

Submission to the Joint Standing Committee on the nbn

From: Resilient Communities—Adelaide Hills

Summary

The rollout of the nbn in Adelaide Hills communities is likely to place them at risk. This is an area with frequent power outages, which could result in loss of communications, particularly as the mobile towers provide an extremely limited backup service.

Since these communities are highly at risk from bushfires, storms and flooding, their vulnerability is considerably increased if communications fail. Since communications are vital to not only alert emergency services to an incident, but also to warn residents of any impending danger, it is vital that the safety of individuals and communities be considered by the Joint Standing Committee on the nbn when considering suitable technologies for the rollout and what other contingency plans might be necessary.

Background

The Adelaide Hills are home to a number of small communities. Despite being only 25 kms from the Adelaide CBD, many of these communities lack the essential services taken for granted in other parts of Australia. For example, because they are not on mains water, residents must supply their own potable water and install domestic septic systems, both of which are reliant on power.

Given that the Adelaide Hills, with its heavily treed gullies and hills, is in the driest state on the driest continent, the threat of bushfire poses a major risk to residents and properties. Taking this together with the lack of water, smaller communities within the Adelaide Hills could be considered particularly vulnerable. Communications is vital in an emergency—both outgoing from communities and incoming from the outside world.

Outgoing communications

In an emergency, whether a bushfire threat, a car accident or a health emergency, it is vital to have the means to call for help. Until recently landlines have provided an unsurpassed failsafe method of communications. However, many residents, because of increasing line rental costs, are replacing or supplementing landlines with mobile phones. There are, however, a number of black spots in the Hills.

Gradually the nbn is being rolled out across the Adelaide Hills. In the township of Mylor, this is a fixed line service, tapping into the copper network and thus replacing the existing landline. For those of us outside the town boundary, nbn will provide fixed wireless to the mobile towers or, if that is not possible, nbn via satellite. In these latter two instances, the existing copper landline will remain, so long as it continues to be maintained.

Both mobile phones and nbn require power beyond the premises. In other words, regardless of whether residents have generators or backup power supplies to charge mobiles and power modems, if the towers or the nodes do not have power, phone communications become redundant.

Incoming communications

Digital communications are now the preferred form of broadcasting emergency warnings. Because of GPS, warnings can be targeted and timely. To that end, mobile phones are becoming an essential personal commodity. There are a number of websites and mobile apps that government agencies and providers of essential services use to warn the community of emergencies, for example, Alert SA.

Isolated communities

As can be seen, power is essential for both incoming and outgoing communications. However, power outages are frequent in the Adelaide Hills, particularly in the smaller communities. Falling tree limbs, storm damage or possums on the wires can all cause a power outage that may last between a few minutes to many hours.

Once power is lost, neither computers nor modems will work. Mobiles will only work if charged and if the mobile base station also has power: once power is lost, towers are reliant on battery backup, which lasts for approximately 3–6 hours. With no outgoing or incoming communications, communities quickly become isolated and face increasing risk.

Extreme weather event December 2016

Shortly before midnight on 27th December 2016, fierce storms raged around the Adelaide hills and parts of the mid-North for a number of hours. Winds of up to 120km/hour brought down trees into homes and onto power lines, whilst torrential rain caused flooding in a number of catchment areas, leaving 155,000 households were without power for extended periods.

SA Power Networks (SAPN) claimed,

This is the worst storm we have ever experienced in terms of minutes of supply lost for customers and in terms of the amount we will need to pay in Guaranteed Service Level payments.
(The Advertiser, 2017)

In fact, the damage was so severe in some locations that many communities were left without power for up to five days whilst volunteer emergency services personnel struggled to clear the storm damage in order that SAPN might reconnect the power.

As a consequence, essential services—power, water, sewerage, and telecommunications —were also lost for up to five days. This had major consequences on day to day life, particularly for elderly and vulnerable people: food was spoilt, many people couldn't cook, petrol stations could not pump fuel and ATMs could not dispense cash.

No power = no communications

The biggest concern by far was the failure of communications: mobile phone towers worked for 4–6 hours before battery backup ran out. 'SOS' calls remained available, presumably because not all towers exhausted battery backup simultaneously and emergency calls could be made by 'roaming' across other carriers. Nevertheless, all towers failed within 24 hours, leaving the community with no mobile coverage and, significantly, no access to Triple 000 or other emergency lines.

