BIRRR SUBMISSION INTO THE

BETTER DELIVERY OF UNIVERSAL SERVICES DISCUSSION PAPER

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Executive Summary: Universal access to redundancy in communications services

As the Australian government embarks on Universal Services Framework (USF) reform and modernisation, it is imperative to consider the diverse needs of consumers across Australia, in all locations. In a reformed and modernised framework, providing communications redundancy is paramount, especially for rural and remote communities. Redundancy ensures that individuals have alternative means of communication when telecommunications fail, offering a vital lifeline during emergencies or service disruptions. Redundancy is particularly crucial for remote areas where telecommunications infrastructure vulnerabilities and distance exacerbate communication challenges.

It is imperative that any reform to the USF also encompasses modernisation and reform of the Statutory Infrastructure Provider (SIP) regime for broadband. As technology continues to advance and broadband becomes increasingly essential for connectivity, the SIP regime must evolve to effectively address the changing landscape of telecommunications. A modern USF must deliver universal service outcomes that prioritise communications redundancy, it should also mandate delivery of quality, reliable, resilient and affordable telecommunications redundancy options, with robust consumer guarantees. Solutions must be place-based, with significant community engagement and consultation, whilst flexible and adaptable to accommodate technological advancements and demographic variations.

BIRRR emphasises the need for a reformed and modernised Universal Service Obligation (USO), as a separate obligation to the existing SIP for broadband, that mandates universal communication redundancy and Short Messaging System (SMS) services for all consumers, through place-based solutions that can adapt to consumers' changing needs and emerging technologies.

Every Australian regardless of where they live should be aware of and able to order and have maintained and repaired redundancy in telecommunications. This service / connection must meet robust quality, reliability, affordability and consumer guarantee metrics. Key factors that need to be included in a reformed and modernised USF include:

- **Access** - universally available to all Australians, place-based and consumer focused, with a planning framework that clearly identifies gaps and focuses on hard to serve areas first.
- **Redundancy** - prioritises redundancy in communications services.
- **Reliability** - demonstrated reliability of 99.99% (Appendix 4).
- **Service quality** - a minimum standard of service quality, with strengthened and robust quality metrics.
- **Affordability** - measures to support low income consumers to access redundancy.
- **Customer Service Guarantees (CSG)** - strengthened CSG Benchmarks, enhanced and improved reporting of universal service provider metrics and increased enforcement of these guarantees.
- **Service requirements** - number portability, voice prioritisation, SMS services and the ability to order a standalone voice service.
- **Consumer Information and guarantees** - priority assistance, transparent and enforced customer support guarantees, including improved and strengthened installation and repair timeframes that are reflective of improvements in transport availability and road infrastructure. Consumer support and information that is accessible and equipment that is plug and play.
- **Resiliency** - affordable power redundancy for in premise equipment and enhanced resiliency for telecommunications infrastructure.
- **Emerging technologies** - should be tried and tested before roll-out with publicly available published performance metrics.

It is essential that any reform or adjustment to the existing USO is clearly messaged to consumers to achieve widespread awareness of any changes to existing services. The telecommunications industry as whole should be made aware of any changes and strict penalties should apply if a consumer is supplied with misleading information regarding the new framework.

BIRRR acknowledges that the proposed inclusions for the reformed Universal Service Obligation (USO) may be robust. They are recommended to safeguard rural, remote, and vulnerable consumers, addressing long-standing previous neglect in consumer guarantees and fostering equitable access for all. Thereby contributing to the development of a comprehensive telecommunications framework.

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Background

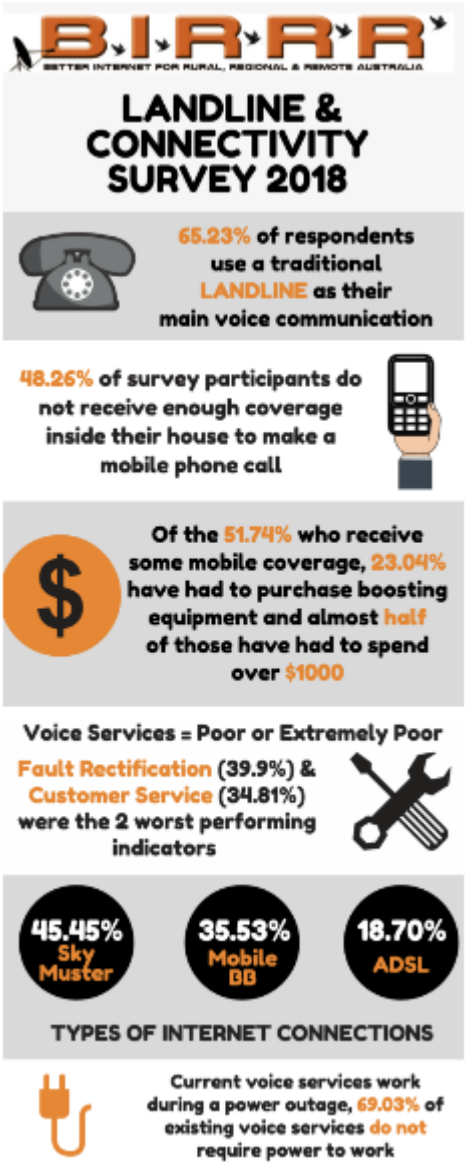
Better Internet for Rural, Regional, and Remote Australia (BIRRR) thanks the Federal Government for the opportunity to contribute to the review to enhance the delivery of universal telecommunications services. As a collective voice representing rural, regional, and remote (RRR) communities across Australia, we recognise the critical importance of reliable and accessible telecommunications infrastructure in ensuring equitable access to essential services. BIRRR is a grassroots, not-for-profit, technology agnostic, apolitical and independent volunteer support, advisory and advocacy group dedicated to improving telecommunications services in RRR areas of Australia. Founded by Kylie Stretton and Kristy Sparrow in 2014, BIRRR emerged in response to the challenges faced by residents of RRR communities in accessing reliable, quality and affordable connections.

BIRRR aims to address the digital divide between urban and rural areas by advocating equitable access to affordable, high-quality telecommunications infrastructure and services with stringent consumer support and service guarantees. Our volunteers are passionate about improving connectivity and connectivity literacy in RRR Australia. BIRRR offers a supportive, moderated online community where individuals can share their experiences, ask questions, and seek advice on Internet and telecommunications-related issues. Currently, our Facebook group comprises 15,500 engaged and active members. We foster collaboration and knowledge-sharing among RRR consumers, empowering them to advocate for their connectivity needs and navigate the challenges of improving telecommunications access, affordability and reliability.

BIRRR collaborates with government agencies, telecommunications providers, industry stakeholders, community organisations, and advocacy groups to drive positive change in the RRR telecommunications landscape by raising awareness of the challenges faced by RRR communities and lobbying for solutions that address these issues. BIRRR provides information, resources, and support to individuals and communities seeking to improve their connectivity through our website, infographics, comparison tables, guides and tips, and robust discussions. We are members of the Rural, Remote and Regional Communications Coalition (RRRCC), Australian Communications Consumer Action Network (ACCAN) and Telecommunications Association (Telsoc) and work closely with the Regional Tech Hub (RTH).

Introduction

Figure 1: BIRRR Survey



BIRRR welcomes the government's commitment to reforming the existing universal telecommunications framework. Our members, who reside in some of the most geographically isolated areas of the country, have long advocated for improvements to the quality, reliability, resiliency, and affordability of telecommunications services. In particular, BIRRR members have expressed concerns about the limitations of current voice and broadband solutions and the lack of consumer guarantees. Whilst the USO was designed to ensure that voice services in these locations are accessible, with consumer guarantees that protect consumers' rights, consumers have been regularly let down by non-enforcement of these obligations. RRR telecommunications are often plagued with issues, regular faults and poor consumer experiences, which are difficult to resolve.

In 2018, the BIRRR Connectivity and Landline Survey [1] highlighted that over 65% of respondents still use a traditional landline as tl primary voice service, and over 41% stated that their landline s working more than three times per year (Figure 1). Often, thes faults are reoccurring, resulting in consumer frustration and fati A recent poll on the BIRRR Facebook group (Figure 2) highlight shift in how consumers access voice services. There has been a significant move to wi-fi calling, mobiles and mobiles with antennas or boosting equipment because of ongoing faults or issues with existing landlines, even with priority assistance. Additionally, affordability concerns and preference for mobile services have

[1] *https://birrraus.com/submissionssurveys/birrr-surveys/*

impacted consumers' choice to move away from traditional landline services.

