TELSTRA CORPORATION LIMITED

Response to the Productivity Commission's Draft Report on the Telecommunications Universal Service Obligation

24 January 2017

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EXECUTIVE SUMMARY

Telstra is pleased to provide feedback to the Productivity Commission's (PC) draft report into the Universal Service Obligation (**USO**) "**the Draft Report**". This paper responds to the matters the PC has sought feedback on and provides our perspective on particular recommendations and findings we consider require further exploration.

Future of payphones

We note the Draft Report's Recommendation 9.2 that the Government seek early termination of Telecommunications Universal Service Obligation Performance Agreement (TUSOPA) Module C Payphones USO. As noted in our response to the PC's Telecommunications USO Issues Paper "**the Issues Paper**" we have questioned whether the payphone obligation is delivering value to the Australian community and noted our openness to negotiating any relevant changes. We also reiterate our view that changes that result in reductions in our industry levy may allow funding to be redirected to our capital program for regional infrastructure investments.

The community telephone service concept raised by the PC is worth further investigation as we can see the merit of a shared telecommunication service for remote communities both indigenous and non-indigenous. We also agree with the Draft Report's recommendation 7.5 that a program should be subject to a competitive tendering program. A community telephone concept should be funded, like the current Remote Community Telephone programme, via the Budget rather than the Telecommunications Industry Levy (TIL).

Mobile infrastructure in the delivery of STS

As outlined in our response to the Issues Paper, while Telstra does not utilise its mobile network to deliver the USO on a permanent basis, it is an option that is under investigation. However, there are a number of complexities in the delivery of such a solution.

Due to environmental and other factors, determining whether a customer can receive a mobile signal within their premises cannot be definitively determined by observing a coverage map and requires verification at their premises. A mobile Fixed Wireless (FW) solution is also likely to require additional in-premises equipment and, if a signal is weak or unavailable, an external antenna at the premises may be necessary.

These issues introduce costs into the use of mobile infrastructure in the delivery of a USO STS. These challenges are not insurmountable but must be taken into account in a product solution and therefore its cost. We note that that the NBN FW product was designed to address similar issues.

Adequacy of NBN Satellite (NBN SAT)

The Draft Report's Information Request 6.1 seeks evidence on the adequacy of NBN satellite voice services in relation to defining an acceptable baseline for a universal service. Our views on the adequacy of NBN SAT for the delivery of STS were outlined in our response to the Issues Paper. The USO does not require us to deliver a low-latency service when using satellite, however we have developed a solution to address this issue it in order to meet customer expectations.

We note that over time customer expectations regarding voice may have changed, given availability of other real time communication methods. For example, in light of the additional modes of communication offered by broadband, additional voice call latency may be acceptable particularly if it is at a level that does not impact on public safety. Voice quality issues aside, the broader question around serviceability due to rain fade also requires further analysis and real world experience of NBN SAT operating at tropical latitudes.

Delivering USO STS into the NBN satellite footprint via Telstra's USO SAT solution has material implications for the ongoing cost of USO delivery. We would therefore recommend that the Government, nbn co. and Telstra undertake further work on the extent to which NBN SAT can be optimised to deliver

voice. At the conclusion of this work the government could then make a decision whether an optimised service is acceptable for the delivery of a USO STS.

Future Levy Arrangements

The Draft Report's Recommendation 8.1 calls for an abolition of the current arrangements and for future policies to be funded principally through general government revenue. We also support the proposition that funding principally come through general government revenue.

As noted in our submission to the Issues Paper, we are open to a change to USO arrangements. If acceptable terms were reached between Telstra and the Government for the abolition of the USO and associated regulatory and contractual obligations, this could eliminate the need for the current contract's funding requirements.

Depending on transition arrangements, including how voice services are delivered to customers within the NBN satellite footprint, the abolition of the STS USO will at some point lead to a material reduction in funding arrangements to a level that the TIL could be abolished.

We also note that the PC's articulation on when an industry levy is appropriate. This articulation is relevant given the government's proposed new Regional Broadband Scheme (RBS). While we support nbn co.'s right to seek network cost recovery, we do not support the RBS methodology. We consider that the scope of the RBS should be narrowed to reflect the policy intent or alternatively be funded solely from general government revenue.

Transition Arrangements

The Draft Report's Information Request 9.1 invited feedback as to the merits of three different transition options. Of the three options presented by the PC, Option 2 – removal of the STS in all areas once the NBN rollout is complete - would be the most pragmatic approach as explained in our response to the Issues Paper. We would note however, that NBN rollout completion is one of a number of elements that would need to be addressed between Telstra and the Government to facilitate an acceptable descope of Module B.

Option 1, which would amend the Act, is not applicable as Telstra has indicated an openness to discuss transition arrangements with the Government and Option 1 assumes Telstra would not be a willing participant. Option 3, which would progressively stage a wind back of the USO would be administratively complex to implement and negotiate.

Consumer Protection Reform

We agree with the Draft Report's Finding 4.1 that the application of consumer safeguards is not consistent across industry. One of the fundamental challenges with the major consumer telecommunications safeguards, the Customer Service Guarantee (CSG), is its implicit assumption of retailer control of the underlying infrastructure.

The introduction of the NBN, which will deliver the majority of fixed services to consumers and the Superfast Network Obligations, which prohibits vertical integration of superfast networks, has meant that retailer control over the underlying infrastructure is no longer possible.

In this environment, retail service quality obligations such as the CSG should be replaced with requirements on retailers to make consumers aware of the commitments the retailer is prepared to make regarding connection times and remedies when times are not met. This could take the form of an obligation under the Telecommunications Consumer Protection Code.