What was unique with this storm event was that the landlines also failed: Adelaide Hills communities have experienced losing mobile coverage in the past due to power outages but even the oldest of our community members cannot remember a time when the landlines ceased to operate. Nevertheless, on the second day of the storm, the exchanges ran out of battery, coinciding with the time the mobile phone 'SOS' feature dropped out. Consequently the community was unable to communicate with the outside world: if there had been a car accident, a medical emergency or a bushfire, there would have been no means to report it—neither could we report infrastructure damage to SAPN.

Living without fresh water, sewerage, telephone became especially difficult for those who live alone, who are elderly, or who have a medical condition (Carey Gully resident)
Making medical appointments was difficult without a phone line (Mylor resident)
Inability to inform SAPN due to loss of communications (Bridgewater and Echunga residents)

When communications fail, not only are we unable to connect with and check up on friends and family—including those who may be vulnerable and for whom we have responsibility—but we also lack access to emergency messaging which might be vital to our own safety: once the mobiles ran out and given that no-one had internet, warning sms messages could not be received and Alert SA became redundant as an emergency warning system.

Power cuts in a bushfire

What is vital for the Committee to understand is that SA Power Networks may turn off power in a bushfire situation.

Mains-fed electricity can be interrupted due to a fault, damage to the network caused by fire, or because supply has been turned off to minimise the risk of fire ignition. (Legislation introduced after the Ash Wednesday bushfires allows SA Power Networks to turn off power to reduce the possibility of a fire starting from the interaction of the environment with the distribution network). (SAPN, undated)

Having a form of communications that is independent of power is therefore vital for the safety of Hills communities. The rollout of the nbn and subsequent loss of copper network could well impede this safety.

<i>The bushfire risk increases with no communications (Upper Sturt resident)</i>
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Vulnerable communities and the nbn

In seeking further information for our communities, the nbn Community Affairs Manager for South Australia spoke at our community meeting in order to address our concerns. His follow-up email confirmed the following:

- In fixed wireless and satellite areas, there would be no loss of copper network. Residents with this type of connection will therefore be able to maintain their copper landline, as long as the copper network continues to be maintained
- In areas connected to the nbn via fixed lines, residents will lose their landlines.
- All technologies, including nodes, towers and satellites, will have 8–12 hours of battery backup, depending on how heavily the network is used. ‘Theoretically’, this provides sufficient time to deploy generators.
- Those areas in which fixed lines are deployed (and who are therefore reliant on nbn for phone communications), residents will also need an uninterruptable power supply or generator in the premises in order to use the handset.

Residents who were affected by the extended power outage and therefore also lost communications came from a number of different townships. Below is a table to indicate the range, based on attendees at a community meeting in response to the emergency. Beside their location is the type of technology they will receive in order to connect to the nbn.

Township	Nbn technology
Aldgate	Fixed line
Bradbury	Fixed wireless
Bridgewater	Fixed line
Carey Gully	Fixed wireless
Crafers	Fixed line
Echunga	Fixed wireless
Heathfield	Fixed line
Macclesfield	Township fixed line
Mt Barker Summit	Fixed wireless
Mylor	Township fixed line
Piccadilly Valley	Fixed line
Scott Creek	Fixed wireless
Stirling	Fixed line
Summertown	Fixed line (some)
Upper Sturt	Fixed line
Uraidla	Fixed line (some)
Verdun	Fixed line

As is evident, residents in 12 of the 17 listed townships stand to lose landlines in a power outage.

nbn advises its customers to ensure their mobiles are charged in the event of a power cut. In other words, it abdicates responsibility to mobile telcos. What became evident in December 2016 was how rapidly mobile coverage failed.

In other words, if no intervention is taken, the rollout of the nbn, coupled with a limited battery backup at mobile base stations, means communities may well lose communications after only four hours and remain without communications for many days.

Furthermore, Telstra are quite adamant that this is not the role of their mobile sites:

Telstra's mobile sites are reliant upon mains power to operate. Mobile sites are not meant nor designed as a backup to NBN or fixed line services. (Telstra, February 2017)

Telstra written response to community questions—available on request (It should be noted that other mobile telcos were not approached for responses to questions.)