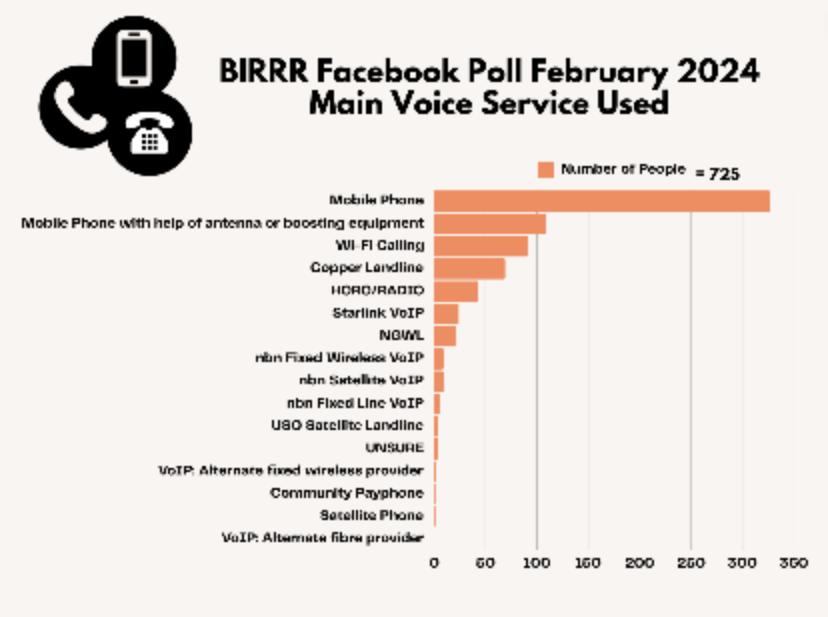


Figure 2: BIRRR Facebook Poll February 2024 - Main Voice Service Used

Comments by BIRRR members participating in this poll (Appendix 2) are indicative that existing Consumer Service Guarantees (CSG) provided under the USO have not been adequate to protect consumers, and this has contributed to the decline in number of landline connections, as consumers move to emerging and new technologies. BIRRR holds concerns that these new technologies do not fall under existing USO standards and have not been proven or tested; therefore, consumers have no protections or guarantees when things go wrong. BIRRR research has also highlighted that often, consumers who can afford to move to alternate voice solutions are also able to afford new equipment (such as mobile repeaters or new Starlink kits) when issues arise. However, those with traditional landline issues who can not afford newer technologies or expensive boosting equipment, are being left behind. Additionally, BIRRR is concerned by the number of consumers placing all their eggs in one basket and using one technology for both voice and broadband, particularly in areas with no mobile coverage, as this offers no redundancy in communications.

Connectivity literacy[2] refers to the ability of individuals and communities to understand, navigate, and effectively utilise telecommunications services. It encompasses a range of knowledge and information, including understanding different types of broadband and voice connections, plans, equipment and providers and troubleshooting common connectivity issues. BIRRR has played a significant role in

[2] *https://birrraus.com/connectivity-literacy-2/*

formulating and developing the concept of connectivity literacy by recognising that whilst access to telecommunications infrastructure is crucial, it is equally important to ensure telecommunication providers are consumer focused and empower individuals with the knowledge and understanding to get and stay connected.

Telecommunications is complex, with various types of internet and voice technologies, network configurations, plans, providers and equipment options available. Providers are often biased towards the technologies and products they sell and may assume that consumers have the technical knowledge to understand these complexities and make informed decisions about their connectivity needs. However, many consumers in RRR areas lack the necessary expertise to navigate these complexities effectively. There is an expectation that a consumer can navigate their way through a diverse and complex maze of technologies, plans, equipment offerings and troubleshooting requirements. These expectations can create significant barriers to accessibility, particularly in remote areas, where access to reliable services, information and technicians is already limited.

BIRRR believes that as technology evolves and traditional telecommunications infrastructure ages, there is a growing need to explore innovative alternatives that will address the unique challenges faced by communities outside of major urban centres. These alternatives must come with strengthened and more robust consumer guarantees and reporting metrics that make it easier for consumers to get connected and stay connected, so that all Australians, regardless of their geographic location, have access to quality, reliable and affordable telecommunications services. Consumers and premises that are hard to serve, who require place-based and flexible solutions for a universal service framework, must be solved first in any modernisation or reform processes and it is imperative that these communities are consulted and solutions meet their needs.

1.0 Universal Service Framework

Universal coverage of telecommunications services in Australia is complex due to the vast and diverse geography of the country. Australia's population is concentrated in urban areas along the coast, while large expanses of land in the interior are sparsely populated or entirely uninhabited. Providing telecommunications infrastructure to remote and rural regions with low population densities presents significant challenges in terms of cost-effectiveness and logistical feasibility. Additionally, factors such as rugged terrain, extreme weather conditions, and Indigenous communities' unique needs further complicate efforts to achieve universal coverage.

Balancing the need for equitable access to communication services with the practical constraints posed by Australia's geographical and demographic diversity requires comprehensive planning, community engagement, innovative place-based solutions, and substantial investment. The present framework has resulted in heightened competition and varied technological solutions, managed independently by telecommunications providers and multiple Government investment programs. Rural and remote areas are now serviced by a patchwork of technologies, with varying degrees of consumer protection, particularly for broadband services. The current USF environment lacks coordinated mapping of service gaps and infrastructure planning based on community consultation and does not provide adequate protection for all consumers. Reforming the USF is necessary to prioritise consumer welfare and align provider objectives with societal needs to make the best use of available funding to deliver essential telecommunications services.

The telecommunications landscape in Australia, particularly in rural and remote areas, is undergoing profound changes driven by technological advancements and shifting consumer needs. While the USO historically focused on providing basic voice services, there's now a growing demand for broadband internet access and SMS capabilities. The removal of face-to-face essential services from rural and remote communities, including banks, healthcare, education, and government services, underscores the increasing and critical reliance on online access for consumers, often requiring two factor authentication (2FA).

Many rural and remote consumers have historically had redundancy in communications, via a landline phone and separate broadband service. This differs from metro and regional areas who currently via

nbn fixed line and in the past through Asymmetric Digital Subscriber Line (ADSL), have had voice services and broadband delivered through the same technology. In remote regions where mobile coverage may be unreliable or nonexistent, alternative communication options such as landline phones are indispensable and provide redundancy. Redundancy in communications provides an essential backup mechanism when primary communication channels fail, enabling individuals to reach out for help to access vital services. RRR consumers often do not have access to community wi-fi or neighbours when things go wrong, it is also these consumers who have less reliable and affordable solutions for redundancy. As new and at times, less reliable telecommunications are introduced, it has become critical for consumers in Australia to have redundancy in telecommunications to ensure access to essential communication channels, particularly in emergencies. Redundancy is also important as enforcement of existing consumer protections and safeguards have not adequately protected consumers, particularly those in RRR areas. Without redundancy, RRR consumers often can not lodge a fault or contact their provider if their primary service stops working.

BIRRR is supportive of a reformed USF that provides universal access to communications redundancy, consumers may choose not to require redundancy, however it is critical that it is made available universally to all consumers. In particular attention should be given to ensuring access for vulnerable demographics such as Indigenous populations, people with disabilities, socioeconomically disadvantaged groups, the elderly, priority assist consumers and those residing in remote or underserved areas. The current SIP regime mandates universal access to broadband, we are proposing that a reformed USO is kept as a separate obligation, with stringent delivery criteria that protects consumers, especially those who have previously been deemed ‘hardest to serve’.

2.0 What should a reformed Universal Service Framework (USF) deliver?

A modern USF must recognise telecommunications as essential services to ensure a new USF is fit for purpose and protects consumers, regardless of where they live. BIRRR has identified the following key outcomes:

2.1 Access

Access has been discussed at length in Section 1 of this submission. A key outcome from the USF reform must be that a consumer, regardless of where they live, is aware of their right to order a voice service or communications redundancy service and expect to have this service installed or maintained and repaired in a timely manner, if things go wrong, without excessive troubleshooting or huge costs to the consumer. Solutions should be placed-based, with significant community engagement that considers the diverse needs of consumers. A technology agnostic approach will be needed that considers consumer's needs and environmental factors of those classified as 'hard to serve', such as location, terrain, power availability and topography. For example, First Nations communities have different needs and preferences than residents in larger towns and an individual living in an area with significant tree coverage may encounter issues with line of sight of satellite and fixed wireless services (see Gary's case in Appendix 5) .

Additionally, a significant barrier to accessibility is connectivity literacy. There is often a lack of awareness and information about telecommunications services and technology, particularly in remote communities where access to information and resources may be limited. Without access to comprehensive information and support networks, consumers may struggle to understand the available options, evaluate their connectivity needs, and make informed decisions about their telecommunications services and need for redundancy. The telecommunications industry places far too much emphasis on the consumer to be aware of their rights and what they can access. In many cases, telecommunications providers offer limited support and assistance to consumers, particularly those in remote areas. This can include insufficient customer service resources, long wait times for technical support and repairs, and limited availability of in-person or on the ground assistance.

Misinformation and disinformation by media, telecommunications providers and on social media can impact a consumers' knowledge and awareness of their options and rights. This is complicated by a complex landscape of resellers and installers who often mislead the consumer as to what technologies are available or make unsubstantiated claims regarding a technology they sell or install, in order to make a sale.

As a result, consumers may struggle to resolve connectivity issues or access necessary information about their services, creating barriers to getting and staying connected to both voice and broadband services.

