

Questions on Notice

Question 1:

Senator HUMPHRIES: There are a range of issues that particularly the emergency service organisations, at least some of them, and the Police Federation of Australia have raised in their submission and their live evidence today which I would ask you to examine and respond to. There are a number of issues which they have raised. For example, they say that the 800 spectrum is narrowband whereas 700 is broadband. They say that the umbrella organisation representing carriers in Asia is now recommending to the governments that the data be carried on the 700 band not the 800 band. They say that the Radiocommunications Act has a requirement in it for adequate provision of spectrum for law-enforcement and that the 800 spectrum does not satisfy that et cetera. Rather than go through, in the short time available to us now, all of those issues because they are very technical I would appreciate it if you could take on notice the question of responding to the issues that they have raised. There is also the question of what the difference between the 700 spectrum in the US is and the 700 spectrum in Australia. I do not understand that and I would appreciate a technical description.

Answer:

Telstra will refer the Committee to Telstra's response to the Police Federation of Australia's submission into the Inquiry

Question 2:

Senator BILYK: Is it correct that 88 per cent of the 800, 900 bands are already occupied by Telstra, Optus and Vodafone?

Mr Goonan: I would need to take that precise figure on notice and respond to you.

Senator BILYK: We have had evidence earlier today that that is the case. If you could take that on notice, that would be good. If it is so, following on from that, that leaves 12 per cent, which is not 20 per cent left. So wouldn't it take a long time to clear? We heard evidence today that it would take decades to clear. You can take all these questions on notice, if you like, and get back to us.

We were also provided with evidence that not only would it take a long time to clear but the same 800 band is being held at for four or more different interests at the same time. If you could get back to us on that, please.

Answer:

Telstra will refer the Committee to Telstra's response to the Police Federation of Australia's submission into the Inquiry

Question 3:

Senator BACK: Can I ask you in general terms, what is the sort of rate of decline of landlines? Do you have a graph that indicates those households particularly that are going away from landlines or not replacing them? The second part of my question is: what impact, if any, is that likely to have on your delivery of services in this sector?

Mr Snashall: Senator Back, for clarification, you are asking year on year, in effect, what is the decline?

Senator BACK: Yes. Is it declining and at what rate, where do you think it will bottom out and, particularly in terms of delivery of messages in the emergency service area, where do you predict and what advice would you be getting to this committee on that aspect?

Mr Snashall: I think we would need to take that on notice.

Answer:

Firstly, we refer the Committee to page 38 of our most recent annual report for figures on PSTN decline.

<http://www.telstra.com.au/abouttelstra/download/document/tls788-telstra-financial-results-for-the-year-ended-30-june-2011.pdf>

Secondly, for PSTN decline statistics for Australia, we refer the Committee to this recent ACMA report:

An examination of fixed-line telephone and mobile phone services in Australia reveals that, while mobile phone take-up continues to increase across the Australian population, the number of fixed-line telephone services in operation is reducing, having peaked at June 2004 (Figure 1). At June 2009, fixed-line telephone services in residential and commercial premises numbered 10.7 million, a fall by eight and a half per cent in five years.

Report — Take-up and use of voice services by Australian consumers

We expect the decline to continue in line with global trends.

And thirdly, it is understood that Emergency Alert is intended to be used to reach the 'majority' of the community, and not necessarily every single individual. It is referred to as a 'Community' Warning system.

With reference to emergency warnings, Emergency Alert uses both fixed lines and mobile phones. There is a proposed improvement in development that will allow Emergency Alert to identify mobile phones that are active within the actual alert area, increasing its effectiveness.

Question 4

Senator HUMPHRIES: When an alert is sent out under Emergency Alert to a particular area, is there a cost associated with that?

Mr Goonan: With the process for identifying where to send a short message service, we are given a specification from the emergency services authority, we then determine the customers that are in that particular area and we send out the short message service. There is a cost associated with sending a message, as is the case with sending out normal messages. So, yes, Senator.

