Submission

to the

Senate Standing Committees on Environment and Communications

inquiry into

The capacity of communication networks and emergency warning systems to deal with emergencies and natural disasters

Submission by:

Australian Mobile Telecommunications Association and Communications Alliance

31 May 2011

1.   Summary

1.1   The Australian Mobile Telecommunications Association and Communications Alliance (the Associations) submit that:

(i)   Existing telecommunications networks, and associated processes for their management are well placed to deal with emergencies and natural disasters;

(ii)   There are good working relationships among carriers, carriage service providers, the emergency call persons and emergency service organisations (ESOs) to deal with emergencies and natural disasters;

(iii)   The telecommunications industry members, the regulator and ESOs continue to work on improvements in dealing with emergencies and natural disasters (e.g. in areas such as location information and emergency warning/alert systems);

(iv)   There is scope for the government to support enhancements to existing arrangements where they are in the public interest but may not be commercially viable;

(v)   While members of the telecommunications industry and ESOs have a good working relationship, it is generally the larger industry participants (i.e. carriers), who provide resources to maintain that working relationship on behalf of the industry;

(vi)   While most industry engagement with ESOs takes place without any Government regulation, based on the historical working partnership that exists between the telecommunications industry and ESOs, there is always potential room for improvement in communications and for Government and the regulator to play a facilitating role in those communications; and

(vii)   The Associations note that the changing telecommunications landscape including the introduction of the National Broadband Network (NBN) and arrangements for universal service[1] (e.g. the suggested 'USO Co') could lead to changes to the way ESOs and telecommunications industry members work together.

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2.   Introduction

The Associations

2.1   The Australian Mobile Telecommunications Association (AMTA) is the peak industry body representing Australia's mobile telecommunications industry. Its mission is to promote an environmentally, socially and economically responsible, successful and sustainable mobile telecommunications industry in Australia, with members including the mobile Carriage Service Providers (CSPs), handset manufacturers, network equipment suppliers, retail outlets and other suppliers to the industry. For more details about AMTA, see http://www.amta.org.au.

2.2   Communications Alliance is the peak telecommunications industry body in Australia. Its membership is drawn from a wide cross-section of the communications industry, including service providers, vendors, consultants and suppliers. Its vision is to provide a unified voice for the telecommunications industry and to lead it into the next generation of converging networks, technologies and services. The prime mission of Communications Alliance is to promote the growth of the Australian communications industry and the protection of consumer interests by fostering the highest standards of business ethics and behaviour through industry self-governance. For more details about Communications Alliance, see http://www.commsalliance.com.au.

2.3   AMTA and Communications Alliance (the Associations) welcome the opportunity to respond to the Senate Standing Committees on Environment and Communications (SSCEC) inquiry into *the capacity of communication networks and emergency warning systems to deal with emergencies and natural disasters* (the Inquiry).

2.4   The Associations would like to acknowledge the extraordinary work carried out by the ESOs under very difficult circumstances during the recent disasters across Australia.

2.5   The memberships of the Associations are committed to working work with ESOs and Government to enable coordination and cooperation during emergencies and natural disasters and into the recovery phase. The partnership between ESOs and members of the telecommunications industry is an important one and one that industry is committed to seeing continue and develop.

About This Submission

2.6   This submission is structured around the terms of reference for the Inquiry (copied in Appendix A to this submission).

2.7   With regard to the terms of reference of the inquiry, the Associations are able to provide comment in relation to the capacity of telecommunications networks, including mobile networks, to deal with emergencies and natural disasters.

2.8   Similarly, the Associations are able to provide comment in relation to the Emergency Alert system used in NSW, Victoria, SA, Queensland and the Northern Territory since December 2009 to send alerts regarding flood, tsunami, bushfire, storm surge, chemical incident and missing person emergencies. The Emergency Alert system currently sends alerts via telecommunications networks to both fixed phones and mobile devices.[2]

2.9   The Associations believe it may be more appropriate for others to provide detailed comment regarding the capacity of broadcasting services such as commercial radio and television services or other alert systems or protocols that are not carried over and delivered by commercial telecommunications networks.

2.10   Where this submission refers to "ESOs" it is intended that the term includes not only Police, Fire and Ambulance services, as generally accepted, but also the State Emergency Services (SES) and other state based emergency service organisations such as Emergency Management Queensland (EMQ) that the telecommunications industry regularly works with on an ongoing basis and during natural disasters or emergencies.

Background Information

2.11   The Victorian Bushfires in 2009 were a catalyst for a nationwide re-assessment of how Australians prepare for and deal with such natural disasters and emergencies. Both the telecommunications industry and ESOs looked at what worked and what did not work during the bushfire emergency and revised standard operating practices and emergency plans as a consequence.

