

TELSTRA CORPORATION LIMITED

**Submission to the Productivity Commission Issues Paper on Natural
Disaster Funding Arrangements**

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Executive Summary

Telstra welcomes the opportunity to provide this submission to the Productivity Commission's (**Commission**) inquiry into Natural Disaster Funding Arrangements.

As the largest supplier of telecommunications services in Australia, Telstra plays a critical role in maintaining the continuity of communications to communities in times of natural disaster.

Telecommunications services can be crucial as people need early warning information in order to evacuate and families need to be able to connect with loved ones to know they are safe. Telstra is committed to supporting people and communities by providing alternative services, and repairing infrastructure as quickly as possible to return services to normal after a natural disaster.

Delivering communications continuity comes at a significant cost, both in terms of investing in robust infrastructure and the expenses involved in relief activities including restoring services to affected customers. Telstra believes that a cooperative approach involving Emergency Service Organisations (**ESOs**), government (at all levels) and private organisations (such as Telstra), is important for ensuring that the efforts to manage the impacts of natural disasters are efficient and cost effective.

Telstra's approach to managing disasters

Telstra's priority is to minimise the adverse impact that people and communities experience during and after natural disasters. While a key component of this is working to ensure Telstra's networks are resilient to such events, Telstra recognises that relief actions are equally critical. This involves restoring communications services as quickly as possible, but also providing substitute (in some cases mobile) services so that those affected can communicate with their family, ESOs and others in their community, even before fixed network infrastructure is restored.

Telstra's physical assets such as exchange buildings, cables, towers, microwave dishes and mobile sites are all susceptible to damage from natural disasters, especially in the more remote parts of Australia.

Telstra has an ongoing programme of investing billions of dollars in developing the capability of its fixed and mobile network. This investment helps to make the fixed and mobile network more resilient, so that in times of natural disasters there is continuity of communications services and customer losses are minimised. Telstra also provides significant disaster relief assistance to its customers and the wider community, both directly and in partnership with ESOs.

Telstra's resilience, mitigation, relief and recovery efforts are self funded. Telstra does not receive funding from the government. Its network is self insured, although Telstra does hold insurance for its major property sites. As a result, Telstra has an incentive to find the right balance between making its network as resilient as possible while offering competitive prices to customers.

Reliance on other infrastructure - power and the NBN

All telecommunications networks need power to operate. The vast majority of impacts on Telstra's network during natural disasters are due to a loss of mains power in disaster affected areas.

The National Broadband Network (**NBN**) will play a critical role as it is rolled out over the coming years. The continuity of fixed broadband and voice services will become increasingly dependent on the resilience of the NBN. Unlike the legacy PSTN copper networks, the NBN will require power to be available at multiple points in the network, including the customer premises in order to supply a voice service. Forward planning in relation to the roll out of the NBN will be critical to future disaster management.

Recommendations

Recommendation 1: Telstra recommends that the Commission encourage government bodies to strengthen their partnerships with private infrastructure organisations to deliver more cost-effective disaster management solutions.

Telstra has successfully partnered with Federal and state governments to implement initiatives which mitigate the impact of natural disasters on Australians and their property. Recent examples include:

- the Emergency Alert system which uses Telstra's network to distribute government warnings to people in high risk areas; and
- the Regional Mobile Communications Project (**RMCP**) in which Telstra and the WA Government partnered to provide mobile communications to areas considered commercially unviable by private infrastructure owners, which will aid public safety in those communities in times of emergency and natural disasters.

The success of these initiatives highlights the opportunity for government organisations to partner with private infrastructure owners to harness their expertise, capability and scale to build, roll out and operate large projects for the purpose of increasing resilience and making disaster management more cost effective. In particular, there is value in partnering with national infrastructure providers to deliver outcomes that facilitate interoperability and avoid unnecessary duplication of infrastructure across state and government agency boundaries. Telstra believes that a partnership approach can potentially deliver large cost savings for the government and ESOs.

Future telecommunications opportunities include a public-private partnership to deliver a cost-effective mobile broadband capability for ESOs, and delivering the Federal Government's mobile black spots programme.

Recommendation 2: Telstra recommends that the Commission encourage all levels of government to undertake a review of the regulatory environment to identify and reform regulations that may be hampering an efficient and cost effective approach to disaster management.

Telstra believes it is timely for all levels of government (Federal, state and local government bodies) to review the regulations which impact on mitigation, relief and restoration activities associated with natural disasters, with a view to identifying reforms which could make relief efforts more efficient and cost effective, as well as reducing the losses to individuals and businesses.

For example, Telstra provides free prepaid handsets with calling credit to evacuees in times of natural disasters to ensure affected Australians can connect with their loved ones and to assist with making the necessary phone calls to begin rebuilding their lives. The Government's Prepaid identification (ID) determination¹ allows Telstra to provide these handsets to evacuees with lower ID validation requirements than normally required. However, the Prepaid ID determination contains a number of criteria which must be met for evacuees to qualify to receive a handset. In post disaster scenarios these obligations can be time consuming and costly on Telstra and restrict its ability to provide relief assistance to evacuees. Telstra believes that there may be scope for the government to consider scaling back the obligations in the Prepaid ID determination. In particular, Telstra notes that some of the obligations may be superfluous given that the prepaid services are temporary and must be deactivated after 30 days.