Senator HUMPHRIES: So who bears that cost?

Mr Goonan: I cannot tell you that directly. My understanding is that the emergency service authorities have a contract and bear the cost.

Senator HUMPHRIES: Effectively it is a service that you are providing at cost to the organisations that use it?

Mr Goonan: It is a service that is offered. I am not aware of the commercial arrangements for it so I cannot comment as to whether it is at cost or otherwise.

Senator HUMPHRIES: What I mean is that they pay for it; they do not get it for free.

Mr Goonan: That is correct.

Mr Snashall: Senator Humphries, we can get you some more detail on that if you like.

Senator HUMPHRIES: Yes.

Answer:

The costs relating to Emergency Alert (including whether there are costs relating to sending messages) is the subject of commercial contractual arrangements between the Victorian Government and Telstra (as well as the other relevant jurisdictions). Telstra suggests that the Committee requests further information from the Department of Justice in Victoria concerning the release of this information.

Senator Fisher's written questions

1. *What impact do you think the change from copper to fibre optic network infrastructure will have on the ability of residents to remain in contact during an emergency when power blackouts occur?*

Fibre has one intrinsic characteristic - it cannot conduct electricity. Without any source of power to the customer's optical network terminal (ONT), which is located at the customer premise, during a power failure and with no power backup or alternative arrangement in place customers will not be able to receive or make calls including to emergency services. Many customers have cordless phones that will not work during a power failure regardless of whether or not the ONT has power. It is important that all customers are fully informed of the capabilities and limitations of telecommunications equipment and infrastructure.

Many customers have alternative mobile phones.

For Telstra's fixed (copper) and mobile phone networks, Telstra uses battery back-up and generators in the network to try to ensure continuity of service for as long as possible but these have a limited life and cannot ensure the longer term availability of telecommunications services in areas where power cannot be restored quickly or access is difficult.

2. *What other impacts do you think the roll-out of the NBN fibre optic cable network will have on the ability of persons to communicate in emergency situations? What happens if a Point of Interconnect shuts down during a natural disaster? We understand that up to 80,000 premises can be connected to a single POI.*

This is a question best directed to NBNCo.

3. *We note that when Cyclone Yasi occurred, 94,000 PSTN services were affected. What impact did this have on the use of landlines and cordless phones? Was there sufficient backup through battery packs and generators to ensure that services were uninterrupted?*

The 94,000 PSTN services represents services provided via (copper) landlines from exchange sites or street cabinets. Service was affected for a range of reasons including damage to network infrastructure, but the major reason was loss of exchange or street cabinet mains power after backup batteries expired, etc. This would impact customers' premises equipment, e.g. standard telephone or cordless phones equally. Telstra employs battery backup and generators in selected network nodes for the exchange equipment, however this has limited backup capacity once mains power fails. Also Telstra could not access many sites to install temporary generators or refuel existing generators while the mains power remained off because these sites were not accessible and classified as no go zones. Telstra cannot comment on loss of service experienced by customers with mains powered cordless

devices as these devices are customer equipment and not part of the network arrangements managed by Telstra.

- 4. Following the floods and cyclone in recent times, what is Telstra's policy concerning cable infrastructure? Presumably underground cabling would be more resilient on the occasion of the disaster?*

The vast majority of Telstra's cabling is laid underground, whether copper cables or fibre (typically laid inside conduits and pits). Generally, aerial cables are used when the terrain is not suitable for underground cabling. As an example, where the terrain is solid rock it is not practical to lay underground cabling. In some areas it is not possible to lay an underground cable without an unacceptable environmental impact and so aerial cables are used. Installation of underground or aerial cables will be subject to all necessary approvals being obtained for the deployment. Telstra's experience is that underground cabling is more robust than aerial cabling even in areas prone to flooding from cyclones as the combination of excessive rain and wind, especially in the cyclone season, can cause considerable damage to aerial cabling.

