nbnco.com.au); and 1 December Media release: New satellite plans offer more choice and flexibility for regional Australia | nbn (nbnco.com.au)

advice including on retail attainable speeds, plans and pricing options across a range of technologies including that of non-**nbn** options to households across regional Australia.

3.1.4 RTIRC Question 4: Deploying and maintaining telecommunications infrastructure in remote areas requires a skilled workforce. What initiatives can be implemented to ensure there is a skilled workforce in regional and remote Australia capable of supporting the construction, maintenance and operation of futureproof telecommunications infrastructure?

The Australian Government has an important role to support the telecommunications sector to ensure that regional, rural, and remote Australians have the capability to engage in the digital economy by providing short-term and long-term policy options that can support jobs being created, and staying, within those communities.

There are both opportunities and barriers to realising these possibilities. NBN Co is of the view that building, attracting, and retaining local workforce skills within regional, rural, and remote communities is the best way to ensure an adequate and sustainable workforce is available for telecommunications work now and into the future. For its part, NBN Co's Internal Workforce comprises approximately 800 technicians in 161 locations across urban, regional and remote Australia.

NBN Co has introduced a new Industry Traineeship Program which is focussed on building industry skills nationally ensuring the telecommunications industry is diversified, sustainable with a regional presence. NBN Co's Internal Workforce provides support and develops skills across all **nbn** technologies including non-Fixed Line. It enables a sustainable field workforce, capable of providing operate, maintain and professional services, to support a positive customer experience.

Currently, NBN Co is in the process of adding a further 50 experienced technician roles and 40 trainee roles, which if successful, will help to deliver a balanced representation across urban and regional areas.[11] NBN Co's expected yearly traineeship plan onboards approximately 40 trainees per annum and the Company expects that about 50 per cent of this trainee intake will be based in regional centres given the projected field work demand profiles over the next four years.

However, multiple barriers exist for attracting, building capability, and retaining skilled workers within regional, rural, and remote communities. They include:

- A limited understanding of the telecommunications industry and/or career pathways available in some occupations and a lack of cross and up skilling.
- Uncertainty in future work programs hampering external Delivery Partners' appetite to invest in a local workforce.
- Structural and social barriers that limit participation such as disparate access to education services, cultural barriers, mental health challenges, and availability and access to appropriate infrastructure, housing, and services.

[11] This is planned for FY25.

To alleviate some of these barriers NBN Co suggests there is potential for a greater focus on initiatives that better utilise the local domestic workforce across regional, rural and remote Australia, and where needed, attract migration to fill any gaps. NBN Co takes the view that if individuals are trained within their region, it encourages them to remain in the region, building local capability. This is enabled by building the local workforce and the social structures in place to support it. NBN Co proposes that Australian Government initiatives focus on:

- **Education pathways**: To develop, incentivise and/or support traineeship programs focused on developing foundational skills to seed talent in an industry that has an ageing workforce. Support is also required to offer training programs including in regional, rural and remote areas to engage individuals to undertake telecommunications and telecommunications-related qualifications, minimising the requirement for extensive travel to metropolitan locations where possible. This is to upskill and retain currency of skills and certifications within the telecommunications sector, and cross skill into other sectors such as power, civil engineering and utilities. For example, upskilling from splicing and testing into the Certificate III in Telecommunications and cross-skilling cabling and civil works accreditations across industries. This approach is more likely to result in maximum utilisation and retention.
- **Maximise local workforce**: Provide community support services, and facilitate active engagement between government, not-for-profits, social enterprise, registered training organisations (RTOs), telecommunication organisations, and community to increase training and employment options. This better enables participation from typically 'underemployed' groups within the community, such as youth; aging population; First Nations' people; Migrants; People with Disabilities; people with dependent children; and carers. NBN Co considers there is an opportunity for the Government to support expanding programs that engage community and organisations to deliver sustainable employment while also being led by social impact. An example of a successful program is Civik,[12] a non-profit social enterprise that helps First Nations, refugees and individuals that face additional barriers to work have training and access to jobs in critical infrastructure. Civik, as a contractor to Ventia, has contributed to NBN Co's Fibre Upgrade Program.
- **Incentives to expand the availability of training provider coverage in regional, rural and remote areas**: Many of the competencies required to work with NBN Co are provided through private RTOs and are concentrated in New South Wales, Victoria and Queensland. This creates challenges to upskill workforces in other states and regional areas. NBN Co considers Government support and incentives have the potential to enhance the availability of quality training providers in more regional and remote areas.

[12] Civik | Building communities (civikgroup.com)

- **Adjacent industry pathways to source talent from similar industries:** This could also mean assisting with the development of creative solutions to share limited operational resources that exist within communities currently.
- **Better utilisation of migration to support workforce gaps that cannot be filled through other means:** Maintaining telecommunications on the Commonwealth skills needs list and improving funding across telecommunications training so that more companies can invest in traineeships. This also requires an adjustment of skill thresholds to enable migration for skills such as horizontal drilling, which typically requires 18 months of experience to reach mid-competency, and 3 years' experience to be considered competent.

4 Universal service arrangements

4.1 Existing universal service framework

Universal access to baseline telecommunications services has been a long-standing policy objective in Australia. Over the years, regulatory frameworks and funding arrangements have been put in place with the aim of ensuring all Australians are able to access voice and broadband services at their premises, including in regional, rural and remote parts of the country which may be non-commercial to serve.

While universal access to baseline telecommunications services is, and will continue to be, an important policy objective, the current regulatory and funding landscape is complex and overlapping. The USO was enacted at a time when the underlying national telecommunications infrastructure – the Public Switched Telephone Network (PSTN) – was built to deliver landline voice services and was operated by Telstra as a vertically-integrated provider. Arguably, at this time, the telecommunications access regime in Part XIC of what was then the Trade Practices Act, did not adequately establish obligations on Telstra to maintain and upgrade its infrastructure, especially when it was used to provide services by competing telecommunications providers. The Customer Service Guarantee (CSG) and Priority Assistance (PA) requirements were put in place due to concerns about inadequate incentives to connect and repair landline voice services promptly, particularly in regional, rural and remote areas, as this put customers' continuity of connectivity at risk.

The creation of the **nbn** network heralded a fundamental shift in Australia's national telecommunications infrastructure and service provision and the way this infrastructure was regulated by the Australian Competition and Consumer Commission (ACCC). NBN Co was established as a wholesale-only provider with an obligation to provide all its services on a non-discriminatory basis to all RSPs. The ACCC has the power to regulate the terms on which NBN Co's services are supplied, including the service standards provided by NBN Co. These fundamental changes to the telecommunications industry have enabled the delivery of high-speed broadband services right across Australia, the vast majority of which can support voice services that match or exceed the performance of traditional PSTN-based voice services. The Statutory Infrastructure Provider (SIP) regime, introduced in July 2020, recognises the

importance of broadband and seeks to ensure its availability to all Australian premises, and the Regional Broadband Scheme (RBS) seeks to subsidise NBN Co's provision of loss-making broadband services over its Fixed Wireless and Satellite networks.

While the introduction of the SIP regime and the RBS represented an important step in relation to modernising universal access to telecommunications services, as noted above, the current technology, regulatory and funding landscape is complex and overlapping, particularly in relation to the provision of services and funding for regional, rural and remote Australia. For example:

- Inside NBN Co's Fixed-Line footprint, NBN Co is required to provide broadband services and to support voice, and Telstra uses NBN Co's network to meet its USO Standard Telephone Service (STS) obligations within this footprint.
- Outside NBN Co's Fixed-Line footprint:
    - Telstra is required to keep its copper network operating in order to supply USO STS, for which it receives payments under the USO performance agreement (TUSOPA) totalling $230 million per year. These payments are funded by the Telecommunications Industry Levy (TIL) (to which Telstra itself contributes around $100 million per year) and Government (via a $100 million appropriation from the Commonwealth Budget each year).
    - At the same time, NBN Co is required to use its Fixed Wireless and Satellite networks to provide broadband services and is also required to support voice on its Fixed Wireless network. The net losses associated with the operation of these networks are funded through the RBS, to which NBN Co contributes over 95 per cent, with other superfast Fixed-Line network operators responsible for contributing the remainder.
    - Recent changes now allow RSPs to use NBN Co's Fixed Wireless network as an input to downstream CSG and PA services, meaning Telstra may incorporate **nbn** Fixed Wireless services into the range of technologies underpinning the delivery of USO voice services to premises. However, the **nbn** Fixed Wireless network's related systems, processes and workforce arrangements have not been designed to support the supply of retail CSG or PA services. RSPs remain solely responsible for ensuring they comply with all applicable legislative and regulatory obligations in connection with that supply.

4.2 NBN Co's proposal for universal service reform

Since universal service policy was first introduced, there have been significant telecommunications industry changes. In addition to the rollout of the **nbn** network, Australians are now served by a range of other fixed, mobile, and satellite networks. Industry changes will continue into the future, with the decline of copper and other legacy networks, the end-of-life for **nbn**'s Sky Muster Satellites in the early 2030's, and the ongoing deployment of new and innovative technologies.

The technological step change into which industry is facing means that how we think about universal service delivery is necessarily going to evolve, and the regulatory framework will need to evolve too. Universal service reform can provide the mechanism through which regional networks and services are improved, for the benefit of residents and businesses in those areas.

NBN Co is invested in ensuring regional and remote Australians share in the benefits of evolving technology, and the associated economic and social opportunities it represents. To this end, NBN Co's view is that a new universal service regime must enable the use of future-fit technologies, underpinned by modern universal service and consumer protection obligations, and supported by sustainable funding arrangements (refer to NBN Co's contribution to the impact of government and private investment starting at page 40 for further discussion of relevant funding arrangements).

The reforms NBN Co has suggested below will enable a modern forward-looking technologically neutral platform that will improve the delivery of connectivity for regional, rural and remote Australians. It will involve the phased replacement of legacy technology, policy and regulated services to ensure baseline connectivity is available to all Australian premises and, supported by updated consumer protections.