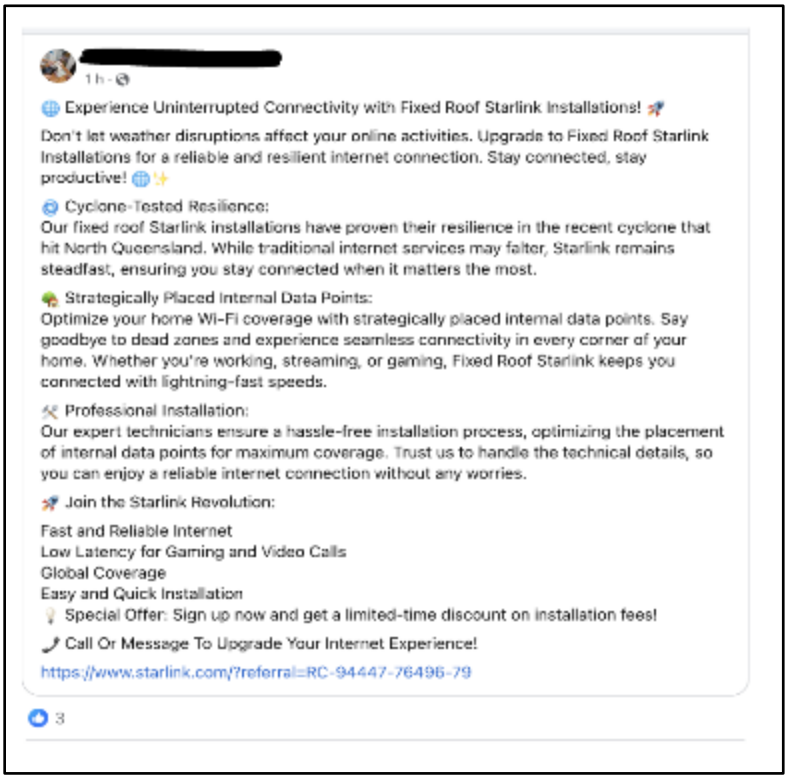


Figure 3: Example of a misleading Facebook post, upselling Starlink as 'Uninterrupted Connectivity'

2.2 Redundancy

A critical aspect of USF reform is the availability of affordable communications redundancy. Even when natural disasters and emergencies are removed from reliability metrics, there is still no technology currently that can provide a 100% uptime guarantee, which highlights the need for communications redundancy. For rural and remote areas who have traditionally been able to access communications redundancy through voice services, this may mean a hybrid approach that is flexible and adaptable to consumer needs and emerging new technologies. Consumers must be made aware of the need for redundancy and services must be affordable. Recent incidents such as the Optus outage affecting 000 calls and the Telstra 000 outage (Appendix 6) and their impacts highlight what can happen when adequate redundancy is not built into a critical system.

2.3 Reliability

A key outcome of a reformed framework is reliability, which necessitates the establishment of availability standards and stringent uptime requirements. These standards should consider various factors that can impact service reliability, including weather conditions, power outages, and network resilience. Voice and broadband services must meet a minimum standard of reliability equivalent to at **least** 99.99% availability, to ensure consistent access for consumers. A 'four nines' availability metric would relate to 4.3 minutes downtime per month or 52.56 minutes per year[3] (Appendix 4). BIRRR supports the establishment of service availability standards and strongly believes that measurement of delivery against an availability standard should be part of the CSG, particularly for the most vulnerable and hard to serve. New technology should be getting more and not less reliable.

A key outcome from the USF must be that a consumer, in a remote area, can make a voice call from inside their home, in a power outage or during a rain event.

USF services must be fit for purpose, place-based and designed to operate with maximum availability and uptime in Australia's weather conditions, specifically Northern Australia where monsoonal rain significantly affects satellite systems, due to atmospheric degradation which occurs on both low earth orbit (LEO's) and Geostationary Earth Orbit (GEO's). Appendix 1 highlights the downtime due to rain fade on a nbn Sky Muster and Starlink connection during a light storm in Central Queensland. Despite numerous requests from BIRRR, no telecommunications company has been able to present performance metrics to address the effect of rain on Starlink services. However, use of the Australian Competition and Consumer Commission (ACCC) Sam Knows monitoring white boxes by BIRRR members have shown that rain does have a similar effect on Starlink as it does on nbn Sky Muster connections. Telstra is already rolling out newer technologies such as 4G Fixed Wireless and Starlink voice services and believe that these technologies will meet existing USO requirements, however consumers and regional advocates are sceptical as no data or reliability metrics have been supplied to consumers or regional stakeholders. A reformed USF should ensure that terrestrial solutions for redundancy are fully explored.

[3] *https://uptimerobot.com/blog/what-does-999-uptime-mean/*

2.4 Service Quality

One of the primary objectives of a modern USF should be to ensure quality connections that meet consumer expectations. This includes addressing and monitoring of factors such as latency, packet loss, jitter, echo, noise, call drops, and download/upload speeds to ensure minimum standards of broadband and voice quality. For voice services delivered via Voice over Internet Protocol (VoIP), prioritising traffic to maintain voice quality should be essential and a standardised Mean Opinion Score (MOS)[4] used to ensure quality. Currently Low Earth Orbit (LEO) satellite system, Starlink, does not prioritise voice traffic and BIRRR are unsure of the specifics regarding Telstra's Starlink voice offering. During the Alternate Voice Service Trials (AVST), some nbn Sky Muster satellite trialist providers did not switch on Traffic Class 1 (TC1), voice prioritisation, leaving consumers with a poor experience of the product and voice services that often did not work.

TC1 is primarily used to support voice services, specifically Voice over IP (VoIP), and is designed to provide access to the following features: A Committed Information Rate (CIR) at the wholesale level – designed to support voice communication quality.[5]

A reformed USF should have rigorous minimum service quality standards that ensure consumers can access quality telecommunication services, regardless of where they live.

2.5 Network Resilience

Resiliency is a critical component of a modern USF, particularly in areas prone to natural disasters or power disruptions. Consumers in remote regions must have access to redundancy to mitigate the risk of communication failure. Additionally, telecommunication companies, especially those operating in rural and remote areas, must ensure that infrastructure has power redundancy and is resilient. To ensure public safety, deliver essential services, support economic development, and promote community wellbeing robust infrastructure and contingency plans must be invested in to ensure that rural and remote communities have access to reliable and uninterrupted telecommunications services.

[4] *https://obkio.com/blog/measuring-voip-quality-with-mos-score-mean-opinion-score*
[5] *https://www.nbnco.com.au/business/product-and-technical-information/nbn-ethernet/traffic-class-1#:~:text=Each%20traffic%20class%20has%20a,to%20support%20voice%20communication%20quality.*

Current voice services that operate independently of external power sources (such as copper lines and High Capacity Radio Concentrator services (HCRC)) provide redundancy and reliability during power failures, ensuring that consumers have access to communication options even when electricity is unavailable. This redundancy is particularly important in remote areas where power outages may be more frequent or prolonged due to factors such as extreme weather, infrastructure limitations, or geographic isolation. For example, during the 2021 Regional Telecommunications Independent Review (RTIRC), BIRRR admin and RTIRC Deputy Chair, Kristy Sparrow, experienced 36 separate power outages, often lasting over several hours in duration. These were not due to extreme weather or natural disasters, but are an example of the state of rural and remote power supply. Without power redundancy (in this case a generator), Kristy would have no form of communication as her NextG Wireless Link (NGWL) landline, Starlink connection, nbn Sky Muster connection, 3G mobile coverage via a smart antenna and even her UHF all require power to work.

A reformed USF must encourage resilient networks, separate backhaul pathways and power redundancy at towers, ground stations, exchanges and consumer premises.

Voice services are often the primary means of communication during emergencies, disasters, power supply issues and extreme weather when other forms of communication, such as internet-based services, may be unavailable or unreliable. In rural and remote areas where access to emergency services may be limited, landline phones (particularly copper and HCRC) are often a lifeline for residents to call for help or assistance during power outages. Maintaining a communications service that works during power outages ensures that residents can stay connected and informed during emergencies. Landline phones also serve as a reliable communication tool for sharing important information, coordinating response efforts, and providing support to neighbours and community members in need.