2.12   A component of this re-assessment was the development of an early warning alert system that was capable of sending alerts to mobile devices. AMTA facilitated the development of interim industry guidelines for an emergency alert system for mobile devices that was location based.

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[2] www.emergencyalert.gov.au

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2.13   This system has now been replaced with Emergency Alert[3], Phase 1 of the National Emergency Warning System, which provides for warnings to be sent to both fixed line and mobile phones using customer information contained in the Integrated Public Number Database (IPND).

2.14   There is currently an ongoing tender process[4] for Phase 2 of the National Emergency Warning System. It is anticipated that Phase 2 will explore the possibility of delivering alerts to mobiles based on geographical location rather than on IPND customer data. The Associations note that there are several technical constraints involved with a location based service.

2.15   Australia has recently experienced several natural disasters, specifically, floods in Victoria and Queensland, Cyclones Yasi and Carlos as well as bushfires in Western Australia. During such events, Australians rely heavily on both the resources of our Emergency Services Organisations (ESOs) and telecommunications networks as well as the Emergency Alert system to help them effectively and appropriately respond and deal with an emergency.

2.16   The Associations recognise the extraordinary efforts of ESOs during the spate of recent natural disasters in Australia and is highly appreciative of the endeavours of ESOs in responding so effectively to such emergencies.

2.17   The Australian telecommunications industry has a long history of working co-operatively in partnership with ESOs and this partnership is most effective during times of emergency or natural disaster. The industry believes that the recent events in Australia have again demonstrated the high-level of co-operation that exists with ESOs and the resilience of telecommunications networks in Australia.

2.18   As an illustration of this high level of co-operation, the Chairman of the Australian Communications and Media Authority (ACMA) recently observed,

> *"… the ACMA has received regular briefings from the major telecommunications providers during the recent run of natural disasters, outlining their preparatory actions, assistance to emergency services, customer support and infrastructure restoration .*

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[3] http://www.emergencyalert.gov.au/
[4] The Council of Australian Governments agreed on 12 May 2009 for Victoria to lead the process of rolling out the National Emergency Warning System (Vic Government media release).

Given the severity and overlapping demands placed on the telecommunications sector by these recent natural disasters, the ACMA applauds the sector for responding quickly and appropriately. With the combination of power outages, access difficulties and damage to physical infrastructure, the telecommunications providers should be recognised for their dedicated and responsive endeavours."[5]

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[5] ACMA Media Release 25/2011, 11 March 2011
http://www.acma.gov.au/WEB/STANDARD/962892/pc=PC_312476

3.   The capacity of communications networks

Capacity
In relation to the capacity of communication networks and emergency warning systems to deal with emergencies and natural disasters

3.1   While "capacity" is generally a reference to the ability of a communications network to handle varying volumes of calls or data traffic, the Associations note that "capacity" as used in the Terms of Reference most likely refers to the *capabilities* of telecommunications networks to deal with emergencies and natural disasters. Any consideration of the general capability of telecommunications networks will include consideration of capacity issues, for example dealing with a sudden spike in the volume of calls during an emergency or disaster.

3.2   Generally, the capability of the telecommunications networks to deal with natural disasters, such as the Queensland floods of 2010, is dependent on having in place appropriate processes and the ability to deploy personnel and resources quickly and efficiently. There is less focus on capacity issues related to call volumes. Appropriate processes and protocols include having established points of contact for ESOs and network operators.

3.3   In particular, the focus of the telecommunications industry during the Queensland floods was to keep the telecommunications networks up and running so that ESOs and others could rely on them during the emergency. This meant more the deployment of resources to address events that could or did interrupt services (such as cable washouts and power outages) than having to manage any real spike in the volume of calls.

3.4   If there is an interruption to a telecommunications service then the focus of network operators, especially during an emergency, is to quickly restore and maintain networks so that they can be used by the community and by ESOs performing necessary response work. Network operators are also focussed on providing direct assistance to ESOs and the community when and where necessary.

3.5   Regular network management processes, including active management of network alerts and monitoring of traffic levels, are relied on to manage any increase or spike in the volume of network traffic during emergency situations or natural disasters. This allows network operators to respond quickly to any sudden spikes in traffic loads and maintain the network's integrity and capacity to deal with emergencies or natural disasters.

