

**Telstra submission in response to the Department of
Infrastructure, Transport, Regional Development,
Communications and the Arts discussion paper on Better delivery
of universal services**

1 March 2024



Executive Summary

The Universal Service Obligation should be reformed to take advantage of new technology

The Universal Service Obligation (USO) has for decades ensured that all Australians can be connected regardless of who they are or where they live and work. To ensure it remains relevant into the future, the USO should be reformed to take advantage of the new technologies that have recently become available. This means removing the requirement for Telstra to use the outdated copper network to deliver USO telephone services in much of regional and remote Australia. Customers in those areas could then be migrated over time to a newer wireless or satellite technology that is more reliable and more capable.

No two technologies are the same, and all have strengths and challenges, but newer technologies are better placed to support the demands of regional and remote customers. Wireless technology is less prone than wireline technology to destructive natural forces including extreme weather events and corrosion. There are fewer physical points of potential interruption between the point of transmission and the premises, and less physical exposure to the elements. These new technologies are also superior to copper in that they can deliver high speed data services as well as high quality telephone services.

Reliability of power is an important issue in regional and remote telecommunications

Power supply is a particularly important issue for regional and remote customers. The copper network is powered from the local exchange, which can be an advantage when there is a localised power outage at the premises. However, any power outage affecting the local exchange will interrupt service even if there is power at the premises. The copper network cannot be relied upon to retain power in all circumstances.

The wireless and satellite networks that will eventually replace copper are voice-over-IP technologies that require a powered modem at the customer's premises to work. In that regard they are no different from services provided across the rest of Australia via the National Broadband Network. Customers in areas prone to power outages may therefore benefit from the option of sourcing a backup power supply.

All Australian residents should have access to reliable and affordable fixed connectivity

The fundamental outcome of a modern universal service framework should be that all Australians have access to reliable fixed connectivity at consistent and affordable prices. Consistent national pricing of USO telephone services (same price for the same service no matter where you live) should continue, with prices constituting a reasonable share of wallet for most customers.

We recognise that customers on low incomes can struggle to afford basic services. Telstra has a range of programs to assist customers facing financial hardship who may need payment assistance or more affordable products and services – all aimed at keeping customers in vulnerable circumstances connected.¹ Government also has a role to play in supporting customers that otherwise cannot afford to stay connected.

¹ <https://www.telstra.com.au/aboutus/community-environment/community-programs/access-for-everyone>.



Mobile services should not be part of the universal service framework

Mobile service cannot be guaranteed at every point on the Australian landmass, including the inside of buildings, due to the prohibitive cost and time it would take to build a terrestrial mobile network capable of delivering that outcome. Mobile is critically important, but it does not belong in a universal service framework that guarantees service delivery to a specific location.

Payphones are of ongoing value to the Australian community

Payphone usage has more than doubled since Telstra took a commercial decision in 2021 to make domestic calls from payphones free of charge. The organisations and services most frequently called from payphones are the Emergency Services (Triple Zero), banks, taxi services, Directory Assistance, Centrelink, Telstra, the police, and community support services including Headspace and Lifeline. This pattern of usage demonstrates the important role that payphones play in supporting our communities.

Universal service guarantees are not sufficient for remote First Nations communities

For remote First Nations communities, there is a need to be able to use mobile devices to access the internet and make calls on service plans that respond to the way community members use their devices. High mobile usage is mainly due to limited communications infrastructure, low levels of fixed broadband and telephone services, and low levels of household television.² Many communities have no mobile coverage and those that do often lack sufficient mobile backhaul capacity, reliability, and suitable usage plans.

Telstra is committed to working with communities, researchers, industry, and governments to establish practical solutions that meet the needs of remote First Nations communities. This is best done in addition to the universal service framework, which by definition applies in the same way everywhere in Australia regardless of location. Remote First Nations communities require specialised solutions.