4.3 Future-fit technology

The use of future-fit technology will be at the heart of the nation's ability to deliver universal services in coming years that keeps pace with the digital connectivity needs of households and businesses. For regional, rural and remote Australia, this will involve:

- NBN Co's Fixed Wireless network, which is in the process of being upgraded, and is on track for completion by the end of 2024, will increase peak and wholesale busy period speeds, and network coverage, as part of the Fixed Wireless and Satellite Upgrade Program (discussed in more detail below).
- For premises in the Satellite footprint – approximately 2-3 per cent of premises – a future solution is likely to involve LEO Satellites, which are expected to be able to support metro-like baseline broadband and voice, and also offer the potential to deliver Satellite direct-to-mobile services in future.
- The retirement of legacy copper and NBN Co's geostationary Satellites from the technological ecosystem.

Together, these technology shifts mean the networks serving Australians in regional and remote Australia will be capable of delivering faster speeds, greater reliability, and increased data capacity.

4.4 Single baseline voice-capable and broadband obligation

The ongoing shift from legacy to modern technologies must be underpinned by a modern universal service regime. In NBN Co's view, this regime would be centred on a single 'converged' baseline voice-capable broadband obligation, reflecting the reality that voice is now just another form of data.

More specifically, NBN Co's view is that future universal service regulation should have a single service obligation ensuring access to baseline broadband and voice-capable services for all Australian premises, based on the SIP regime which already goes a long way towards achieving this objective:

- SIPs operating Fixed-Line and Fixed Wireless broadband networks (covering 97-98 per cent of Australian premises) are already required to support voice-capable services as well as broadband.[13] This requirement reflects the fact that, for the most part, voice calls are now delivered using a broadband internet connection, as opposed to legacy voice networks being used to provide broadband via Asymmetric Digital Subscriber Line (ADSL) technology.

  In relation to voice, the **nbn** network supports phone services using Voice over Internet Protocol (VoIP) technology, with NBN Co's Traffic Class 1 (TC1) product best designed to deliver this service by giving the highest priority to voice data tagged as TC1.[14]

- For the Satellite footprint, the SIP regime could be updated in future to accommodate LEO Satellite-based services which, as noted above, are expected to provide metro-equivalent voice-capable and broadband services, provided that appropriate technical, commercial, operational and security arrangements can be put in place.

This approach would provide a forward-looking platform to ensure baseline connectivity is available to all Australian premises, including improved delivery of this connectivity for regional and rural Australians, and allow for the retirement of legacy policy and regulation, including the USO and Telstra's copper continuity obligation in the TUSOPA.

4.5 Modern consumer protections

A modern universal service framework needs to be supported by an equally modern consumer protection regime, which recognises that consumers now have access to a range of technology options including the **nbn** network and other fixed, mobile, and satellite networks, and appropriately targets consumer protections to end-users who need it.

The consumer safeguards which support the USO (i.e. CSG and PA) were established when a PSTN-based STS was seen as the baseline ubiquitous communications service to which all Australians should have access, and to ensure that Telstra as a vertically integrated provider was subject to sufficient incentives to connect and repair these services in a timely way.

The changes in telecommunications technology, industry structure and regulation, and consumer usage patterns mean that these existing consumer protections are no longer fit for purpose:

- **Most customers no longer rely on legacy consumer safeguards:** Reliance on fixed voice services continues to decline, NBN Co understands that most RSPs ask their customers to

[13] *Telecommunications Act 1997* (Cth), section 360Q(1A) and (1B).
[14] https://www.nbnco.com.au/rsps/products-services-pricing/voice.

waive their CSG rights, and Telstra (as the primary universal service provider) can offer interim and alternative services in place of specific performance standards.[15]

- **Wholesale service standards regulated by the ACCC are able to underpin service level commitments:** Australia's national network provider is no longer a vertically integrated operator of a PSTN network. Instead, NBN Co is a wholesale-only operator of a broadband network, with voice being one of many applications operating over it. NBN Co's Wholesale Broadband Agreement (WBA) through which it supplies services to RSPs includes a comprehensive set of service level commitments including connection, supply and repair timeframes. There is broad alignment between wholesale service levels under the WBA and legacy retail protections under CSG (excluding first time connects in all footprints, fault repair in the Satellite footprint, and fault repair for FTTP in Isolated Areas), and some support under the WBA for retail connection and repair timeframes on the Fixed-Line network.[16] NBN Co has strong incentives to continue to improve service assurance and customer experience, including through the service level commitments in its WBA, which are subject to the Benchmark Service Standards process in the Special Access Undertaking that NBN Co has entered into with the ACCC. As part of this process, NBN Co recently published its Annual Service Improvement Plan which details initiatives which have the purpose of enhancing the RSP and/or end user experience that are planned to commence (or continue) in FY25. This further demonstrates NBN Co's commitment to delivering improvements to service levels and customer experience.
- **Most Australians have voice and data network redundancy that supports service continuity:** The vast majority of Australians are now covered by at least two different telecommunications networks through which they may access broadband and voice, especially in an emergency situation. Now that over 99 per cent of premises are covered by two or more networks and mobile ownership is very high, individuals are at significantly lower risk of being without access to a commercially available telecommunications network.

For these reasons, legacy consumer protections linked to the provision of STS are no longer providing broad consumer protection and should be replaced by a more effective and efficient safety mechanism. For most consumers, access to and take-up of services on multiple networks, coupled with existing WBA assurance mechanisms (and equivalent terms for non-**nbn** SIPs), will meet their connectivity needs. For customers with heightened needs (e.g. due to medical issues, network coverage or digital ability), a new, targeted scheme aimed at providing access to an alternative network should be established to ensure their connectivity is maintained through access to a redundant service.

This suggested 'redundancy-based' approach would focus on maximising connectivity and minimising downtime, rather than the universal application of heightened mandatory

[15] Discussed in detail in **nbn**'s submission to the Department's Thematic Review of the CSG, dated March 2023, available at: https://www.infrastructure.gov.au/sites/default/files/documents/csg-thematic-review--**nbn**-co-submission.pdf.

[16] **nbn**'s systems, processes and workforce arrangements have not otherwise been designed to meet the CSG Standard or PA requirements. Greater alignment of the WBA with retail timeframes would involve significant costs, driven by significant field work-force requirements, and geographic challenges particularly in the Satellite footprint.

connection/ repair timeframes for voice services/ networks. Further, this approach largely reflects what happens in practice today, noting that, as mentioned above, Telstra is able to offer interim and alternative services (e.g. a mobile service) in place of meeting specific performance standards (e.g. stricter connection and repair timeframes) under existing customer protection frameworks; and non-Telstra customers are typically asked to waive their CSG rights which means they effectively already self-manage their alternate connectivity needs.

NBN Co's suggested approach will, of course, require careful examination of which customer cohorts are already protected by the availability of existing alternative services, and which cohorts may need additional targeted redundant connectivity to ensure they continue to have adequate availability of services to meet their more complex or challenging communication needs. For example, it will be relevant to consider the following factors, which may impact a customer's ability to readily take-up a second / redundant service, or may increase their need for such a service:

- Network coverage: In some remote locations, Satellite may be the only access technology available beyond existing legacy networks (albeit different Satellite networks operated by different providers).
- Income level: Since most Australians have ready access to, and critically already choose to pay for, multiple networks, NBN Co's view is that a revised universal service framework should focus on those who need targeted assistance to access a redundant network. NBN Co acknowledges that, in redesigning the mechanism for providing the consumer protections which support Australia's universal service framework, income level is likely to be a relevant factor when considering which customers may need targeted support to ensure they have ready access to a second / redundant service.
- Medical needs: Customers with a life-threatening medical condition may be reliant on having access to a working telecommunications service. The existing PA requirements apply where a customer (or someone else at their premises) has been diagnosed with a life-threatening medical condition and may be at risk without a working phone service.

The table below sets out the possible treatment of different customer cohorts under a new consumer protection framework of the kind envisaged by NBN Co as described above:

	General customers	PA customers (not low income)	Low-income customers (not PA)	PA low-income customers
Inside mobile coverage	• Redundancy provided via commercial network • Customer selects whether to take-up redundant service • No subsidised service required	• Redundancy provided via commercial network • Customer selects whether to take-up redundant service • No subsidised service required	• Subsidised redundant service required for customers who do not already have one	• Subsidised redundant service required for customers who do not already have one
Outside mobile coverage		• Subsidised redundant service required for customers who do not already have one due to cost of Satellite options		

It will also be necessary to consider the range of options available for implementing this kind of consumer protection regime, including whether a single or multiple retail providers should be responsible for doing so, and/or whether a direct end-user subsidy may be a suitable approach in some circumstances. NBN Co would welcome a conversation with the Government about the most efficient and effective way to implement this targeted consumer protection regime to ensure all impacted users can access the targeted protections.

While there is more work to be done to determine which customers require additional targeted regulation to ensure their connectivity needs are met, NBN Co believes moving to a redundancy model involving much more targeted protections for vulnerable customers is the most sensible and appropriate course which takes account of current consumer and industry behaviour, will leave no customer practically 'worse off', and is likely to involve minimal cost due to the very

targeted provision of redundant services (including mobile or satellite handsets) where they are needed.

4.6 Possible pathways to a future universal service framework

A key issue that will need to be considered and resolved is the timing and sequencing of relevant technology and regulatory changes to be implemented as part of universal service reform.

Two possible paths toward a future state are:

1 **Region-by-region:**

This option would modernise universal service delivery on a 'region-by-region' basis, once a LEO SIP solution is in place. More specifically, in the Fixed Wireless and Satellite footprints, migration from legacy to new technologies would occur once a LEO SIP solution is in place and would happen on a region-by-region basis for Fixed Wireless and Satellite premises in each region.

This is NBN Co's preferred path, because the Company thinks it would minimise the period of potential consumer confusion and deliver the most systematic and efficient transition for households, businesses and communities impacted in regional and remote Australia. It would also facilitate 'no one being left behind', as everyone will be transitioned as part of the same overall program.

2 **Tech-by-tech:**

This option would modernise universal service delivery on a 'tech-by-tech' basis. More specifically, migration from legacy to new technologies would happen first in NBN Co's Fixed Wireless footprint (given NBN Co's existing SIP obligations to support broadband and voice-capable services on Fixed-Line and Fixed Wireless networks), and then in the Satellite footprint (when a viable LEO SIP solution is in place).