3.6   During the recent floods in Queensland, Telstra provided much needed assistance to the National Relay Service[6] (NRS) by facilitating access to Telstra infrastructure (i.e. telephone exchange), so that connectivity could be maintained and the Deaf and hearing impaired community that relies on the NRS for making emergency calls was not isolated for an extended period. One of the lessons reinforced by this experience was that while the continuing operation of a facility is an essential part of delivering a telecommunications service, the ability to access a site is also important e.g. the call centre site was not at risk from floodwater inundation but the cuts to surrounding roads affected the ability of personnel to get to the location.

3.7   Experience gained during the floods demonstrates that a key capability is deploying personnel into areas experiencing power failures to ensure, among other things, that mobile network base stations can continue to operate. During the Queensland floods it was at times difficult for industry personnel to get into some affected areas, due to restrictions on access and limited public resources to assist. For example, getting a seat on a military helicopter to deliver a technician carrying fuel for backup generators was often challenging.

3.8   Industry also notes that the resilience of mobile networks in bushfire-prone areas is partially dependent on maintaining a schedule of back burning around mobile base stations. This is an example of how regular preparedness processes are vital to ensuring the resilience of telecommunications networks during natural disasters or emergencies.

3.9   To summarise, the key issues for the telecommunications industry in ensuring a robust capability to deal with emergencies and natural disasters are the speedy and efficient deployment of personnel and resources and having appropriate business processes in place to ensure co-operation with ESOs in deploying those resources.

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[6] http://www.relayservice.com.au/

4.   The effectiveness of communication networks

4.1   Most Australians are connected to telecommunications networks by their home phone. Many also have internet access. Australians also have wide access to mobile phones and are increasingly in the habit of accessing the internet via their mobile devices. Telecommunications networks therefore play a major role in providing end-to-end connectivity for all Australians and enabling the community to keep up to date on significant events.

4.2   This end-to-end connectivity is reliant on fixed line and mobile networks as well as backhaul networks remaining operational during times of natural disasters and during emergencies which may impact on the network. Mobile networks are radio based communication networks and can be affected by various types of extreme weather. Both radio communications networks and fixed line networks will be reliant to an extent on the supply of power so that end-to-end connectivity is maintained.

4.3   The Emergency Alert system is reliant on the telecommunications networks to deliver its warning messages to customers with either fixed or mobile services based on their residential address. Telecommunications networks are dependent on access to a reliable power supply, and in some instances an interruption to the power supply can limit Australians' ability to use telecommunications networks even when the networks are available, for example, if they are not able to re-charge their mobile phone.

4.4   The Emergency Alert system "*has been used 284 times and issued in excess of 6.8 million messages. The system has been used in New South Wales, Victoria, South Australia, Queensland and the Northern Territory for flood, tsunami, bushfire, storm surge, chemical incident and missing person emergencies*"[7]. Its extensive use and application to a range of situations illustrates how a planned and appropriately resourced service can deliver ongoing a public benefit.

4.5   The ongoing success of the Emergency Alert system depends on both (i) technical links in a chain of communication (i.e. the systems) working and (ii) that all the necessary human communications (i.e. the processes) take place as well. For example, when there is an impending natural disaster the communications technology may be able to deliver a warning message to a group of affected people, but it still depends on the relevant monitoring centre to identify the threat, and then inform the relevant parties responsible for creating the message content and for authorising its distribution.

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[7] http://www.emergencyalert.gov.au/ - current as of 4pm 27 April 2011

4.6   The Associations note that the changing telecommunications landscape, including the introduction of the National Broadband Network (NBN) and arrangements for universal service[8] (e.g. the suggested 'USO Co') could lead to changes to the way ESOs and telecommunications industry members work together. In the evolution of arrangements for universal service policy it has been and continues to be important to ensure that the existing systems and processes for telecommunications for emergencies and natural disasters, such as those for Emergency Alert and Triple Zero, are supported by and evolve with the changing environment.

Radio Communications and Telephony Networks effectiveness in warning of the imminent threat of an impending emergency

4.7   The Associations are able to provide comment about the Emergency Alert system that sends alerts over the telecommunications networks. Other alert systems that may be in place to provide information via commercial radio or television broadcast are outside the scope of knowledge of our membership base.

4.8   Emergency Alert has been used to warn people of natural disasters and emergencies in Australia. The Associations are not aware of any significant problems or issues relating to the use of Emergency Alert to date. Australians will receive alerts either on their fixed line phones or mobiles from Emergency Alert when appropriate during emergencies or natural disasters.

4.9   While Emergency Alert allows ESOs to communicate with the wider community to warn or alert them to pending emergencies or give instructions during a natural disaster, the emergency call service which allows Australians to access help from ESOs by calling Triple Zero[9] (000) or the NRS (on 106) is also a vital part of our telecommunications networks capacity and effectiveness in warning the community during natural disasters as well as being a means of providing emergency assistance to Australians on a daily basis.