If the Government considers that nbn co.'s commercial arrangements are not delivering acceptable service levels, it may consider introducing statutory service levels on nbn co.. We note that the powers granted to the Minister under the proposed amendments to the Telecommunications Consumer Protection and Service Standards Act 1999 would enable this outcome.

We also agree with the PC that the review of the consumer safeguards framework should proceed as a matter of priority. The review must take into account the current environment, where the focus of control over service quality has moved from the retailer to the infrastructure provider of the wholesale service.

Affordability and NBN

We agree with the PC's Draft Finding 6.4 that while telecommunication service affordability has improved overall, government subsidies may be required for a small number of low-income users. What remains unanswered is a quantification of the level of consumption that government policy should be targeted to support. This is a critical question that requires answering particularly if, in line with the Draft Report's Recommendation 5.1, future policy is reframed around delivery of a baseline service.

With respect to NBN pricing, we recommend that the PC conduct a deeper analysis of the proposed dimension based pricing being proposed by nbn co. for its Connectivity Virtual Circuit (CVC) charge. Higher wholesale discounts based on the amount of dimensioning an RSP purchases could mean consequential increases in costs for voice only and low data customers, a cohort of customers to which there is a correlation with low income.

Mobile Black Spot Programme (MBSP)

We consider that the PC should undertake some further analysis in relation to the views reached in the Draft Report in relation to the MBSP. We support the ongoing operation of the current arrangements that:

- sources funding from government revenue;
- provides government with the discretion to judge the efficient allocation of this funding; and
- encourages industry co-contribution to leverage market incentives and competition.

We also suggest the PC review their draft view that infrastructure sharing may be limited under the MBSP in practice. This view is not borne out given, Telstra's willingness to negotiate infrastructure sharing consistent with MBSP requirements that led to Telstra's co-location on 24 VHA (out of 70) MBSP towers, regulated transmission pricing, regulated facilities access and Optus' and VHA's investment in regional areas.

01 Future of Payphones

1.1. Payphones

We note the Draft Report's Recommendation 9.2 that the Government seek early termination of TUSOPA Module C Payphones USO. We concur with the PC's observation that "*evidence of the demise of payphones is clear*" based on the declines in use of payphone services.[1]

Our response to the Issues Paper questioned whether the payphone obligation is delivering value to the Australian community and noted our openness to negotiate relevant changes. Our position has not changed and we remain open to begin negotiations on the termination of Module C with the government. It is likely that an exit of payphones would require transition arrangements that cover matters such as the decommissioning of the relevant infrastructure.

Noting that the policy decision sits with the Government, our engagement with regional stakeholders has not seen payphone use or availability raised as a major priority. This is unsurprising given the data showing a clear decline in usage across all call types and submissions in response to the Issues Paper. Our review of these submissions suggested that concerns raised in relation to payphones related more around ongoing access to telecommunication services rather than access to a payphone per se.

As stated in our submission to the Issues Paper, consequential reductions in Telstra's Telecommunications Industry Levy (TIL) liabilities from removal of the payphone obligation would create opportunities for Telstra to enhance its investment in regional and remote mobile infrastructure. Our regional customers have made clear to us that investment in mobile coverage and quality should be our top priority.

1.2. Community Telephone Service

We consider that the Community Telephone Service concept raised in the Draft Report is worth further investigation.

In remote communities that are outside of mobile coverage, there is often reliance on a sharing the residential service of a member of the community. A drawback of this approach is the reliance on the community member to fund the service. In the event of the community member moving or no longer wishing to maintain their service, the service may be lost to the whole community.

One possible formulation would have the community telephone service allow a whole community to use the access service. This would free the service from being reliant on private rights for access and ongoing serviceability. Calling to and from these devices could be free of charge and the service could also include a shared data allowance for the whole community.

Given the nature of a program focussed on remote communities outside of mobile coverage, indigenous Australians are likely to be a beneficiary of such a program. Such a service would not only help address indigenous disadvantage, but also assist remote communities who are outside of mobile coverage more generally.

This concept should be considered as a stand-alone, government-funded proposition (rather than TIL funded) and remain separate from any payphone USO regulatory and contractual renegotiations. This is the existing funding model for the existing Remote Community Telephone programme which could form the basis for a future Community Telephone Service. If the Government sought to proceed with such an initiative we would support the Draft Report's Recommendation 7.5 that such a program be subject to a competitive tendering program.

02 Mobile infrastructure in the delivery of STS

[1] Productivity Commission Draft Report – Telecommunications Universal Service Obligation, November 2016, page 17.

Australian consumers have access to Telstra's world-class mobile network infrastructure coverage reaching 99.3% of the population. This equates to 2.4 million square kilometres delivered using more than 8,500 mobile base stations.

The Draft Report notes that in designing a universal service policy it should be efficient and cost effective.[2] It also notes that mobile infrastructure can be used to deliver a USO STS.[3]

As outlined in our response to the Issues Paper, while Telstra does not currently utilise its mobile network to deliver the USO on a permanent basis, it is an option that is under investigation for certain customer scenarios. There are however a number of complexities in the delivery of such a solution. Currently the two most prominent challenges on the use of mobile infrastructure to deliver USO STS are:

1. **Contractual limitations** – the TUSOPA Copper Continuity Obligation (CCO); and

2. **Operational challenges** – in-building mobile coverage.

The contractual limitation, created by the CCO, has been addressed in our response to the Issues Paper.[4] The operational challenges posed by in-building mobile coverage and designing a mass market Fixed Wireless FW product that can be used in this manner were touched on in our response to the Issues Paper.[5] To assist the PC in its final considerations, we provide further detail on this issue below.

2.1. In-building mobile coverage

A key element of the USO is delivery of a STS to a customer's residence or place of business. Any USO solution based on mobile infrastructure must enable this outcome.