- 5. What impact do you think 4G LTE technology will have on the ability of Telstra to enhance its emergency services warning network? Will the 4G network provide access priority for government voice communications?*

In the context of the mobile network, Emergency Alert requires a text message to be sent to customer's mobile services. In the context of the mobile network, Emergency Alert requires a text message to be sent to customer's mobile services. The 3G and 4G network layers in Telstra's network both use best efforts to deliver these text messages. With the additional capacity the 4G layer will offer in areas of high demand, the delivery time for Emergency Alert messages will be minimised.

In the short to medium term the 4G layer of Telstra's network will carry data traffic and the 3G layer will carry voice and data traffic.

- 6. Clearly Telstra is of the view that emergency services organisations should not be allocated 20Mhz of the proposed digital dividend that is being freed up as a result of the introduction of digital TV. What viable cost-efficient alternative is available to such ESOs?*

Telstra does not agree that the 20 MHz of spectrum being sought for use by emergency services organisations (ESOs) would be an efficient use of the digital dividend spectrum. As well as reducing the economic benefits of public mobile broadband use of the digital dividend spectrum, it would also not be cost effective for ESOs to use this spectrum to build a standalone network. In the absence of a Government business plan and commitment to fund the roll out of a standalone network, there is a high risk that any spectrum reserved for ESOs would remain largely unused, and this would also clearly be an inefficient outcome.

We believe that the requirements of ESOs for mobile broadband services would be best met through reaching commercial arrangements with mobile carriage service providers. This view is supported by the report 'Radiofrequency Spectrum Options for Public Safety Agencies ' that was prepared by Access Economics for the Attorney General's Department on 10 September 2010. The report concludes that the optimal outcome would be for emergency services organisations to enter a commercial arrangement for access to public mobile broadband services.

Additionally, please refer to Telstra's response to the Police Federation of Australia's submission to this Inquiry.

Telstra Response to Points in the PFA Submissions to the Senate Inquiry into the capacity of communication networks and emergency networks and emergency warning systems to deal with emergencies and natural disasters.

PFA points are in italics

Telstra responses are in normal text

PFA SUPPLEMENTARY SUBMISSION

Is it agreed that PSAs need high speed mobile broadband communications?

As explained in its submission, Telstra agrees that mobile broadband networks and the services they deliver provide significant new opportunities to enhance the communications within and between PSA organisations. These opportunities include fast access to information, new applications, enhanced security, reduced costs and improved interoperability – so that PSAs are better informed and able to respond more quickly and effectively in the event of an emergency or natural disaster.

The benefits of mobile broadband communications are already visible today as PSAs utilise current commercial mobile broadband services. For example, Fire Services utilise real time video streaming information from the fire front to enhance their situational awareness, Ambulance Services are able to capture real time patient information and Police apply mobile broadband to enhance officer safety through the provision of real time information about offenders.

Telstra also considers that the PSA mobile broadband capability should include national coverage if it is to be effective in disaster situations. As witnessed in the natural disasters over the past decade, the majority of these events occur in regional Australia. Cyclone Larry, Black Saturday and Cyclone Yasi are examples of natural disasters and their associated impact on regional Australia. Such impact is often over a wide geographical area placing significant demand on the expanse of mobile broadband coverage.

Telstra is aware of a suggestion that PSAs could restrict the coverage of their mobile broadband network to major urban centres. Telstra also notes that existing PSA mobile narrowband networks are primarily focused on coverage for capital cities. The Summary section in final report of the 2009 Victorian Bushfires Royal Commission notes the following communications difficulties that were encountered in regional Victoria on Black Saturday (7 February 2009):¹

Communications systems on 7 February were also hindered by poor coverage, lack of interoperability between emergency services agencies, and insufficient investment in new technologies. For example, the transmission speed of the paging system had been reduced in

¹ http://www.royalcommission.vic.gov.au/finaldocuments/summary/PF/VBRC_Summary_PF.pdf, page 7.

order to expand reception coverage, and this caused serious delays in other than the most urgent messaging. There were also communication difficulties between metropolitan and regional police because of incompatible radio systems. Further, radio 'black spots' meant that reception was poor or non-existent in some areas, and there was channel congestion and insufficient channel availability. These problems were exacerbated when fire damaged or destroyed radio and telecommunications infrastructure.

