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

Submission to the Senate Standing Committees on Environment and Communication

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EXECUTIVE SUMMARY

The NSW State Emergency Service (SES), as the agency responsible for flood, storm and tsunami emergencies welcomes the opportunity to provide this submission to the Senate Standing Committees on Environment and Communication for the enquiry into the capacity of the communications networks and emergency warning systems to deal with emergencies and natural disasters.

The following is a summary of the main points raised for the enquiry to consider in this submission:

- Make upgrades to the Emergency ALERT system to enable location based warnings and to expand current limitations on the number of telephone lines that can be warned at any single time;
- Make legislative amendments to:
    - Classify the NSW SES as an emergency service under the Telecommunications Act 1997; and
    - Segment the telecommunications network to provide services solely for the use of Public Safety and supporting Agencies.
- Reduce costs for volunteer Public Safety Agencies through the introduction of mandatory Community Service Obligations for telecommunications carriers to provide reduced or zero cost based services;
- Provision all Public Safety Agencies facilities with low or no cost connections to the National Broadband Network (NBN) to enable them to take advantage of high bandwidth new or emerging technologies;
- Invest in community education through:
    - Providing advice to the community to create an emergency kit with a battery powered radio tuned to the national broadcaster; and
    - Make changes to the national curriculum to include mandatory education on how to prepare for, respond to and recover from emergencies.
- Providing funding to ensure all Public Safety Agency facilities have adequate emergency power so that they are able to continue operating when power failures occur during emergencies or disasters.

In addition to this submission the NSW SES has also contributed to the NSW Government submission.

BACKGROUND

The State Emergency Service (SES) was formed in April 1955, following disastrous floods across NSW that had caused substantial loss of life and massive damage to property. The government of the day recognised the need for a body of trained and disciplined volunteers with good local knowledge who would be available at short notice to help the community during such disasters.

Today the NSW SES is recognised as the most versatile and widely used Public Safety Agency in New South Wales with 10,000 volunteers across the state, responding to and supporting their communities during emergencies.

The NSW SES is the lead agency in the response to floods, storms and tsunami in NSW, all of which are identified as the most costly natural disasters. In addition, the NSW SES also supports other emergency services in times of other natural and man made disasters and is committed to building safer and more resilient communities.

The Service's core roles relate to floods, storms and tsunami. NSW SES volunteers are highly-skilled and well-trained to provide rescue, first aid and other vital services in emergencies. All 228 Volunteer NSW SES Units in NSW respond to the damage caused by storms and the majority have an active flood management role. Many local units are responsible for road crash rescue within their area of operation and all units throughout the State provide support to other emergency services (including the NSW Police Force, Fire and Rescue NSW, NSW Rural Fire Service and Ambulance Service of NSW), as well as being involved in a range of community activities.

The NSW SES operates a 24/7 call centre at its State Headquarters in Wollongong for life critical activation of resources during emergencies, to support other Public Safety Agencies, and to take call from the public on the flood and storm assistance line, 132 500 and the flood information line 1800 201 000. In addition the NSW SES has a number of dedicated overflow call taking facilities to deal with avalanche call taking scenarios and all SES facilities and systems have been designed to operate as remote call taking sites.

NSW SES volunteers are renowned for their capacity to respond outside of their identified unit and region boundaries to assist every community throughout NSW. As a result of this capacity, the NSW SES is now frequently called upon to respond interstate to assist their SES counterparts and communities in need. This capacity was no more evident than in the response to the Queensland floods and Cyclone Yasi impact, where the NSW SES volunteers committed over 32,000 hours in just a six (6) week window.

RESPONSE TO ENQUIRY QUESTIONS ON 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;

The primary aim of communication before, during and after an emergency is to inform as many people as quickly as possible of the relevant information on how that impending threat may impact them and the actions that they should undertake to prepare.