Recommendation 3: Telstra recommends that the Commission ask the Government for further information on its plans for the Australian Emergency Management Institute (AEMI) to become a 'virtual' institute.

Telstra understands that the Government is intending to achieve savings of \$0.9m over four years by transitioning the AEMI into a 'virtual' institute and it would like to better understand how the Government envisages a 'virtual' institute would operate.

Telstra has had a long-standing relationship with AEMI and sends key staff to this training facility bi-annually. Telstra and its staff have found this training invaluable to prepare for and respond to natural disasters. ESOs from around the country and other participants share learnings from experiences in past emergencies which can be of immense value in being better prepared for future disasters.

¹ Part 3 of the *Telecommunications (Service Provider – Identity Checks for Prepaid Mobile Carriage Services) Determination 2013*.

1 The impact on Telstra's network of natural disasters

As the largest supplier of telecommunications services in Australia, Telstra plays a critical role in maintaining the continuity of communications to communities throughout Australia in times of natural disaster.

Telstra's fixed network contains a significant number of exchanges and other network infrastructure including optic fibre which covers a distance of over 22,500km and connects 51,031 exchange and sub exchange buildings. Telstra has ADSL in 2,819 exchange areas covering 92% of Australian homes and businesses. Its cable network passes through 2.8 million homes.

Telstra's mobile network operates three technologies, 4G, 3G and 2G across a wide range of spectrum including the 850MHz, 900MHz, 1800MHz, and 2100MHz frequency bands. Telstra's 3G geographic footprint is 2.3 million square kilometres. The spectrum in the 700MHz and 2500MHz bands that was recently secured by Telstra at auction will be used by Telstra to deploy the latest 4G technology when the spectrum becomes available in early 2015.

There have been a number of disasters in recent years which have devastated communities and required government, businesses and individuals to work together to support families and rebuild communities. Such disasters include tropical cyclone Larry in 2006, Black Saturday Victorian bushfires in 2009, the Queensland floods in 2011, the tropical cyclone Yasi in 2011 and more recently the bushfires in the Blue Mountains west of Sydney in October 2013. Telstra played a critical role in maintaining communications for the communities affected by these disasters.

Natural disasters can have a severe impact on Telstra's network.

In order to maximise continuity of services Telstra has an ongoing program of investing billions of dollars in developing the capability of its network. For example, in each of financial years 2012/13 and 2013/14 Telstra invested over \$3 billion in developing its fixed and mobile networks. Telstra also incurs substantial costs to restore services to affected customers and focuses enormous energy on rebuilding its network as quickly as possible.

Telstra does not rely on government funding for mitigation, relief or response activities in relation to natural disasters. Telstra's preparation for, and response to, natural disasters is self funded. Telstra's network is self-insured and it holds insurance on its major property sites.

Table 1 below illustrates the large number of Telstra services that were affected as a result of these recent natural disasters.

Table 1: Summary of recent natural disaster network impacts

SEVERE TROPICAL CYCLONE LARRY '06	BLACK SATURDAY VICTORIAN BUSHFIRES '09	QLD FLOODS '11	QLD TROPICAL CYCLONE YASI '11	WA SEVERE WEATHER PERTH & SOUTH WEST '12	QLD EX-TROPICAL CYCLONE OSWALD & FLOODS '13
28,000 PSTN services impacted	8,000 PSTN services impacted	23,200 PSTN services impacted	94,000 PSTN services impacted	70,000 PSTN services impacted	438,000 PSTN services impacted
40 mobile base stations impacted	27 mobile base stations impacted	159 mobile base stations impacted	159 mobile base stations impacted	165 mobile base stations	777 mobile base stations
3000 ADSL services impacted	2700 ADSL services impacted	13,600 ADSL services impacted	32,000 ADSL services impacted	20,600 ADSL services	179,000 ADSL services
190 network sites lost mains power	40 network sites lost mains power	375 network sites lost mains power	680 network sites lost mains power	863 network sites lost mains power	1010 network sites lost mains power
40 portable generators deployed	53 portable generators deployed	70 portable generators deployed	110 portable generators deployed	50 portable generators deployed	65 portable generators deployed

While Table 1 illustrates the devastating effect natural disasters have on Telstra's network, the vast majority of these impacts were due to the loss of mains power in disaster impacted areas. Once mains power was restored the majority of these services became available for use by customers.

2 Telstra's resilience, preparation and prevention actions

Telstra's physical assets including its exchanges, towers, microwave dishes and mobile antennas are vulnerable to natural disasters particularly in more rural areas of Australia. While Telstra's networks can be severely impacted, Telstra's priority is to ensure that customer impacts are minimised. This includes making sure Telstra's network is resilient as well as engaging in preparation and prevention strategies in the lead up to riskier seasons such as bushfire season in Victoria.

Resilience increases in situations where multiple networks, such as fixed telephone and mobile networks, are available to customers as there is less chance of both network platforms being damaged or congested in the event of a natural disaster.