If this legacy and fragmented approach to network design is extended to future PSA mobile broadband capability then it will be ineffective and commercial networks will continue to provide the bulk of Australia's natural disaster mobile broadband communications capability for regional and urban Australia.

Should that broadband be a dedicated network for PSAs i.e. separate from the networks of commercial communications carriers?

As explained in its submission, Telstra believes that a dedicated network is not the best way of achieving the desired outcome. Instead, it would be more economic and effective to incorporate the PSA requirements into existing commercial mobile networks. Telstra believes that the building of a new mobile network is unnecessary duplication and would be unduly costly.

Mobile broadband networks are becoming increasingly expensive to build and operate, due to the large number of cell sites required to meet customer expectations for coverage and capacity and within a limited quantity of spectrum. Telstra's investment in its 3G High Speed Packet Access (HSPA) Next G[®] network is more than 2 billion dollars with an ongoing yearly capital investment in the order of hundreds of millions of dollars and a similar level of expense for ongoing operations and maintenance.

The cost of building a new 4G network from scratch (not an augmentation of existing network infrastructure) with such an expansive coverage footprint, high availability, fast upload and download data speeds, and the necessary infrastructure diversity, runs into many billions of dollars. Furthermore, to maintain and operate such a network requires significant annual operating expenses to cover site leases, repair and maintenance activities, and contracts with utilities.

Considering the size of these expenses, and noting that the number of existing commercial networks has already consolidated from four to three (through the merger of Hutchinson and Vodafone), it seems very unlikely that Australia could justify the business case to build a 4th standalone mobile broadband network for use by PSAs.

Telstra notes that PSA plans to implement a nationwide interoperable network for narrowband voice communications (primarily in the 400 MHz band) are ongoing and will not be fully realised until 2020. The situation is explained in the report "National Framework to Improve Government Radiocommunications Interoperability: Towards a harmonised radiocommunications environment for public protection and disaster relief" that was presented to COAG by the Natural Disaster Arrangements Working Group in 2009². The extended timeline appears to be mainly due to budget

² <http://www.royalcommission.vic.gov.au/getdoc/42898188-2b09-41f7-94d0-4c200b6b1a34/RESP-6004-001-0045>

constraints and difficulties in coordinating a common approach across the various organisations and states. So it is difficult to see how PSAs could contemplate implementing a dedicated nationwide mobile broadband network, which is significantly more complex and costly, while they are still struggling to complete the work on the narrowband network.

Telstra considers that the sharing of 4G infrastructure provided by commercial providers would be a significantly more cost effective and timely solution, due to the sharing of costs and the ability to leverage from existing infrastructure and other resources like human capital. The building and operation of broadband networks is not a core business activity for PSAs - but it is for a public mobile network operator. It would be more efficient and effective for PSAs to acquire their mobile broadband network requirements from the commercial operators, so that they PSAs can focus their attention and resources on the delivery of front line emergency services.

Commercial networks can be further 'hardened' to meet any specific requirements that PSAs might have in relation to their ability to operate without mains power, or their ability to survive major equipment failures through the provision of additional back-up systems. This can be enhanced with the capability to provide different levels of prioritised access for voice and data. Commercial solutions for PSAs can also be delivered more quickly due to much of the network infrastructure and operational support systems already being in place.

Telstra's views on this matter are supported by the findings of the report *Radiofrequency Spectrum Options for Public Safety Agencies* that was prepared by Access Economics for the Attorney General's Department on 10 September 2010. The report considers various spectrum and implementation options (including the reservation of 700 MHz spectrum) and concludes that "Based on economic considerations, the optimal outcome for PSAs, the government, network carriers, and the economy as a whole would be a commercial arrangement with PSAs negotiating access to a carrier's network."