4.10   The public telecommunications networks, including mobile networks, allow Australians to make free calls to Triple Zero and the NRS (on 106) in emergencies. The telecommunications industry has been proactive in ensuring access to Triple Zero and the NRS for all Australian users of telecommunications services.

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[8] http://www.dbcde.gov.au/broadband/national_broadband_network/universal_service_policy
[9] http://www.triplezero.gov.au/

4.11   For example, a standard fixed line does not necessarily need to have an active service for a person to be able to make an emergency call to Triple Zero or to 106. However, it should be noted that because many people use cordless phones in their home and such phones rely on a power source to work, if there is a power outage and people do not have a standard corded phone to use for emergencies they may not be able to call Triple Zero despite having connectivity available. It is a good idea for Australians to keep a corded phone available for use during power outages. Similarly devices such as teletypewriters for calling 106 rely on a power source to work.

4.12   Likewise, regarding mobile networks, the carriers have in place national roaming for emergency calls.   This means a mobile device for a public mobile telecommunications service is able to make an emergency call on networks without an Identity Module (i.e. a SIM), and on networks other than the network an Identity Module (SIM) is contracted to use.

The effectiveness of Telephony Networks in functioning in a co-ordinated manner during an emergency and assisting in recovery after an emergency.

4.13   To enable the telecommunications network operators to be able to respond in a co-ordinated manner and provide assistance to ESOs during an emergency it is critical that Government and ESOs be able to disseminate information rapidly and appropriately. Industry participation in state disaster management centre meetings is highly desirable and necessary so that information, particularly regarding access to affected areas and power outages, can be disseminated quickly and efficiently.

4.14   Australia's telephony or telecommunications networks are quite resilient and effective in warning of an impending emergency or imminent threat. The networks have proven to be effective in functioning in a co-ordinated manner during an emergency. This demonstrated co-ordination is not only between the various network operators but also between network operators and ESOs. The telecommunications networks also play a pivotal role in providing assistance in recovery after an emergency.

4.15   For example, existing network management processes (e.g. active monitoring of network alerts and traffic levels) help carriers to respond quickly to unexpected loads on networks.

4.16   With regard to mobile networks, the network operators rely on temporary arrangements such as self-contained, transportable mobile base stations (also referred to as a 'Cell on Wheels') to allow for rapid deployment to sites subject to natural disasters. Similar transportable facilities can be deployed using satellite services (a 'Satellite Cell on Wheels') and fixed services (a 'mobile exchange on wheels').   This allows the network operators to restore services as quickly as possible in affected areas and maintain the connectivity and continuity of the network.

4.17   With regard to the Public Switched Telephone Network (PSTN), services are quite resilient. For example, PSTN exchanges provide line power to phones, (although many households choose to use phones that require supplementary power e.g. cordless phones) so phones can remain in operation even when power services may not be otherwise available. Telephone exchanges also have both battery backup and diesel generators to continue operating in the event of interruption to the power supplied from the electricity grid.

4.18   These arrangements mean that for most emergencies and natural disasters the telecommunications networks are able to keep operating and provide the connectivity expected and needed by Australians.

4.19   For any interruption to telecommunications services, including extreme events, the restoration of telecommunications services is a top priority for carriers and the restoration time is considered to be generally quite good. One example of extraordinary action taken during recent natural disasters was the use of helicopters to refuel generators at mobile base stations while waiting for the restoration of grid power.

4.20   Another example, as mentioned in section 3, is the assistance from Telstra "at very short notice" with a temporary location for the National Relay Service during the Brisbane floods, as recognised by the ACMA[10], which meant the NRS was able to meet its commitment to provide the 106 emergency service.

4.21   Similarly, to enable the Kids Helpline head office to remain up and running after it was affected by the Brisbane flooding, Kids Helpline staff were temporarily relocated and operated out of Optus' Woolloongabba office Queensland, ensuring that vital services were maintained.

4.22   Likewise, working with the Queensland Department of Community Safety which incorporates the Queensland Ambulance Service, Queensland Fire and Rescue Service and Emergency Management Queensland, Telstra established the telecommunications services to support the Queensland Government Disaster Coordination Centre in Mary Street Brisbane. Within 24 hours, Telstra installed 30 Telstra IP Phones and Internet connectivity to enable all agencies involved in the disaster coordination to communicate effectively.

4.23   A further example of carriers working to restore communications networks during the recent floods in Queensland is that Optus worked closely with Emergency Management Queensland and used its expertise to provide satellite phones to assist rescue and recovery efforts and deployed portable satellite mobile base stations in areas without mobile network coverage.