NBN Co notes that, in the Committee's Terms of Reference for 2024 (in 4(e)), the Committee is specifically asked to have regard to the *'potential to fast track some USO modernisation outcomes, particularly within **nbn**'s fixed wireless network footprint, which would build momentum for broader change'*.

NBN Co acknowledges that the 'tech-by-tech' option may provide a pathway now for some Australians. However, there are a range of complexities and potential downsides of adopting this approach. In particular:

- A 'by tech' migration is likely to introduce significant inefficiencies. This is because NBN Co's Fixed Wireless and Satellite technologies are not used in geographically discrete areas. Instead, they are often inter-mingled (e.g. residents in neighbouring properties or in neighbouring streets are served using different access technologies). This is because the choice of non-Fixed-Line technology is determined by more than just distance from a point (e.g. a Fixed Wireless tower), but also informed by geography/ topography of the area. In practice, this means a 'by-tech' approach would require deploying field technicians to the same geographic areas multiple times, to migrate different pockets of premises.

- For similar reasons, NBN Co expects a 'by-tech' migration process could also give rise to negative consumer experience issues. For example, Fixed Wireless availability can only be determined by a site visit and service qualification (to test signal strength), which some premises will fail. These premises would need to be moved into the Satellite footprint instead, which would defer their migration off legacy technology in circumstances where the residents expected to move to Fixed Wireless. This risks creating a negative customer experience, and will also complicate the messaging around (and management of) which premises are migrating off legacy networks, to which technology, and when.
- It is unclear whether a 'by tech' migration would materially bring forward consumer transition in practice. There will be significant lead time required to develop and seek approval for a Fixed Wireless migration plan, which would be occurring in parallel with the development of a forward-looking solution for the Satellite footprint. For that reason, NBN Co expects any Fixed Wireless migration period would be likely to overlap to a significant extent with any Satellite migration period.

Overall, NBN Co's view is that adopting a region-by-region approach is preferable because it would allow for:

- systematic disconnection through a rolling geographic campaign;
- efficient use of field resources;
- planned decommissioning of legacy infrastructure based on availability of new modern networks; and
- development of a migration process that requires no more than one truck roll (meaning the field technician should be capable of (and prepared to) install a Satellite-based solution if the signal from the Fixed Wireless network is insufficient).

4.7 Questions 5 to 7 referred to in the 'Universal service arrangements' section of the Issues Paper

4.7.1 Question 5: Could the NBN Fixed Wireless network or other alternative networks be used to provide reliable and affordable voice services in remote areas? Are there any consumer safeguards or guarantees that need to remain or be changed under reformed universal service arrangements?

Use of NBN Co's Fixed Wireless network for voice services

As mentioned above, SIPs operating Fixed-Line and Fixed Wireless networks are required to support voice-capable services as well as providing broadband. Consistent with this obligation, NBN Co's Fixed Wireless network can support use by RSPs for the supply of retail voice services.

NBN Co previously prohibited RSPs from using **nbn** Fixed Wireless as an input to the supply of downstream CSG or PA services. The reason for these prohibitions was that, while the Fixed Wireless network can support use by RSPs for the supply of retail voice services, the related systems, processes and workforce arrangements have not been

designed to support the supply of downstream CSG services that comply with the CSG Standard, or downstream PA services in accordance with relevant industry codes and carrier licence conditions. (This reflects that Telstra as the Universal Service Provider was required to provide these capabilities over its copper network.)

Recent changes now allow RSPs to use NBN Co 's Fixed Wireless network as an input to downstream CSG and PA services. However, it remains the case that the Fixed Wireless network's related systems, processes and workforce arrangements have not been designed to support the supply of retail CSG or PA services - and doing so would involve significant additional cost. RSPs remain solely responsible for ensuring they comply with all applicable legislative and regulatory obligations in connection with that supply.

Consumer protections under reformed universal service arrangements

As explored in detail above, NBN Co's view is that the CSG and PA requirements no longer provide broad consumer protection and, for that reason, are no longer fit for purpose:

- Reliance on fixed voice services continues to decline, NBN Co's understanding is that most RSPs ask their customers to waive their CSG rights, and Telstra (as the primary universal service provider) can offer interim and alternative services in place of specific performance standards.
- Australia's national network provider is now NBN Co**,** a wholesale-only operator of a broadband network, with voice being one of many applications operating over it. NBN Co's WBA includes a comprehensive set of service level commitments including connection, supply and repair timeframes, and NBN Co has strong incentives to continue to improve service assurance and customer experience, and these obligations are closely monitored by the ACCC.
- Over 99 per cent of premises are covered by two or more networks (e.g. Fixed, Satellite and or Mobile networks) and mobile ownership is very high, meaning individuals are at significantly lower risk of being without access to a commercially available telecommunications network.

In the context of a telecommunications landscape now benefiting from network and service redundancy, it is time to replace the existing CSG and PA requirements with an updated consumer protection framework that focuses on ensuring connectivity is maximised and downtime minimised, rather than mandating stricter connection/ repair timeframes for all premises in order to meet the heightened needs of a minority of voice services/ networks:

- For most consumers, access to and take-up of services on multiple networks, coupled with existing WBA assurance mechanisms (and equivalent terms for non-**nbn** SIPs), will meet their connectivity needs.
- For customers with heightened needs (e.g. due to medical issues, network coverage or digital ability), a new, targeted scheme that supplies an alternative access device to the premises, similar to the way Telstra meets is CSG obligations today, by

providing an alternative service today (but in targeted circumstances), should be established to ensure connectivity is maintained through access to a redundant service.

There is more work to be done to determine which customers require additional targeted assistance to ensure their connectivity needs are met, and whether and how their RSP can most efficiently take responsibility for delivering that connectivity. However, replacing the existing CSG and PA requirements with a redundancy-based model that is focussed on customers who need them is sensible, appropriate, and efficient. It reflects current consumer and industry behaviour, would be designed to leave no customer practically 'worse off', and is likely to involve minimal cost due to the very targeted nature of the proposed protections.

4.7.2 RTIRC Question 6: In modernising universal service arrangements, should access to public phone infrastructure continue and are there particular areas of need? Could technologies beyond traditional payphones be explored to meet this need?

In reforming universal telecommunications services, it is important to consider the purpose for which the service is being provided and the extent to which existing infrastructure delivers on that purpose or is in demand for meeting that purpose. There is an opportunity in the context of modernising universal service arrangements to reset the framework by which community-based telecommunications services are provided and funded. Public phones have long provided this service, particularly in remote First Nations communities around Australia. However, changing needs and expectations in parallel with new and emerging technologies enliven opportunities for bespoke service delivery models for providing effective access to telecommunications services in First Nations communities and other parts of Australia into the future. This approach has the potential to remove the need for individuals within a community to have go to a central, physical location to access communications affordably or free of charge, reduces cost of servicing and increases the number of users that can access the service.

NBN Co is of the view that its Community Wi-Fi solutions (or amended versions of those solutions) could fall within a suite of bespoke service delivery models (noting that this doesn't currently provide access within individual premises).

NBN Co's Community Wi-Fi points are currently enabling access to essential services such as telehealth, MyGov, online education and mentoring services. Most of these connections are single-point Wi-Fi systems, but NBN Co is in the process of scaling its public mesh Wi-Fi systems, enabling Wi-Fi coverage to extend throughout public spaces in First Nations communities. The FNDIAG's Initial Report revealed that free public Wi-Fi is greatly valued by First Nations communities. As outlined earlier in this

submission, NBN Co is supportive of the Government scaling this program as part of a longer-term solution for regional, rural and remote Australia.

4.7.3 RTIRC Question 7: What should the minimum internet speed guarantee be (currently a peak speed of 25/5 Mbps) to meet modern needs? Should minimum data download/upload allowances be regulated? What other factors are important, like latency, reliability and affordability?

Currently, the SIP legislation requires SIPs to support minimum broadband speeds of 25/5 Mbps. Over time, there may be a desire to increase the minimum speeds that SIP networks are required to be capable of delivering, e.g. to 50/10 Mbps.

While the SIP legislation prescribes baseline broadband speeds, NBN Co notes that most of its networks are capable of delivering much faster speeds.

Speed and capacity are becoming increasingly important considerations for NBN Co in the way it provisions its network and resets its products, particularly as the number of concurrent internet-connected devices in the average home continues to grow. In Australia, data demand and usage has doubled in the last five years, with the average household consuming 443 gigabytes per month across 22 internet-connected devices, which is a significant increase from 40 gigabytes of monthly data use across approximately seven internet-connected devices, on average, 10 years ago. The Company expects this to grow to 33 devices per household by 2026 and 40 devices, on average, by the end of the decade. This will be driven by increased use of high and super-high-definition streaming on 4K TVs, increased gaming, and the proliferation of cloud computing, generative artificial intelligence, virtual reality and augmented reality, and as people continue to expect higher quality video conferencing and computing capabilities while working and studying at home.[17]

NBN Co is continuing to deliver on its commitment to upgrade the **nbn** network, in particular through its Fibre Connect and Fixed Wireless and Satellite Upgrade Programs:

- The Fibre Connect Program is taking fibre deeper into communities by enabling 3.5 million premises on FTTN and 1.5 million premises on FTTC to upgrade to FTTP on demand.[18] The delivery of this program supports NBN Co's target to enable 10 million premises, or up to 90 per cent of the Fixed-Line network, to access plans based on the **nbn** Home Ultrafast wholesale speed tier, [currently offering peak download speeds from 500 Mbps to close to 1 Gbps], by the end of 2025.[19]
- The Fixed Wireless and Satellite Upgrade Program – made possible through a $750 million investment ($480 million from the Australian Government and an

[17] **nbn** Media Release, 'Australians feel the need, the need for speed: **nbn** reveals plan to turbo-charge high-speed tiers', 4 March 2024:
nbn plans to accelerate highest speed tiers | **nbn** (**nbn**co.com.au).
[18] **nbn** Half-Year Report 2024, pages 11 and 12.
[19] **nbn** Half-Year Report 2024, page 9.