While mobile coverage has improved over the years and now reaches the vast majority of Australians, the fact a customer's residence falls within a mobile coverage map does not automatically translate into an ability to deliver STS to the residence.

Consumers may reside within areas of mobile coverage but not receive mobile signal within their premises due to a number of factors and obstructions. This can be contrasted with a fixed infrastructure connection where connection to the premises guarantees in premises access to the service.

For example, something as innocuous as the size and location of windows in a premises can impact on in-building coverage and signal strength. Generally, mobile coverage within a premises will improve with the more windows and the larger in size. Smaller windows, increased glass thickness and tints will reduce mobile coverage. The issue of limited in-building mobile coverage is well known within the industry and has been a matter addressed by the Mobile Carriers Forum, an industry group representing the three mobile phone carriers.

2.1.1. Identifying whether a premises will have in-building mobile coverage

The mobile coverage maps provided by mobile network owners is indicative, based on the coverage a mobile device should receive on the street. There is no desktop capability or service qualification check that can be conducted to determine whether the customer will get in-building mobile coverage. It is not possible to identify whether a particular premises will get in-building mobile coverage until a customer utilises a mobile service inside the premises.

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[2] Productivity Commission Draft Report – Telecommunications Universal Service Obligation, November 2016, page 33.
[3] Productivity Commission Draft Report – Telecommunications Universal Service Obligation, November 2016, page 168.
[4] Telstra's response to the Productivity Commission's Telecommunications Universal Service Obligation Issues Paper, July 2016, page 15.
[5] Telstra's response to the Productivity Commission's Telecommunications Universal Service Obligation Issues Paper, July 2016, page 9.

Including the customer as a service qualification check, would assist in confirming availability while also adding additional administrative steps and source of potential uncertainty should the check be found at a later stage to be inaccurate. In circumstances where a confirming mobile signal availability and strength within a premises requires a technician at the site, this will introduce additional costs.

2.1.2. Improving in-building mobile coverage

Where a signal strength is inadequate or non-existent within a premises, it may be addressed with the use of additional equipment that assists with the reception of a signal at the premises i.e. an antenna. It should be noted that this additional equipment will result in significant costs if provided to every customer ordering a service.

2.2. Implications on Telstra's use of mobile infrastructure to deliver USO STS

While we are investigating the possibility of introducing a USO-compliant mobile solution to deliver the STS on a permanent basis, putting this into market will require consideration of the matters raised above, that is

1. identifying whether a premises will have in-building coverage; and

2. the additional upfront expenditure associated with installing the additional equipment enable a signal at a premises or improve in-building mobile coverage.

The challenges we are facing in the design of a USO compliant 4G FW service are not unique to Telstra and are shared by the NBN FW product. For example, with the NBN FW product:

1. serviceability can only be confirmed once the customer orders the service and the service provider attempts to offer the service - Telstra has offered services to customers who have sat within NBN FW footprint only to find that the premises is not serviceable by NBN FW;

2. all NBN FW services require that the NBN FW modem is connected to an external antenna fixed to the customer's roof; and

3. in some circumstances the external antenna fitted to the roof is insufficient and additional infrastructure is installed at the customer's expense to enable the service.

03 Adequacy of NBN Satellite (NBN SAT)

The Draft Report's Information Request 6.1 seeks evidence on the adequacy of NBN's satellite voice services in relation to defining an acceptable baseline for a universal service.

There are two issues relating to the use of NBN SAT for the delivery of a baseline voice service:

1. double hop – voice call latency that is introduced into calls that are made between two customers on satellite that impacts on **service quality**; and

2. rain fade – impact of rainfall on **service availability**.

3.1. Double hop

Double hop refers to the mouth-to-ear delay that occurs between satellite calls. The PC Draft Report noted the 2003 International Telecommunication Union Recommendation G.114, which identified that a mouth-to-ear delay greater than 400 milliseconds (ms) will be deemed unacceptable to consumers. The Draft Report also noted that the delay for a 'double hop' will be around 520 to 600 ms.

The Communications Alliance Industry Code C519:2004 (End-to-End Network Performance for the Standard Telephone Service) articulates performance levels for STS. The code stipulates that a Satellite

single hop delay should not exceed 410 ms. However, there is an exception to this performance level for unavoidable double satellite hops.

Although Telstra is not required by regulation to deliver a satellite voice service without this latency, to address double-hop we implemented a meshing solution to deliver the USO via satellite, known as Skylinx V2 "**USO SAT**". We did this in response to customer feedback. Further detail on our methodology for testing voice quality is detailed below.

3.2. Rain fade

The PC also noted the rain fade issue as potentially impacting the acceptability of the Sky Muster voice service.[6] Telstra previously noted the rain fade issue in our response to the Issues Paper:

"The NBN SAT operates at the higher frequencies in the Ka band (17 Ghz -30 Ghz). At these frequencies signals broadcast over the satellite are more likely to be disrupted by rain particularly at tropical latitudes north of 23° S. On average, a user living in the tropics will experience a greater loss of their service than a user on a different system that utilises lower frequencies. While this impact may be inconsequential for typical household usage, this may have public safety consequences in the event of an emergency.[7]

Unlike the double hop issue that impacts on the quality of the voice service, rain fade impacts on the availability of the underlying service. This has implications on meeting statutory CSG timeframes and Emergency '000' availability as well as public safety concerns.

3.3. How Telstra tests for voice quality

Telstra deploys specialised test equipment (SAGE 960B) to test overall user experience. Figure 1 outlines the setup used for the purposes of NBN SAT voice testing. A SAGE unit was connected to a standard FXS 2-wire telephony interface of two Telstra Gateways. The Telstra Gateways were in turn connected to separate UNI-D ports of the same NBN SAT modem.