2.1. Network resilience

In response to the January 2013 Far North Queensland floods², Telstra undertook a National Network Resilience Review resulting in close to 50 recommendations to increase the resilience of Telstra's network. Telstra has started to implement these recommendations, which include strategic investments to improve core network architectures, deployment standards and operational processes to increase the resilience of the core network.

Since the report was published in May 2013, significant improvements have been made to Telstra's emergency 000 fixed line network, internet protocol (IP) core network, management networks which

² The Far North Queensland region was isolated from a communications perspective for 24 hours at the peak of an extreme flood event where 4 major cable points between Brisbane and Townsville were washed away in 4 days.

remotely monitor the availability and quality of services, and the mobiles, broadband and business services networks.

More broadly, Telstra engages in the following to ensure the resilience of its network:

1. **Building third level redundancy into the core network** so that if the main connectivity path is affected, other paths are available to keep customers connected. In high risk areas such as far North Queensland, a third connectivity path has been built and is estimated to reduce expected downtime from 33 minutes per year to four minutes per year³;
2. **Providing improved backup power capability** for continuity of services in case of power failure. This includes backup power capability including stand-by generators and battery back-ups.
3. **Ensuring regular testing:** of standby generators, batteries, rectifiers and associated alarms.
4. **Deploying critical spares at strategic sites** to allow a two to six hour response time in emergencies depending on the platform held by either the vendor or Telstra for transmission, core, aggregation and mobiles infrastructure.
5. **Remotely monitoring the fibre network to improve restoration times** The national monitoring footprint was augmented to include over 5000km of fibre on core fibres between Brisbane and Bamaga, near the tip of Cape York.
6. **Reviewing and updating deployment standards for infrastructure** so improved options can be implemented for new deployments. For example, providing solutions to maximise fibre diversity within the exchange environment.
7. **Creating innovative technology solutions which allow Telstra to restore services quickly** to disaster impacted communities, and assist within the overall recovery effort.

Examples of such technology solutions include:

- *Cells on Wheels (COWs)* – a portable mobile base station that provides temporary coverage if a mobile site is lost or a temporary expansion of mobile coverage.

Figure 1: A COW at Winmalee shopping Centre, NSW to temporarily increase mobile network capacity during bushfires, October 2013



³ For Emergency 000 Fixed line services.

- **Satellite Cells on Wheels (SatCOWs)** – provides Telstra Next G™ network coverage for locations where there is no terrestrial backhaul network or power available. It is highly portable (can be transported in a standard 4WD, light aircraft or helicopter) and can be set up within 1.5 hours. In the aftermath of Cyclone Yasi a SatCOW was deployed to Palm Island, restoring communications within 24 hours.

Figure 2: A Satellite Cell on Wheels (SatCOW) at Marble Bar 200Kms S/E of Port Hedland in WA



- **Mobile Exchanges on Wheels (MEOW)** – a temporary mobile exchange service which can operate using generators, batteries or mains power to enable the quick installation of temporary communication solutions, especially for those communities hardest hit by the disaster. Telstra is not aware of any other carrier globally who offers innovative technology solutions such as MEOWs.

Figure 3: A Mobile Exchange on Wheels (MEOW)



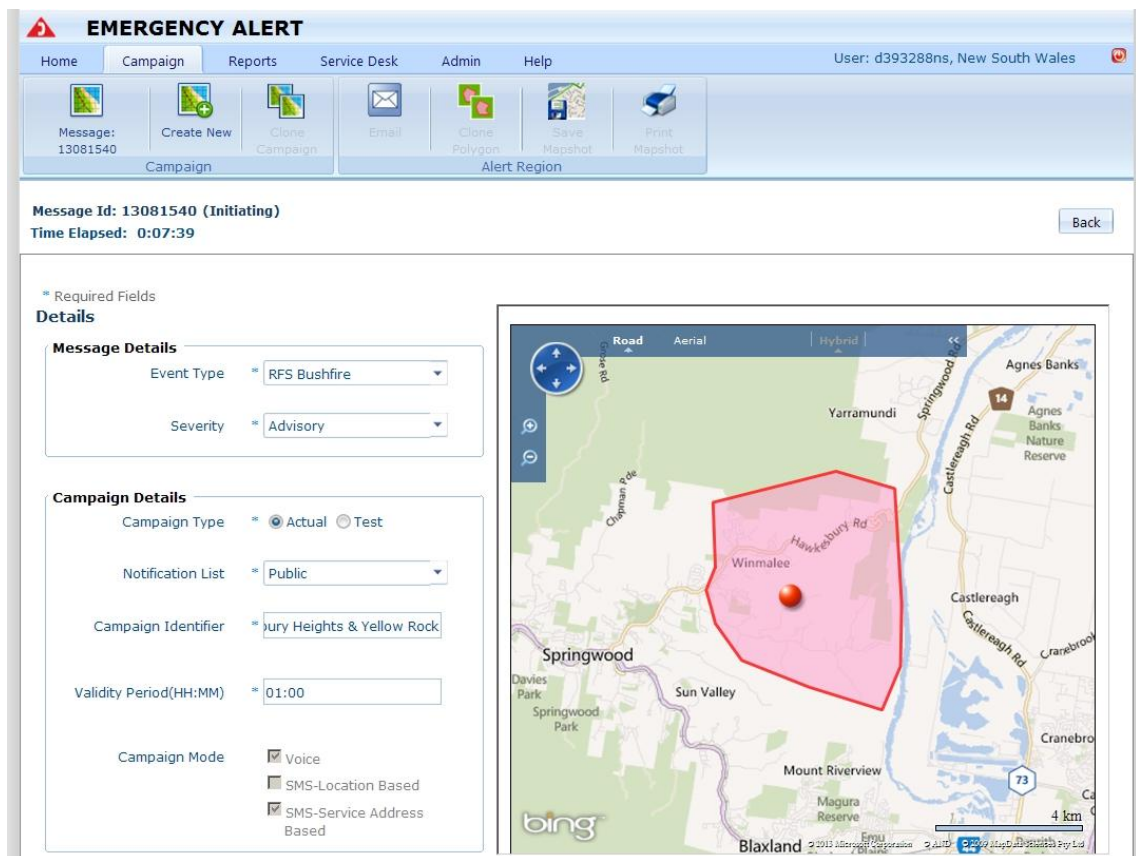
- **Use of Long Term Evolution (LTE) mobile broadband technology** – such that emergency service traffic within a virtual private network can be granted higher priority so that vital communications are not disrupted in situations where the network is at risk of being overloaded.