² [Mapping the digital gap: 2023 outcomes report](#)



The USO should be reformed to take advantage of new technology

The USO has for decades ensured that all Australians can be connected regardless of who they are or where they live and work. To ensure it remains relevant into the future, the USO should be reformed to ensure the latest, most efficient and resilient technologies can be used to deliver USO telephone services. Making this change will ensure the USO continues to be relevant for all Australian residents, including those who live and work in regional and remote areas.

The legislated USO is technology neutral

Telstra is the universal service provider for telephone services.³ As such, our legislated obligation is to ensure that standard telephone services (STS) and payphones are reasonably accessible to all people in Australia on an equitable basis, wherever they reside or carry on business.⁴ This is known as the Universal Service Obligation (USO). The legislated USO is technology neutral, meaning that we can use any telecommunications technology to meet the obligation.

Telstra should no longer be required to use the copper network

The Telecommunications Universal Service Obligation Performance Agreement (TUSOPA) is a contract between Telstra and the Commonwealth under which Telstra is paid \$230 million p.a. in exchange for providing the STS USO, and \$40 million p.a. in exchange for providing the payphones USO (not indexed). The term of the contract is for 20 years from 1 July 2012.

The TUSOPA currently requires Telstra to continue using the copper network to deliver STS to premises that were connected by copper as of 1 July 2012 and have not been migrated to an optical fibre network (with some exceptions). This contractual obligation is known as the Copper Continuity Obligation (CCO). There are currently around 285,000 telephone services being provided over the copper network in regional and remote Australia.

The CCO effectively prevents Telstra from migrating these STS to more efficient, better-performing technologies that are available now or in the very near future, including NBN Fixed Wireless, Telstra 4G Fixed Wireless, and Telstra Starlink. Customers in regional and remote Australia would be the primary beneficiaries from removing the CCO to allow these new technologies to support STSs at scale, although there are also copper connections to premises in metropolitan areas that are not served by the NBN.

Many customers in regional and remote Australia with STS provided over the copper network have experienced faults in their service over recent years because the network is ageing and increasingly difficult to maintain. Network parts are less available globally as the world transitions to newer technologies.

All technologies differ somewhat, and none is perfect, but newer is better

Most of Telstra's national copper network was acquired by NBN Co to use in rolling out the NBN fibre network. The remaining copper services are predominantly in regional and remote areas uneconomic for

³ Clause 12(d), [Telecommunications \(Consumer Protection and Service Standards\) Act 1999](#).

⁴ Clause 9(1), [Telecommunications \(Consumer Protection and Service Standards\) Act 1999](#).



fibre rollout. The replacement technologies for premises currently connected to the copper network are wireless technologies, whether terrestrial wireless (e.g. NBN and 4G Fixed Wireless) or satellite (e.g. Telstra Starlink).

Different technologies have different strengths and weaknesses, and none is perfect. However, the recently launched fixed wireless and Low Earth Orbit (LEO) satellite technologies are better able overall to provide consistent, high-quality connectivity to premises in areas that have not been connected to NBN Co's fixed line network. In addition to supporting high quality voice, the data performance is generally much better than legacy technologies such as copper-based ADSL.

Modern wireless technologies are less prone than copper to destructive natural forces including extreme weather events and corrosion. There are fewer physical points of potential interruption between the point of transmission and the premises, and less physical exposure to the elements, albeit wireless signals are more subject than wireline signals to interference from changes in the natural and built environments, such as tree growth or when new cladding is added to an existing building.

There is also a view that wireless signals are subject to potential interference during heavy rain ("rainfade") that wireline networks are shielded from, although flooding from heavy rain is less likely to affect wireless networks. In Telstra's experience the effects of rainfade on LEO satellite services are overstated (see box below), but we acknowledge that more testing should be done and look forward to the results of the Government's forthcoming technology trial in that regard.⁵

⁵ [Better deliver of universal services Discussion Paper](#), p 13.



Box 1: Rainfade appears to have a limited effect on LEO satellite service availability

As there is little public information about the effect of rainfade on LEO satellite services, Telstra acquired seven off-the-shelf Starlink LEO satellite services and paired them with rain gauges to monitor service performance and rainfall at each service location.⁶ Between November 2023 and January 2024, a total of 644 customer service days were monitored.