The testing devices were configured so that one acts as a Director and the other as the Responder. During the testing phase, the Director initiated a telephony voice call to the Responder – when the Responder answered the call, a series of audio bursts that mimic a voice call are exchanged between the two units. The process was repeated every minute for a total of 1 hour. The SAGE results produced included Mean Opinion Scores (MOS) and latency.

[6] Productivity Commission Telecommunications Universal Service Obligation Draft Report, November 2016, page 173.
[7] Telstra's response to the Productivity Commission's Telecommunications Universal Service Obligation Issues Paper, July 2016, page 13.

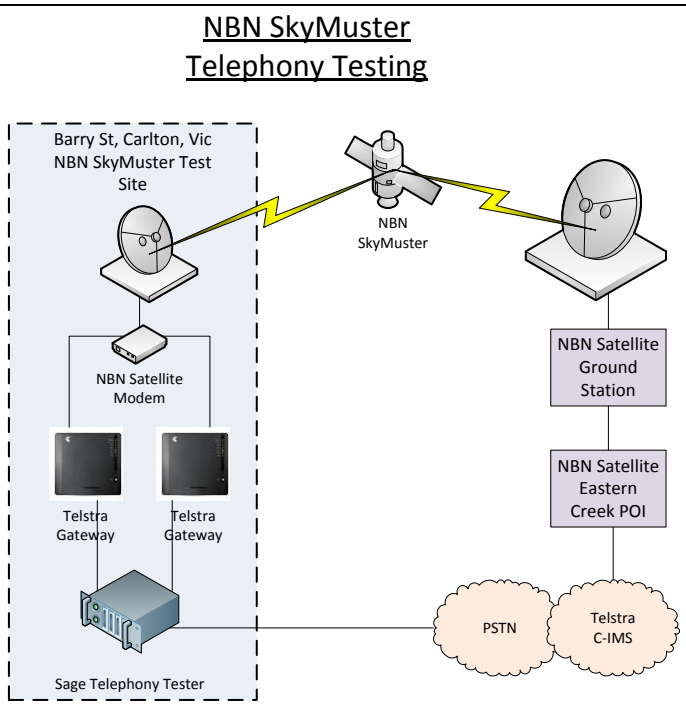

Figure 1– Telstra's testing setup of the NBN SAT service

In voice and video communication, quality usually dictates whether the experience is a good or bad one. MOS is a numerical method of expressing voice and video quality. MOS gives a numerical indication of the perceived quality of the media received after being transmitted and eventually compressed using codecs.[8] Note that MOS Line Quality is a measure of voice clarity not latency.

MOS is expressed in one number, from 1 to 5, 1 being the worst and 5 the best. Taken in whole numbers, the numbers are graded outlined in Table 1.

5	Perfect. Like face-to-face conversation or radio reception.
4	Fair. Imperfections can be perceived, but sound still clear. Typically the range for mobile phones and toll quality services.
3	Annoying.
2	Very annoying. Nearly impossible to communicate.
1	Impossible to communicate.

Table 1. MOS user experience scores

The values do not need to be whole numbers. Certain thresholds and limits are often expressed in decimal values from this MOS spectrum. For instance, a value of 4.0 to 4.5 is considered to be the normal value of PSTN and causes complete satisfaction. Many VoIP services aim at this level. Values dropping below 3.5 are termed unacceptable by many users.

Test Results of Satellite to Satellite calls
Table 2 outlines the results of the automated voice testing between two NBN SAT services and two USO Sat services.

[8] A codec, which stands for coder-decoder, converts an audio signal (the customer's voice) into compressed digital form for transmission and then back into an uncompressed audio signal for replay. It's the basis of VoIP. There are several codecs available (e.g. G.711, G.729, etc.).

A-End Location	B-End Location	No. of Satellite Hops	No. of Calls	Average 'Mouth-to-Ear' Delay	MOS (Line Quality) A-B	MOS (Line Quality) B-A
NBN SAT – 1	NBN SAT – 2	2	50	666.65 ms	3.63	3.58
NBN SAT – 2	NBN SAT – 1	2	50	666.3 ms	3.64	3.64
USO SAT – 1	USO SAT – 2	1	50	398.45 ms	4.12	4.12

Table 2. Initial test results of USO SAT and NBN SAT

NBN SAT and USO SAT, generally produces good voice clarity on calls - although the voice clarity performance on NBN SAT had brief periods of the voice clarity dipping according to the SAGE test equipment. As NBN SAT unlike USO Sat, requires double satellite hops for satellite to satellite calls on the platform it introduces a 'Mouth-to-Ear' delay of approx. 666 ms.

It should be noted that we are reviewing the testing results and are undertaking further analysis to determine whether voice services over NBN SAT can be further optimised. The data for NBN SAT in Table 2 should be viewed as initial test results on an un-optimised service.

3.4. Is NBN SAT adequate to deliver a USO STS / baseline service?

3.4.1. Double hop – service quality

Regional consumer groups have noted in their submissions to the Issues Paper that NBN SAT will not be acceptable as a voice service.

While it is clear that a NBN SAT service will introduce a greater delay when making a satellite to satellite call, consumers may have a greater tolerance to 'double hop' delay given the changes in consumption of communication services and the additional functionality and communication options offered over NBN SAT (e.g. email, instant messaging apps). It is also only satellite to satellite calls that are impacted by double hop, calls between NBN SAT and fixed or mobile infrastructure are unaffected by the double hop delay.

Consumers may therefore conclude that the annoyance caused by latency on satellite to satellite voice calls which may constitute a small proportion of their calling is outweighed by the additional benefits offered by the NBN SAT broadband service.