During large scale emergencies, communications networks are prone to failure (eg from loss of power or flood inundation) and they suffer congestion as many people attempt to use the networks to contact Public Safety Agencies or relatives and friends in an impact area or to obtain information.

Public Safety Agencies also use a variety of communications channels to pass information to each other before, during and after emergencies and to keep Government informed.

There are risks with over reliance on a single communications mechanism not being able to reach the intended recipients of a message. As such the NSW SES uses a multitude of communications channels to advise the public of an impending emergency, during the response and throughout the recovery process because the communications channels are prone to failure and no single channel can be relied upon.

These channels include and are not limited to:

- Telephone trees;
- Door knocking;
- Television;
- Public Broadcast Radio;
- UHF Radio;
- Emergency ALERT;
- Website;
- Email;
- Fax stream;
- Auto telephone dialler;
- Vehicle mounted loud speakers; and
- SMS.

The NSW SES is currently considering how social media such as Twitter, Facebook and YouTube may be used as additional channels.

For the period 1 July 2010 to the date of this submission, the NSW SES has responded to a number of significant emergencies in NSW, during which the Emergency Alert (EA) system has been utilised to send warning messages to over 38,000 telephone numbers.

Upgrades to the Emergency ALERT system are required to effectively use this tool to warn large portions of the population. At present, limitations on the number of properties that can be selected must be increased and work needs to be done to improve message delivery times. Eg The current limitation of 50,000 properties for a single message, which can take up to 40 minutes to deliver, would make it extremely difficult to evacuate the entire coast of NSW or parts of in the event of a tsunami.

In addition, modifications need to be implemented within the Emergency ALERT system to enable location based messaging to warn those people that are in the foot print of an emergency, not as is the current situation being based on billing address.

Many agencies that support the NSW SES, such as the Bureau of Meteorology, also rely heavily on the telecommunications network as a means of transferring data in real time from remote sensing devices eg Weather sensors or river height gauges. As the SES relies on information from these agencies, it means that the telecommunications services that they utilise also need to have a greater level of resilience during emergencies.

To reduce this risk of contention and failure of telecommunications networks, the NSW SES would recommend legislative amendments to obligate carriers to improve the robustness and security of their networks and to segment their networks to provide services solely for the use of Public Safety and supporting Agencies.

B. THE IMPACT OF EXTENDED POWER BLACKOUTS ON WARNING SYSTEMS FOR STATE EMERGENCY SERVICES, INCLUDING COUNTRY FIRE BRIGADES AND LANDHOLDERS OR HOME OWNERS

During a large scale flood, storm or tsunami emergencies the loss of mains generated power is inevitable locally, and/or broadly and will impact the ability of communities to receive warning messages and information from emergency services.

The enquiry may wish to examine redundancies within the power grid including routes, equipment supplies and ability to replace or supplement generators.

Consideration could be given to provide funding to all SES's and country fire brigades to ensure all facilities had an appropriate level of power redundancy including solar power, uninterrupted power supplies and back up hot fuel-able generators. This will ensure that volunteers are still able to respond and support their communities when mains power fails during emergencies.

The NSW SES would recommend that further community education is required to advise the public to prepare an Emergency Kit that contains among other important items, a torch, battery powered radio with spare batteries and is checked at least annually. This may be a nationally implemented project.

The costs associated with mandatory upgrades to existing households or introducing new building codes to make back-up generators and Uninterruptible Power Supplies mandatory is unlikely to be cost effective and would introduce significant risk for property holders which could include storage of hazardous materials such as fuel and batteries.

Consideration could be given to the feasibility of making it mandatory for all large buildings (eg shopping centres) to provision emergency power and radio communications equipment within the buildings so Public Safety Agencies can communicate while inside the facility when undertaking tasks such as Urban Search and Rescue (USAR).

The enquiry may wish to explore the feasibility of building code changes with the Australian Building Codes.