Heavy rainfall events (defined as 1 mm per 5-minute period) occurred in 1,494 five-minute blocks (covering 0.75% of the time) during the period. The average service availability during heavy rainfall events was 99.4%, while during dry periods it was 99.8%. This difference was not statistically significant, suggesting that we cannot be confident that it was specifically caused by heavy rain. The overall service availability was 99.8%, close to the availability during dry periods, due to the low share of time that heavy rain actually occurs.

This overall service availability is higher than the 99.6% national average availability for existing fixed voice services as reported under the Network Reliability Framework.⁷ While no data is available for the service availability of existing fixed voice services specifically during heavy rainfall, they are also affected by these events and will likely be lower than 99.6% — heavy rain can impact the fixed network via the flooding of network assets and cable wash-outs, and these can often take days to repair which in turn reduces aggregate availability. In addition, the average duration of LEO Sat service dropouts was under five minutes, meaning that when a dropout occurred the connectivity was typically re-established very quickly. In contrast, copper outages can take hours or days to resolve.

Telstra will continue to monitor these services and their sensitivity to heavy rain. Whereas the availability of existing fixed voice services is on a downward trajectory due to ageing of that technology, the availability of a new technology such as LEO Satellite can be expected to improve with time as the technology matures and more satellites are added to the network.

Reliability of power is an important issue in regional and remote telecommunications

Power supply is a particularly important issue for regional and remote customers, who tend to be more exposed when lack of power interrupts their STS because they are more isolated than metropolitan customers. Some regional and remote areas are also more prone to power outages than Australia in general, particularly in areas with greater exposure to extreme weather.

The copper network is powered from the local exchange, which can be an advantage when there is a localised power outage at the premises because the STS will remain operational. However, any power outage affecting the local exchange (or supporting roadside cabinets) can interrupt service even if there is power at the premises. The copper network cannot be relied upon to retain power in all circumstances.

Moreover, fixed line networks tend to be more vulnerable than wireless networks to damage from natural disaster events such as floods and fires, as they comprise comparatively more terrestrial infrastructure. Where damage can occur in multiple locations the time for service restoration can be

⁶ Test services are in Katherine, Darwin and Berry Springs in the Northern Territory, Cairns in Far North Queensland, Bonnie Doon and Port Melbourne in Victoria and Murbko in South Australia.

⁷ <https://www.telstra.com.au/consumer-advice/customer-service/network-reliability>



prolonged, as each incident needs to be addressed. Accessibility to the impacted infrastructure can also be an issue.

LEO satellite networks are more resilient to power issues than terrestrial wireless networks because they require only power at the premises and the satellite itself to operate. LEO satellite networks rely on many thousands of moving satellites. Unlike fixed exchanges, even if one satellite malfunctions, it is a matter of minutes before the next one comes into range.

The STS technologies that will replace the old copper services are voice-over-IP technologies that require a modem at the customer's premises to work. In that regard they are no different from broadband services, and indeed most existing STSs are provided in conjunction with a broadband service and use the broadband data stream to carry the telephone call.

Given that all voice and broadband services will in future require a modem at the customer's premises, customers in areas prone to power outages may benefit from sourcing a backup power supply. These can take many forms, from small batteries that keep a modem working for a few hours, to large batteries, solar systems and combustion generators that can run an entire house.⁸

Better coordination and communication between power companies, telecommunications service providers, governments and emergency service organisations prior to, during and following extreme weather events could also help to minimise the duration of power outages and, consequently, telecommunications service outages.

Response to key questions

What do you consider are the key outcomes that a modern universal service framework should deliver?

The fundamental outcome of a modern universal service framework should be that **all Australians have access to reliable fixed connectivity at consistent and affordable prices**. We expect fixed connectivity in most cases will be broadband and telephone, with a diminishing number of customers using fixed telephone services only, and a rising number of customers using fixed broadband services only (often complemented with mobile).