Furthermore, as noted above our initial testing of NBN SAT indicates that there may be opportunity for optimisation of a voice service that, will not eliminate double hop latency entirely, but may minimise its impact and improve overall voice quality.

This should not be read as to diminish the concerns of regional customers regarding the use of NBN SAT and we recognise the concern raised by regional stakeholders regarding the use of NBN SAT for the purposes of voice. Ultimately, it is a matter of government policy as to whether the service quality is sufficient for the purposes of meeting the STS USO. We recommend that the Government, nbn co. and Telstra work together to determine the extent to which voice over NBN SAT can be optimised. At the conclusion of this work the government could decide based on real world consumer experience whether an optimised service is acceptable for the delivery of the USO STS.

3.4.2. Rain fade – service availability

Unlike double hop which impacts on satellite-to-satellite voice quality, rain fade will result in instances where customers may lose accessibility to the voice service. In addition to potential Customer Service Guarantee and any future NBN Statutory Infrastructure Provider (**SIP**) timeframes that may be imposed, this issue raises public safety implications, including access to Emergency '000' call services, particularly for customers at tropical latitudes losing access during heavy rainfall.

Regardless of what conclusion is reached in relation to voice quality, given public safety impacts, we recommend that further analysis and data on real-world experience of NBN SAT service availability in tropical latitudes is undertaken. This should also be factored into government considerations of the acceptability of NBN SAT as a USO STS.

3.5. TUSOPA implications of NBN SAT adequacy

If NBN SAT is found to be acceptable to fulfil the STS USO, subject to necessary amendments to the CCO, this will result in less reliance on the use of Telstra infrastructure to deliver services within the NBN SAT footprint.

Once any relevant upfront costs of customer migration onto NBN SAT are taken into account, this is likely to result in a reduction in the cost of delivering the STS USO. Likewise, if NBN SAT is found to be unacceptable those cost reductions will not be realisable.

04 Future Levy Arrangements

We note the Draft Report's Recommendation 8.1 calls for an abolition of the current arrangements and for future policies to be funded principally through general government revenue. We also reiterate our position in our response to the Issues Paper that

- the programs funded by TUSOPA should be met via general government revenue rather than an industry levy;[9]
- we are open to a change to the current arrangements.[10]

If acceptable terms were reached between the Government and Telstra that led to a material reduction in the STS USO scope and the associated regulatory and contractual obligations, at the conclusion of any transition arrangements there would be material, if not complete, reduction in the funding requirement and the industry levy could be abolished.

A lifting of this industry tax would free up additional funding that could be reinvested into commercial initiatives to improve customer experience and investment in mobile infrastructure. This is the case for all MNOs, not just Telstra. As we have stated publically, reductions in our industry levy that result from changes to our payphone obligations may allow us to redirect this payment into our regional mobile network infrastructure.

While in principle we would seek the program to be wholly government funded, future levy arrangements will be dependent on the changes the Government choose to make to the policy. As there has been no change to policy at this point we would consequently not seek to make a change to the levy arrangements.

We note that the PC's recommendation on industry funding comes just as the Government is proposing the Regional Broadband Scheme (RBS) a new industry levy to account for nbn co.'s non-commercial services. The levy is being introduced to increase the transparency around the costs of NBN non-commercial services and to address sources of revenue leakage.

We acknowledge that nbn co. has a legitimate right to seek recovery of its network costs that result from the NBN Co Ltd Statement of Expectations which requires them to deliver peak wholesale download

[9] Telstra's response to the Productivity Commission's Telecommunications Universal Service Obligation Issues Paper, July 2016, page 20.
[10] Telstra's response to the Productivity Commission's Telecommunications Universal Service Obligation Issues Paper, July 2016, page 14.

data rates (and proportionate upload rates) of at least 25 megabits per second to all premises, and at least 50 megabits per second to 90 per cent of fixed line premises as soon as possible.

As noted by the Vertigan Report, nbn co.'s ability to recover its costs via the cross-subsidisation of higher cost services from lower cost services has been impacted by the emergence of other niche infrastructure providers. This creates a "revenue-leakage" scenario where nbn co. is required to recover a cross-subsidy, and compete with other fixed infrastructure providers in metro areas who do not have to include this cross-subsidy. In these circumstances, nbn co. would have to reduce its prices to meet competition and face losses overall by not being able to recover the cross-subsidy.

Our support for a levy was predicated on it being introduced to create a level playing field and targeting the problem being addressed, i.e. revenue-leakage from networks competing with nbn co.. Under that approach the levy would only be payable by those networks which had infrastructure competing with NBN infrastructure.

However the RBS has been broadened into a model that is more akin to an industry tax, which will include within its scope networks that nbn co. does not have competing infrastructure. As the levy is now more akin to an industry tax rather than a tool for creating a level playing field, we do not support the proposed model. Instead, we consider that either:

- the RBS be amended to reflect the policy intent; or
- given the likely size of the RBS, following the same logic articulated by the PC regarding funding sources for government policy, fund the RBS from general government revenues.

05 Transition Arrangements

The Draft Report's Information Request 9.1 invited feedback as to the merits of three different transition options:

- Option 1 Change the legislative scope;
- Option 2 Removal of the STS USO in all areas once the NBN rollout is complete; and
- Option 3 Commence a staged wind-back of the STS USO in NBN – connected areas as soon as practicable.

Of the three options presented by the PC, Option 2 – removal of the STS USO in all areas once the NBN rollout is complete - would be the most pragmatic approach as explained in our response to the Issues Paper.

It should be noted that we consider removing the STS USO in all areas once the NBN rollout is complete to be one of a number of pre-requisites to facilitate the descoping Module B of TUSOPA.