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[10] ACMA media release "National Relay Service resumes all calls", 13 January 2011
http://www.acma.gov.au/WEB/STANDARD/691193/pc=PC_312415

4.24   Optus also assisted flood affected customers by distributing pre-paid handsets with credit to people who had lost access to telecommunications services. Optus staff and franchisees gave out in excess of 1,500 pre-paid Optus mobile handsets loaded with a minimum of $600 credit for services in the Lockyer Valley, Bundaberg, Rockhampton, Brisbane and Toowoomba, with support from the Red Cross.

4.25   Optus made its Customer Service Trailer available to the local community to provide free voice calls via satellite phones, laptops with free wireless broadband and mobile phone chargers to keep in touch with family and friends.

4.26   Similarly, VHA waived the bills of customers in disaster affected regions to the value of approximately $1.5 million and immediately suspended any collection activities. VHA sent 21 volunteers to assist with flood recovery activities in the affected regions and in addition there was considerable resource directed towards ensuring network disruption was responded to immediately.

4.27   While these are examples of carriers working with ESOs during times of natural disaster, it should be noted that these instances of working together are grounded in the ongoing and existing relationships and protocols the industry and ESOs have in place to allow for such quick action to be taken during times of emergency or in response to disasters. This includes having dedicated personnel at major telecommunications carriers for liaison with ESOs.

4.28   Carriers work with emergency service organisations (e.g. police, fire, ambulance) through existing relationships. For example, during days of high fire potential (code purple), Telstra representatives from the Telstra Major Incident Management team and the Telstra Victorian StateNet Mobile Radio (SMR) team attend the Victorian Emergency Co-ordination Centre (ECC). During the Victorian Bushfires in 2009 the Telstra team liaised with the emergency management team to provide valuable real time information concerning the operation and performance of the SMR as well as Telstra's fixed and mobile networks. The SMR representative works extensively with the incident communications planners to co-ordinate incident command and fire ground communications.

4.29   There are existing arrangements for formal liaison between carriers and ESOs through groups such as the National Emergency Communications Working Group (NECWG) and the ACMA's Emergency Call Service Advisory Committee (ECSAC). These groups could facilitate improved communications between ESOs and carriers that would enable rapid initiation of responses to and preparation for large scale disasters.

Internet Protocol (IP) Networks

> **The effectiveness of internet protocol (IP) networks**
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> **(i)   in warning of the imminent threat of an impending emergency,**
>
> **(ii)   to function in a coordinated manner during an emergency, and**
>
> **(iii)   to assist in recovery after an emergency.**

4.30   There are a range of applications and services that are relevant for use during emergencies and natural disasters that rely on IP networks. These include the use of websites and social media by numerous ESOs to supply and update information to the community, and websites with information to groups with specific interests e.g. the National Relay Service Outreach Program[11].

4.31   The use of websites, social media and other applications by ESOs forms part of engaging with their respective communities. Similarly the Government and telecommunications carriers also use them as a means of broadcasting important information and updates to the community during a natural disaster or emergency. For all users and consumers of such services it needs to be acknowledged that these applications rely on an underlying IP network to function.

4.32   If IP networks go down then there will be an interruption to the websites and social media applications that rely on them. Similarly, even if the IP networks are available, if there is a power outage people will soon face difficulties accessing the internet as they will not be able to power up PCs or recharge mobile devices batteries.

4.33   Therefore, while the use of websites and social media applications in natural disasters and related emergencies during the 2010/2011 summer helped inform many people so that they could prepare for and respond to events as they unfolded, such social media applications are still dependent on an underlying network connection and also a power source.

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[11] http://www.relayservice.com.au/about/about-the-organisation/

Other Alert Systems

> **The effectiveness of other alert systems**
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> **(i)** **in warning of the imminent threat of an impending emergency,**
>
> **(ii)** **to function in a coordinated manner during an emergency, and**
>
> **(iii)** **to assist in recovery after an emergency.**

4.34   Please refer to comments in sections 2 and 4 on the Emergency Alert and the National Emergency Warning Systems.

4.35   The Associations are not in a position to comment on other warning systems e.g. the Joint Australian Tsunami Warning Centre[12], the Standard Emergency Warning Signal (SEWS)[13].

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[12] http://www.bom.gov.au/tsunami/
[13] http://www.emergency.nsw.gov.au/sews

5.   The impact of extended power blackouts

> *The impact of extended power blackouts*
> **On warning systems for state emergency services, including country fire brigades and landholders or home owners;**

5.1   The Associations are not in a position to comment on the impact of blackouts on state emergency services or country fire brigades.