A similar theme is picked up in the report on the *The Benefits Of Transitioning To A Nationwide Wireless Broadband Network For Public Safety* that was published by The White House in June 2011³. The report notes that:

"The failings of public safety communications systems include both interoperability—with the limitations of current systems becoming tragically apparent on 9/11 and in the aftermath of Hurricane Katrina —and operability—with the cost-effectiveness and performance of traditional public safety devices trailing well behind those provided by modern commercial cellular operators."

"Given the growth of commercial services, the opportunity to leverage such assets promises to make the development and deployment of an LTE wireless broadband network for public safety far less expensive than it would if public safety were to own and operate such a network itself. In 1991, such a model (with less than 10,000 sites nationwide) was far from appealing. By contrast, the situation in 2011 (with more than (*sic*) cell sites in service) makes this a compelling opportunity."

³ <http://www.whitehouse.gov/sites/default/files/uploads/publicsafetyreport.pdf>

How much spectrum do the PSAs need for mobile broadband for the foreseeable future?

There are many factors which need to be considered and hence there is no definitive answer. Any partitioning of spectrum is inherently inefficient though ultimately necessary to meet commercial needs e.g. supporting a competitive infrastructure environment for different network operators. Given the relatively small demand but critical service required by the PSAs over a large expanse of Australia, Telstra is advocating prioritised use of public networks for PSA needs. This is most effectively executed within the spectrum allocation made to the public operators. Telstra notes that a pair of 10 MHz spectrum blocks (i.e., a total of 20 MHz) is the amount that has been identified for PSA requirements in the US. Considering that the population density is lower in Australia than the US, it seems that giving PSAs prioritised access to a mobile broadband network based on a pair of 10 MHz spectrum blocks (i.e., a total of 20 MHz) should be adequate, and even 2 x 5 MHz might be sufficient to meet the initial requirements.

Where is spectrum of that kind available?

- *We are advised that the 800 band is narrowband, not broadband and narrow and broadband communications cannot be carried by the same spectrum.*

Characterising any band, but in this instance the 800 MHz band, as narrowband is incorrect. Given sufficient bandwidth any frequency band is capable of broadband application. The 800MHz band spectrum is currently used for both broadband and narrowband communications. One of the main objectives of the ACMA 900 MHz band review (which includes the 800 MHz band spectrum) is to be able to designate further segments of spectrum within the band for broadband applications.

- *We are advised that 88% of the 800/900 bands are already occupied by the three major telecommunications companies – Telstra, Optus and Vodafone Hutchison. A number of police and emergency services also occupy the 800 band for narrowband voice communications and they will continue to need this spectrum for that purpose.*

The advice to the PFA stating that “88% of 800/900 bands are already occupied by the three telecommunication companies” is grossly inaccurate.

It is not clear exactly what is meant by the 800/900 bands in this advice. If we assume that is the range from 805 MHz to 960 MHz (in accordance with the range that is being considered by the ACMA in its review of the 900 MHz band) then a total bandwidth of 155 MHz is available. Within this bandwidth a total of only 90 MHz, or 58%, has been assigned to the three public mobile network operators. It should also be noted that the mobile operators are providing both mobile voice and data services, including broadband, to approximately 22 million mobile devices.

- *We are advised that there are more than 1,000 licensees in the 800 band and 20,000-30,000 users in the 820-825/865-870 MHz band. Clearing that spectrum to provide 20 MHz for PSA*

broadband would be a long difficult job, taking decades, and that it appears that the same 800 MHz band is being held out to four or more different interests at the same time.

The existing Apparatus licences in the PPDR spectrum have a maximum term of 5 years so the clearance process could be completed within a 5 year time frame after the outcome of the 900 MHz band review is announced by the ACMA.

The 806-824 MHz and 851-869 MHz spectrum segments have been identified by the ITU for advanced Public Protection and Disaster Relief (PPDR) applications in the Asia Pacific region⁴. Telstra notes that most of the 806-824 MHz segment is already scheduled to be cleared as part of the process for clearing television broadcasters from the digital dividend spectrum. The clearance of matching spectrum from within the 851-869 MHz segment is currently being considered by the ACMA as part of its review of the 900 MHz band.