It would also require the agreement between the government and Telstra in relation to the following matters:

- a defined NBN fixed footprint, noting that nbn co. retain control over the size of its fixed footprint which shrank it from 93% to 92% in FY15;
- the process for and costs of migrating customers within NBN's wireless footprint onto NBN or alternative infrastructure;
- the delivery of voice services to customers within the NBN satellite footprint;
- relevant regulatory changes; and
- relevant changes to the WBA.

This is not an exhaustive list of the matters that would require consideration. For example matters such as the outcomes of the upcoming consumer protection review would also need to be addressed.

Our principle in any negotiations would be aligned with the principle that is articulated in the TUSOPA. If scope changes are negotiated that decrease our actual costs, then there will be an adjustment in payment in accordance with the contract.

It would also be our starting principle that customers should not face additional upfront costs as a result of any migration or transition onto new infrastructure – for example, but not exhaustively, if additional antenna infrastructure equipment like a modem interface was required to facilitate the voice service.

Option 1 would amend the Act and assumes that Telstra is not a willing participant in USO reform. This option is not applicable because Telstra has indicated an openness to discuss transition arrangements with the Government.

Option 3, which would progressively stage a wind back of the USO would be too administratively complex to implement and negotiate, for example:

- parties would have to determine and agree on the cost reductions on a region by region basis;
- actual cost reductions in areas where nbn co. has rolled out fixed infrastructure are likely to be minor;
- nbn co.'s fixed rollout does not constitute uniform polygons of coverage, there are many instances of individual blocks and premises within NBN's fixed footprint that remain Telstra's responsibility and cost until the designated date;
- even within areas which are "nbn connected" there is no statutory obligation that will in practice deliver a service on request, as a result customers would be without a service on request;[11]and
- within the NBN wireless footprint, the consumer protections required to be offered by the STS are incompatible with the WBA – i.e. there would be no STS protections for those customers.

06 Consumer protection reform

As noted by the Draft Report Finding 4.1, the CSG Standard and other consumer protections do not apply consistently across all providers and all telecommunications services.

A major disconnect currently exists within the consumer marketplace. Telstra and indeed other RSPs are not in control of underlying service provision offered by nbn co.. This is the clear policy intent from the government as evidenced by the:

- legislative intent for nbn co. to have SIP responsibility nationally; and
- Superfast Network Obligations in the Telecommunications Act 1997 that prohibit vertical integration of superfast broadband networks

Consequently, all fixed network services delivered to consumers will be dependent on wholesale-only network operators, with the vast majority of these services provisioned by nbn co.

Given this environment, we think there is merit in making a legislative delineation between regulatory responsibility for underlying infrastructure service provision, and responsibility for customer interaction. This delineation is necessary to reflect the areas that are within the control of the regulated party.

The structure of this delineation is already being established. nbn co. will have as a result of the draft Telecommunications Legislation Amendment (Competition and Consumer) Bill 2017 ("**the Draft Bill**") a national Statutory Infrastructure Provider (SIP) obligation, with a default SIP obligation for all of Australia on completion of its roll-out. The Draft Bill also contains the power for the Minister to set timeframes on connection and remediation of services.

As a starting point the Minister may wish to observe whether consumer outcomes regarding connection, appointment times and remediation of faults are met through nbn co.'s existing WBA. If the Minister

[11] While the Draft Bill will impose a SIP obligation and the power for the Minister to set timeframes on connection and remediation, in practice without rules the Minister exercising this power and imposing a timeframe on meeting this obligation, it operates in principle only rather than providing a practical obligation.

concludes that commercial arrangements are unsatisfactory, the statutory power may be used as a fall back to enforce outcomes. These obligations would act as the baseline service performance capability.

Suggested areas of focus for this baseline could be availability, remediation timeframes, expected speed levels and reliability. The standard should be set in consultation with nbn co. noting that statutory service levels would need to take into account trade-offs between service levels and cost.

RSPs, would have responsibility for communicating to consumers on what timeframes they can expect and what will happen in the event these timeframes are not met. This would take the form of Quality of Service Performance Commitments offered by all RSPs in a transparent manner. Reflecting the fact that RSPs compete to provide services over NBN infrastructure and do not control NBN service delivery, regardless of whether statutory timeframes are placed on nbn co., RSPs' obligation to the consumers would be limited to the commitments made in their Quality of Service Performance Commitments and not set by statute.

To this end, Telstra believes that the PC should consider the merits of industry co-regulation to address customer interactions. Industry Codes of Practice have delivered considerable operational, technical and consumer benefits. By way of example, telecommunications consumers are able to access competing offers and quickly change suppliers whilst retaining existing numbers as a direct result of the Industry Codes that drive number portability processes for all suppliers.

The ACMA has recently conducted a study about the consumer benefits of the Telecommunications Consumer Protection Code 2012 (TCP Code) and other related activities associated with its Reconnecting the Customer Inquiry.[12] The ACMA found that consumer benefits was in the order of at least $545 m each year since the revised Code was registered in 2012.[13]

Importantly, the TCP Code as a registered Code is able to be enforced against all RSPs delivering services to residential and small business customers. Compliance with the Code is currently managed by Comcom and recent reports from Comcom indicate that in excess of 300 RSP's have provided annual compliance statements.[14] This is a considerably larger engagement by RSPs compared with the current situation with the CSG Standard as confirmed by the PC report.

One of the key elements of the TCP Code that provides considerable consumer benefits is the requirement for all RSP's to make available Critical Information Summaries (CIS) in relation to key plans that are offered to residential consumers. The CIS is a short summary of the key elements of the offer and enables consumers to make informed choices before purchase. Importantly, it assists consumers in comparing offers from different RSPs.

