

Triple Zero Legislative and Regulatory Review

Submission of NBN Co

30 June 2026



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1. Executive summary

nbn welcomes the opportunity to make a submission to the *Triple Zero Legislative and Regulatory Review (the Review)* and supports its objective of modernising the Triple Zero regulatory framework to reflect the significant and ongoing technological advancements within the telecommunications sector. A proactive and collaborative approach to the governance of the Triple Zero ecosystem will help ensure its continued relevance and effectiveness into the future.

This submission outlines nbn's role in supporting the reliability of Triple Zero services within Australia's telecommunications ecosystem. The key themes of this submission are:

- **The role of nbn as a wholesale, layer 2 provider:** nbn operates as a wholesale, largely layer 2 network that provides underlying connectivity only and does not deliver or manage voice services (including Triple Zero), with responsibility for voice and emergency calling residing with retail service providers (**RSPs**) and designated emergency service entities.
- **Management of network outages:** The submission outlines the causes, scale, and management of both planned and unplanned outages, ranging from routine maintenance to external disruptions such as power loss and severe weather, and highlights nbn's incident management processes, high network availability, and service restoration performance.
- **Outage notification frameworks and channels:** nbn employs structured, multi-channel notification mechanisms to inform RSPs, regulators, and stakeholders of planned and unplanned outages, including formal regulatory reporting obligations and publicly accessible tools such as its network status website.



2. Introduction

Reliable access to Triple Zero is a critical component of Australia's public safety framework. As telecommunications technologies evolve and voice services increasingly migrate to internet protocol (**IP**) based platforms, ensuring the resilience and continuity of emergency calling requires a clear understanding of the roles played by different participants across the telecommunications ecosystem.

nbn welcomes the opportunity to contribute to the Review's inquiries into the performance and reliability of emergency calling services. As the operator of Australia's national broadband access network, nbn provides the connectivity layer that enables RSPs to deliver voice and data services to households and businesses nationwide.

nbn's network is designed as a wholesale-only, largely layer 2 network. It transports data between customer premises and RSP networks without inspecting, prioritising, or managing specific applications, including voice calls. Consequently, while the nbn network underpins the delivery of voice over internet protocol (**VoIP**) and Wi-Fi calling services through RSP offerings, nbn does not originate, terminate, or monitor Triple Zero calls and does not have visibility of call-level performance or failures.

This structural model means that responsibility for emergency call functionality over the nbn network is distributed across multiple parties. RSPs manage voice services and customer relationships, mobile network operators enable mobile fallback options such as Wi-Fi calling, and designated emergency call persons handle call routing and response.

Within this framework, nbn's responsibility in the Triple Zero ecosystem is to provide a reliable, resilient, and well-managed access network that supports fixed voice services that might be used to access a Triple Zero service via layer 3+ voice or VoIP platforms.

It is important to note that mobile networks now carry the majority of voice traffic, with approximately 85% of calls to Triple Zero originating from mobile devices,¹ highlighting the narrow role of fixed broadband networks, including nbn, in emergency calling.

This submission describes the activities through which nbn contributes to the functioning of the Triple Zero ecosystem, including:

- The causes and characteristics of outages that may affect the provision of data traffic, including VoIP calls to emergency services.
- The processes used to detect and respond to network disruptions.
- Notification and escalation arrangements.
- The treatment of vulnerable and priority assistance customers.

¹ *Triple Zero Legislative and Regulatory Review Consultation Paper*, Pg 7. May 2026



In doing so, it outlines nbn’s current operational practices, performance metrics, and how nbn meets its regulatory obligations.

nbn is committed to continuous improvement in network resilience, transparency, and stakeholder engagement, and to working constructively with government and industry to support robust, dependable access to emergency services for all Australians and appropriate notice to relevant parties where access is impacted.