Not all of this PPDR spectrum (a total of 36 MHz) would have to be cleared immediately, since a pair of 5 MHz blocks (a total of 10 MHz) might be adequate to support the initial needs of a PSA broadband requirement. Over time, as spectrum is cleared and PSA demand grows, access could be expanded to utilise a pair of 10 MHz blocks (a total of 20 MHz) or even 2 x 15 MHz blocks (a total of 30 MHz).

The ACMA is responsible for clearing spectrum, if and when it is necessary to move spectrum to a higher value use, and there is no reason why the necessary spectrum could not be cleared over time.

- *We are advised that a spectrum allocation in the 800 MHz bands for public safety would isolate Australia from the Asia Pacific Region, and the rest of the world. We understand that the International Telecommunications Union (ITU) Public Safety and Disaster Relief (PPDR) spectrum in 800 MHz is intended for narrow band (less than 25 kHz) applications, and that at its June 2011 meeting it recommended the adoption of 700 MHz for public safety agency broadband services in our region.*

This statement is not accurate. The 806-824 MHz and 851-869 MHz spectrum segments have been identified by the ITU for advanced Public Protection and Disaster Relief (PPDR) applications in our (Asia Pacific) region. The use of the spectrum is not limited to narrowband or broadband applications.

There are also many operators around the world, primarily in the Americas, who are using this PPDR spectrum and legacy Integrated Digital Enhanced Network (iDEN) technology to deliver narrowband voice services to PSAs and other users. These operators are keen to migrate their services to LTE mobile broadband technology. So, as well as the 800 MHz PPDR spectrum being identified for advanced PPDR use in the Asia-Pacific region, there is also strong interest from iDEN operators for it to be globally harmonised to support mobile broadband technology.

Harmonisation with New Zealand also needs to be considered, given the high degree of cooperation between PSAs in the two countries. New Zealand considers options for PSA broadband interests in the discussion paper *Digital Dividend Opportunities for New Zealand* that

⁴ <http://www.itu.int/oth/R0A0600001A/en>

was released by the Ministry of Economic Development on 26 August 2011. This paper notes the incompatibility of the US spectrum arrangements with the Asia-Pacific planning, and that most other countries are looking outside the 700 MHz band to identify suitable spectrum for PPDR broadband capability. It also notes Australia's plans to explore options in the 800 MHz band and states that *"It would be preferable to harmonise PPDR broadband spectrum with that of Australia and other major markets."*

Telstra suggests that PSAs need to become more active in the Asia Pacific Telecommunity (APT) work programme to ensure that the PPDR 800 MHz spectrum is adopted for mobile broadband as widely as possible across countries in the Asia-Pacific region and internationally. This will help to maximise the opportunities for interoperability and to minimise costs through greater economies of scale.

- *Industry suppliers are advising that there will be limited supply of public safety broadband devices in the 800 MHz band. All development of public safety is currently planned for the 700 MHz bands, and so can more easily be adapted to harmonise with the Region 3 Digital Dividend.*

The PSA equipment designed for the US 700 MHz plan will not work in Australia and it is unlikely that such equipment could easily be adapted for use in Australia.

The US is the only country that is currently developing public safety broadband capability in the 700 MHz band. However the 700 MHz band plan for the Asia-Pacific region (including Australia) is not aligned or technically compatible with the US plan.

- *We are advised that any chipsets and devices coincidentally developed that could potentially cover the 800 MHz PPDR bands would most likely not roam onto the other public networks in Australia. This is because the market for the limited selection of chipsets developed for commercial operators will be for other regions, with different spectrum bands and technologies deployed to that of Australia.*

This is not the case. The chipsets are designed to cover multiple bands. Given the international interest in the 800 MHz PPDR spectrum there is no reason to suspect that future chip sets could not support this spectrum, as well as the other bands used by public network operators

- *We understand that the implementation schedule for 800 MHz public safety broadband will be extended significantly. This is due to the uncertain future plans for the 800 MHz band, the time required for clearance of sufficient spectrum and to minimise disruption to potentially thousands of other users displaced by such a plan.*

As explained above, only some of the spectrum would need to be cleared initially to support PSA services and this could be achieved within a 5 year window.