2.2. Preparation and prevention

Telstra also has the following capabilities and engages in the following measures to prepare for and reduce the impact of natural disasters:

1. **Telstra's Global Operations Centre (GOC):** A state-of-the-art facility which monitors and maintains Telstra's networks 24 hours a day seven days a week. The GOC monitors national and world events that may create demands on the network. It can quickly identify, even anticipate, service incidents on any scale, at times before customers are even aware of them. This aids in preparing for natural disasters. The GOC includes the Major Incident Management (MIM) group, a customer focused team that provides escalated incident management across all of Telstra's networks, platforms, systems and escalated customer incidents. In emergencies, the GOC takes the lead to restore critical services quickly to communities, working in close collaboration with ESOs.
2. **Emergency alert services:** The Federal Government and Telstra have partnered to deploy a telephony-based warning system that enables authorities to notify people at risk during natural disasters or other emergencies that threaten public safety such as bushfires, floods, chemical spills or major police incidents. The system can simultaneously send out 500 SMS messages per second and 1,000 voice messages per minute. The system has been used on more than 1,350 occasions since 2010, with over 11 million alerts sent to affected community members. Telstra looks to continually enhance the system as the expertise of users and their requirements increase.

Figure 4: An example of an Emergency Alert message



3. **Priority Assist customers with life-threatening medical conditions are given a higher level of service restoration:** Telstra customers whose life may be at risk without access to a fully-operational phone service are prioritised for service restoration in general, and in times of natural disasters.
4. **Combined emergency services training exercises:** Telstra participates in combined emergency services exercises with organisations around the country. These exercises are designed to test communication and collaboration between all organisations that play a role during an emergency. Participation in these exercises is a key part of Telstra's seasonal

preparation for natural disasters. Telstra's involvement strengthens its relationships with ESOs and allows critical communication plans and processes to be tested and refined, ahead of an actual emergency situation. For example, in May this year Telstra's National Emergency Services Liaison Officers (**ESLO**) coordinated a communications training exercise (Exercise CommAlpha) for all Victorian State Emergency Services and successfully tested the deployment of some world first technologies to support ESO's as well as provide briefings on future mobile technologies being investigated by Telstra's network engineers.

Figure 5: Exercise CommAlpha conducted in Gembrook, Victoria



5. **Attending training at the Australian Emergency Management Institute (AEMI):** The AEMI is a specialised training facility for ESO's and critical infrastructure providers to train and prepare for natural disasters and emergencies of all kinds. Telstra sends key staff to the AEMI training facility bi-annually to prepare for and respond to natural disasters. In particular, the AEMI provides Telstra and other critical infrastructure providers the opportunity to network with ESO's from around the country to strengthen this relationship. ESOs from around the country and other participants share learnings from experiences in past emergencies which can be of immense value in being better prepared for future disasters. This is particularly useful as it encourages inter-state and inter-agency cooperation by providing ESOs from different states and territories the opportunity to share these learnings and experiences with each other.

Figure 6: Telstra emergency network equipment display for emergency services at the AEMI, June 2013



6. **Appointing Telstra ESLOs:** Telstra has ELSOs in each state whose job is to be the primary contact 24 hours a day seven days a week to provide priority assistance and liaise with

emergency agencies and other critical infrastructure providers in times of disaster. ESLOs can work at the appropriate state, regional or municipal Emergency Management Centre, share real time network information, provide assistance as required and also consult with ESO's to prioritise the recovery of the network.

7. **Clearing areas of fire risk around key infrastructure:** Telstra clears bushes and trees around remote (rural or country) exchanges and other key infrastructure in the lead up to bushfire season.
8. **Periodic review of weather and network events:** To ensure root causes to customer impacts are eliminated or mitigated against in the future.
9. **Making extra network capacity available:** To minimise the impact on customers, extra network capacity is made available to cope with the expected increased demand in and around a disaster area (combined with actions such as the priority recovery of mobile base stations).
10. **Managing staff:** Ensuring a sufficient number of staff, such as field technicians, are available during risky disaster seasons and mobilising field technicians to prepare to enter the disaster area once it is safe to do so.