additional $270 million from NBN Co) – is extending the coverage and improving the capability of the Fixed Wireless network through the installation of next generation 4G technology and software enhancements, as well as 5G mmWave technology. The Program is intended to allow NBN Co to deliver typical wholesale busy period download speeds of at least 50 Mbps across the Fixed Wireless network, as well as introduce new Fixed Wireless high-speed tiers. In addition, the expanded coverage of the Fixed Wireless network will enable approximately 120,000 former Satellite-only premises to access **nbn** Fixed Wireless by the end of the program.[20]

- In relation to the Fixed Wireless network, NBN Co announced in July 2024 that more homes and businesses can access higher **nbn** network speeds on their **nbn** Fixed Wireless connection as nationwide upgrades enable faster speeds across the **nbn** network during busy periods, and the introduction of the fastest wholesale speeds ever offered on the **nbn** Fixed Wireless network.[21] In that announcement, NBN Co noted that, by the end of the Fixed Wireless and Satellite Upgrade Program:
    - Fixed Wireless Home Fast is intended to be available to approximately 90 per cent of the expanded Fixed Wireless footprint. It has peak wholesale speeds of 200-250/8-20 Mbps.
    - Fixed Wireless Superfast is intended to be available to approximately 80 per cent of the expanded Fixed Wireless footprint. It has peak wholesale speeds of 400/10-40 Mbps.
- In relation to the Satellite network, NBN Co unveiled Sky Muster Plus Premium in June 2023. These plans are designed for homes and small businesses and include uncapped data usage for all internet activities (subject to fair use policy and shaping) and a choice of speeds.[22]

Additionally, NBN Co's Annual Service Improvement Plan (ASIP) outlines a range of key investment and operational initiatives the Company is undertaking which will progressively improve the service experience of **nbn** customers. While some of these key investment initiatives will enable faster speeds, NBN Co acknowledges that copper-based networks (e.g. FTTN/C) face inherent speed limitations compared to full fibre networks, e.g. due to the presence of long copper lines, and the age and ongoing degradation of the copper. As discussed above, the expansion of NBN Co's fibre footprint via its Fibre Connect Program will enable approximately 5 million FTTN/C premises to upgrade to full fibre and, in this way, will help to address copper-related

[20] **nbn** Half-Year Report 2024, page 12; https://www.**nbn**co.com.au/corporate-information/about-**nbn**-co/newsroom/articles/network/boosting-speeds-for-fixed-wireless-customers; https://www.**nbn**co.com.au/residential/upgrades/more-fixed-wireless#accordion-17dd10920d-item-11f5da0e51.

[21] **nbn** Media Release, '**nbn** Fixed Wireless speed boost for more than 700,000 homes and businesses', 3 July 2024: **nbn** Fixed Wireless speed boost for more than 700,000 homes and businesses | **nbn** (**nbn**co.com.au)

[22] https://www.**nbn**co.com.au/learn/network-technology/sky-muster-explained/sky-muster-plus-explained.

speed limitations. Increasing the minimum broadband speeds that SIP networks are required to be capable of delivering would raise the issue of the capability of the remaining copper network, which would need to be appropriately addressed before any such increase could take place.

5 Fixed broadband

5.1 Question 10 referred to in the 'Fixed broadband' section of the Issues Paper

5.1.1 RTIRC Question 10: The cost of building and maintaining telecommunications infrastructure in rural and remote areas can be a barrier to offering better services. What can be done to improve the fixed broadband options available to regional, rural and remote Australians?

NBN Co knows that the cost of building and maintaining telecommunications infrastructure in rural and remote areas can be a barrier to offering better services and that where viable, governments use co-location incentives, but this also has its limitations. For the hardest to reach populations Satellite technology has and will continue to play an important role. Bringing forward investments in emerging technologies can narrow the digital divide sooner which will translate to increased economic opportunities for Australia.

The cost of providing Fixed-Line broadband in regional, rural and remote areas is, and will continue to remain high, and a limitation to increasing the footprint of these technologies, largely owing to the high volumes of civil construction (trenching, installing pit and pipe, etc). While NBN Co is continually aiming to lower its costs, there are no construction methods or technology deployment options currently available that would materially reduce these civil construction costs. This is a key consideration for the Company in its assessment of building and maintaining Fixed-Line telecommunications infrastructure in rural and remote areas.

The Australian Government's support will be critical to improve broadband options in regional, rural and remote Australia, focusing on opportunities presented by non-Fixed-Line technologies, as these will continue to play a critical role in servicing low population density, typically non-commercial areas across Australia. Given that the telecommunications sector is at the edge of economically viable solutions in relation to population densities, NBN Co considers an appropriate way for this to continue is through co-investment and co-location opportunities, alongside strategic investments in emerging technologies where co-location is not a viable solution. The Company remains committed to providing and exploring opportunities for it to do more with terrestrial (Fixed-Line or Fixed Wireless) technologies and expanding its networks.

While it is technically possible to extend terrestrial networks to supply voice and broadband services to premises within NBN Co's Satellite footprint which do not have parallel Telstra 4G coverage, the costs would be significant. Whilst there remains an opportunity to further expand **nbn** Fixed Wireless coverage through co-investment programs to more remote towns, ubiquitous deployment would be cost prohibitive. In

this context, existing, new and emerging Satellite technologies (GEO, MEO and LEO) are capable of supplying fixed, voice and mobility services.

Until the **nbn** Sky Muster Satellite network reaches end of life and alternative satellite services are made widely available/ accessible, NBN Co anticipates that its Satellite network will continue to remain a critical part of national broadband infrastructure, providing:

- Australian-owned broadband access across the country (including to the most hard-to-reach and remote parts of Australia);
- Free installation and ongoing maintenance of **nbn** equipment at a wholesale level to RSPs, for residential and small business customers;
- Uncapped data (subject to fair use policy and shaping) to support all types of data services including web browsing, social media and video streaming as well as voice and video conferencing, including distance learning; and
- A choice of plans at some of the most affordable price points through to 100 Mbps peak wholesale download speeds at comparable pricing to terrestrial networks and below current LEO retail pricing.

Geostationary Satellites cannot provide terrestrial equivalent voice services to deliver the voice service component of the USO, due to the physical latency of the distance between the Satellite and the earth's surface. Adding to this will be increasing consumer data demands into the future as new applications evolve that take advantage of higher speeds or lower latency digital infrastructure that enable the farms of the future. The expectations of households and businesses in regional Australia are quickly evolving to match the promise of technological possibility. NBN Co remains committed to focusing on growing the capability and capacity of its networks serving regional and remote Australia through a network investment strategy that is designed to keep ahead of national data demand and enable social and economic benefits for Australia in a financially sustainable way.

6 Disaster resilience and emergency

NBN Co recommends:

- **That Government continue funding services initially supported through the STAND program. This program concludes in December 2025. A modest investment for continuing this program beyond this timeframe delivers high returns to regional, rural and remote communities.**
- **That Government consider policy options that provide financial incentives to regional, rural and remote customers, States and Territories with the ability to invest in and deploy additional power continuity solutions. Potential solutions which can increase the power resilience from additional hours to months, include:**
  - **Additional battery capacity**
  - **Permanent generators on site with fuel tanks**

- **Hybrid Power Cubes**

- **That National Emergency Management Agency (NEMA), in partnership with the critical infrastructure sector and relevant State and Territory agencies, coordinate a nation-wide campaign to help educate the public on telecommunications preparedness during and after disaster scenarios.**

NBN Co is supportive of the Australian Government's review of whole of nation response to uplift and harmonise the policy and regulatory settings and implement practical short term and long-term solutions.

NBN Co is rolling out more fibre across the country, and Fibre optic cables are more resilient, energy efficient and require less maintenance than other Fixed-Line services. This means fibre not only delivers faster and more reliable broadband, but it also withstands extreme weather much better than copper-based infrastructure.

A low level of community understanding exists in relation to the impact of disaster on communications networks. NBN Co's experience has been that there is limited awareness and understanding of risks affecting communications infrastructure. This means community and stakeholder expectations about the importance and need to have continuity of services plans around communications outages is necessary, particularly in situations where disasters have indirect impacts on users. It is also particularly relevant where there is a lack of understanding about the risks and vulnerabilities associated with different technology types.

NBN Co's Emergency Management Liaison Officers (EMLOs) play a crucial role for communities, working closely with the different sectors of communities before, during, and after emergencies to raise awareness of what to expect from NBN Co and how they can improve connectivity and resilience. Working with Local, District, Regional and State/Territory Emergency Management groups, NBN Co's EMLOs help communities prepare, respond, and recover from emergencies that impact communications services by addressing connectivity needs and enabling vital information to reach everyone.

NBN Co's view is that the single biggest risk to its network in the event of a natural disaster is a lack of resilience in the commercial power networks upon which its infrastructure relies (e.g. during the 2019-2020 bushfires, approximately 88 per cent of network issues were caused by commercial power outages, and only about one per cent caused by damage to NBN Co's communications network). This means that in many cases, NBN Co's network resilience is only as strong as the reliability and resilience of national power providers. While parts of the **nbn** access network have in-built power back up, power outages may last longer than the battery life. If this occurs, communities may be without a Fixed-Line phone and broadband internet service for some time.

6.1 Power resilience supporting telecommunications resilience

Disruption to one essential service often triggers failures in dependent services. For NBN Co, the critical interplay between telecommunications and energy infrastructure increases the overall vulnerability to power outages during disasters particularly in regional, rural and remote areas.

Due to the dependency the **nbn** network has on commercial power, the most prolific risk to **nbn** network resilience is the loss of third-party commercial power supply. During a natural disaster, power outages are highly likely and NBN Co cannot restore broadband network connectivity until the energy companies have restored their networks.

NBN Co has well established relationships with power distribution companies and works closely with them to share information before, during and after emergencies as well as identifying potential resilience opportunities. However, the current process for sharing power outage data is largely manual and at times unreliable. NBN Co receives planned and unplanned power outage communication data from power distributors in many different forms (via letters, emails, texts and websites) which can be incomplete, out of date by the time they are received, or not received at all. The inconsistencies in the way data is communicated makes it challenging for NBN Co to automate its response to power faults, which can result in poor customer outcomes. This is further exacerbated during times of natural disaster and emergency situations when real-time information is needed to make accurate decisions regarding network restoration. Receiving timely, accurate, comprehensive and consistent information from power distribution companies is therefore critical to the effective management of the **nbn** network, particularly during natural disasters.