Alternatively, an allocation from the 700 MHz digital dividend will provide key benefits over 800 MHz as follows.

- *The broadband 700 MHz Digital Dividend is harmonised with our Asia Pacific spectrum plan and will coexist with the 800 MHz PPDR and other narrow band networks deployed extensively in Australia and the rest of our region.*

This is not the case. While Australia digital dividend spectrum plan is harmonised with the Asia-Pacific plan for public mobile broadband networks, it is not harmonised with Asia-Pacific spectrum planning for advanced PPDR networks (including mobile broadband) which is based on the use of spectrum identified by the ITU for this purpose in the 800 MHz band.

The narrowband capability for Australia PSAs is being largely implemented in the 400 MHz band, using spectrum that has recently been allocated nationally by the ACMA for this purpose. So any coexistence with narrowband PPDR services in the 800 MHz band is not a significant consideration.

- *Industry suppliers are already developing public safety broadband products in the 700 MHz band which they have advised can more easily be adapted to the Asia Pacific Digital Dividend spectrum plan. The larger market and wider availability of chipsets will provide a rich ecosystem of competitively priced devices and solutions developed for public safety applications. The performance and features of these devices will keep pace with the rapid evolution of technology.*

The suggestion that there is a plethora of suppliers with devices that can more easily be adapted to the Asia-Pacific 700 MHz plan is unlikely. Telstra is aware of only one industry supplier who has a 700 MHz public safety broadband product in its roadmap.

- *Because the 700 MHz chipsets will be developed for our local regions digital dividend spectrum plan, these will be compatible with other commercial networks deployed in the region allowing roaming onto the other networks.*

This is correct but there is no technical impediment to devices using chipsets for 800 MHz PPDR spectrum also being designed to roam onto public mobile broadband networks in the 700 MHz band or other bands.

- *700 MHz digital dividend spectrum will be released in a defined time frame, allowing public safety to commence planning and schedule deployment.*

As explained previously, Telstra considers that the clearance of sufficient 800 MHz spectrum to support the initial PSA mobile broadband requirements could be achieved within a 5 year window. So, if the ACMA announced a plan in 2012 to reallocate and clear this spectrum, then PSAs could also commence their planning and scheduling activities in 2012.

In addition to the above technical points, Telstra considers that reserving a portion of the 700 MHz digital dividend spectrum for PSAs would be inappropriate because of other wider negative impacts. In particular Telstra considers that all of the 700 MHz digital dividend spectrum (90 MHz in total) needs to be made available for commercial deployment, in order for the mobile industry to meet the rapidly growing demand for mobile broadband services and deliver the full potential of the wider economic benefits that are sought by Government through the allocation of this spectrum. A 20 MHz reservation for PSA use would seriously compromise the ability of the industry to meet these objectives.

Will the PSAs still need to roam using commercial carriers, and are spectrum conditions needed to make sure this can happen?

Telstra considers that commercial contractual arrangements are the most appropriate method for establishing roaming access to public networks. The procurement of such access should be via a competitive tender process to ensure that PSAs obtain the best price. This approach is consistent with the view in the aforementioned Access Economics report that was prepared for the Attorney General's Department. Any attempt to regulate access is likely to result in inefficiencies and additional costs that are borne by all users of the network.

ORIGINAL PFA SUBMISSION

Telstra also wishes to clarify some inaccuracies in the original PFA submission, as set out below.

17. This spectrum is likely to be allocated via 15 year, renewable licenses, meaning that this opportunity for public safety agencies to secure spectrum may not be available again for 30 years. So this is truly a once-in-a-lifetime opportunity.