5.2   The Associations are able to comment on the impact of extended power blackouts for the users of telecommunications services and the effect power blackouts have on the end-to-end connectivity of telecommunications networks and services.

5.3   The power supply is vital in ensuring this end-to-end connectivity. As mentioned in the example in section 4, even if the PSTN network is available, a homeowner may not be able to make an emergency call to Triple Zero or 106 in the event of a blackout if the homeowner has a device that relies on a supplementary power source (i.e. most cordless phones and teletypewriters (TTY).

5.4   Similarly, while people may be able to access the internet via mobile devices and stay informed through social media such as Facebook, they will soon need to recharge their mobile device's battery. If there is no power source readily available this could leave mobile users cut off from vital communications. This can happen even when the mobile networks are up and running.

5.5   End-to-end connectivity therefore relies on a readily available power source and this is why extended power blackouts can have a significant effect on telecommunication networks and services.

5.6   The extended loss of power to transmission networks and switching facilities will affect all communications networks and services.

5.7   Telecommunications exchanges and mobile phone towers have back up arrangements that can manage short term interruptions to power. As well, existing telecommunications network management processes can identify sites at risk of losing back up power so that restoration of power at those sites can be prioritised.

5.8   Extended power blackouts will result in the need to 'top up' diesel fuel for generators that service transmission and switching facilities.

5.9   Restoration of service after any interruption is a priority for any carrier. In the event of large scale disasters then rapid escalation ensures extra personnel and resources are deployed to ensure restoration in the fastest time possible.

5.10   The ability of carriers to enter a natural disaster zone and restore services is always dependent on the level/colour of the zone[14] (e.g. Telstra's red/amber/green zones). This means that coordination of access to a natural disaster zone across a range of stakeholders is part of an effective response to any emergency or natural disaster.

5.11   Similarly the ability for NBN based services to continue to operate during and after extended blackouts will depend on a number of factors including those identified above plus the availability of some form of power backup for end users.

5.12   On the topic of battery backup the Communications Alliance NBN End User Premises Handbook recommends "*the network termination unit and/or power supply must have the capability for an optional power backup … to be installed*"[15]. The Communications Alliance NBN Overview of Technical Standards paper notes that "*it is common practice for operators to require that end-users accept responsibility for monitoring the battery function, purchase of a replacement battery, installation of the new battery, and recycling of the spent battery.*"[16] and "*In the case of telephony the availability and popularity of mobile phones makes them an alternative for emergency telephony to a fixed phone with battery backup.*"[17]

5.13   Battery backup remains a topic for policy discussion, with the Associations noting from the joint Ministerial Statement of Expectations[18] on the NBN rollout that "*The Government intends to undertake consultation with stakeholders, including emergency services, on the appropriate way of ensuring access to battery back-up services for those who need them.*"

5.14   The Associations are not in a position to comment on possible arrangements for alternative power generation for end users during extended blackouts e.g. standby power supplies that run on diesel fuel, gas, solar energy and/or wind energy.

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[14] Telstra zones determined in co-ordination with ESOs: red is "no-go", amber is partially affected exchange area, green indicates safe exchange area.
[15] NBN End-User Premises Handbook, Release 2, June 2010, section 4.9.6.
[16] NBN Overview of Technical Standards paper, Release 1 April 2010, section 5.3.11
[17] NBN Overview of Technical Standards paper, Release 1 April 2010, section 5.3.12
[18] http://www.dbcde.gov.au/__data/assets/pdf_file/0003/132069/Statement_of_Expectations.pdf

6.   The impact of emergencies and natural disasters

The impact of emergencies and natural disasters
On, and implications for, future communication technologies such as the National Broadband Network;

6.1   The Associations believe it is important to clarify that most of the technology intended for use in the National Broadband Network is not "future" technology because it is deployed in commercial networks today.

6.2   Optical fibre has some advantages over networks based on metallic wire (i.e. copper) in surviving natural disasters. For example, inundation due to floods can short the electrical current on many forms of metallic wire pairs, while passive optical fibre hubs may continue to operate during floods because they resist water ingress and may be effectively waterproof.

6.3   As mentioned previously in the submission, wireless technology can withstand many aspects of disasters and display good service restoration times after an interruption.

6.4   As mentioned in section 5, end user devices for use on wireless and mobile networks rely on the availability of power to recharge batteries. While there is robust network design applied to wireless telecommunications networks, the wider availability of off-grid recharge capability (e.g. generators, solar panels) for end user mobile devices/handsets could improve the end-to-end robustness of wireless and mobile communications services.