In this context, NBN Co has been awarded funding through the Australian Government's Telecommunications Disaster Resilience Innovation (TDRI) Fund's, Innovation Round.[23] Once contracted, NBN Co will be able to establish a Digital Power Outage Notification via an Application Programming Interface (API) that will help NBN Co prepare and respond to power outages and manage its network more effectively throughout natural disasters. This project will also assist to provide a blueprint for governments and other industry players to build similar APIs to access power network outage information (subject to those parties agreeing a data access license with the power distribution companies).

NBN Co's vision is that the outcome of this work will encourage and enable electrical power companies to provide accurate and timely information to their customers and support the resiliency of telecommunications.

6.2 Questions 12 to 15 referred to in 'Disaster Resilience and Emergency' section of the Issues Paper

6.2.1 RTIRC Question 12: What can be done to maximise access to multiple connectivity options in case of outages

NBN Co draws on its response to USO modernisation to address issues of connectivity and redundancy.

NBN Co's ability to offer communications services during emergency response scenarios is heavily reliant on its Satellite network. As a GBE, and subject to appropriate

[23] The TDRI projects announced are all subject to contract. https://www.infrastructure.gov.au/media-communications-arts/phone/telecommunications-disaster-resilience-innovation-program

funding, NBN Co can assist with addressing capability gaps where commercial operators may not otherwise participate. Critical to the current and future operability of many of NBN Co's disaster response services is the Company's Satellite infrastructure. While the Company is exploring future options (through measures such as its LEO Satellite Request for Information),[24] it remains live to the question as to how the Company best navigates community/ government expectations of available **nbn** services through universal service reform.

Satellite weather resilience

Whilst Satellite services rely on access to power, there are widely available consumer grade battery backup solutions that could be deployed commercially for the end-user to maintain connectivity in the case of a power outage at the end-user premises or premises that are not connected to the power grid. They are commonly known as an uninterruptible power supply (UPS). There are a range of different manufacturers of these types of devices sold by various Australian retailers. Options vary on the amount of charge they hold, the number of devices they can supply power to in a blackout and for how long, price and options such as Universal Serial Bus (USB) charging ports or other accessories.

For GEO, MEO and LEO solutions each are affected by severe weather, the extent to which is dependent on the topology, infrastructure, operating frequency spectrum and terminal types. In general GEO is more susceptible to effects of weather events due to the network topology and single Satellite connection, whilst LEO is less susceptible to interruption due to diversity of multiple Satellites however, it can still experience an impact. It would be expected that during weather events voice packets would be prioritised to ensure voice would have the highest chance of delivery. LEO has the potential in some circumstances for service interruption during the handover of the signal from one Satellite to another as they fly over the user.

NBN Co's existing Sky Muster (GEO) Satellites are also affected by weather with loss of services during extreme weather and service degradation during other weather events. However, a feature of Satellite communications is that services typically self-restore after the severe weather has passed.

While overall service availability of consumer grade LEO services is likely to be on par or to exceed that of copper and high-capacity radio concentrator (HCRC) services, the nature of availability is different. Whereas outages on the copper/ HCRC network typically take several days to resolve, LEO service outages are generally a matter of minutes. The reason for this is that outages are not caused by failure of the technology or nodes in the network as such, but by short interruptions of the signals to and from Satellites in some situations, most likely from heavy (tropical) rainstorms attenuating

[24] https://www.nbnco.com.au/corporate-information/media-centre/media-statements/nbn-co-exploring-connectivity-solutions-with-low-earth-orbit-satellite-providers

the high frequency signal or installations where the required field of view of the sky is not possible.

Whilst Direct-to-Handset technology is also served by LEO Satellites, the capability operates in a very different frequency range that is in effect a separate system to fixed broadband, even when sharing a common Satellite. As Direct-to-Handset is an emerging technology, the extent to which it is impacted by weather is still being tested.

Looking ahead, the development of Direct-to-Handset services over non-terrestrial networks has the potential to supply Australian consumers with basic connectivity features in mobile blackspots across the country.

6.2.2 RTIRC Question 13: What can be done to increase capacity and improve the reliability of telecommunications services in regional, rural and remote Australia?

NBN Co draws on its response earlier in this submission on universal services.

While there are, and will continue to be, premises without terrestrial redundancy for broadband and voice services, network redundancy is available and will continue to be available to these premises via a range of different Satellite services. These services are provided by operators using GEO (including **nbn** Sky Muster Satellite), MEO and LEO based Satellite networks, with several new players expected to enter the market in coming years.

6.2.3 RTIRC Question 14: How can the energy and telecommunications sectors work more effectively, especially with respect to redundancy?

There is no singular approach to improving power resilience and thus NBN Co has adopted a multi-faceted approach to mitigate its risks with key initiatives described below.

Improving visibility of power outages

During a natural disaster, power outages are highly likely and NBN Co cannot restore network connectivity until the energy companies have restored their networks. Therefore, receiving timely, accurate, comprehensive and consistent information from power distribution companies is crucial to the effective management of the **nbn** network, particularly during natural disasters. NBN Co currently receives planned and unplanned power outage communication data from Power Distributors in many different forms (e.g. via letters, emails, texts and websites) which can be an ineffective approach for managing multiple and unremitting communications.

NBN Co's vision is that, through the support of the Australian Government's TDRI Program,[25] it will be enabled to develop and support improved communications through

[25] This is subject to contract. https://www.infrastructure.gov.au/media-communications-arts/phone/telecommunications-disaster-resilience-innovation-program

a Digital Power Outage Notification via an API which has the potential to deliver early and accurate notifications about planned and unplanned power outages.

Uplifting power continuity

While parts of the **nbn** access network have in-built power back up, power outages may last longer than the battery life. If this occurs communities may be without Fixed Line phone and broadband internet services for some time. Where there is a sustained power outage and where NBN Co can, it actively deploys generators (mix of NBN Co owned and Delivery Partners) on the network to ensure continuity of service.

NBN Co has over 2,000 Fixed Wireless sites across the nation and often these sites are more prone to power outages during weather events.

Based on the site ranking, need and constraints, where possible NBN Co seeks to deploy additional power continuity solutions including:

- Additional battery capacity
- Permanent generators on site with fuel tanks
- Hybrid Power Cubes

Each of these solutions can increase the power resilience from additional hours to months.

Increased stakeholder engagement

NBN Co alone cannot drive improvements in power resilience, and as such it actively engages with the:

1. **Electricity Sector** – to build operational relationships and to help inform future investments on their networks through participation in workshops/ forums.
2. **Energy Regulators** – to help with informing regulatory changes that focus on network resilience investments.
3. **Telecommunications Sector** – to drive aligned initiatives across the sector as a united group.
4. **Governments** – leveraging government grant programs to bolster NBN Co's power resilience, and participating in workshops/ reviews to provide learnings from recent events and to drive improvements across sectors.

6.2.4 RTIRC Question 15: What innovative solutions can be explored to ensure telecommunications infrastructure remains operational during and after natural disasters? How could partnerships with local communities improve the maintenance, security and availability of infrastructure?

During a natural disaster, NBN Co will deploy temporary network infrastructure (TNI) or temporary emergency management solutions into areas where extended outage

durations are anticipated, subject to safety and access considerations. Often this involves NBN Co deploying Road Muster Satellite trucks or Fly Away kits to provide a temporary service. In recent years, much of this has been funded through the Australian Government's STAND Program. Some of the below services are only funded for a limited time.

To date NBN Co's key emergency response measures for supporting impacted communities have involved:

- Services at fixed evacuation/ community and or emergency services sites (via STAND sites);
- Community Wi-Fi services (Satellite-based services);
- Road Muster trucks, which include driveaway Satellite connectivity kits; and
- Satellite Fly Away connectivity kits (that are independent units designed to be mobile and portable) these are separate to NBN Co's Road Muster kit.

The STAND program has been a large source of funding for a variety of disaster-related initiatives; in the past few years, and was used to fund mobility solutions including:

- Five **nbn** Muster Vehicles and 12 **nbn** Fly Away Kits (FAKs);
- 1,068 **nbn** Disaster Satellite Services until December 2025;
- 40 Hybrid Power Cubes (HPC);
- 12 Multi Technology Trailers (MTT);
- Two Wireless Mast Trailers (WMTs); and
- Four Network on Wheels (NOWs)

These temporary facilities are typically positioned at locations based on geographical need to improve response times to affected areas when required.

NBN Co's HPCs are a specialised power source that connect to a Fixed Wireless site. It operates on solar power whilst charging the batteries to run in the evenings. It also has a backup diesel generator which activates when the grid power and or solar is unavailable, and battery power has been depleted. With appropriate funding, HPCs could be pre-deployed ahead of emergency situations such as a flood event which may cut access to Fixed Wireless Access tracks in the event of power loss.

In May 2024, NBN Co was the successful recipient of federal funding under the Australian Government's TDRI[26] Program that promotes the development of new technologies to provide solutions for telecommunications disaster resilience, particularly in regional, remote and First Nations communities.

Subject to contracts being signed, the successful NBN Co applications for funding will support the Company to deliver:

[26] TDRI Program

- power backup solutions for nine **nbn** Fixed Wireless sites across several States including South Australia, Queensland, New South Wales and Victoria;
- two Wireless Mast Trailers with Emergency Wi-Fi connectivity – Prototypes; and
- a Digital Power Outage Notification via API.

These projects reflect a significant investment in enhancing the resilience of telecommunications infrastructure to support Australian communities during natural disasters.

Notwithstanding the importance of these initiatives, NBN Co notes that there remains a disconnect between infrastructure grant funding and ongoing operational requirements to ensure services are maintained in times of natural disasters. For example, while co-location on existing mobile or Fixed Wireless towers may offer a less expensive initial infrastructure build, ongoing costs including factors such as power resiliency become increasingly complex. This is especially true where NBN Co seeks to co-locate on another provider's infrastructure. Co-location opportunities, while intrinsically attractive, involve multiple parties and require significant negotiation and investment of time to ensure an equitable distribution of burden on all parties to maintain and deliver services.