It is not possible under the *Radiocommunications Act 1992 (Cth)* (the Act) to issue spectrum licences which are automatically “renewable” in the manner suggested. Under section 65 of the Act the maximum term for a spectrum licence is 15 years. Spectrum licences may be “re-issued” to the existing licensee if the requirements under section 82 of the Act are met – principally a public interest test. Re-issue is at the discretion of the Minister or the ACMA rather than on the option of the licensee. It is anticipated that any licence re-issue process would give consideration to public interest criteria, similar to those which the Minister set out in March 2010 for the current spectrum licence renewal process.⁵ To obtain re-issue of their existing licences, the licensees would need to demonstrate that they meet the public interest criteria. So it is likely that there would be an opportunity to reconsider the allocation of the 700 MHz spectrum prior to the expiry of licences at the end of the initial 15 year term.

26. The incredible potential of the Digital Dividend is why all Australia's Police Commissioners, including the AFP, are seeking 20 MHz of the 126 MHz. That is just 16% of the spectrum that will soon be available, a reasonable position that allows commercial users the majority of the spectrum.

This is not accurate. The Asia Pacific plan for the 700 MHz digital dividend spectrum consists of a pair of 45 MHz segments - to make a total of 90 MHz of useful spectrum. Therefore, reserving 20 MHz of

⁵ Senator the Hon. Stephen Conroy, Minister for Broadband Communications and the Digital Economy, “Fifteen-year spectrum licence pathway”, 4 March 2010, http://www.minister.dbcde.gov.au/media/media_releases/2010/020

this spectrum for PSAs would reduce the amount available to public mobile network operators by 22%, which is more than the 16% claimed by the PFA.

27. In fact, what the public safety agencies are seeking is just 2% of the total spectrum that can accommodate broadband operations. By contrast, the commercial carriers currently occupy 703 MHz of spectrum. If they are allocated the full 190 MHz from the 2.5 GHz as they propose, plus all of the 126 MHz of the 700 MHz Digital Dividend, they will have 1,019 MHz of bandwidth to roll out 4G technology.

These numbers are not accurate. The following table sets out Telstra’s understanding of the situation. After the allocation of the 700 MHz and 2.5 GHz bands, the total spectrum available to mobile network operators is 610 MHz in metro areas and 390 MHz in non-metro areas. So, the PFA request for 20 MHz of spectrum represents 3.2% in metro areas and 5.1% in non-metro areas (both greater than the 2% claimed by the PFA).

	Band	Qualifications	Telstra assessment metro	Telstra assessment non-metro
Current Spectrum	800 MHz		40 MHz	40 MHz
	900 MHz		50 MHz	50 MHz
	1800 MHz	Only 2x15 MHz is available in regional areas, but this is not available in numerous clusters of population located in remote areas.	150 MHz	30 MHz
	1900 MHz	Only 1x20 MHz available in 8 capital cities.	20 MHz	nil
	2.1 GHz	2x60 MHz available only in capital cities, 2x20 MHz in non-metro areas.	120 MHz	40 MHz
	Total Current allocation		380 MHz	160 MHz
Future Spectrum	700 MHz	The ACMA has included mid-band gap (10 MHz) as well as guard bands (5 MHz+3 MHz= 8 MHz).	90 MHz	90 MHz
	2.3 GHz	Used or to be used for fixed/in-premise nomadic wireless access systems by Vivid Wireless and NBN Co.	nil ⁶	nil
	2.5 GHz	The 50 MHz centre-band gap is being assigned to ENG operators, so mobile broadband deployment may not be viable.	140 MHz	140 MHz
	Total Current & Future allocation		610 MHz	390 MHz

⁶ While these bands can in principle be used for mobile broadband, Telstra is not aware of any indication that either NBN Co or Vivid Wireless will use this spectrum for mobile broadband, given that NBN Co is rolling out fixed wireless services and, Vivid Wireless’ technology platform does not involve inter-cell handover (which is a necessary condition of a mobile broadband service).