Telstra believes that there is an option for the CIS to be used to direct consumers to an individual RSP Quality of Service Performance Commitments associated with particular plans. By way of example, the TCP Code could be amended to provide a positive obligation on all RSPs to have included in their CIS a link to information about Quality of Service Performance Commitments that are offered. Having access to this information prior to purchase would empower consumers to make informed choices about RSPs as well as make informed decisions about the potential trade-offs between price and service that is often important to some consumers.

The TCP Code regime is enforced by the ACMA and individual consumer complaints in relation to the TCP Code can be escalated to the Telecommunications Industry Ombudsman. As we have seen to date, this co-regulatory approach drives appropriate industry behaviour. We are confident the TCP Code amendment suggested above would quickly ensure that all suppliers in the marketplace (i.e. >300 RSP's) were articulating their specific service level offers.

[12] Reconnecting the Customer – Estimation of Benefits November 2015.
[13] Telco Consumer are the big winners – ACMA media release 59/2015 18 November 2015.
[14] Communications Compliance News 22 July 2015.

To recap, a new Consumer Safeguards regime for the future telecommunications sector would retain at the wholesale infrastructure level the option for the Minister to introduce statutory timeframes for delivery of services delivered by legislative obligations on the SIP carrier as proposed in the Draft Bill, this would create a baseline service performance capability.

At a retail level, RSPs would be required to offer Quality of Service Performance Commitments in a transparent manner. The requirement to publish these QOS commitment would be enforceable requirements under the TCP Code and subject to ACMA and TIO oversight.

This new Consumer Safeguards regime would also be consistent with, and complementary to, the Australian Consumer Law framework administered by the ACCC.

For the reasons outlined above, Telstra agrees with the Draft Report's Recommendation 9.3 that the Australian Government should proceed with its intended review of the telecommunications consumer safeguards framework as a matter of priority. Of the matters raised by a review, delineation of responsibilities for service quality including fault repair on the NBN should be prioritised.

07 Affordability and NBN

7.1. On affordability generally

We agree with the PC's Draft Finding 6.4 that while telecommunication service affordability has improved overall, government subsidies may be required for a small number of low-income users.

As a result of our low income program and our work on digital inclusion as highlighted by our Australian Digital Inclusion Index (ADII), we have been closely monitoring the issue of telecommunication affordability.

We note the PC's observations that:

- average household spending on telecommunications services as a proportion of household income has been falling over time;
- prices for prepaid mobile plans that help users control their spending have fallen over the last five years;
- there has been a fall in households who reported they did not have access to internet because of cost.[15]

The PC goes on to observe that despite improvements, affordability is more likely to be an issue for particular user groups. These conclusions are consistent of our view of the current environment.

The PC defines affordability as "*the ability for someone to pay for a good or service relative to their income*".[16]

What remains unanswered is the level of consumption of that good or service that government policy should be directed to make affordable. An understanding of this is critical to the definition of the baseline service that is recommended in the Draft Report's Recommendation 5.1.

Two approaches canvassed by the PC for defining the level of consumption for a baseline service include:

- defining socially necessary use; and
- average monthly usage.

[15] Productivity Commission Telecommunications Universal Service Obligation Draft Report, November 2016, page 201.
[16] Productivity Commission Telecommunications Universal Service Obligation Draft Report, November 2016, page 160.

While average monthly usage would be relatively easy to determine, this does not differentiate between socially-necessary usage and discretionary usage. What may be considered discretionary by one low income user may be seen as socially-necessary by another.

It is critical for the government to define what it is seeking to make socially necessary and therefore establish a baseline of data consumption that affordability can be measured against. Such a baseline would increase over time as consumption patterns change and therefore would need to be subject to regular review. However once established, this baseline would provide clear guidance as to what policy or industry-wide interventions are needed to ensure all Australians enjoy the benefits of universal broadband access.

7.2. On affordability and NBN pricing

The Draft Report concludes that:

"*the affordability of existing packages offered by Telstra and other RSPs over the NBN (appendix D) suggests that:*

- *basic fixed broadband packages over NBN infrastructure are expected to be relatively more affordable for most people as the NBN rolls out*
- *affordability of voice-only services migrating to nbn's fixed-line and fixed wireless services will not be affected "*.[17]

We recommend the PC conduct deeper analysis on the impact that nbn co.'s proposed RSP-based Dimension Based Pricing (DBP) of its connectivity virtual circuit (CVC) charge will have on affordability.

The CVC carries an RSP's traffic from all of its customers in an area to the Point of Interconnection (POI) serving that area. While the size of the CVC purchased is dependent on a number of variables, the major driver is the data usage of the RSP's end users, i.e. the greater the usage the larger the size of CVC required to accommodate that usage.

Currently, CVC pricing is discounted on an industry-wide basis. Total industry CVC capacity is divided by the total number of services to determine an average price per Kbps.[18] As total industry consumption increases the price per Kbps falls for all NBN service providers allowing the benefits of increasing national consumption to be shared across all service providers and consequently their customers.

Last year nbn co announced that they are proposing to move from the industry-wide approach to a RSP-specific discount structure. Under this structure the nbn co. CEO advised that "*…TPG will end up having a far lower cost per megabit of CVC than what the other alternative would be that's targeting the low end user*".[19]

A NBN service provider who has a higher proportion of low-usage customers (low usage is inclusive of both voice only customers and customers who consumer very low amounts of data) than another NBN service provider will pay a higher cost per Kbps.

We consider that this approach will:

- discourage NBN service providers from attracting customers who are low usage; and
- increase prices for low usage customers.

[17] Productivity Commission Telecommunications Universal Service Obligation Draft Report, November 2016, page 201.
[18] nbn co. calculates the discount based upon non-transitional areas (i.e. those areas that have passed a threshold number of premises that are Ready for Service) and on Traffic Class 4 traffic/services. The discount is then applied across all Traffic Class 4 CVC capacity, whether in a transitional or non-transitional area.
[19] Australian Financial Review, September 2016.