3. Network layers and responsibilities in fixed-network voice service delivery

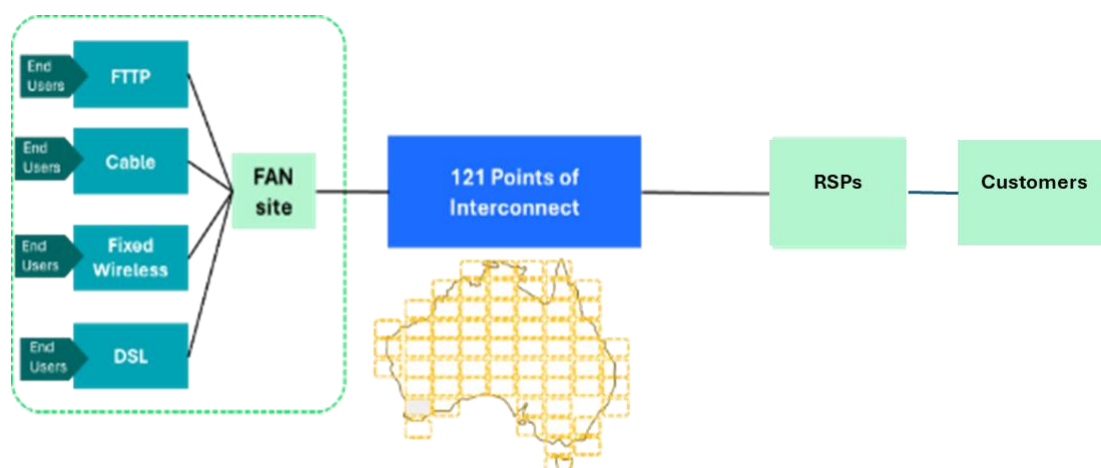
The Review provides an opportunity to reflect in legislation the distinct roles performed by carriers within the industry’s current structural model. There are different roles for carriers who provide underlying access infrastructure and those carriers that directly supply voice carriage platforms and deliver voice calls, including access to emergency call services.

The following section outlines nbn’s role within the telecommunications industry and the aspects of the Triple Zero ecosystem in which the nbn network does and does not participate.

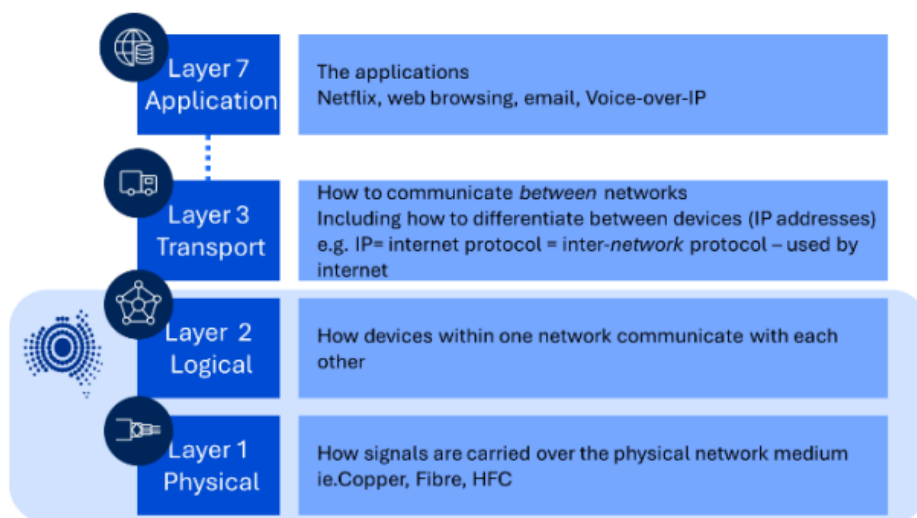
3.1. nbn as a layer 2 network

nbn operates as a wholesale-only broadband access network provider, delivering the underlying access network infrastructure that connects homes and businesses to RSPs. The RSPs then offer internet and voice services to customers. nbn’s role is focused primarily on layer 2 of the network stack, meaning it transports data between customer premises and the RSP’s network without managing higher-level services like IP routing or voice calls.

To achieve this, nbn uses a mix of technologies including fibre, copper, Hybrid Fibre Coaxial (HFC), fixed wireless, and satellite which are linked through local access nodes and aggregated into a high-capacity transport network. This data is transported as ethernet frames to the 121 points of interconnect (POIs) where nbn provides connectivity to the RSP with speed tiers and bandwidth options.