6.5   Satellite technology is relatively immune to the impact of natural disasters (e.g. through the use of handheld devices, instead of dishes, interoperating with low earth orbit satellites) and is often the first technology deployed in response to a natural disaster zone. While certain types of satellite services can be attenuated by heavy rain this is a temporary effect that does not require service restoration during/after an emergency or natural disaster.

6.6   One effect of emergencies and natural disasters on "the implication for future communication technologies" is to serve as a reminder of the important public benefit of continuing to plan for, resource and build the capability to respond to such emergencies and disasters whenever and wherever they might occur.

7.   Scope for better educating people in high-risk regions

the scope for better educating people in high-risk regions
about the use of communications equipment to prepare for and respond to a potential emergency or natural disaster;

7.1   The Associations note that the National Strategy for Disaster Resilience[19] (concluded by the Council of Australian Governments in February 2011[20]) addresses many relevant policy aspects of educating people about disasters.

7.2   With regard to informing people who live in high-risk regions during times of natural disasters or emergencies, we refer back to earlier comments about Emergency Alert and the emergency calling arrangements in Australia via Triple Zero.

7.3   As well, during times of a natural disasters or emergencies the education of people affected by the disaster about the state of telecommunications services has to be done in the appropriate context without overloading people with information e.g. in floods, the SES/ESOs are often trying to help people at more a basic level, and too much telecommunications information can get lost in the situation.

7.4   Regarding the longer term education of people who live in risk prone areas, the Associations believe that it is the responsibility of Government, rather than industry, to educate the public who live in such high-risk regions.

7.5   As a matter of policy, Government would need to first define high-risk regions and then develop policy around what people who live in high-risk regions should be expected to know or do to prepare for natural disasters.

7.6   The telecommunications industry does not see a clear role for itself in this policy area until there is clearer definition of both "high-risk regions" and Government policy regarding educating people in such regions.

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[19] http://www.coag.gov.au/coag_meeting_outcomes/2011-02-13/docs/national_strategy_disaster_resilience.rtf
[20] http://www.coag.gov.au/coag_meeting_outcomes/2011-02-13/index.cfm

8.   New and emerging technologies

New and emerging technologies
including digital spectrum that could improve preparation for, responses to and recovery from, an emergency or natural disaster;

Emergency Alert/Warning System

8.1   Please refer to comments on the National Emergency Warning System in sections 2 and 4 of this submission.

Location Information

8.2   Communications Alliance has recently published a new industry guideline *Mobile Location Information (MoLI) Processes for the Emergency Call Service*[21] (G643:2011). It describes the processes to be used by Mobile Carriers to provide an ESO with the location information of a mobile device in response to an authorised ESO request about an Emergency Call. The Guideline is to help mobile carriers meet obligations in the *Telecommunications (Emergency Call Service) Determination Amendment No.1 2011*[22] that come into effect on 20 April 2011.

8.3   A longer term solution for MoLI is under investigation by the industry, and the Associations and their members are liaising with personnel at the ACMA on possible solutions. The progress of this activity is dependent on the progress of phase 2 of Emergency Alert. It is important that the potential synergy between the relevant systems can be realised so that the risk of developing overlapping functionalities is reduced.

8.4   The technology options for providing location information have been available for a number of years[23] and so are not "new" but the growth in interest in these options means they are "emerging". The growing adoption of location independent communications services (e.g. Voice over IP services) on fixed lines makes it easier for end users to relocate a telephony service, with a resulting loss of the conventional link of a landline telephony service to a fixed location. This leads to a need to update the answering points for emergency calls to receive and process different and/or additional location information. The use of IP based technology for telephony services in the NBN increases the need for such an update. A positive outcome from such an update would be an improvement in the quality of location information available to ESOs to help them respond to emergency calls.

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[21] http://commsalliance.com.au/Documents/all/guidelines/g643
[22] http://www.comlaw.gov.au/Details/F2011L00157
[23] The ACMA 2004 paper "Location Location Location" (http://www.acma.gov.au/webwr/consumer_info/location.pdf) and the Communications Alliance 2008 Report on Location Information Options is available from http://commsalliance.com.au/Activities/voip

8.5   The above suggests that the challenge for implementing new technologies for responding to emergencies and natural disasters lies not in the technology, but in the shared will to fund and implement a solution.

Spectrum

8.6   The terms of reference for the inquiry make specific mention of "*digital spectrum that could improve preparation for, responses to and recovery from an emergency or natural disaster*"

8.7   Spectrum is not of itself a technology but an important national resource. The Digital Dividend spectrum, which consists of 126MHz of contiguous spectrum within the 700MHz band, is a resource that has been identified by the Government for potential broadband mobile use once analogue television broadcasting services are turned off. It is Government policy to use spectrum to its "highest value use or uses"[24].