3 Telstra's relief assistance to customers and the wider community

In times of natural disaster, Telstra is committed to assisting both its customers and the wider community. Many of Telstra's resilience and preparation activities provide relief for Telstra's customers and the community including its Emergency Alert service which keeps the community informed about disasters and any on-going risks to personal safety and the safety of property. In addition, deployment of Telstra's innovative technology such as COWs, SatCOWs and MEOWs allow both Telstra's customers and the wider affected community to stay in touch with loved ones and ESOs.

3.1. Disaster relief packages for customers

Telstra provides both short and long term disaster relief packages for Telstra residential and small business customers.

Where there is any interruption to these customers as a result of a natural disaster, Telstra provides its customers with disaster relief packages including waiving customers' service fees until service is restored, providing free call diversion from an affected Telstra fixed phone service to another Australian fixed or mobile service (regardless of the carrier) and allowing customers to make local and STD calls from a mobile service at fixed line rates.

Telstra's current policy is also to provide affected customers with \$500 upfront credits for fixed line services \$100 of upfront credits for mobile services and \$110 of upfront credits for BigPond services.

3.2. Community assistance

Telstra assists communities and various levels of government in a variety of ways and is proud of its long history of working effectively with ESOs in responding to natural disasters.

Telstra's assistance is funded at its own expense and includes:

- Enabling payphones in affected areas to provide free local and STD calls for people without telecommunications to connect to their family and friends;

- Establishing communications services in evacuation centres including free phone lines and temporary internet Wi Fi kiosks;
- Establishing dedicated call centres at no cost to the Government to support relief efforts;
- Providing free prepaid handsets with SIM cards and prepaid phone cards for use by evacuees;
- Establishing wireless gateways for internet access;
- Providing modems for relief organisations and the provision of chargers for people to recharge phone handsets;
- Distributing satellite kits to ESOs and some isolated communities;
- Providing loan handsets to many locations outside designated evacuation centres; and
- Installing temporary mobile facilities (e.g. COWS) to enhance services in impacted areas where congestion arises due to the loss of fixed line services or to provide additional capacity to Emergency Service Control Centres, such as in Crystal Brook in SA earlier this year.

The government also acquires other services from Telstra to assist with its relief efforts. These services are provided to the government under pre-existing supply agreements.

Figure 7: Community Recovery Unit in operation at Bundaberg North post Cyclone Oswald 2013



Additionally, Telstra provides emergency response leave for Telstra staff who volunteer with ESOs and employees in disaster affected areas can use their annual volunteer day to support their local communities in clean-up efforts. Telstra also matches employee donations to emergency appeal accounts.

Telstra is proud to be able to assist the Government and the community in these ways and continually looks at ways in which it can better support relief efforts.

4 Recovery from natural disasters and funding arrangements

Telstra incurs significant expense restoring and rebuilding Telstra's network as a result of natural disasters. As noted previously, Telstra does not rely on any funding from the government in times of natural disasters to restore its network or rebuild damaged assets. Telstra's disaster mitigation,

recovery and relief efforts are self funded and its assets are self insured. Telstra holds insurance on its major property sites.

The costs of restoring Telstra's network and deploying temporary COWs, SatCOWs and MEOWs during and after disasters are absorbed by Telstra. As Telstra operates in a competitive environment, the prices Telstra can charge customers are constrained. Telstra therefore has an incentive to find the right balance between making its networks as resilient as possible while keeping prices to customers as low as possible.

5 Reliance on other infrastructure

The resilience of Telstra's network in times of natural disaster needs to be considered in the context of its dependency on other infrastructure providers. Telstra believes the Government needs a holistic strategy to improve resilience and, where there is no business case for private investment, government funding may be appropriate.

5.1. Power issues

All telecommunications networks need power to operate. Power loss is a significant issue faced by Telstra in maintaining the operation of its networks during extreme weather events, including fires, flooding and cyclones.

Key elements of Telstra's networks rely on a continuous supply of power. These include exchanges and mobile base stations. If the power supply is disrupted, functionality may be lost to that equipment, and to the services supported by that equipment. In recognition of this dependency, these network elements are powered by batteries to ensure continuity of service during mains power interruptions. Mains power is used to constantly charge the batteries. In this way, the telecommunications equipment will continue to operate for a period of time (typically around 8 hours) after mains power is interrupted without any manual intervention until the batteries expire. Telstra has a regime of regularly checking and replacing these batteries to maintain the effectiveness of the services in the event of a disaster.

Generators can also be used to supply power at exchanges if mains power is lost. Some exchanges have onsite generators that will automatically start if mains power is lost and will run for as long as the generator has fuel. Where a facility does not have an onsite generator, a mobile generator may be deployed at the site if required and if the site is accessible. Telstra engages a supplier which has at its disposal a range of generators ranging from smaller petrol generators to larger 50kva diesel mobile generators coupled with 4000 litre long range fuel tanks. These generators are available for use during power outages and Telstra's supplier is able to install them at sites nominated by Telstra at short notice, subject to access being available. If the fuel in a generator is depleted, battery power cannot be maintained. Under normal conditions, power is restored before battery power runs out. Where mains power is interrupted for a prolonged period and access is not able to be secured to the site, because it is unsafe (for example, where roads have been washed away), the battery power will eventually fail and the network element will cease operating.