The RSPs largely take responsibility for layer 3 and above, including IP addressing, routing, and service quality. As outlined in the diagram below, nbn is primarily a layer 2 operator and does not ordinarily inspect or prioritise traffic based on application type.



3.2. VoIP

VoIP is the technology that enables voice calls to be delivered over broadband data networks rather than traditional fixed-line analogue telephone services. It is relevant to this submission because voice services provided over the nbn are typically VoIP-based, meaning the availability and performance of voice (including access to Triple Zero) is dependent on the underlying broadband connectivity provided by the nbn network.

While the nbn network is designed to support VoIP, enabling voice calls to run over broadband, nbn does not supply VoIP services as this is delivered by the RSPs as part of their service offerings. VoIP can be connected via the nbn network in two ways:

- **User network interface – data (UNI-D data port):** The most common method, where the customer’s modem/router connects to an active UNI-D port on the nbn network termination device via ethernet. The RSP’s / customer’s modem / router then handles VoIP, either through an analogue phone plugged into its phone port or via IP phones and softphone apps. nbn typically has no visibility into how many (if any) VoIP services RSPs have activated or how they are configured.
- **User network interface – voice (UNI-V voice port):** Available on some legacy fibre to the premises (FTTP) network terminating devices (premise equipment) for dedicated voice services. This was included in the early FTTP network devices to support old analogue landline phones. These are no longer offered for sale and are progressively being phased out (by 2031). nbn does not typically monitor UNI-V usage. nbn’s primary processes for any planned or unplanned outages which might impact these services are outlined in this response.



3.3. Wi-Fi calling

Wi-Fi calling (where a mobile handset uses a local Wi-Fi network and broadband connection to carry a VoIP call rather than the mobile network) is possible over the nbn network and can provide coverage extensions for mobile network operators. However, as nbn primarily operates as a layer 2 wholesale network, it does not provide Wi-Fi services or Wi-Fi calling functionality. The Wi-Fi network within a home or business is managed by the customer or their RSP. nbn's responsibility is limited to delivering reliable broadband data access from the premises to the point of interconnect with the RSP.

When a customer makes a Wi-Fi call over an nbn connected broadband service, the process typically involves:

- The mobile device connecting to the local Wi-Fi provided by the customer or RSP which is linked to the nbn access network.
- A secure tunnel established from the device through the Wi-Fi, nbn's network, the RSP's network, and finally to the mobile carrier.
- The RSP and mobile carrier may be the same entity or different.

Enabling Wi-Fi calling, including device configuration, network integration, and security is the responsibility of RSPs and mobile carriers. nbn's role is to provide the underlying broadband connectivity that makes this possible.

4. A sense of the scope, scale, and different reasons for nbn network outages

If the nbn network is unavailable, whether due to planned maintenance or an unplanned outage, any voice services delivered over nbn, including Triple Zero calls, may also be unavailable unless the RSP has provided an end user with an alternative backup solution. This may include customer premises equipment such as a fixed broadband gateway with a SIM-based mobile backup or a fixed wireless access service. Some RSPs offer these types of backup arrangements to assist in maintaining connectivity during outages.

Network outages vary in frequency and severity across the nbn network. Operation of the nbn network involves regular maintenance, technology and security upgrades, continuous performance monitoring, and prompt restoration of services during unplanned outages.

nbn has established commitments and procedures to respond to and rectify outages affecting its network. Under the special access undertaking (**SAU**), nbn has obligations in its wholesale broadband agreement (**WBA**) with RSPs to meet service level agreements (**SLAs**), including in relation to network fault response and rectification.



4.1. Planned outages

Planned outages are implemented for vital network maintenance or upgrades and are communicated to RSPs in advance. Planned outages can be of two types:

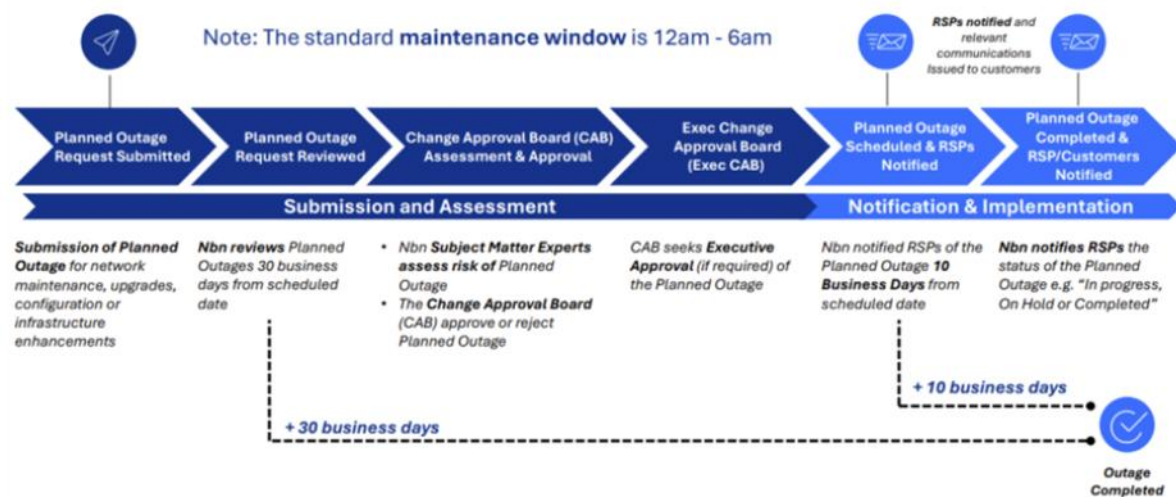
- A customer impacting change request (**CRQ**) is a scheduled interruption to nbn’s network services that occurs as part of a controlled and pre-approved change activity to perform maintenance, upgrades, configuration changes, or infrastructure enhancements.
- An emergency change request (**eCRQ**) is a type of CRQ that is initiated to address urgent issues that require immediate attention. These outages are typically related to critical incidents, regulatory requirements, or emergency faults that impact customer services or network performance.

Planned outages are typically scheduled at night to minimize disruption, with some activities during the daytime due to the nature of the work and our priority on workforce safety.

The diagram below outlines nbn’s planned outage process including engagement and notification to RSPs to ensure they can provide timely information to their customers.

Planned Outages | RSP engagement is key to ensure nbn[®] timely and accurate customer communications

Figure 1:Planned Outage Process



4.2. Unplanned outages

Unplanned outages (or network faults) are unexpected and can result from, as examples, severe weather, power outages, equipment failure, accidental damage such as cars and trucks hitting infrastructure and trees falling on aerial cables. When nbn identifies a network fault, nbn’s usual process means that an infrastructure restoration trouble ticket (**IRTT**) will be raised to notify affected RSPs. The IRTT outlines the fault location, service impact, the Access Virtual



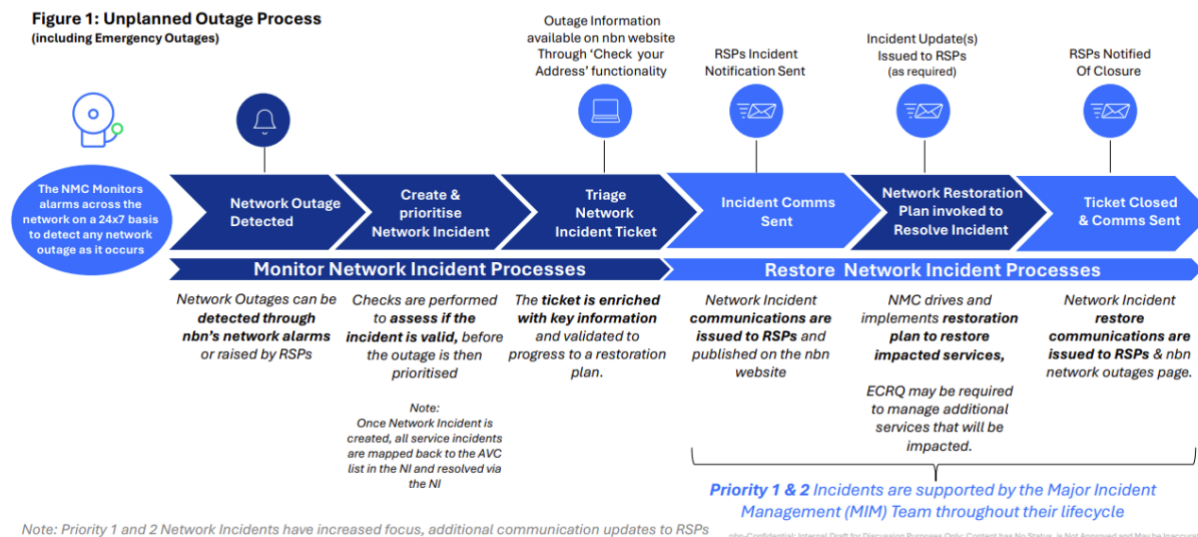
Circuit (**AVCs**) of each RSP's customers, enabling identification of impacted customers, and provision of updates on outage resolution progress.