The key elements of the fundamental outcome described above can be understood thus:

- Fixed connectivity – in this context, “fixed” means connectivity delivered to a specific location (a premise), regardless of the technology used to deliver it. A universal service obligation must be to deliver a service to a defined place so that delivery can be guaranteed.
- Reliability – no STS or broadband service works 100 per cent of the time, but the networks used to deliver STS should be capable of supporting a high level of service uptime on average (see Box 1 above with respect to Telstra's LEO satellite service availability testing).
- Consistent prices – STSs have been priced nationally (at the same price regardless of location) for many decades and that should continue to ensure equity. Consistent pricing implies a cross-subsidy from customers in more populated areas to customers in less populated areas.

⁸ For example, [Telstra's Uninterruptible Power Supply](#) keeps a modem running for up to four hours.



- Affordable – STSs should not be so expensive that they constitute an unreasonable share of wallet for customers on low or fixed incomes. Where STSs are provided over SIP broadband connections, prices will be underpinned by price regulation of wholesale SIP services.⁹

A modern universal services framework should also support greater cost efficiency and sustainability, in part by focussing on investment in modern – not legacy – technologies. It would be a good outcome if reform of the USO can deliver an improved experience for regional and remote customers while also reducing costs. We believe that transitioning to new technologies can deliver that dual outcome.

What safety-net services does a modern universal service framework need to address?

At a minimum, broadband connections should be of sufficient speed and quality that users are able to interact with government and other critical online services including education and health services, and make telephone calls, including to Triple Zero. In practice, any service capable of supporting these needs will also be able to support a basic entertainment streaming service.

These minimum requirements are already provided for by the Statutory Infrastructure Provider (SIP) minimum speed of 25/5 Mbps and the STS USO. In future it may no longer be necessary to explicitly guarantee an STS if it can be shown that Retail Service Providers (RSPs) compete to offer them commercially at every location as an addition to broadband access.

Even the minimum safety-net services described above can prove expensive for customers on low or fixed incomes. Telstra has a range of programs to assist customers facing financial hardship who may need payment assistance or more affordable products and services – all aimed at keeping customers in vulnerable circumstances connected.¹⁰ Government also has a role to play in supporting customers that otherwise cannot afford to stay connected.

To what extent do you consider mobile services are important to complement fixed services supported under the existing framework?

The importance of mobile service has been recognised by successive federal and state governments through the establishment and evolution of the various co-investment programs that aim to expand and deepen mobile coverage.¹¹ Telstra supports these programs and their objectives and has been successive governments' most significant co-investment partner.¹²

The economics of the remaining connectivity issues are more challenging and current technologies and solutions may not be optimal in the future. We are evolving our participation in these programs and carefully considering the role of emerging technologies in providing the desired connectivity outcomes for regional and remote customers.

Mobile services cannot be part of a universal service guarantee

Mobile services are often useful complements to fixed services, but mobile cannot deliver a service guarantee because it does not and cannot provide service to every location in Australia. This is because

⁹ NBN Co's [Special Access Undertaking](#) (SAU) sets out the price (and non-price) terms on which wholesale services are provided to Retail Service Providers (RSPs).

¹⁰ <https://www.telstra.com.au/aboutus/community-environment/community-programs/access-for-everyone>.

¹¹ For example, the [Mobile Black Spot Program](#), the [Regional Connectivity Program](#), the [Strengthening Telecommunications Against Natural Disasters](#) program, and the [Peri-Urban Mobile Program](#) at federal level.

¹² Once all rounds of the MBSP are completed, Telstra will have invested more than \$300 million and built around 1,000 new sites, more than two thirds of the total sites co-funded by the Government under the Program since 2015.



it would take decades to build terrestrial mobile infrastructure covering the entire landmass and would be prohibitively expensive. Moreover, it is not possible to guarantee mobile service to every indoor location due to the material buildings are constructed of or clad in.