If mains power to an exchange or mobile base station is lost, a network alarm will alert staff at Telstra's GOC. This prompts Telstra to arrange a service person to visit the site to attend to the power loss or to recharge the batteries. In an ongoing flood situation, it is often not possible to immediately attend the site, and the site may eventually lose power and cease operating. Loss of functionality at an exchange will normally mean that services connected to that exchange will cease to operate.

If power is lost at the customer premises, or access point, service may be impacted depending on the type of phone used by the customer. A standard landline phone draws the power it needs from the copper wires that connect the phone to the network. Therefore, a loss of power at the customer access point will not ordinarily impact service. However, if a customer is using a device that requires its own source of electricity, such as a cordless phone system, and no battery or other suitable

backup supply is installed, service to that device will be impacted during a power outage. In this case, no calls can be made, including calls to emergency services.

5.2. Resilience of the NBN

As telecommunications fixed access networks evolve from copper to fibre optics it is important to understand the impact on service availability during power outages. As stated above, all telecommunications networks need power to operate. Fibre optic networks are no exception and require power to be available at multiple points in the network, including the customer premises, in order to supply a voice service. This is different to the existing Telstra copper public switched telephone network (**PSTN**) where a corded landline phone draws the power it needs from the wires that connect the phone to the network. Therefore, unless the customer is using a cordless phone, a loss of power at the customer's premises will not ordinarily impact services delivered on Telstra's existing copper network.

NBN Co traditionally supplied battery backup units on all fibre-to-the-premises (**FTTP**) installations. These allowed customers using corded phones connected to the UNI-V (voice) ports on the Network Termination Device (**NTD**) to make calls for approximately 5 hours during a mains power outage. However, at the Minister's request, NBN Co are now progressively moving to a new model where most new FTTP customers will have to choose whether or not they want battery backup. This new model is scheduled to be fully implemented by 1 October 2014. NBN Co does not take responsibility for maintaining NTD batteries.

In the case of a natural disaster where power may be lost to network buildings and at the customer premises for extended periods, the restoration of power to a network building may no longer be sufficient to restore service to a customer. Each customer premises will require as a minimum the restoration of their domestic power for their service to be restored.

NBN Co does not provide a battery backup option for customers on their fixed wireless and satellite networks. While discussion is underway regarding the move to a multi-technology model incorporating NBN fibre-to-the-basement (FTTB), fibre-to-the-node (FTTN) and hybrid fibre-coaxial (HFC) networks, it is too early to assess the impact of natural disaster on these networks under management of NBN Co.

As the NBN is rolled out and Telstra migrates services off of its fixed line network, Telstra becomes a retail service provider accessing the NBN across 121 points of interconnect and provisioning services over ports on the NTD inside a customer's premises. As Telstra has a long history of managing service and network restoration in times of natural disaster, we have proactively engaged with NBN Co to determine the roles and responsibilities of each party under such scenarios. This engagement has resulted in a series of workshops where Telstra and NBN Co are seeking a model of engagement which involves Telstra managing service restoration and NBN Co managing network restoration following a natural disaster.

6 Opportunities for the Government and Telstra to deliver more cost effective and resilient emergency communications solutions

To date, Telstra has successfully partnered with the Federal and state governments to mitigate the impacts of natural disasters and ensure communities are better prepared to respond to emergencies.

Key examples include:

- the **Emergency Alert system** (discussed above) which uses Telstra's network to distribute government warnings to people in high risk areas; and
- the **Regional Mobile Communications Project (RMCP)** in which Telstra and the WA Government partnered to provide mobile communications to 113 sites considered

commercially unviable by private infrastructure owners. This will aid public safety in those communities in times of emergencies and natural disasters by allowing for emergency information to be easily communicated to communities through traditional mobile handsets. Additionally, the infrastructure was also provisioned to accommodate emergency services antennas to allow them to use these facilities to expand their reach (at no additional cost to those organisations). This program also provided some areas with access to internet and mobile services for the first time and increased Telstra's mobile coverage footprint in WA by 22% to 525,000 square kilometres.

The success of these initiatives highlights the opportunity for governments to strengthen partnerships with private infrastructure owners by harnessing their expertise, capability and scale to build, roll out and operate large projects which increase resilience and make the management of disasters more cost effective. Other examples of such initiatives include the LTE Advanced Network for Emergency Services (**LANES**) strategy which will be able to provide emergency services with dedicated capability on Telstra's mobile network, and the Government's \$100m mobile black spots coverage program.

As natural disasters cross state borders, Telstra believes there is value in partnering with national infrastructure providers to deliver such initiatives. This will support interoperability efficiencies and avoid unnecessary duplication of infrastructure. This could result in significant cost savings for the government and ESOs, including the delivery of more cost effective and resilient solutions to mitigate and manage the effect of natural disasters.