In April 2026, nbn's overall network availability was around 99.93%. This metric measures periods when faults have been identified and services are being actively restored. Importantly, around 99% of unplanned outages impact fewer than 500 customers, meaning the vast majority of issues are localised and contained. Where larger outages do occur, the evidence is that external factors, particularly commercial power loss, and severe weather, are the primary drivers, rather than underlying network design.

The diagram below illustrates the unplanned outage process, encompassing detection, incident triage, potential escalation to the Major Incident Management Team, and notifications to RSPs and other stakeholders, through to final restoration and resolution.

Unplanned Outages | nbn's Network Management Centre monitors alarms 24/7 to detect network outages nbn®

Figure 1: Unplanned Outage Process
(including Emergency Outages)

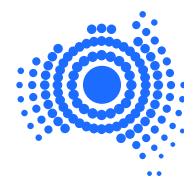


4.3. Individual equipment outages

Additionally, there may be instances where a customer's premise equipment is faulty (whether that's nbn owned equipment or the customer's or RSP's equipment) for various reasons. In those cases, the equipment will not enable the carriage of voice or data services. nbn has processes in place to respond to RSP notifications of service faults in line with nbn's obligations under the WBA. This is noted here for completeness only.

4.4. Incident management

Effective response to network incidents is critical to maintaining service continuity. Restoration of the network is coordinated through the network management centre (**NMC**) based in Australia, which is the operational centre responsible for running the nbn network incident



protocols including investigating, and restoring services. The centre operates 24 hours a day, seven days a week and includes:

- A team of network engineers monitoring, triaging faults and either remote restoring or working with field technicians to restore.
- Our Major Incident Management (**MIM**) Team who coordinate and drive resolution of major incidents across the network.
- Our Emergency Management (**EMT**) Team who are activated in times of severe natural disasters like cyclones requiring cross industry engagement across emergency services, state and Commonwealth departments, and other telcos.
- Our control tower which connects incidents with tickets to nbn field technicians and engineers to rapidly investigate and resolve a network incident.

nbn continues to invest in these operational capabilities and supporting digital tools to support and improve our time to resolution in the event of unplanned outages. For example, in response to third-party disruptions, nbn developed TrafficWatch to monitor RSP traffic health at a state-based level. TrafficWatch monitors volumes of traffic passing from RSP's network to the nbn network and compares the volumes of data it is monitoring to historical data models of expected traffic. TrafficWatch can flag anomalies to the NMC to enable the investigation of an issue that has occurred in an RSP's network.

Identifying a significant disruption of traffic within the RSP's network enables the NMC to proactively engage with RSPs to offer support and troubleshooting at the edges of our (nbn and RSP) networks. This also assists nbn in assessing whether the issue is likely confined to the RSP environment the issue is likely confined to the RSP and that while nbn customers are experiencing a disruption to their nbn service, if all other indicators remain normal, we do not believe it is adversely affecting or is a result of, the performance of the nbn network.

nbn also invests in portable and temporary infrastructure that can be deployed around Australia in response to emergencies and outages.