This same concern for community safety was expressed in the Independent Review of the Extreme Weather Event South Australia 28 September – 5 October 2016:

The role of all communications including mobile tele-communications during emergencies is critical. Mobile phone towers have limited backup power or may be overwhelmed which can result in communications difficulties and inability to access services such as Triple Zero (000). The National Broadband Network may add further complications to home users during emergencies due to the handset's reliance on electrical power.

(Burns, Adams & Buckley, 2017)

Joint Standing Committee's Terms of Reference

With regard to the committee's terms of reference, I refer to the Committee's responsibility to report on

2a. rollout progress with particular regard to the NBN Co Limited Statement of Expectations issued by Shareholder Ministers on 24 August 2016
and

*2b. utilisation of the national broadband network in connected localities in both metropolitan and regional areas, and the identification of opportunities to **enhance** economic and **social benefits***

The NBN Co Ltd Statement of Expectations 24 August 2016 reads as follows (my emphasis):

*The National Broadband Network ('the network') aims to foster productivity and provide a platform for innovation in order to deliver economic and **social** benefits for all Australians.*

*... nbn should ensure that its wholesale services enable retail service providers to **supply services that meet the needs of end users...using the technology best matched to each area of Australia.***
(NBN Co Ltd, 2016, p.1)

As it stands, with a rollout that removes a reliable communications mode, the nbn does not enhance social benefits, but rather reduces them. Whilst traditional landlines do fail after a given length of time if no uninterruptable power supply is provided, there is at least a 24–36 hour window of opportunity to summon help. This opportunity will no longer exist if the nbn is installed and a power outage removes the capacity to make phone calls, particularly if the mobile phone towers fail after only a few hours.

Furthermore, the Statement of Expectations provides guiding principles and goals for the rollout, including:

... service quality and continuity for consumers; certainty for retail service providers and construction partners; and achievement of rollout objectives as cost-effectively and seamlessly as possible
(idem)

The Statement continues by discussing risk management and government expectations that 'nbn will actively manage risk' (idem, p.2). Both of these statements indicate that quality and continuity, together with the management of risk, are critical elements of the expectations.

Summary

Adelaide Hills' communities experience frequent power outages. They are also some of the most vulnerable communities in South Australia, subject to risk from bushfires, storms and flooding. The ability to make outgoing calls is vital for the safety of individuals. As nbn fixed line will mean that nbn communications will be lost in the event of a power outage and given that mobile communications provides insufficient duration of backup, it is imperative that the Joint Standing Committee consider individual and community safety as paramount in any rollout. Furthermore, mobile coverage is essential, not only as a backup, but also in order to receive emergency warnings.

Recommendations

1. Federal government, through the Joint Standing Committee on the nbn and Senate Estimate Committees, should determine whether the current method of nbn rollout places vulnerable communities at further risk.
2. Should it deem that the risk does increase, action must be taken to resolve this. This includes legislating to ensure that for fixed line technology, battery backup at the nodes is of sufficient duration to allow for a generator to be deployed. The deployment of a generator to operate indefinitely until power is restored would form part of this legislation to ensure that vulnerable communities do not lose communications.
3. In addition and as a backup, because nbn telephone handsets become redundant in a power outage, the nbn will work with telco providers to ensure that similar backup procedures, via batteries and generators, are undertaken at mobile base stations and towers in vulnerable communities.
4. Federal government, through legislation, must ensure that Telstra maintain the copper network in areas with high risk of bushfires, floods and storms as a backup form of communications.

References

- Burns G, Adams L & Buckley G (2017) 'Independent Review of the Extreme Weather Event South Australia 28 September – 5 October 2016', Report presented to the Premier of South Australia
- NBN Co Ltd (2016) 'Statement of Expectations 24 August 2016', available at <http://www.nbnco.com.au/content/dam/nbnco2/documents/soe-shareholder-minister-letter.pdf> (accessed 11 May 2016)
- SAPN, 'Bushfires and you', available at www.sapowernetworks.com.au/centric/corporate/safety/bushfires_and_you.jsp (accessed 11 May 2017)
- Telstra, February 2017, *written* response to community questions—*available on request*
- The Advertiser (2017) 'South Australian households to share in \$20m compensation over December blackouts', 11 January, available at www.adelaidenow.com.au/news/south-australia/south-australian-households-to-share-in-20m-compensation-over-december-blackouts/news-story/cc34c7cd77a48a2aa7cccb263f5a8d48

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