Partnerships with local communities

NBN Co considers that the Australian Government has a crucial role in two key areas in developing and promoting consistent public awareness initiatives to improve the maintenance, security and availability of infrastructure:

1. Improving general public awareness on what can happen to critical infrastructure in the event of a crisis. This will improve public knowledge about what steps individuals can take to protect themselves should critical services be adversely impacted; and
2. Building on existing education programs from industry sectors that already advise the general public about what to do, who to contact and where they can find information during a disaster event.

Experience has shown that when infrastructure is damaged and telecommunications (and other) services on which communities rely are impacted by natural disasters, community frustration and reaction are understandably high. A partial driver for this community concern has been the limited understanding of how telecommunications services operate, and what infrastructure is needed to support their ongoing availability.

Information and guidance about how to prepare for a crisis should be consistent across industry sectors and across jurisdictions. Telecommunications carriers and service providers have an important role in educating people about the services they offer. For example, in preparation for the upcoming summer season NBN Co has launched its own education campaign to the public advising them what steps it will take to restore the **nbn** network, and how individuals can prepare themselves (including through using

alternative redundancy services should their **nbn** service become inoperative for a period of time).[27]

Between July and October 2023, NBN Co conducted emergency management roadshows, in partnership with Telstra in their role as an infrastructure provider, visiting State Emergency Coordination Centres around Australia. This activity highlighted Telstra's and NBN Co's shared infrastructure and coordination, in addition to how we work together with emergency services, agencies, and communities, before during and after emergencies.

However, a communications or critical infrastructure sector wide approach to public education around expectations during and after disaster scenarios would have the potential to more holistically address the issue. NBN Co considers an opportunity exists for such an approach to be coordinated and/or funded through NEMA.

The Australian Government and agencies such as NEMA are well placed to amplify messages already developed by individual companies and industry sectors, particularly where this advice is relevant to public safety. Both funding and national cross-sectoral coordination of advice is needed to ensure consistent messaging is issued to the public, including through channels aimed to ensure Australia's most vulnerable communities can receive and understand it. NBN Co notes that RSPs and mobile operators also issue their own advice and emergency support measures during major outage events.

Community education on funding opportunities to increase preparedness

For individual Australian communities to increase their own self-reliance in the event of a crisis, they need the best possible opportunities to take up available funding that helps them accomplish this before an event occurs. NBN Co considers there is an opportunity for the Australian Government to also support the States and Territories through the provision of both assistance and guidance material that helps local communities, local councils and/or consumer interest groups navigate what grant funding is available for their own crisis preparedness and how they can apply for it.

Access to Federal and State grant funding to enable communities to implement preparedness and resilience building plans is becoming increasingly important for enabling local communities to adequately respond to and recover from natural disasters. NBN Co acknowledges that both Federal and State governments already provide opportunities for community groups, businesses and local councils to apply for funding to prepare their communities.

Where the grant funding is to enhance resiliency measures in a local community, it is valuable to allow critical infrastructure providers to be direct grant recipients (rather than requiring local councils, businesses or groups to be positioned between the grant funder and the infrastructure delivery partner). This approach would help to alleviate pressure on limited resources of local councils or other groups and enables the

[27] How to prepare: **nbn** and emergency events | **nbn** (**nbn**co.com.au)

resiliency measure to be fully integrated into the infrastructure provider's network for effective management in an emergency.

NBN Co also observes that there is a knowledge gap at the local level of what grant opportunities are available to local community groups. Grant funding opportunities often have complex requirements and detailed guidance and, for local groups who have limited resources or expertise to navigate them, this can present a barrier to their ability to adequately prepare for the next crises. While NBN Co acknowledges and is grateful for the efforts of NEMA and other agencies in providing information packs on these opportunities, there is more that could be done to bridge these knowledge gaps.

7 The impact of government and private investment

As the Committee is aware, in conjunction with universal service reform, the Australian Government is also consulting on future funding arrangements to deliver sustainable long-term funding of non-commercial telecommunications services, particularly in regional, rural and remote areas. This includes a review of the RBS. NBN Co understands that the policy rationale underlying existing funding arrangements for non-commercial and public interest telecommunications services – the RBS and the TIL – will continue into the future. NBN Co supports reform of current funding arrangements in the longer-term to reflect the eventual outcomes of broader universal service reform currently being considered by the Australian Government. Both in the immediate term and in the longer term, it is essential that NBN Co has sustainable funding to enable it to continue to maintain and upgrade NBN Co's loss-making Fixed Wireless and Satellite networks, which provide regional Australia with essential broadband services. In the immediate term, this funding is provided via the RBS. NBN Co recommends expanding the RBS funding base as an interim step towards funding reform, to ensure competing Fixed Wireless services are captured within the charge base for the RBS levy.

7.1 Long term funding reform

The Australian Government's consultation on universal services reform and funding acknowledges that as the communications market and regulatory environment have evolved over time the funding landscape has become increasingly complex, overlapping, and further complicated by the evolution of technology and market developments. The consideration of universal service reform therefore provides an ideal opportunity to also consider what long-term funding arrangements will best support a modernised universal framework and other important connectivity initiatives.

Any reform of funding arrangements for universal telecommunications services should be guided by sound principles of economics and public policy, including those set out in Table 1 below.

Table 1: Principles of a sustainable long-term funding model

Principle	Description
Sustainability	The funding arrangements should be tied to a charge base that is able to provide the necessary funding over time and will not be rapidly eroded by changing consumer preferences and the emergence of new technologies.
Certainty	Adequate certainty should be provided to both recipients of funds and contributors of funds to promote efficient investment in infrastructure and service delivery. This involves certainty of the obligations to be met / services to be provided, the costs that will be funded, and the duration / continuation of funding support.
Transparency	There should be transparency over how the required level of funding is determined, relative contributions to funding, and how funds received are used. This will enable the costs and benefits of the relevant obligations and associated funding arrangements to be appropriately assessed and verified.
Flexibility	The arrangements need to be adaptable to technology and market changes, including evolving consumer behaviour and preferences. Flexibility relates to both the source of funding and allocation of funds. In general, technology neutrality will promote flexibility. Regular review processes can also support the promotion of flexibility.
Competitive neutrality	To the extent possible, the arrangements should not give to rise to advantages (or disadvantages) for some market participants over others.
Administrative simplicity	Arrangements should be straight-forward to administer. A funding arrangement that is complex to administer, monitor and implement will give rise to inefficiencies and transaction costs for industry and government. In the extreme, these costs could begin to outweigh the benefits of the arrangements.
Economic efficiency	Funding arrangements should be assessed by whether they support or constrain productive, allocative and dynamic efficiency. For example, the arrangements should: minimise any distortions to incentives to deliver services at the lowest possible cost; minimise the extent to which resources are diverted away from more highly valued uses; and minimise any disincentive to providers investing in and innovating their service delivery approach.
Equity / fairness	Consideration should be given to how any funding arrangement will provide benefit across society. Equitable outcomes for beneficiaries and funders of Fixed Wireless and Satellite services should also be considered.

Principle	Description
Consistency with wider regulatory framework	The design of the funding arrangement will need to consider potential interactions or conflict with other regulatory requirements and policy objectives.

Any new funding mechanism would need to continue to fund the sustainable operation of non-commercial networks, including net losses associated with NBN Co's Fixed Wireless and Satellite networks currently funded through the RBS. Other future funding requirements will depend on the outcome of the Australian Government's universal service review and the nature of any revised or new obligations developed as part of that review. However, assuming universal service reform is consistent with the approach recommended by NBN Co (as outlined in NBN Co's submission) long-term funding arrangements would need to cover:

- migration costs to newer technologies outside NBN Co's Fixed-Line footprint;
- the sustainable operation of non-commercial networks; and
- the delivery of targeted consumer protections to support vulnerable customer cohorts.

In addition, other connectivity initiatives could potentially be funded from a reworked universal service funding arrangement, such as further initiatives to close the digital inclusion gap for First Nations communities.

There are a number of ways a new / consolidated funding mechanism could be designed, taking into account key principles and characteristics for a long-term funding model. However, to the extent that some or all of the costs of universal service are intended to be funded by an industry fund, NBN Co recommends:

- a single scheme should be established, rather than the existing model of the TIL and RBS operating separately with duplicated administration costs on industry and government; and
- the scheme should have a broad, technology-neutral funding base, with contributions to be collected based on a small set percentage of eligible revenue, payable by all carriers and Carriage Service Providers (CSPs).

Consideration could also be given to expanding the charge base for any industry levy to include Over-the-Top (OTT) service providers. Online businesses such as video streaming, gaming and social media platforms, who are monetising the amount of time Australian consumers spend online, directly benefit from the ubiquitous availability of high-speed broadband. In addition, digital platforms are building their own transmission capability, and providing services that are substitutes for voice and video calls and messaging. Over time, those services may erode the revenue base of some carriers and CSPs, and therefore put at risk the sustainable funding of non-commercial services.

Expanding the charge base for any industry levy to include OTT platforms (at least to the extent they are providing services that are substitutes for telecommunications services) could increase the equity and sustainability of any industry levy in the long run.

NBN Co continues to engage with the Australian Government regarding what sustainable, long-term funding of services in rural and remote areas might look like.

7.2 Retention and expansion of the RBS in the short term

It is essential NBN Co continues to have access to sustainable funding for its Fixed Wireless and Satellite networks, now and into the future. This funding is currently provided via the RBS, which should be retained until future funding arrangements are in place, and in the meantime expanded to include contribution from competing Fixed Wireless networks.

The total losses likely to be incurred by NBN Co on its Fixed Wireless and Satellite networks has been estimated to be $9.8 billion (net present value) over 30 years between financial years 2010 and 2040. The RBS was established to provide a sustainable funding mechanism for these losses, so that NBN Co can continue to deliver the benefits of high-speed broadband to regional Australia in the future.

When NBN Co was first established it was expected that losses in regional areas would be funded solely through internal cross-subsidisation. That is, it was expected that customers on NBN Co's profitable Fixed-Line network would bear the full cost of funding the losses of the Fixed Wireless and Satellite services through the prices their retailers are charged. However, NBN Co was originally expected to be an effective monopoly.[28]

As the communications market has evolved, competitors have emerged whose offerings necessarily erode NBN Co's long-term capacity to internally cross-subsidise. The Australian Government therefore recognised that reliance solely on internal cross-subsidy was potentially unsustainable and misaligned with the competitive telecommunications market. The RBS was implemented to make cross-subsidisation of regional networks more transparent and sustainable, and to achieve a more level playing field by the introduction of an industry levy, ensuring both NBN Co and competing "**nbn** comparable" Fixed-Line network operators share the burden of funding non-commercial services.