These include:

- Twenty portable network and fixed wireless networks on wheels for disaster events.
- Specialised emergency trailers for temporary fixed wireless setups in communities and replacement shelters for fixed-line networks.
- A fleet of mobile generators that can be deployed where needed.
- A fleet of nbn vehicles and fly away kits to provide satellite connectivity to impacted communities, emergency services, and disaster authorities.
- With funding from the Australian Government's Strengthening Telecommunications Against Natural Disasters (**STAND**) Program, the company supports over 1,000 nbn community Wi-Fi services at evacuation centres across Australia, and hundreds of satellite services at emergency management sites. An additional 500 STAND sites are being established as a result of further funding from the Australian Government.



Beyond this, noting that most unplanned outages are due to power outages, nbn also works closely with all sixteen different power utilities across Australia to improve network resilience, awareness, and responses to third party derived outages. For example, we co-share network information with power utilities to address unreliable power supply that impacts the nbn network.

5. Process for vulnerable and priority assist customers

nbn works with its RSPs to enable additional support for individual end users where requested. Our processes are designed to support RSPs in delivering timely connection and fault restoration services to customers with diagnosed life-threatening medical conditions and other serious vulnerabilities.

As nbn is a wholesale-only provider, it does not maintain direct relationships with end users and therefore relies on notifications from RSPs or customers where a customer requires expedited support.

Once notified, the matter is escalated through nbn's operational support processes and referred to the Priority Assist and Vulnerable Customer Team for priority connection and fault restoration support.

The relevant activity for the affected premises may then be tagged for expedited support, enabling enhanced fault restoration service levels, prioritised technician appointments, and proactive monitoring of the case through to resolution. The NMC and field operations teams coordinate closely to support restoration within applicable service level commitments.

Throughout the process, nbn provides customers and RSPs with reference numbers, regular status updates, and clear, empathetic communications to minimise disruption and support continuity of critical connectivity services.

Where a Priority Assistance or vulnerable customer is identified during an active network incident or outage, nbn accepts and retains the related incident case rather than aggregating the incident into the open network event. The case is monitored alongside the broader incident, and once the outage is resolved, nbn confirms whether the service has been restored before closing the case or progressing further fault management if required.

If a customer reaches out to nbn directly because they are unable to connect to Triple Zero and need to do so, nbn's contact centre will obtain key details and directly connect the customer to emergency services via a supported handover to ensure the caller is safely transferred. While this process is available, nbn is not aware of any instance in which it has been required.

6. Outage notification channels

When considering improvements to the legislative framework for access to a particular service, such as access to Triple Zero, it remains important to recognise how different network layers and different industry participants interact and inform each other about network outages when



they occur to aid end user awareness. In its capacity as a wholesaler, nbn has contractual obligations to notify its RSP customers when unplanned or planned outages occur. In best practice, an RSP can use this information to inform their end user customers. End users may therefore be able to rely on alternative technologies like a mobile phone service, or other technologies, including emerging technologies such as direct-to-device satellite services, can then be effectively utilised.

6.1. Notification to RSPs for unplanned outages

As noted above, when nbn identifies a network fault, an IRTT will be raised to notify affected RSPs. The IRTT outlines the fault location, service impact, the RSP's AVCs, and provides updates on outage resolution progress.

nbn has also established structured mechanisms to ensure that RSPs receive notifications about specified unplanned outages aligned with the requirements of the *Telecommunications (Customer Communications for Outages) Industry Standard 2024*

These notifications must include key details such as the nature of the outage, scope, the geographic area impacted, the types of affected services (e.g., nbn advises if FTTP, satellite, FTTN or fixed wireless services etc are impacted), estimated restoration times, and updates as the situation evolves.

Separate rules apply for RSPs in how they must communicate with customers if there is a specified outage on the nbn. They must attempt to notify the customer using one of email, SMS or via the RSP's app to provide real-time assistance and make information available on the RSP's website, call centre, or social media channels if appropriate.

6.2. Notifications to RSPs for planned outages

nbn operates under robust change management processes for all planned CRQ and eCRQ activities. Standard planned changes are raised with a minimum of ten business days' notice to enable RSPs to communicate impacts to their customers. eCRQ activities are initiated to address urgent issues that require immediate attention with shorter notification lead-times. In accordance with the WBA, nbn maintains an up-to-date contact matrix and uses designated channels such as the service portal, NPIS, and B2B APIs to provide timely notifications, including AVC-related changes.