6.1. LTE Advanced Network for Emergency Services (LANES) strategy

One of the key challenges for ESOs is the need to stay on top of rapid and constant innovation. Telstra continually invests in its mobile network to bring its customers the benefits of mobile innovation faster. By using Telstra's carrier infrastructure for mobile broadband critical communications, ESOs gain the benefits of a multibillion dollar investment – without having to worry about frequent maintenance, updates, repairs and site leases. This reduces risky ESO investments in an area where technology is continually evolving and helps ensure an upgrade path to the future.

Recognising that ESOs have priority needs for critical communications, Telstra has developed the LANES strategy. This strategy is an innovative approach to Public Protection and Disaster Relief (**PPDR**) networks, which involves using dedicated capability on Telstra's mobile network. This provides ESOs with a unique opportunity to rapidly increase network capability, coverage and reach, while still delivering the high levels of security they require. Dedicated PPDR radio frequency spectrum is retained solely and exclusively for the use of the ESOs. However, if it becomes congested, the excess traffic can be overflowed to Telstra's public mobile network.

By co-locating the PPDR spectrum on the Telstra mobile network, ESOs gain access to the largest mobile broadband network in Australia. This is an important consideration given that many are seeing a sharp rise in public emergencies in urban, rural and remote areas. The Telstra mobile network is Australia's largest national wireless broadband network with more than 7,800 coverage sites over 2.3 million square kilometres – more than any other mobile network in Australia. It would be economically untenable for any ESO to replicate such infrastructure.

ESOs also need a flexible, long-term approach that enables them to take advantage of rapidly evolving mobile broadband technologies, like video and GPS based services that can strengthen critical communications. The Telstra mobile network is standards-based with support for helmet-mounted video cameras, GPS and messaging innovations. Telstra also has relationships with industry partners, who can work with ESOs to assist in creating an ecosystem of devices around an Australian PPDR capability.

Figure 8: Graphical representation of the LANES strategy



6.2. Mobile Black Spot Programme

The Mobile Black Spot Programme is an Australian Government initiative to extend mobile phone coverage and competition in regional Australia. The programme will invest in telecommunications network infrastructure to improve the geographic coverage of high quality mobile voice and wireless broadband services, as well as promote competition in the provision of these services. The \$100 million program over four years will potentially improve mobile coverage along major transport routes, in small communities and in locations prone to experiencing natural disasters, as well as addressing unique mobile coverage problems.

The Government will partner with one or more private infrastructure owners to deliver this program – utilising the expertise, capability and scale of such parties to build, roll out and operate such a large project. Telstra is supportive of this initiative which will improve communications services to rural and regional communities of Australia, allow for disaster warnings and assist with the coordination and management of emergency responses.

7 Regulation impacts Telstra’s ability to respond to and minimise the impact of natural disasters

There are a number of regulations which impact Telstra’s mitigation, relief and restoration activities associated with natural disasters. While governments aim to ensure regulations are necessary and proportionate to their goals, the impact regulations can have on businesses’ abilities to respond to natural disasters and conduct relief efforts may not always be fully appreciated at the time they are introduced. Telstra believes there is scope to reform some of these regulations to allow businesses to conduct mitigation, relief and restoration activities in a more efficient and cost effective manner, and reduce the losses suffered by individuals and businesses.

To illustrate this point, set out below are two examples detailing how Telstra’s mitigation, response and recovery efforts have been impacted by regulation.

7.1. Prepaid mobile ID regulation

As discussed above, Telstra provides free prepaid handsets with calling credit to evacuees in times of natural disaster to ensure affected Australians can connect to their loved ones, ESOs and begin rebuilding their lives.

In 2013, the Federal Government introduced a determination⁴ which allows Telstra to provide these handsets to evacuees with lower ID validation requirements than are normally required. This is extremely useful because in practical terms evacuees may have misplaced or left behind their identification during evacuation. The determination, however, contains a number of criteria which must be met for evacuees to qualify to receive a handset under these circumstances as well as imposing time consuming and costly obligations on Telstra which restrict its ability to provide relief assistance to evacuees in the most efficient and cost effective manner.

For example, in order for an evacuee to receive a handset in these circumstances:

- a state of emergency must have been declared by the relevant Minister;
- the affected person's principal place of residence must have been destroyed, rendered uninhabitable or made inaccessible as a result of an emergency;
- Telstra staff must confirm with the affected person that their principal place of residence has been destroyed, rendered uninhabitable or made inaccessible as a result of an emergency;
- if the handset is provided to an Emergency Assistance Organisation (**EAO**) the organisation must be registered on the Australian Charities and Not for Profit Commission register.

In addition, the determination places the following restrictions and obligations on Telstra:

- Telstra is not permitted to distribute prepaid services under this Determination until after the Minister has declared the state of emergency and then only for a 7-day period thereafter;
- The prepaid service must be temporary and must be de-activated by Telstra after 30 days;
- Telstra must retain the following records for each mobile prepaid provided (regardless of whether Telstra provided the prepaid service directly or via an EAO):
 - mobile numbers issued;
 - name and residential address of the exempt individuals;
 - that the prepaid service was provided under Part 3 of the Determination; and
 - if applicable, the name and business addresses of the EAOs.
- Telstra must also maintain a register to record the following information:
 - the date on which the emergency first occurred;
 - the location or area affected by the emergency;
 - a description of the nature of the emergency;
 - the total number of prepaid mobile carriage services supplied by Telstra (directly or indirectly); and
 - the number associated with each prepaid mobile carriage service supplied.