Some might claim it is not necessary to provide mobile coverage everywhere to provide mobile coverage to every premises. But guaranteed mobile coverage at every premises is effectively a fixed service guarantee, not a mobile service guarantee. It is important not to confuse mobile services with fixed services delivered via the mobile network, or fixed services that are accessed by the customer using a mobile device. For example, in remote areas coverage could be delivered via satellite to a modem at the premises and broadcast locally to mobile handsets via WiFi.

LEO satellite networks promise direct-to-handset (DTH) capability in future that will support mobile connectivity beyond terrestrial mobile coverage areas, but only where there is clear line-of-sight to the sky (not indoors reliably).¹³ LEO DTH coverage will be a game-changer for connectivity in emergencies, but there is currently no prospect of it providing capacity equivalent to connectivity provided by terrestrial networks.

In contrast, fixed services are delivered to a point inside a premises (usually a building) with an address at which service delivery can be guaranteed. This can sometimes entail significant costs, but not in the order of magnitude that would be needed to deliver mobile service to every point in the country including the inside of every building.

Which existing requirements under the current universal service framework should be retained, or changed?

The Copper Continuity Obligation should be removed

The requirement to use the copper network to deliver STSs to premises that were connected by copper at 1 July 2012 should be removed. Doing so will allow Telstra to plan and execute an orderly migration of customers from the ageing copper network to newer technologies that are more capable of providing a high-quality STS over time, mostly in regional and remote areas but also at metropolitan premises not currently served by NBN Co. There should be no technology-specific mandates or exclusions.

The payphones USO continues to provide a valuable service to Australian communities and should be retained (see also *What role do you consider payphones should play in a modern universal service framework?* below).

It may be possible to fold the USO into the SIP obligation in future

In future there may be scope to combine the currently separate voice and broadband service delivery obligations into a single obligation borne by the SIP. In that case, the SIP would have an obligation to connect a broadband service capable of supporting a high-quality STS anywhere in the country, at wholesale prices subject to regulation. Two prerequisites would need to be met:

- The SIP for premises in the satellite footprint would need to provide a satellite broadband service capable of supporting a high-quality voice service. Currently no SIPs do this.
- It would need to be clear that in all cases at least one RSP will be commercially willing to provide an STS without there being a specific requirement to do so.

¹³ Apple already supports Emergency SOS messaging on iPhone 14 handsets: [Emergency SOS via satellite available in Australia, New Zealand - Apple \(AU\)](#)



What role do you consider payphones should play in a modern universal service framework?

Recent usage demonstrates the ongoing value of payphones to the Australian community. Usage has more than doubled since Telstra took a commercial decision in 2021 to make domestic calls from payphones free of charge, with 24 million outgoing calls and 745,000 incoming calls made in 2023. The incoming call functionality is particularly well-used in remote First Nations communities.

The organisations and services most frequently called from payphones are the Emergency Services (Triple Zero), banks, taxi services, Directory Assistance, Centrelink, Telstra, the police, and community support services including Headspace and Lifeline. This pattern of usage demonstrates that payphones continue to play a significant role in supporting our communities.

Telstra is augmenting the community value of the national fleet of payphones by upgrading them over time to provide free WiFi access. In August 2022 we enabled more than 3,500 payphones with free Wi-Fi, and work is underway to enable the remaining 11,000 with free Wi-Fi over the next few years. And because payphones can play a vital role in keeping communities connected during natural disasters like bushfires, floods and cyclones, we are in the process of upgrading 1,000 payphones in disaster prone areas with free Wi-Fi, battery back-up and USB charging ports for personal devices.

How should affordability be considered?