In the short-term, updates to the RBS are needed to expand the charge base beyond providers of superfast Fixed-Line broadband services. In particular, 4G/5G Fixed Wireless services are directly competing with Fixed-Line broadband services, but they do not currently contribute to meeting the cost of non-commercial services provided by NBN Co.

The inclusion of 4G/5G Fixed Wireless services in the RBS charge base will achieve several positive impacts, including improving the equity, sustainability and efficiency of the RBS levy by reducing the funding burden on Fixed-Line contributors and end-users, spreading the total funding requirement over a larger charge base, lessening market distortions arising from the current narrow charge base, and reducing the per premises levy amount.

[28] Explanatory Memorandum, *Telecommunications (Regional Broadband Scheme) Charge Bill 2019*, page 8.

The current narrow scope of the RBS charge base distorts efficient investment by artificially inflating the cost of investment in Fixed-Line broadband networks relative to Fixed Wireless networks, discourages efficient use of Fixed-Line networks and distorts competition in favour of Fixed Wireless networks, and ultimately reduces sustainability of the funding available for non-commercial rural and regional services. Allowing the RBS to continue in its current form until broader universal service reform takes place – which may take several years – will exacerbate these issues and lead to significant under-funding compared to ACCC estimates.

7.3 Direct funding

NBN Co considers there are opportunities to optimise some elements of Federal grant funding or co-investment programs which are designed to support a change in the **nbn** base technology delivered to communities. For example, in NBN Co's case the ability to make financial commitments to increase the resilience of its networks and to support some regional, rural and remote communities can be limited by the structure, criteria or funding mechanism of some grant programs. Different providers take different approaches to addressing this challenge with some electing not to consider opportunities which would otherwise meet significant social and policy objectives but are considered too challenging to explore. This is particularly evident where the business case involves significant costs or delivers services to non-commercial areas. Outlined below are some opportunities for optimising some of these common structural elements identifiable in existing grant funding or co-investment programs:

- **Requirement of Co-investment**: There could be an opportunity for greater flexibility in the minimum co-investment contribution required before funding will be granted. This could enable applicants to apply for funding with less reliance on third party co-contributions. For example, many of the Australian Government grant opportunities available to NBN Co require a preferred 50 per cent co-investment of applicable costs from the applicant (e.g., NBN Co). This criteria could be a challenge to meet if applicants need co-funding from the States and Territories or other third parties to make up that 50 per cent and if they have not been able to secure such third party co-investment before the grant application closing date, particularly in the context of an applicant's limited access to or control over the timing of other funding levers.
- **Operational Expenditure**: Even greater benefits may be available for Australian communities if, like mobile blackspot funding, Australian Government grant opportunities could allow usage of grant funds on operational costs as well as capital expenditure. In many of these projects, there are considerable associated operational costs which (if covered) could make a project commercially viable longer-term (including beyond the initial grant funding period). If these could be covered by the grant funding, this may open up greater opportunities for projects to benefit Australian communities.
- **More flexible Time Horizons**: Place-based area technology switches are a great way to achieve upgrade benefits for communities. If the time horizons of the grant program could be longer or more flexible, this might enable applicants with ongoing upgrade programs to better manage the scheduling of their programs to align with grant-funded opportunities. As an example, the Australian Government's RCP and network hardening

and resiliency activities take place against a broader backdrop of upgrades NBN Co makes to its networks, including the **nbn** Fixed Wireless and Satellite Upgrade Program. As a result, the scheduling of any changes is dependent on the timeframes of those broader upgrade programs. NBN Co is therefore not able to apply for funding where the time horizons of the grant program are shorter than those of its other upgrade programs.

7.4 Questions 16 to 20 referred to in 'The impact of government and private investment' section of the Issues Paper

7.4.1 RTIRC Question 16: What lessons can be learned from private sector investment in regional telecommunications in closing the digital divide in regional and remote areas?

Sustainability of investment in regional and remote areas will require those investments to be commercially viable, which relies heavily on being able to enable economies of scale. The proposals considered in these responses to RTIRC Questions 16 to 20 are based on learnings from the distinctions between private and public sector investment in regional telecommunications, many of which speak to policy mechanisms and intent.

Commercial viability remains a key challenge in providing broadband infrastructure to more remote parts of Australia. As a SIP, the Australian Government has used NBN Co as a vehicle to implement its telecommunications policy objectives, including in remote areas which the private sector might not consider commercially attractive. Whilst large parts of regional Australia benefit from increasing infrastructure delivered by mobile and Satellite operators, the commercial viability of servicing the more remote parts of the regional footprint is becoming increasingly marginal, as the Australian Government continues to invest in regional Australia. For example, as the RCP moves through its lifecycle and coverage areas become increasingly remote, the commercial viability challenge increases. As the costs to serve these increasingly remote areas increases, the funding required to close the investment gap for the private sector will increase, as well as higher return on equity that private operators are likely to require to take on the additional commercial risks.

There may also be a tension between allowing private participants to selectively cherry pick (by tendering or through place-based grant models) specific areas to serve and the efficiency with which fewer commercial areas can be served as these are left to GBEs such as NBN Co, funded through grants or the RBS.

Economies of scale are critical to the development and deployment of telecommunications infrastructure, particularly across regional, rural and remote Australia given the vast territory and sparseness of regional populations. At present, neither vertically integrated smaller providers nor bigger foreign players are likely to have on-ground service and support capabilities to adequately serve remote, or geographically diverse parts of regional Australia. For example, the $750 million upgrade program for Fixed Wireless and Satellite covers multiple large regional areas

and would not be possible without the scale, size and expertise that an organisation such as NBN Co provides.

7.4.2 RTIRC Question 17: What has been your experience as a consumer of Australian Government programs aimed at improving regional communications? What improvements would you suggest?

7.4.3 RTIRC Question 18: What changes to Australian Government investment programs are required to ensure they are successful, efficient and effective in delivering improved, reliable and equitable telecommunications for regional, rural and remote consumers?

RTIRC Questions 17 and 18 are answered together below.

In May 2023, the Australian Government introduced the Regional Investment Framework (the Framework) as its approach to supporting strong and sustainable regions. The Framework is a new approach to how the Government delivers regional investment – valuing local voices and priorities, being informed by and building the evidence, operating with flexibility, integrity and transparency and coordinating across governments to make investments work better in regional Australia. It provides an integrated and coordinated framework for regional development regardless of a region's economic circumstances.

Underpinning this approach is the access to services and utilities making use of broadband infrastructure. Given the timeframes involved in developing, achieving success with and delivering a grant program, these opportunities should be about delivering a future horizon solution rather than solving current challenges. For example, the use of telehealth will continue to increase in regional, rural and remote Australia to adapt to changing demands on the provision of care, especially as populations age. In the same way, as communities look to retain populations and as digital literacy improves, the way communities connect will continue to evolve and demand will only increase as services expand to provide greater access and equity of opportunity.

The current competitive grant model (such as the RCP) focusses on projects that deliver 'value-for-money' proposals at an individual community level rather than a strategically targeted or all-encompassing approach. While acknowledging the importance of good corporate and financial governance, the current grant model significantly limits the range of possible projects submitted which is at the potential detriment of communities, including First Nations and people in remote areas. By focussing on a 'value-for-money' criteria, there is a risk that smaller, less financially viable locations that would significantly benefit from funding are not offered access to the latest technology. Access to these technologies underpins any growth in digital literacy and is a necessary precursor to delivering services such as telehealth and education.

The RCP model continues to have a place in the system. Alongside this model, NBN Co believes there should also be access to an overarching, long-term, strategic funding

source to help address some of the concerns raised above (such as the holistic approach taken with the **nbn** Fixed Wireless and Satellite Upgrade Program grant).

Additionally, as a wholesaler, NBN Co's prices are regulated via the ACCC. NBN Co does not set individualised pricing and the cost of its wholesale products remain the same regardless of where a person lives, which also limits the ability to recoup cost overruns or to address challenges such as supply change variations, making the Company more reliant on government funding to undertake those projects which have significant social and future economic benefit, but which may not be economically viable for NBN Co.

This creates a dichotomy for NBN Co's broader purpose to lift the digital capability of Australia, while also operating as a commercial business - as expected of GBEs. Publicly listed companies are ultimately responsible to their shareholders and usually seek to maximise profit so that the shareholders' investment in the company proves successful. The public sector is not, by definition, a publicly listed company and the government outlines their objectives and holds them to account.

For NBN Co, its Statement of Expectations (issued by the **nbn** shareholder Ministers on 22 December 2022) determines that:

> The enduring purpose of the NBN Co is to provide fast, reliable and affordable connectivity to enable Australia to seize the economic opportunities before it and service the best interests of consumers. It is essential to enabling access to key services, maximising employment and educational opportunities, and driving productivity and economic growth. NBN Co will enhance Australia's digital capability by delivering services to meet the current and future needs of households, communities and businesses, and promote digital inclusion and equitable access to affordable and reliable broadband services.

And that, as such:

> NBN Co will upgrade and improve the network to support Retail Service Providers to enhance quality of services and consumer experience, improve reliability, meet current and future demand from consumers, and build digital capability through undertaking proactive network planning, including for the transition of satellite services, and positioning itself to utilise emerging and future technologies to meet future demand, promote innovation, improve services and generate efficiencies in service delivery.

The reason for highlighting this distinction is that NBN Co should be ideally placed to manage larger, strategic priorities rather than individual, small-scale proposals that are reliant on third party funding to become viable. NBN Co considers there is an opportunity to have a model where Federal and State Governments (see response to RTIRC Question 19) move away from predominantly focussing on individual locations to one that is an all-encompassing and incorporates a strategic, integrated and planned approach for maximising the number of communities across regional Australia to benefit from government investment in improved telecommunications.

7.4.4 RTIRC Question 19: How could Australian Government programs better align with State, Territory and local Government planning and funding processes in delivering telecommunications services and infrastructure?

NBN Co would welcome better alignment of planning, strategic priorities and funding mechanisms across all levels of government, and particularly between the States and Territories where co-investment is encouraged.