The ability to have a communications service that can operate independently of external power sources ensures that critical communication channels remain accessible to vulnerable populations, including the elderly, people with disabilities, and those with chronic health conditions. As such, having access to communications redundancy, via a connection that operates independently of external power sources is a feature that should be preserved and prioritised in any new universal service framework. If newer technologies that require power are to be used in a USF, affordable backup power solutions must be made accessible to consumers. Figure 4 shows and example of a backup power source that could power Starlink or nbn Sky Muster equipment for 18 hours if fully charged

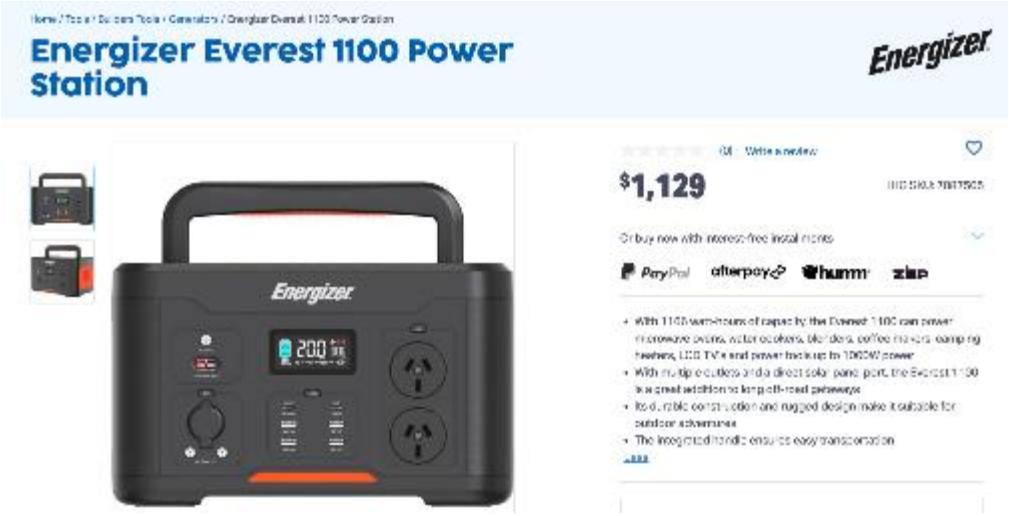


Figure 4: Example of a backup Power Source [6]

2.6 Customer Service Guarantee Benchmarks for Universal Service Obligation Providers

Any alternative voice service under the USF must offer enhanced benchmarks for consumer protection. Reporting mechanisms for USO providers should be robust and include detailed reporting on when a USO provider does not meet their obligations. BIRRR proposed in the recent thematic review that CSG benchmarks be increased to at least 95%, if not higher, and that provider performance continues to be monitored and reported on, at least against the existing urban, rural and remote categories, if not more granular categories, so any rural and remote under-performance is clear. BIRRR strongly supports transparency and compliance reporting and escalating fines when faults reoccur. In particular, BIRRR considers that there should be greater visibility, analysis and action on connections and repairs that fall in the 'tail' (i.e. those cases falling outside the current 90% CSG benchmarks).

Providers should have the ability to remotely monitor technical parameters, so when a consumer is having issues they can remotely diagnose and help fix these without a heavy emphasis on the consumer completing excessive troubleshooting.

[6] *https://www.mitre10.com.au/energizer-power-station-1100-everest-7087505*

2.7 Consumer Information & Guarantees

The existing USO consumer safeguards need to be strengthened and enforced to protect vulnerable consumers. A consumer-centric approach is crucial for designing a modern USF that meets diverse consumer needs. Telecommunications services should be user-friendly, with plug-and-play installation and comprehensive support guides. Key features like call waiting, answering service, and caller ID should be included at no additional cost, along with robust guarantees for fault reporting, repair times, and compensation for service disruptions. Urgent reform is needed for connection and repair timeframes to reflect modern transport methods, roads infrastructure and the essential nature of communication services. Strengthening existing consumer safeguards is necessary to protect vulnerable consumers.

It is imperative that consumers, regardless of location, can easily order connections and report issues for repairs within guaranteed timeframes. Service disruptions can have severe consequences for remote and rural consumers due to limited alternatives and longer response times. Redundancy and stringent consumer protections are essential to mitigate the risk of prolonged communication failures. The migration to new services like 4G Fixed Wireless and Starlink voice has faced challenges, including long wait times and billing errors, underscoring the need for transparent information and enhanced consumer guarantees. Equal access to services without billing or account limitations is crucial for residential customers with small business accounts, particularly for rural businesses. Consumers need clear and transparent information about services, including outages, costs, equipment, troubleshooting, support options, repair timeframes, and compensation. Interim services offered during faults should enable consumers to make voice calls without technical expertise and actually work at the customer's location.

A key outcome of a reformed USF must be that a consumer or small business can order a connection, regardless of where they live and easily report any issues, so that repairs can be undertaken within minimum service guaranteed time frames. If recurring faults occur, a consumer must be able to have these addressed without delays and frustrations.

For remote and rural consumers, the consequences of service disruptions can be particularly severe due to limited alternatives and longer response times for repairs. BIRRR survey data[7] has highlighted that

[7] *https://birrraus.com/submissionssurveys/birrr-surveys/*

often remote residents can go many months without voice or broadband services, with faults often recurring and requiring extensive troubleshooting from a consumer to resolve. Any fault finding and repair of a broadband service requires intensive involvement by the consumer and the provider, often for extended periods, with repair times measured in weeks and not days. The end user is intricately involved in the troubleshooting required to solve the issue, particularly with nbn fixed wireless and nbn satellite connections, a fault cannot be lodged by the provider until this fault finding session (usually occurring over a Plain Old Telephone Services (POTS) landline) occurs. A neighbour or friend cannot simply report the service as out of order, and an end user needs to be physically at the location of the installation with a reliable voice service in order to troubleshoot. Likewise, in order to report a fault on a Starlink connection, a user must have access to an alternate form of broadband to lodge a ticket. Therefore, it is crucial for RRR consumers to have access to redundancy and to have stringent and enforced consumer protections to mitigate the risk of prolonged communication failures.

2.8 Affordability

Ensuring affordability of redundant communication options is essential for universal access to telecommunications services. While household spending on telecommunications services has decreased over the years[8] affordability remains a significant concern, especially for vulnerable cohorts and those in rural and remote areas. Despite the overall decline in spending, individuals in these regions often face the need to cobble together and pay for multiple telecommunications connections due to the unreliability of available options. Consumers may also need to purchase expensive repeaters and antennas, modems or routers to get connected. This financial burden disproportionately affects already marginalised communities, hindering their ability to access essential communication services. Therefore, ensuring affordability of redundant communication options is crucial for promoting universal access to telecommunications services for all Australians, irrespective of their geographical location or socioeconomic status. Affordability measures must not only include monthly plan costs but also the cost of equipment (routers, modems, antennas etc) and installation, as it is often these costs that prevent consumers from accessing services. Pre-paid options must be available for consumers, particularly those in First Nations communities and low-income consumers.

[8] *https://www.infrastructure.gov.au/sites/default/files/documents/australian-households_-affordability-telecommunications-evidence-household-income-labour-dynamics-australia-hilda-data-working-paper-november2023.pdf*

2.9 Service Requirements - SMS, number portability & voice prioritisation

Universal access to SMS messaging capabilities is crucial within a reformed framework, facilitating communication across personal, financial, governmental, and emergency contexts. SMS serves as a vital component of telecommunications in Australia, used extensively for Two-Factor Authentication (2FA), appointment reminders in healthcare, service updates, and emergency alerts. SMS alerts can reach a large number of people rapidly, helping to ensure timely and effective communication in critical situations. Despite workarounds like bank tokens or Wi-Fi calling, access to SMS is not universally seamless, with compatibility issues and reliability concerns reported. Consumers need access to compatible devices and providers and even then, SMS over wi-fi can be glitchy and there is a lack of support from providers in addressing issues. It is often wrongly assumed that all Australians have universal access to SMS, when this is not the case. Ensuring universal access to SMS services is imperative to support the digital needs of all Australians and promote inclusivity across various communication channels.

Voice prioritisation is crucial in a reformed USO, especially for services delivered via VoIP, as it ensures reliable and high-quality voice communication. By prioritising voice traffic, particularly in situations of network congestion or limited bandwidth, VoIP services can maintain clear and uninterrupted voice calls, essential for emergency communications, health consultations, and remote learning. Additionally, prioritising voice ensures equitable access to essential communication services for all users, regardless of their location or technological capabilities, thereby upholding the principle of universal access.

In a reformed framework, adopting a technology-agnostic approach to ensure that consumers can order and maintain an affordable voice service will be critical. Voice services serve as a fundamental means of communication for many individuals, particularly those in rural or remote areas with limited access to alternative technologies. Secondly, standalone voice services offer simplicity and reliability, catering to the needs of diverse consumer demographics, including the elderly and technologically marginalised groups. Mandating voice only service availability under a reformed USO remains essential for upholding universal access to telecommunications services.

Number portability is a service requirement that should be considered essential in a reformed framework, due to its significant impact on consumer choice, competition, and accessibility in the telecommunications

market. By enabling consumers to retain their phone numbers when switching service providers or changing locations, number portability enhances competition among telecommunications companies, encouraging them to offer better services and pricing to attract and retain customers. Additionally, number portability empowers consumers by eliminating barriers to switching providers, ensuring that they have the freedom to choose the best services that meet their needs without the inconvenience of changing phone numbers. Inclusion of number portability in a USO promotes fairness, transparency, and efficiency in the telecommunications sector, ultimately benefiting consumers and fostering a more competitive and accessible marketplace.