NBN service providers will be discouraged from attracting low-use customers because the inclusion of these customers in their customer base will lower their average CVC usage and in turn increase their CVC charge per Kbps.

Price increases for low-use customers will occur due to the resulting difference in unit cost per kbps between NBN service providers. The NBN service provider with the low-use customer base will compete for high-use customers at a higher per unit cost than another NBN service provider with a high-use customer base. If the NBN service provider with the low-use customer base matches price with the NBN service provider with the high-use customer base, assuming both are efficient retailers, they will recover the same revenue but incur a loss per service relative to the NBN service provider with the high-use base.

This may result in the NBN service provider with the low-use customer base recovering this loss by increasing prices on customers who are taking the lower use and voice only plans.

7.3. Impact of CVC pricing on low use and voice only customers

Recent research provides the following data points:

- 73% of voice only customers have household income below $40k;
- 78% of voice only customers are over the age of 55 years;
- More than 62% of voice only customers are not engaged in paid employment; and
- Low levels of income and education are correlated with low usage.[20]

Given the correlation between low usage and low income, we consider that NBN pricing will negatively impact on affordability.

We acknowledge and agree with nbn co.'s intent to encourage increase usage of the NBN and the provision of a positive NBN experience. However, we consider that the current industry-based approach achieves nbn co.'s objectives without the negative impact on low usage customers. Unless the proposed NBN DBP RSP-based approach is modified to account for the impact on low usage customer base, we recommend maintaining the current approach to CVC pricing.

08 Mobile Black Spot Programme (MBSP)

8.1. Funding of the MBSP

The Draft Report makes the following statement in relation to the Mobile Black Spot Programme:

"*Other taxpayer funded initiatives, such as the Mobile Black Spot Programme, aim to improve mobile coverage in regional areas. But these programs are funded separately from the TUSO. Infrastructure Australia (2016b) recommended that the Government consider phasing out the TUSO and instead divert the funding to further improve mobile coverage.*"[21]

The PC appears to endorse the Infrastructure Australia suggestion that TUSO funding should be diverted to further improve mobile coverage. However, while additional public funding for remote mobile coverage expansion may be necessary in future, an annual defined commitment of funding for a defined number of years (as per the TUSO) would not encourage the most efficient use of taxpayer funds for mobile expansion. Government must retain the ability to judge when further funding cannot be spent efficiently with the help of the market information yielded through the tender process for each funding

[20] Australian Digital Inclusion Index and Roy Morgan.
[21] Productivity Commission Telecommunications Universal Service Obligation Draft Report, November 2016, page 99

round. Serial discretionary funding as per the current MBSP will therefore clearly deliver the best net outcome for taxpayers.

Serial discretionary funding for mobile coverage extension cannot be reasonably sourced from an annual industry levy such as the TIL as it would remove any incentive for carrier co-contributions and therefore less funding overall. The consequence of less funding would be less coverage per dollar of public funding and an under-performance of a programme that is currently delivering substantial investment in mobile infrastructure for regional Australians.

In Telstra's view the only sensible approach is for future funding to come from general revenue, as is currently the case. If the STS USO is to be abolished, Telstra endorses Draft Report recommendation that the TIL should therefore also be retired. The Government could of course choose to use some of the savings from its contribution to the STS USO to fund further rounds of the MBSP if it saw reasonable benefits in doing so.

8.2. Operation of the MBSP

Telstra believes the structure of the MBSP has been successful in harnessing market incentives to drive private co-investment. From the perspective of "bang for buck" it has been a success for the taxpayer.

The Draft Report queries:

"*Despite the program having provisions that encourage infrastructure sharing, it is unclear whether these are actually effective.*"[22]

Telstra agrees that the MBSP rules encourage infrastructure sharing, and notes that all Telstra towers have been built under the programme with additional capacity to facilitate co-location of another operator's equipment. As evidence of their effectiveness in encouraging infrastructure sharing, Telstra has collocated equipment on about one third (24) of VHA's MBSP Round 1 towers.

The Draft Report makes a following observation in relation to the MBSP, quoting VHA:

"*However, the extent of infrastructure sharing may, in practice, be limited by ownership of transmission networks and site locations (Vodafone Australia, sub. 46). A lack of commercial incentives is also apparent for non-dominant operators to expand network coverage in remote areas that are near mobile black spots.*"[23]

Telstra disagrees with both these statements on the evidence.

Infrastructure sharing is not limited by ownership of transmission networks and site locations. The ACCC mandates third party access and price for transmission networks in non-competitive areas. It may be that a potential co-locator decides not to proceed with a particular site for commercial reasons, e.g. due to transmission costs, but the same calculus applies to the owner of the site before they bid for the funding.

This is applicable for all mobile sites, including sites funded under the MBSP. In fact, (as demonstrated in Telstra's submission to the ACCC roaming inquiry), the costs of the second entrant (co-locating) on a mobile site are materially lower than the costs incurred by the first entrant to establish the site

There are no structural barriers to an operator's commercial incentive to expand its network in remote areas that are near mobile blackspots. Telstra has invested to build what is currently the most extensive remote mobile network, which delivers competitive benefits. This is a commercial model that other operators can implement to reduce Telstra's competitive differentiation. That is Optus's clear and stated

[22] Productivity Commission Telecommunications Universal Service Obligation Draft Report, November 2016, page 226.
[23] Productivity Commission Telecommunications Universal Service Obligation Draft Report, November 2016, page 110.

strategy, which Optus is now executing through targeted regional and remote investments, and its participation in Round 2 of the MBSP.