8.8   The Australian mobile telecommunications industry is committed to working with the Government to ensure that spectrum is allocated and used efficiently so that the benefits of new and emerging mobile broadband technologies can be enjoyed by all Australians.

8.9   While some ESOs have requested that the Government consider an allocation of a portion of the Digital Dividend spectrum for exclusive use by ESOs in Australia[25], the Australian mobile telecommunications industry recommends against such an allocation.

8.10   The Chief Executive Officers of Telstra, Optus and Vodafone Hutchison Australia wrote to the Prime Minister on 31 March 2011 and stated that:

"*Our networks are already widely used by ESOs and the networks can be further enhanced to meet appropriate service level requirements of ESOs...We are strongly of the view that a partnership, which avoids unnecessary duplication and allows each organisation to focus on its core business, will provide the best outcome for Australia.*"; and

"*We suggest that if the Inquiry finds that it is necessary for ESOs to build a separate stand-alone communications network, that alternative spectrum in the 800MHz range should be considered, noting that spectrum in the 800 MHz range has already been identified by the International Telecommunications Union (ITU) for the purposes of Public Protection and Disaster Relief (PPDR) in the Asia-Pacific region.*"

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[24] ACMA Spectrum Management Principles http://www.acma.gov.au/WEB/STANDARD/244002/pc=PC_311683
[25] Law Enforcement and Security Radio Spectrum Committee Response to Digital Dividend Green Paper January 2010

8.11   Since the abovementioned letter was sent to the Prime Minister, the Attorney-General, Robert McClelland and the Minister for Broadband, Communications and the Digital Economy, Senator Conroy, have met with State and Territory public safety agencies and representatives of the mobile telecommunications industry to discuss the development of a mobile broadband capability for police and emergency services. These discussions are ongoing and are examining the possible "ear-marking" of spectrum within the 800MHz band for potential public safety use. The Associations support this policy direction and will continue to actively participate in discussions with the Attorney-General and Minister's departments.

Prioritisation of telecommunications for emergency management

8.12   The existing Wireless Priority Service System26 gives priority to emergency management. It "allows key decision makers and emergency service providers across the Commonwealth and the States and Territories to communicate in a crisis via priority access to the 2G mobile network".

8.13   LTE (Long Term Evolution) is a technology for mobile telecommunications that allows for prioritisation of services. Such prioritisation capabilities could be very valuable to ESOs during emergencies or natural disasters by allowing them to continue to communicate when a telecommunications network is dealing with congestion from increased call volumes and/or reduced capacity.

8.14   The NBN offers prioritisation of services by using different classes of service for network traffic[27]. The Associations are not in a position to comment on how they might be used for emergency management on the NBN.

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[26] http://www.ema.gov.au/www/agd/agd.nsf/Page/Nationalsecurity_WirelessPriorityServiceSystem
[27] NBN Co Product Technical Specification Fibre Access Services December 2010

9. Concluding remarks

9.1   The Associations thank the Senate Committees for the opportunity to make a submission to the Inquiry.

9.2   The Associations would like to recognise the extraordinary efforts of ESOs during the recent spate of natural disasters in Australia and reaffirm the telecommunications industry's commitment to the long-standing partnership between the telecommunications industry and ESOs. This partnership is evident in both formal arrangements for sharing information and working together as well as in on the ground responses during times of emergencies and natural disasters.

10. Contacts

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Appendix A

Inquiry Terms of Reference

That the following matter be referred to the Environment and Communications References Committee for inquiry and report by 2 November 2011:

The capacity of communication networks and emergency warning systems to deal with emergencies and natural disasters, with particular reference to:

a.   the effectiveness of communication networks, including radio, telephone, Internet and other alert systems (in particular drawing on the spate of emergencies and natural disasters of the 2010/2011 Australian summer):

   (i)   in warning of the imminent threat of an impending emergency,
   (ii)   to function in a coordinated manner during an emergency, and
   (iii) to assist in recovery after an emergency;

b.   the impact of extended power blackouts on warning systems for state emergency services, including country fire brigades and landholders or home owners;

c.   the impact of emergencies and natural disasters on, and implications for, future communication technologies such as the National Broadband Network;

d.   the scope for better educating people in high-risk regions about the use of communications equipment to prepare for and respond to a potential emergency or natural disaster;

e.   new and emerging technologies including digital spectrum that could improve preparation for, responses to and recovery from, an emergency or natural disaster; and

f.   any other relevant matters.