Wi-fi calling is increasingly being used by consumers to make voice calls. Wi-fi calling, whilst useful for consumers without mobile service or in marginal coverage areas, does not provide redundancy. Wi-fi calling also requires the consumer to have a compatible handset and mobile provider. On certain technologies, particularly those with high latency, wi-fi calling can have a delay and mobile handsets need to be placed in aeroplane mode to prevent the device from searching for networks.

3.0 Mobile Services

Mobile services play a crucial role in complementing fixed services supported under the existing universal services framework in Australia, but there are significant limitations and challenges. While there may be a strong consumer preference for mobile services overall, due to their flexibility and mobility, relying solely on mobile networks as a replacement for fixed voice services in RRR areas raises several concerns and practical difficulties including:

Figure 5: Mobile Speed test, Esperance, WA 16/2/24

- Mobile coverage is not available to all Australians, only covering 33% of the Australian landmass[9]. Many rural and remote premises and First Nations communities lack adequate, reliable mobile coverage.
- Mobile networks in rural and remote areas often experience high levels of congestion and degraded experiences, particularly during tourist season or when an influx of devices try to access the tower, such as local events, festivals and when contractors move into an area.
- Even where coverage is available, it may be insufficient for making or receiving calls inside buildings without significant investment in signal repeaters or antennas by consumers. Over 48% of respondents to the BIRRR Connectivity and Landline Survey in 2018 did not receive enough signal inside their residence to make a voice call and almost half of those respondents who had mobile coverage, had needed to purchase their own antenna or repeater to enable coverage inside their homes[10].
- Our members often state their mobile coverage is patchy and unreliable and have concerns regarding the future mobile footprint when the 3G network is shut down. Mobile coverage maps provided by carriers often do not accurately reflect user experience on the ground.
- There are currently no specific regulatory consumer safeguards around mobile coverage and capacity.
- Whilst direct mobile handset to LEO satellite technology looks promising, this will require line of sight to the sky, thus cannot be used indoors, and is limited in capacity when compared to terrestrial mobile solutions. It is not yet proven and is unknown how the service will perform in extreme weather or rain events or if specific handsets and providers will be required.
- Other factors such as the differences between indoor and outdoor reception, specific device compatibility, boosting equipment and antennas, terrain, topography, vegetation and building design and construction can all affect mobile coverage and a users' experience.
- Mobile infrastructure in regional areas is prone to resiliency issues, with few rural and remote towers having back-up power.

[9] *https://www.infrastructure.gov.au/sites/default/files/documents/2021-rtirc-report-a-step-change-in-demand.pdf*
[10] *https://birrraus.com/submissionssurveys/birrr-surveys/*

- BIRRR is concerned about who would be responsible for declaring that a particular location had indoor mobile coverage and what factors would be taken into consideration.

Whilst BIRRR does not agree that mobile services should form part of a USO, dedicated fixed mobile services (such as Telstra's 4G fixed wireless) with voice prioritisation, could form part of a redundancy option, for those in marginal coverage areas. This would require mobile carriers to meet benchmarks for criteria such as signal strength and congestion. Minimum standards in regard to reliability, affordability, accessibility, quality of service (QoS) and repair times would need to be met for fixed mobile technology to be included in a reformed USO. Additionally, regulatory standards and safeguards should be established to address the practical difficulties associated with providing fixed mobile services in RRR areas, including issues such as power redundancy, network congestion, and indoor coverage limitations.

4.0 Payphones

Payphones continue to play a crucial role in ensuring universal access to telecommunications services, particularly in RRR areas where access to mobile and fixed-line services may be limited or unreliable. As outlined in the discussion paper on the better delivery of universal services, payphones serve as essential communication lifelines for individuals who may not have access to alternative means of communication, such as displaced or homeless persons, travellers, those in situations of abuse or domestic violence, those unable to afford their own communication method and during times of natural disasters and emergencies. In situations where mobile networks may be overloaded or experience outages, payphones provide an additional communication option. Over 2 million payphone calls are made each month in Australia[11], since Telstra made standard local and national calls from Payphones free.

In RRR areas, where mobile coverage may be patchy or unreliable, payphones provide a reliable and accessible communication option for residents, visitors, and travellers. They serve as critical

[11] *https://www.telstra.com.au/exchange/payphone-usage-is-surging-with-nearly-two-million-free-calls-bei*

infrastructure for emergency communication, enabling individuals to contact emergency services, seek assistance during emergencies, and stay connected with loved ones during times of crisis. Additionally, payphones play a vital role in facilitating access to essential services and resources, such as healthcare providers, government agencies, and helpline support services, for individuals who may not have access to personal communication devices or internet connectivity. Payphones are valuable for tourists and visitors who may not have access to local mobile networks or face challenges using their own devices due to roaming restrictions. Community wi-fi is particularly useful for those who may not be able to afford a fixed home connection and in first nations communities where there is a lack of affordable prepaid solutions.

As payphones contribute to the redundancy and resilience of the overall communication network in RRR areas, efforts should be made to enhance the functionality and usability of payphones to meet the evolving needs of users, such as internet access (free wi-fi), charging stations and accessible phone booths for those with disabilities. Additionally, initiatives to improve the visibility, signage, and maintenance of payphones can help increase awareness and usage among community members.

In light of the importance of payphones in supporting universal access to telecommunications services, it is essential to ensure that payphone infrastructure is maintained, upgraded, and strategically located to meet the needs of communities, particularly in RRR areas. This may involve assessing existing payphone networks, identifying areas of need, and prioritising investments in payphone infrastructure where gaps in coverage exist. No payphone infrastructure should be removed from a community without extensive consultation with users of the payphone service. Where applicable, payphones should use existing fixed line infrastructure that is independent of mobile networks, to ensure telecommunications redundancy in the area.

5.0 First Nations Communities

While the existing USO aims to ensure equitable access to telecommunications services for all Australians, including those in remote and rural areas, it often falls short in adequately addressing the

unique needs and challenges faced by First Nations communities. Factors such as remote location, inadequate infrastructure, cultural barriers, and socioeconomic disadvantage contribute to barriers in accessing voice services for First Nations peoples. Therefore, further efforts are needed to strengthen the USO framework to better cater to the specific needs of First Nations communities and ensure their rights to access essential services are protected effectively.

Additionally, SMS capabilities are increasingly vital for communication in today's digital age, offering a quick, reliable, and accessible means of exchanging information. Given the importance of SMS in facilitating communication for various purposes, including emergency notifications, healthcare reminders, Government services and community engagement, ensuring its availability to First Nations communities is essential for promoting inclusivity and enhancing connectivity. Therefore, extending a universal service guarantee to include SMS capabilities would help bridge the communication gap and ensure that First Nations communities have equitable access to essential telecommunications services.

Telecommunication solutions in First Nations communities need to be place-based, with community engagement to effectively address the unique needs, challenges, and cultural contexts of each community. By tailoring solutions to specific geographical locations and cultural identities, telecommunications providers can ensure that infrastructure development and service provision align closely with the local environment and community requirements. Place-based approaches enable the integration of indigenous knowledge, language, and customs into telecommunications initiatives, fostering greater relevance, acceptance, and sustainability within First Nations communities.

6.0 Emerging Technologies

Under a reformed USF any new and emerging technologies must be proven before roll-out, through trialling and testing, with stringent, publicly available performance metrics, particularly for voice services. BIRRR has concerns that even under existing USO protections, solutions are being rolled out with unknown engineering foundations and no prescriptive performance and quality metrics. Currently, USO consumers with copper landlines are protected by the Copper Continuity Obligation (CCO) from being guinea pigs for new and untested technologies, however those on HCRC, NGWL and USO Satellite services are not. Telstra is already rolling out new voice services to these rural and remote consumers

with no public data or performance metrics, and consumer concerns that these new technologies will not be USO compliant. Additionally, many consumers are not aware of their rights under the existing USO and are being told that their copper lines can't be repaired and they have to move to newer technologies, which is misleading.

BIRRR has significant concerns surrounding the use of Starlink LEO satellite services in Australia as a USO technology. There is a lack of accurate public data and performance metrics regarding Starlink resilience during disasters, as well as its ability to cope with Australian conditions, such as heat, smoke and rain fade, especially in northern Australia. Data provided by ACCC Sam Knows monitoring devices shows that some Starlink connections can be prone to drop outs (see Appendix 3). As for any shared delivery medium, Starlink services may suffer from service limiting congestion[12] in Starlink cells with high numbers of active customers and lead to potential deprioritization of services and capped speed plans. There are also concerns about the lack of voice prioritisation and poor support. Even if Australian telcos offer Starlink services, it is not their network and adds another step in the troubleshooting processes for consumers. Moreover, the sovereignty of internationally owned companies, like Space X's Starlink, pose additional uncertainties, particularly due to their lack of public reporting, accountability, and oversight. The recent setback in the United States[13], where federal funding was withdrawn due to technical concerns, underscores these apprehensions and raises questions about the suitability of Starlink as a universal service delivery platform in Australia. Given the lack of transparency and potential risks associated with privately owned companies like SpaceX, investing public funds without full independent auditing, data analysis and disclosures could be considered irresponsible, as it could lead to uncertainty regarding future price points, quality, market availability, and long-term strategic planning.