C. THE IMPACT OF EMERGENCIES AND NATURAL DISASTERS ON, AND IMPLICATIONS FOR, FUTURE COMMUNICATION TECHNOLOGIES SUCH AS THE NATIONAL BROADBAND NETWORK

One of the largest expenses of the SES, as a volunteer Public Safety Agency, is data and communication costs. One driver for these costs is geographic isolation as some facilities are not located in the Central Business District of a town, but more commonly on the outskirts. This makes it more difficult and expensive to connect appropriate services, and in some cases only lower quality services are available.

It may appear that Public Safety Agencies are penalised for the location of their facilities through higher costs and access to services.

SES members volunteer freely their time to support communities before during and after emergencies. The SES tables the proposal that telecommunications carriers should have a mandatory community service obligation to support volunteer Public Safety Agencies, by providing telephone and data services at no or reduced costs.

As the SES takes advantage of emerging technology such as real time video, telemetry, tracking, impact mapping, modelling, voice over IP and social networking to assist with preparation for, response to and recovery from emergencies, the need for greater bandwidth both at SES facilities and in vehicles and boats will increase exponentially. It is hoped that the NBN will be able to deliver these services.

The SES would recommend that in designing the NBN that consideration is given to:

- providing redundant routes;
- minimising any single point of failure;
- having key infrastructure on hot standby within the network;
- decentralisation as much of the network as possible;
- backup power;
- holding a minimum stock of replacement equipment in Australia;
- segmentation of the network for emergency services; and
- establishment of service level agreements.

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;

The NSW SES is of the opinion that there is a need to significantly increase the level of community education for all people on how to prepare for, respond to and provide self-help to increase community resilience after an emergency or disaster.

Technology, particularly communication equipment is changing at such a rate that a new communications device is superseded almost when it comes onto the market. As such it may not be practical to educate people about communications equipment, however it may be more appropriate to focus education on preparation for, what to do during an emergency and how to recover from a disaster utilising new technology information delivery methods.

This education could be two fold:

- Increase public awareness to advise people to listen to the national broadcaster during times of emergency and to prepare an emergency kit containing, among other things a torch and battery operated radio with spare batteries that is check annually; and
- Change the national curriculum to make it mandatory for students to be educated at different stages about preparation for, response to and recovery from natural disasters.

Specific strategies need to be developed with adequate levels of ongoing funding to enable education to be delivered to Cultural and Linguistically Diverse communities, people with special needs and their carer's, the hearing impaired and indigenous communities.

E. NEW AND EMERGING TECHNOLOGIES INCLUDING DIGITAL SPECTRUM THAT COULD IMPROVE PREPARATION FOR, RESPONSES TO AND RECOVERY FROM, AN EMERGENCY OR NATURAL DISASTER

There are a number of issues that currently reside with the Australian Communications and Media Authority with the allocation of spectrum in the 400MHz and 700MHz range. It is essential that spectrum is made available for Public Safety Agencies to enable appropriate communications equipment to be procured and installed without any special modification that also has the provision for high speed data services over radio.

The enquiry could consider the provision of a dedicated national emergency services digital television channel.

The NSW SES is currently considering how Web 2.0 technologies and social media such as Twitter, Facebook and YouTube may be used before, during and after emergencies as an education tool and to keep communities informed.

Further research and development is required to trial how Internet enabled devices and smart phones could have emergency information pushed to the device as an alert.

F. ANY OTHER RELEVANT MATTERS.

The SES is not classified as an emergency service under the Telecommunications Act 1997 despite the fact that it provides life critical services for flood rescue, road crash rescue and medical first response and operates large scale call centres to assist communities during emergencies. The SES requests the enquiry to consider making amendments to this legislation to classify the SES as an emergency service, similar to that of its other emergency service counterparts.

Given the recent experiences in Queensland and Victoria, the NSW SES would recommend that the enquiry consider the outcomes from the enquiries already underway in those jurisdictions.

FURTHER INFORMATION

Further information in relation to this submission can be obtained from:

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