6.3. nbn notifications for planned and unplanned outages – nbn website

The nbn website provides a network status and outage tool that allows members of the public to check their addresses for active unplanned network outages, planned and emergency network outages in progress and upcoming planned outages in the following 10 days.

Additionally, nbn has proactively added new messaging about the impacts on accessing Triple Zero services during a nbn outage on the help and support page on the nbn website. This advice



assists the public to find clear, accessible guidance on what an outage means for accessing Triple Zero services via the nbn network.

6.4. Regulatory notification obligations for major and significant local outages

nbn's obligations to notify the Australian Communications and Media Authority (**ACMA**) and the Department of Infrastructure, Transport, Regional Development, Communications, Sport, and the Arts (**DITRDCA**) for specified outages are defined under the *Telecommunications (Customer Communications for Outages) Industry Standard 2024* and the *Telecommunications (Emergency Call Service) Determination 2019*. Under these instruments, nbn is required to notify RSPs, emergency service organisations and other relevant stakeholders of unplanned outages that are defined as major outages and significant local outages (**SLOs**).

The relevant obligations require timely, and multi-channel updates to relevant stakeholders and the public during both major outages and SLOs. To meet these obligations, nbn has implemented internal processes that define notification protocols, stakeholder engagement pathways, and update intervals when there is a material change to advise stakeholders or at least, every six hours within the first 24 hours of an outage that reaches a major outage or SLO threshold, followed by daily updates until resolution.

These outage notifications are issued to carriage service providers (i.e. impacted RSPs), the ACMA, DITRDCA (via official email address), the Telecommunications Industry Ombudsman (**TIO**), National Emergency Management Agency (**NEMA**), relevant emergency services organisations (**ESOs**) in the impacted state or territory, and Emergency Call Persons (000, 112, 106).

Clear and relevant information sent from the appropriate party remains an important feature of the current notification framework. As outlined in our response to the ACMA's consultation earlier this year, notifications about an outage on nbn's network that are delivered to relevant stakeholders such as DITRDCA, the ACMA and ESOs by nbn as the responsible carrier and by 'downstream' carriers who may notify the same parties about impacts to their voice. The Review may wish to consider whether there are opportunities to streamline outage notifications across the Triple Zero ecosystem to support the delivery of clear, consistent, and actionable information to stakeholders.

6.5. Notification to Shareholder Departments and Minister's Office

In addition to the mandatory notifications described above, nbn also provides voluntary notice of all major outages and SLOs to:

- the Office of the Minister for Communications and Sport; and
- nbn's shareholder departments, both the Department of Finance and DITRDCA.

Where appropriate, based on the size of the outage and its location, nbn also notifies the above stakeholders of significant outages that do not meet the thresholds set out in the industry



standard, as well as providing information on potential emergency events, such as tropical cyclones, major fires, and floods.

7. Welfare checks

In the context of Triple Zero calls, nbn does not conduct welfare checks of customers. nbn does not have the contact details for the individual customers who use the nbn network. As a layer 2 wholesale provider, nbn generally does not have visibility of failed Triple Zero calls. The *Telecommunications (Emergency Call Service) Determination 2019* imposes the obligation to conduct welfare checks on the CSP who supplies the 'emergency telephone service' to the customer (the wholesale broadband service nbn supplies is not an 'emergency telephone service') and on the relevant emergency call person. nbn is not a designated emergency call person under Australian law and therefore does not handle Triple Zero emergency calls directly.

8. Conclusion

We understand the critical importance of providing the foundation for our RSPs to provide internet broadband and voice services and are committed to continue to evolve the resilience of the nbn network. We are constantly continuing our investment in upgrading our network, including targeted fibre upgrades and modernisation initiatives that strengthen performance and enhance the overall resilience and reliability of the nbn network. nbn also publicly reports on a range of network performance measures, including connections, network faults, speed, capacity, and availability.

nbn remains committed to working collaboratively with the Triple Zero Custodian and government agencies to uphold the highest standards of service and reliability for Australia's emergency communications. We value the opportunity to contribute to the development of consistent, industry-wide approaches that strengthen the resilience of the Triple Zero service and ensure the safety and wellbeing of all Australians.