Furthermore, the migration from Telstra's NGWL services to 4G Fixed Wireless and in the future, Starlink voice services has been plagued with issues including long wait times, billing bungles, lack of transparent information, same number porting issues, confusion around equipment and plans, account authority issues and an unco-ordinated migration plan. This highlights the need for consumer information to be transparent and consumer guarantees to be increased and enforced. One consumer was told during the

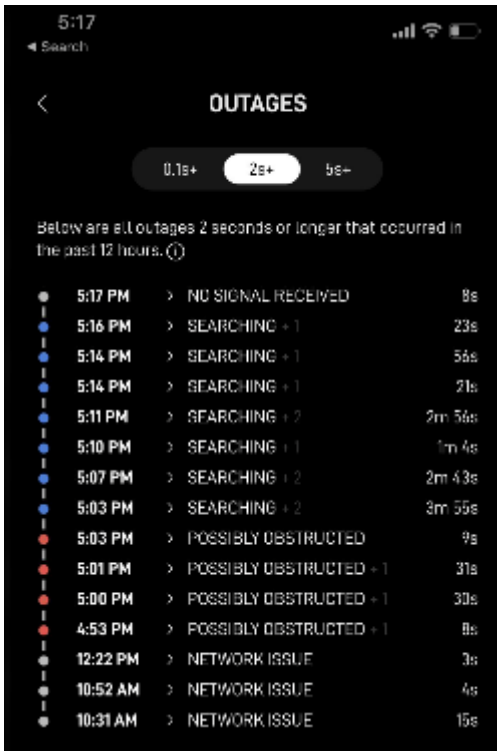
[12] *https://www.reddit.com/r/Starlink/comments/19243fe/starlink_congestion/*
[13] *https://www.reuters.com/technology/space/us-agency-will-not-reinstate-900-mln-subsidy-spacex-starlink-unit-2023-12-13/*

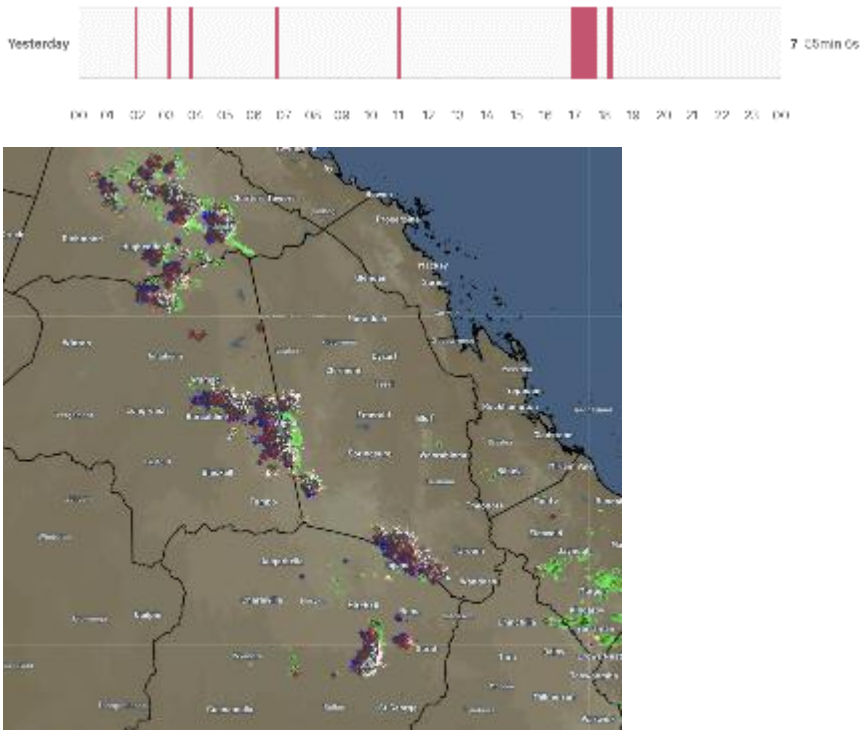
migration process that she ‘can’t get nbn’ at her location, which is something we hear regularly at BIRRR, with misleading information being provided by telcos in order to sell their products and services.

Maintaining the CCO within a reformed USO for telecommunications is crucial until proven alternate technologies are widely available. With over 280,000 consumers still reliant on copper infrastructure and recent issues arising from the migration of over 5000 Telstra NGWL consumers, concerns persist regarding Telstra's ability to meet existing USO requirements with emerging technologies. The CCO ensures uninterrupted service for consumers dependent on copper infrastructure, safeguarding connectivity until reliable alternatives are established at scale. Removing this obligation prematurely risks leaving consumers without essential telecommunications services, underscoring the necessity of its continuation until viable alternatives are thoroughly tested and accessible.

Appendix 1: Rainfade on an nbn Sky Muster and Starlink Service in Central Queensland

The image below shows Starlink outages as recorded at Malden Station, Alpha, Central Queensland on 5th November 2023 during a short storm. Rain began falling at approximately 4.50pm. During this time period lightning strikes caused several fires, the community were able to communicate via their HCRC and NGWL landlines and UHF. When the power went out, those without a generator or alternate power source only had their landline to communicate with. **Neither nbn Sky Muster or Starlink were able to be used for voice calls.** The second image highlights outages recorded by Sam Knows on nbn Sky Muster at the same location during the storm. The third image is a screenshot of the rain radar and lightning tracker in what was a fairly typical storm for central Queensland in the wet season.





Appendix 2: BIRRR Facebook Poll on Landline Services Used in RRR areas

February 2024

POLL 1

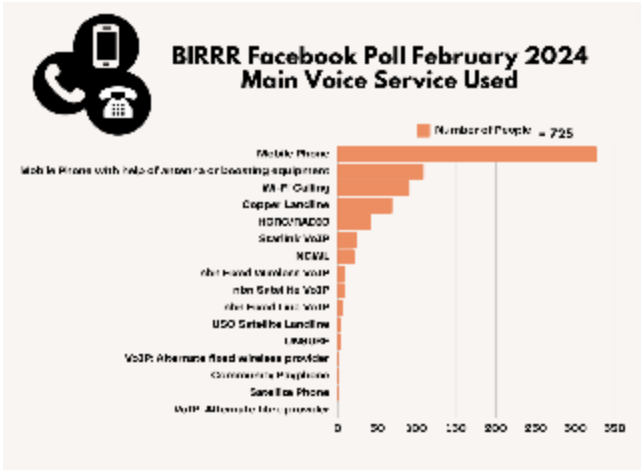
What is your main voice service ?

Which of the following connections do you USUALLY use to make voice calls MOST of the time.

- If your main voice service is wifi calling via your mobile phone being connected to your home internet, please select wi-fi calling and NOT the technology that delivers your wifi.
- If your main service is VOIP (voice over internet protocol) - please select the technology that delivers this e.g. Starlink, nbn fixed wireless, nbn fixed line
- If your main voice service is mobile phone, please select - with repeaters, antennas or other boosting equipment if you need extra equipment to allow voice calls inside your home.

PLEASE SELECT ONE ONLY

Any questions please comment below 🙂



Poll analysis

The BIRRR Facebook poll showed a significant number of respondents relying on mobile phones and wifi calling for their main voice service. This was correlated with comments on the post that highlighted a large number of consumers being forced to rely on other technologies as their traditional landline was not reliable, currently out of order and awaiting repairs or they had been told by Telstra they could not access a landline. There was limited understanding of VoIP over all technologies, which has affected the data collected. For example, of those who selected VoIP over Starlink, a large number are known to admin and are actually using Wi-Fi Calling. Third party providers offering VoIP and the set up process are generally not well understood amongst our membership and RRR consumers. The poll also highlighted that many consumers are confused about how their voice service is provided, which creates issues when faults occur. Additionally, individuals who have businesses that profit from selling a certain technology are often biased when answering polls on Facebook.

BIRRR Member Comments on Landline Phone Poll

I ticked WiFi calling over broadband(to be specific fixed wireless) only because my copper line is so unreliable even though I have a medical priority listing. Even when it is working the line can have a crossover, be patchy, echo, hum etc. Our road is still in a mobile blackspot even with a purpose built blackspot tower (we all had 'service' for 3 days during testing then nothing when it was set to 'running' parameters).

Julatten, QLD

We only have a landline. No mobile reception. We can use wifi for our mobiles but it is very laggy. Recently we were excited to see Telstra building something we assumed was a mobile repeater tower near our telephone exchange (which is so old it is the one that replaced the manual switchboard). Unfortunately we now think it is some satellite thing and we will lose our landline. Extremely concerning to us as just this week we had to use our landline to call an ambulance for a shearer. The very next day was a blackout so without power we would have had no way to call without our really old plug in phone.