Telstra appreciates that this regulation is designed to ensure process around the provision of prepaid mobile handsets during disaster situations and that some obligations are intended to address security concerns. However, given the importance of providing efficient and cost-effective relief to those impacted by natural disasters, Telstra believes there may be scope for the government to consider whether these obligations could be scaled back.

Telstra notes that some of the obligations may be superfluous given that the prepaid services are temporary and must be de-activated after 30 days. For example, the information requirements for Telstra to provide these temporary services now go beyond that required to provide a commercial

⁴ Part 3 of the *Telecommunications (Service Provider – Identity Checks for Prepaid Mobile Carriage Services) Determination 2013*.

service. While Telstra could get around this by going through the normal identification process, this is not practical for those evacuees without access to their identification documents.

In addition, Telstra considers that regulation requiring staff to specifically ask affected individuals whether their principal place of residence has been destroyed, rendered uninhabitable or made inaccessible as the result of an emergency is unnecessary and is likely to cause distress to the recipients of the emergency assistance.

7.2. Development approval delay

One of Telstra's key priorities is to ensure extensive and reliable communications services are available to all Australians, particularly in times of natural disasters. Telstra's ability to provide this service can sometimes be impacted by the local government approval process.

For example, Telstra sought to establish a mobile base station in Victoria in 2013 in a high risk fire danger area with poor mobile reception which affects the ability of ESOs to contact residents in at-risk areas in case of fire or other natural disasters.

Telstra's application to build this mobile base station was rejected by local council a number of times on the basis that the location of the tower was unsightly. After 15 months of consultation the Council approved Telstra's application to construct this tower in March 2014. Telstra believes the development application was finally approved as a result of Telstra's concern that more reliable communications services were needed for its customers in the area and that the Council's Municipal Emergency Management Plan itself notes that the Council intends to use the internet and social media as a key communications mechanism to residents in the event of a natural disaster.

Subsequently, a single resident opposed the application and the matter is now before the Victorian Consumer Affairs Tribunal. Telstra had originally intended to construct the mobile base station in time for the 2014/15 fire danger season however that no longer appears to be possible.

Given the importance of providing reliable communications services to all Australians, particularly to those in high-risk natural disaster areas, Telstra believes local governments could better give greater weight to the importance of mitigation strategies for natural disasters when considering development application proposals.

8 Recommendations

Recommendation 1: Telstra recommends that the Commission encourage government bodies to strengthen their partnerships with private infrastructure organisations to deliver more cost-effective disaster management solutions.

As discussed above, Telstra has successfully partnered with Federal and state governments to implement initiatives which mitigate the impact of natural disasters on Australians and their property including the Emergency Alert system and RMCP.

The success of these initiatives highlights the opportunity for Government organisations to partner with private infrastructure owners to harness their expertise, capability and scale to build, roll out and operate large projects for the purpose of increasing resilience and making disaster management more cost effective. In particular, there is value in partnering with national infrastructure providers to deliver outcomes that facilitate interoperability and avoid unnecessary duplication of infrastructure across state and government agency boundaries. Telstra believes that a partnership approach can potentially deliver large cost savings for the government and ESOs.

Future telecommunications opportunities include a public-private partnership to deliver a cost-effective mobile broadband capability for ESOs, and delivering the Federal Government's mobile black spots programme.

Recommendation 2: Telstra recommends that the Commission encourage all levels of

government to undertake a review of the regulatory environment to identify and reform regulations that may be hampering an efficient and cost effective approach to disaster management.

Telstra believes it is timely for all levels of government (Federal, state and local government bodies) to review the regulations which impact on mitigation, relief and restoration activities associated with natural disasters, with a view to identifying reforms which could make relief efforts more efficient and cost effective, as well as reducing the losses to individuals and businesses.

For example, Telstra believes that given the importance of providing free, easily accessible communication mechanisms to disaster affected Australians, such as prepaid mobile handsets, there may be scope for the government to consider whether the obligations in the Prepaid ID determination could be scaled back. In particular, Telstra notes that some of the obligations may be superfluous given that the prepaid services are temporary and must be de-activated after 30 days.

Telstra also believes that given the importance of providing reliable communications services to all Australians, particularly to those in high-risk natural disaster areas, local governments could give greater weighting to mitigation strategies for natural disasters when considering development application proposals.

Recommendation 3: Telstra recommends that the Commission ask the Government for further information on its plans for the Australian Emergency Management Institute (AEMI) to become a 'virtual' institute.

Telstra understands that the Government is intending to achieve savings of \$0.9m over four years by transitioning the AEMI into a 'virtual' institute and we would like to better understand how the Government envisages a 'virtual' institute will operate.

Telstra has had a long-standing relationship with AEMI and sends key staff to this training facility bi-annually. Telstra and its staff have found this training invaluable to prepare for and respond to natural disasters. ESOs from around the country and other participants share learnings from experiences in past emergencies which can be of immense value in being better prepared for future disasters.