NBN Co believes there could be greater involvement with State and Territory Governments in developing, determining and delivering grant programs, to allow for a more streamlined and efficient process. State and Territory Governments have their own grant policy guidelines and processes which can link to Federal Government grant processes. For example, several state governments ran separate truncated Expression of Interest (EOI) processes to inform their decisions on which projects to support in the Federal Government's RCP rounds. These timelines rarely align with the submission guidelines at a Federal Government level, placing significant pressure on lead submission agencies. Even for those states which did not hold an EOI process, the tight submission timeframes meant lead agencies needed to have pre-identified, assessed and negotiated opportunities with their proposed State Government partners before the Federal Government's grant round was opened. This circumstance is immensely challenging and limits the collaborative nature of the application process as applicants are more inclined to provide a 'menu' of opportunities to State and Local Governments rather than working together to properly consider and develop a suite of appropriate opportunities that could best meet the needs of the community.

Given the standard submission timeframe for applications to programs such as the RCP is initially set at between 10-12 weeks before extension, this creates significant challenges for applicants when working through the various probity and procurement processes for each level of government (Local, State and Federal) as well as those within NBN Co.

Currently, the Federal Government's preferred approach to funding arrangements is to require State or Territory Government funding agreements to reflect the same requirements as the Federal Government's agreement with NBN Co. For example, under RCP 3, limitations apply on how state and other third-party funding is used. This can include restrictions on using grant funds for items such as:

- ongoing operating and maintenance costs, including utilities, staffing, and site rental or lease costs;
- soft infrastructure, including computer software or hardware that is not an integral part of the Asset; and
- project overhead items including the purchase of office equipment, vehicles or mobile capital equipment (examples include trucks and earthmoving equipment and the grantee's internal plant operating costs).

If this approach could be softened, this could afford greater flexibility in terms of cost sharing or NBN Co's ability to generate further support for projects. This issue is

covered in detail below. As stated earlier, the requirement to seek operational or 'ineligible' capital expenditure costs from other parties redirects an ongoing financial burden and risk onto NBN Co and potentially other carriers and limits the commercial viability of locations that can be considered.

Similarly State and Territory Governments will often have priority areas (such as First Nations communities, areas impacted by other infrastructure projects, or remote areas with identified disadvantage) rather than individual locations. Being able to package these opportunities rather than assessing them on an individual basis could see improved outcomes in these communities. By continuing assessments on an individual basis, applicants cannot use stronger, more commercially viable options to offset less commercially viable alternatives as there is no guarantee both will be selected for grant funding. Similar issues can occur at a Local Government level where the affected Council may have a view on which locations to propose but are not able to provide funding towards the projects. On occasions this can result in options attracting State or Territory funding. Ensuring all levels of government can develop an integrated approach to these circumstances including on proposed locations for funding, combined with the requirements of the individual infrastructure providers, should lead to improved outcomes and more targeted investment to support regional, rural and remote Australia.

7.4.5 RTIRC Question 20: What other matters should the Committee consider in its review and why are they important?

NBN Co considers the following matters as relevant for the Committee to consider in its review.

Attribution of capital costs in grant funding

As discussed above, if certain operational costs could be included as "eligible costs", this could create greater opportunities to increase the pool of applications for funding to enhance services and uplifting digital broadband capability to remote and very remote areas, as per the objective of the Australian Government's Better Connectivity Plan and First Nations inclusion targets for 2026.

By way of example, currently co-contributions (including NBN Co's) are generally limited to use on 'eligible costs' only, which does not recognise that NBN Co contributes:

- 100 per cent of operating costs.
- 100 per cent of capital costs, being:
    - Site/Access Leases (for tower sites)
    - Co-Location Leases (equipment on third party towers)
    - Managed Service Backhaul Leases

- Exchange leases
- Spectrum (microwave backhaul leases).

These capital costs are ongoing costs incurred as an alternative to building/ buying new facilities and represent a significant though unrecognised co-investment component of any budget. If 'eligible costs' could be expanded, this could increase the number of projects NBN Co (and other participants) can financially support. It would also acknowledge the total investment by organisations, and give a more accurate impression of the financial impact on all parties including State and Federal Governments and the applicants.

NBN Co proposes that going forward these costs are treated as Capital Costs to which grant funding can be applied. By capitalising these ongoing costs, the capital expenditure pool of shared costs increases.

Increase visibility of State and Federally funded projects.

NBN Co suggests that the Australian Government consider developing a public dashboard of all investment programs so that federal, state and local governments have consistent clarity to help inform their strategic decisions.

Greater visibility of federally and state funded projects, including network boundaries, could reduce time spent investigating and developing opportunities only to discover they are excluded by overbuild provisions. It should also be noted that these provisions can be subject to different interpretations about whether a project does overbuild another project, whether it offers a superior experience for customers, and whether an area is adequately served. This can be challenging to assess where there is either federal or state funding without the involvement of the other party. For example, a Commonwealth approved application may not be aware of a State-based project which covers the same community and will therefore fund a competing project that overbuilds the other, or allows smaller Wireless Internet Service Providers to overbuild existing, or in-development **nbn** Fixed Wireless coverage with their own Fixed Wireless towers. Or in reverse, where NBN Co may potentially impact on the actual or proposed footprint of an alternative provider. NBN Co believes there should be further consideration and assessment of whether these projects deliver "a demonstrable improvement over the existing telecommunications solutions in the relevant area".

Without access to footprint maps for all technologies and providers, it is challenging to assess how much an application for funding may overbuild existing services and whether a program truly complements "the National Broadband Network, the Mobile Black Spot Program and the telecommunications industry's commercial investment plans". In some cases, applicants base their submitted footprints on projects with similar place names rather than being able to accurately identify any potential overbuild. It is also possible for two projects in the same geographic location to cover different footprints or to target different areas.

Even where there is a potential overbuild, the guidelines from previous Australian Government RCP rounds enabled this to occur if:

> "For broadband access technologies, a like-for-like technology such as a Fixed Wireless service where there is an existing Fixed Wireless service would only meet this requirement if the proponent can demonstrate a clear need for improvement and the project would deliver a demonstrable and substantive improvement in service quality, coverage, reliability and/or speed."

This is relevant in the context of the Australian Government's investment in the **nbn** Fixed Wireless and Satellite Upgrade program. This investment, NBN Co believes, serves to achieve the same objectives as those mentioned above, but highlights the value and cost-benefit of an integrated, all-encompassing strategic approach to investment.

Another area for potential review is extensions for build programs once a grant has been awarded where factors such as natural disasters, Heritage Management processes, supply chain issues, availability of contractors, and demographic and population changes can be considered in the context of the delivery schedule. The timeframe involved in any infrastructure project, whether public or private, will almost always see the need for some variations in timing or costs and a more flexible set of arrangements in support of improved outcomes for the Australian Government, applicants, and communities in regional Australia. Having greater flexibility in the project completion date would enable valuable and deliverable projects to be completed with a negotiated extension, to the benefit of the regional communities, rather than the projects needing to be descoped.

Specifically in relation to funding arrangements, changes in technology availability and use, and in the telecommunications market in Australia, mean that adjustments to the current funding arrangements are not just opportune, they are increasingly vital for ensuring equitable, certain and sustainable funding for targeted universal service objectives, while harnessing the benefits of the evolving competitive communications landscape.

The reason for raising these challenges is to highlight the value of dedicated direct funding programs such as the **nbn** Fixed Wireless and Satellite Upgrade and **nbn** Fibre Upgrade programs mentioned above. Direct funding for projects needs to have demonstrable benefits for all parties, tied to open access and support for the entire telecommunications ecosphere.

8 Conclusion

NBN Co is aware that connectivity opens a world of possibility, particularly for those living in regional, rural and remote Australia. That is why NBN Co is continuing to evolve the **nbn** network across Australia to deliver a broadband network for homes and businesses that keeps getting better. Across Australia, and with the support of the Australian Government, NBN Co is upgrading millions of premises from copper-based connections to full fibre as well as expanding the reach and introducing faster speeds on the **nbn** Fixed Wireless network. By the

end of 2024, around 120,000 premises currently in the **nbn** Satellite footprint will have access to the **nbn** Fixed Wireless network for the first time. NBN Co's customers in regional and remote Australia have recently been provided with access to uncapped internet use with the launch of new **nbn** Sky Muster Plus Premium satellite plans. We are also working with local, state and federal governments to upgrade a number of the communities in regional Australia currently in **nbn** Fixed Wireless and **nbn** Sky Muster satellite areas with better broadband through co-investment.

In a modern economy and a globally connected world, it is critically important that all Australians have access to baseline connectivity to help advance social and economic opportunities. NBN Co is committed to working with the Australian Government and other parties to optimise the delivery of universal connectivity to metropolitan, regional and remote areas of Australia.

NBN Co is also thinking about what comes next for regional Australia and how best to meet the evolving broadband needs of premises in the **nbn** Satellite footprint. In June 2023, NBN Co released a closed request for information (RFI) to LEO Satellite providers to further understand their offerings. NBN Co recognises the important role of the Australian Government in undertaking policy reform to ensure broadband connectivity is universally available across the nation. Any universal service reform will need to be sustainably funded and guided by how Australians use their telecommunications services, while improving connectivity via modern technologies.

NBN Co acknowledges Australia needs to prepare for more extreme climate-related natural crises, that could be concurrent or cumulative across multiple regions. The **nbn** network is relied upon by local communities, businesses and emergency service organisations during and after extreme weather events and natural disasters. The single biggest risk to NBN Co's network in the event of a natural disaster is a lack of resilience in power networks. Our network resilience remains a key focus for NBN Co. The Company's network resilience practices continue to be refined as we respond to extreme weather-related events such as fires, floods and tropical cyclones.

NBN Co has given consideration to the practical and administrative arrangements required to support improving Australia's connectivity, consumers' understanding of their options and the community resilience and response to natural disasters. NBN Co proposes that an-all encompassing, strategic and integrated approach to making further investments in newer technologies with higher capacities and capabilities would be required to maximise the value and return from these investments and particularly in the context of copper, other legacy technologies, and NBN Co's Sky Muster Satellites reaching end-of-life in the coming years.

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