Warraderry, NSW

Many of us wish we still had the old style copper pre NBN (ours are mainly Fibre to the Node).
Hit by the huge storm front in Vic last week we could not make contact to anyone even via out Mobile Phones because the towers were either out or overloaded - mobile showed 3G but we were all in the dark and left to fend for ourselves.
Highlights how much danger we are in if other disastrous fire, medical or weather events impact.
I was lucky only a huge branch down that hit my roof so no injuries but thousands weren't that lucky - again we/they had no way of alerting anyone we/they were in dangerous situations with houses totally destroyed just like those poor victims of the storms (many with power still out) and our current fires near Ballarat.
Appalling communication infrastructure for a so called First World Country.

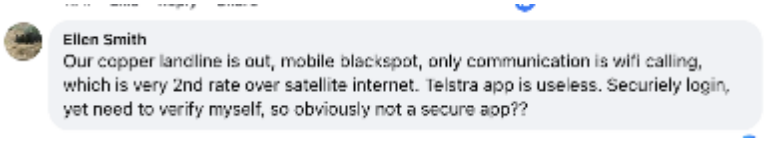
Gisborne, Victoria

Kristy Sparrow copper wire, steung across some trees, it was running across the creek bed.
Telstra tec said way to many services on the line and telstra won't upgrade the Gin Gin exchange, trying to force us to buy satellite phones which I can't afford.

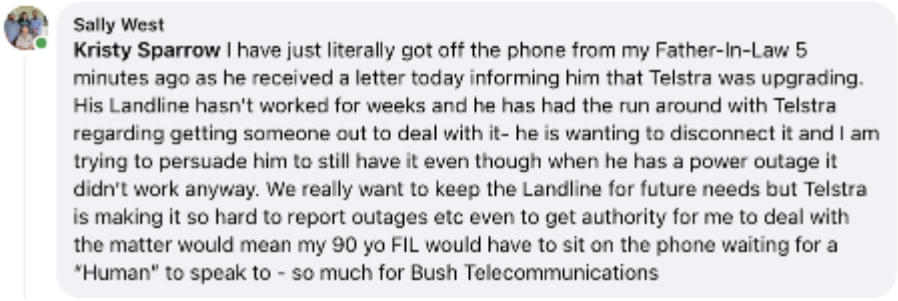
Gin Gin, QLD

We have one home on our property that has a copper landline which is always out of order, our other home only has NGWL option. We have gone completely mobile with a celfi and yagi antenna.

Tenterfield, NSW

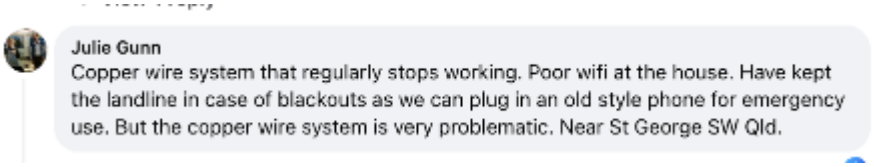


St George, QLD



Roma, QLD

Nannup, WA

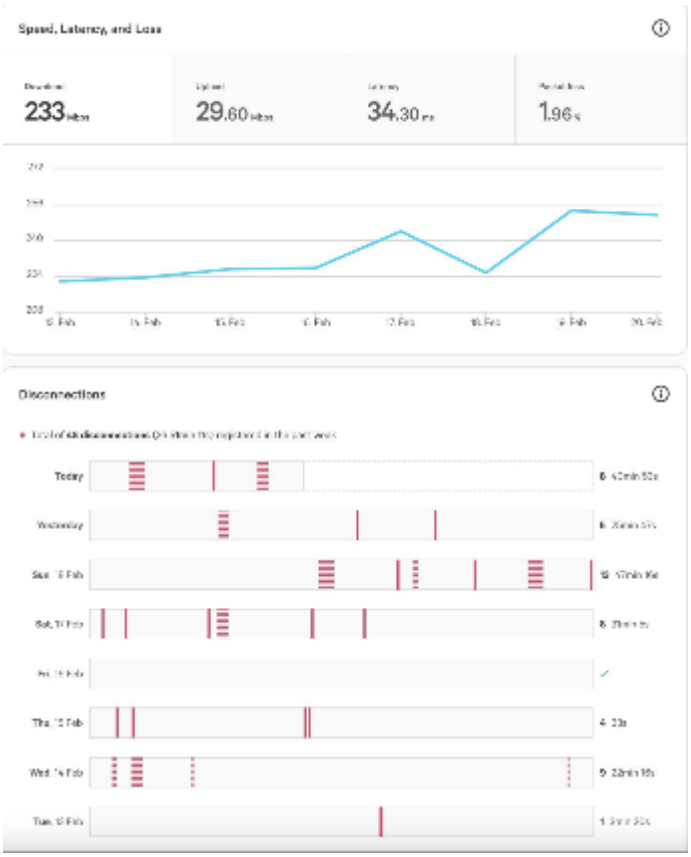


St George, QLD

Hughenden, QLD

Appendix 3: South West Victoria, Starlink service downtime with no obstructions

This Starlink service in South West Victoria shows significant packet loss / downtime, despite the equipment having no obstructions and the service being professionally installed. Results from Sam Knows White Box (ACCC)



Appendix 4: Availability Chart

4 nines availability chart.

Availability %	Downtime per year	Downtime per month	Downtime per week	Downtime per day
90% ("one nine")	**36.5 days**	**72 hours**	**16.8 hours**	**2.4 hours**
95%	18.25 days	36 hours	8.4 hours	1.2 hours
97%	10.96 days	21.6 hours	5.04 hours	43.2 minutes
98%	7.30 days	14.4 hours	3.36 hours	28.8 minutes
99% ("two nines")	**3.65 days**	**7.20 hours**	**1.68 hours**	**14.4 minutes**
99.5%	1.83 days	3.60 hours	50.4 minutes	7.2 minutes
99.8%	17.52 hours	86.23 minutes	20.16 minutes	2.88 minutes
99.9% ("three nines")	**8.76 hours**	**43.8 minutes**	**10.1 minutes**	**1.44 minutes**
99.95%	4.38 hours	21.56 minutes	5.04 minutes	43.2 seconds
99.99% ("four nines")	**52.56 minutes**	**4.38 minutes**	**1.01 minutes**	**8.66 seconds**
99.995%	26.28 minutes	2.16 minutes	30.24 seconds	4.32 seconds
99.999% ("five nines")	**5.26 minutes**	**25.9 seconds**	**6.05 seconds**	**864.3 milliseconds**
99.9999% ("six nines")	**31.5 seconds**	**2.59 seconds**	**604.8 milliseconds**	**86.4 milliseconds**
99.99999% ("seven nines")	**3.15 seconds**	**262.97 milliseconds**	**60.48 milliseconds**	**8.64 milliseconds**
99.999999% ("eight nines")	**315.569 milliseconds**	**26.297 milliseconds**	**6.048 milliseconds**	**0.864 milliseconds**
99.9999999% ("nine nines")	**31.5569 milliseconds**	**2.6297 milliseconds**	**0.6048 milliseconds**	**0.0864 milliseconds**

Appendix 5: BIRRR Case Studies

Leila

Leila lives in a First Nations community in the Northern Territory, she has a basic pre-paid phone with Telstra that isn't compatible with wi-fi calling and SMS over Wi-Fi. Leila is unable to get the required SMS codes in order to sign into MyGov to report her fortnightly income as her device is not compatible with SMS over Wi-Fi.

George

George, aged 81 years, lives alone in a small township in Tasmania, he doesn't own and has never used a mobile phone. George transitioned to nbn FTTN during the roll out of the nbn and was supplied a voice service only. Recently George's daughter discovered that George's voice plan over nbn FTTN has been moved to a plan on the Telstra mobile network. George was apparently sent a letter, however he did not understand what this meant for his voice service. The mobile tower closest to George is prone to congestion and power supply issues, which has left George with no available communications systems. Prior to the Telstra change to George's voice service he had a failover service to the mobile network if the nbn FTTN connection dropped out. Now George has no redundancy in communications.

Lola

Lola lives in a rural area west of Rockhampton in Central Queensland, late last year she was told her copper landline could no longer be repaired and was informed she would need to move to Telstra's NGWL service. Lola has priority assist and the new NGWL service did not come with power redundancy, which during power outages (that occur regularly) has left Lola with no communications. Lola enquired as to getting a broadband service through Telstra and was told that 'nbn was not available at her address', which confused her as she had nbn Satellite installed and active.

Leah

Leah lives on a property in Central Queensland. Three surrounding properties had landlines delivered through a shared HCRC tower, until lightning hit the tower and created major issues. All three properties had their HCRC landlines replaced by Telstra's USO satellite service, despite 4G mobile coverage being available to all properties. The property owners report the USO satellite service doesn't work during rain, has poor voice quality, an echo and delay, which makes it impossible for one resident with hearing

aids to use. Telstra did not explain the technology they were installing and installed the dish directly outside her upstairs kitchen window, blocking her line of sight outdoors.