Connectivity is a critical service

Connectivity is a critical service that must be available to all Australian residents, no matter their socio-demographic circumstances. Affordability is a critically important aspect of availability and inclusion. The key input cost will be that of acquiring a broadband connection, given that in most cases broadband is used to carry telephone calls.¹⁴

Wholesale prices largely determine retail prices

Retail broadband prices are determined largely by the wholesale prices charged by NBN Co and other SIPs. NBN Co's prices are subject to regulation in the form of their Special Access Undertaking (SAU), which sets out the price (and non-price) terms on which wholesale services are provided to RSPs. The SAU is an undertaking enforced by the ACCC.¹⁵

Retail broadband prices are not directly regulated, but the fixed line market structure (whereby all RSPs use common wholesale inputs provided by SIPs) delivers vigorous price and service competition between RSPs that ensures retail prices are as low as they can be given the input costs. Competing fixed wireless networks in some cases provide even cheaper prices. RSPs with a national footprint (such as Telstra) charge the same price for the same service regardless of location. In that regard, competition in metropolitan areas delivers competitive prices in all other locations.

Low-income customers should be supported

If retail broadband prices are considered too high for the general population, SIPs will need to commit to lower wholesale prices. However, if the prices delivered under current regulatory settings are as low as they can be while allowing a reasonable return on investment, and it is only low-income customers who face real challenges in maintaining even a basic service, targeted measures may be needed.

¹⁴ Telstra's NBN broadband products all include a telephone service with unlimited domestic calls for no additional cost. See <https://www.telstra.com.au/internet>.

¹⁵ <https://www.nbnco.com.au/rsps/special-access-undertaking-sau>



Telstra has a range of programs to assist customers facing financial hardship, but Government also has a role to play in supporting customers that otherwise cannot afford to stay connected.¹⁶

How can a modern universal service framework deliver better outcomes and meet digital inclusion needs of First Nations Australians?

Universal service guarantees are not sufficient for remote communities

For remote First Nations communities, there is a need to be able to use mobile devices to access the internet and make calls on service plans that respond to the way community members use their devices. High mobile usage is mainly due to limited communications infrastructure, low levels of fixed broadband and telephone services, and low levels of household television.¹⁷ Many communities have no mobile coverage and those that do often lack sufficient backhaul capacity, reliability, and suitable usage plans.¹⁸

Telstra is committed to working with communities, researchers, industry, and governments to establish practical solutions that meet the needs of remote communities. This is best done in addition to the universal service framework, which by definition applies in the same way everywhere in Australia regardless of location. Remote First Nations communities require specialised solutions.

Telstra recognises the preference for pre-paid mobile services in remote communities and has worked closely with Governments and the First Nations Digital Inclusion Advisory Group in recent months to trial options to address affordability of pre-paid data. In addition, approximately 70 of the payphones that are being upgraded to provide free WiFi and battery backup are in First Nations communities.

Telstra recognises the Government's efforts to address the issue of connectivity in remote communities via a range of programs, including the roll-out of free community WiFi services to some communities and the Regional Connectivity Program and the Mobile Black Spot Program. We also recognise the importance of place based digital mentors to support community members.¹⁹

Research is important to understand the digital divide

Measuring digital inclusion within and across remote communities requires deep engagement with the communities, their organisations, and leaders. The Telstra-funded [Mapping the Digital Gap](#) project, now conducted by the [ARC Centre of Excellence for Automated Decision-Making and Society](#) at RMIT University, aims to make a significant contribution to the evidence base in this area.

In January 2023, Telstra's Head of First Nations Strategy and Engagement was appointed to the First Nations Digital Inclusion Expert Panel. The Panel supports progress towards Closing the Gap Target 17 and is developing a First Nations Digital Inclusion roadmap to address the three barriers to digital inclusion – access, affordability, and digital literacy.²⁰

¹⁶ <https://www.telstra.com.au/aboutus/community-environment/community-programs/access-for-everyone>.

¹⁷ [Mapping the digital gap: 2023 outcomes report](#)

¹⁸ According to the [Mapping the digital gap: 2023 outcomes report](#), about 43% of the 1,545 First Nations communities and homelands across Australia have no mobile service – including some with only a shared public phone or no telecommunications access.

¹⁹ [Next steps on closing the gap: delivering remote jobs | Ministers for the Department of Infrastructure](#)

²⁰ Telstra has established a [range of programs](#) to improve digital literacy and accessibility for First Nations people and communities across Australia, including inDigiMOB and Mobile My Way.