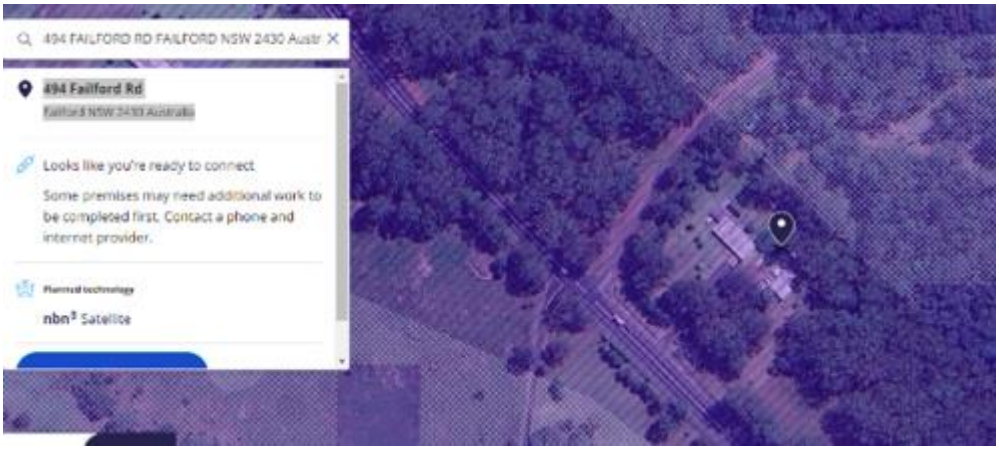
Gary

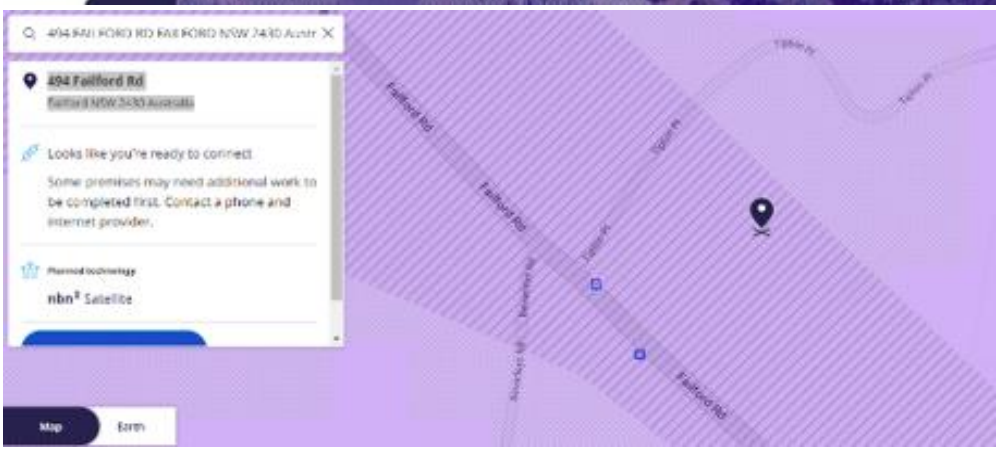
Gary lives in regional NSW and was previously mapped for nbn FTTN, however it was unable to be installed due to his distance from the node. Likewise nbn fixed wireless and nbn satellite were unable to be installed due to tree coverage. Last year Telstra disconnected Gary's copper voice service, and told him that due to the nbn rollout he needed to move to nbn. Gary has been going around in circles trying to get this resolved for many months. Telstra told him he would have to move to '4G fix wireless' for his voice service, however he has marginal mobile coverage and had concerns if this service would work reliably. BIRRR informed Gary that under the CCO Telstra would need to restore his copper voice service, which eventually was the outcome after much consumer frustration and time.

Six Maps

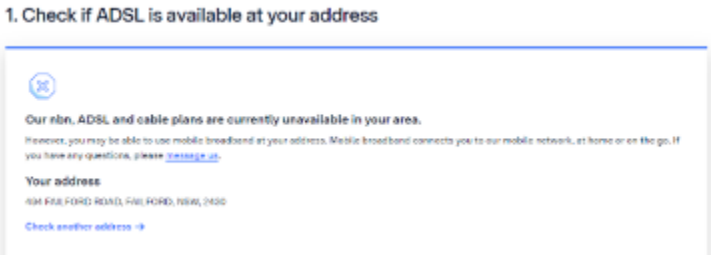
NBN Maps

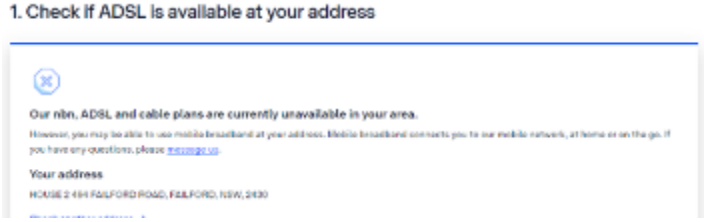
Note that they are classed as eligible to nbn satellite, yet in a FTTx shaded area





Telstra ADSL checker

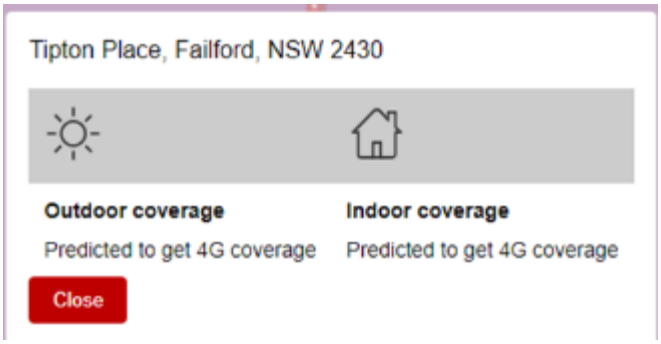




Too many trees to get a mobile signal.

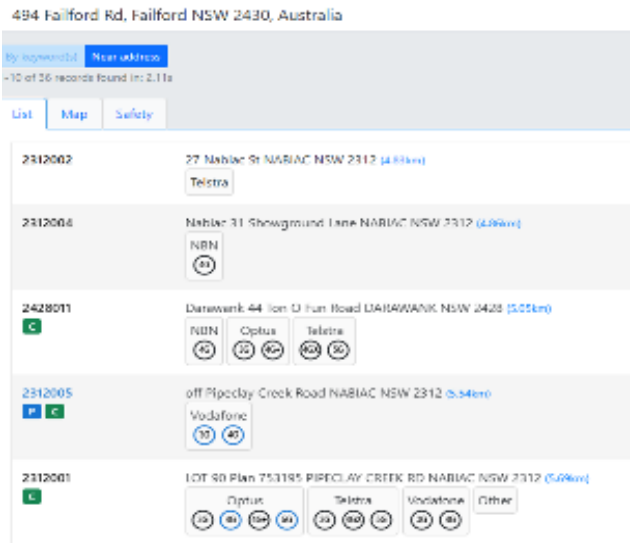
Telstra

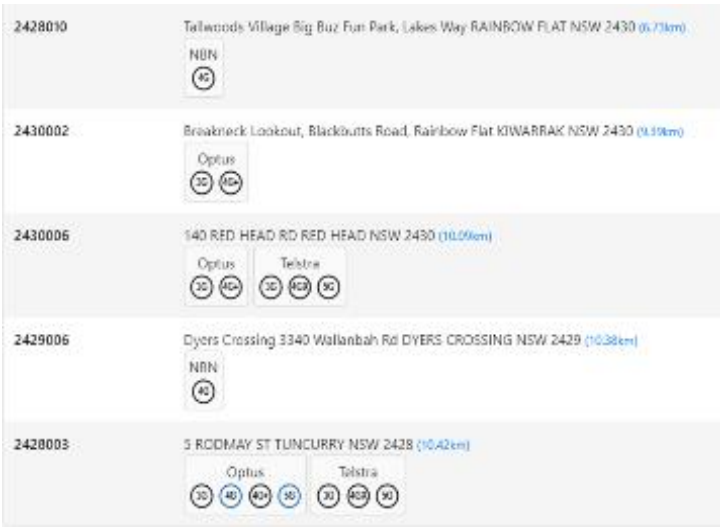
Vodafone



Optus

Towers in the area





Appendix 6: Example of why redundancy is needed in Emergency Situations

The Hon Michelle Rowland MP

Minister for Communications

STATEMENT

Telstra Triple Zero disruption

Earlier today, the Government was advised the availability of Triple Zero call transfers were impacted between 3:30am and 5:00am.

Of the at least 494 calls impacted, 148 calls were not able to be transferred to emergency services and information was relayed manually for a call back to occur.

The independent regulator, the Australian Communications and Media Authority, is undertaking an initial assessment of Telstra's compliance with its regulatory obligations.

The Government understands one of the impacted callers to Triple Zero has passed away due to a medical emergency. We are deeply saddened and our thoughts are with their family and friends.

The Government has sought information from Telstra as Emergency Call Person to understand the full impact of the disruption.

Whilst no service is 100 per cent immune from temporary disruption, measures must be identified to improve the resilience of the service and its backup processes.

The Government is committed to an effective and efficient Triple Zero emergency call service that provides reliable access to emergency service organisations.

FRIDAY, 1 MARCH 2024

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M: 0406 009 019 **E:** Adam Boidin@mo.communications.gov.au