



TELECOMMUNICATIONS UNIVERSAL SERVICE OBLIGATION

ISSUES PAPER

SUBMISSION BY VODAFONE HUTCHISON AUSTRALIA

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Executive summary

Vodafone Hutchison Australia (**VHA**) welcomes the opportunity to provide feedback on the Productivity Commission's Telecommunications Universal Service Obligation (**USO**) Issues Paper.

The current USO is an opaque, inefficient, inflexible and outdated model which delivers poor outcomes for consumers at the cost of substantial distortions to competition. A scheme which guarantees \$6 billion over 20 years to Telstra, for legacy copper and payphone infrastructure without any serious scrutiny of cost, let alone a cost-benefit analysis, is clearly not the solution in an evolving telecommunications market.

The rapidly changing nature of the communications market and the policy landscape, and the substantial detrimental impacts on competition of an outdated approach to the USO, mean that the time is right for the Productivity Commission to be undertaking a wide-ranging examination of the Australian Government's role in the provision of universal telecommunications services.

To ensure a robust and rigorous analysis of the current USO and the options for the future direction of a universal service arrangement, Frontier Economics was engaged by VHA to assist with the preparation of this submission.

Fundamentally we propose two alternatives to the current USO, both of which would be phased in as the NBN rollout is completed up to 2020:

- In the first model, the USO responsibility is explicitly transferred to the organisation which is already delivering the bulk of the infrastructure which will provide data and voice services on an equitable basis to all Australians – the NBN. Any residual concerns with access and affordability would be dealt with through revised consumer safeguards, and targeted income subsidies to specific consumer groups. In this model, there is no need for a separate ongoing industry funding model.
- The second model is as above, but only to the extent necessary, a smaller and more efficient industry tax is retained, but dedicated to a flexible, technology-neutral fund. The Government would periodically consult with industry and the community to identify the most effective use of those funds from time to time to ensure that technological advancements and consumers' needs are taken into account. One of the key principles of allocation from the fund would be ensuring the preservation and promotion of competition.

Reform of the current USO is long overdue

Australia's telecommunications market is one of the most distorted in the OECD, and the outdated approach to the USO has been a significant driver of these distortions. As the incumbent



telecommunications service provider, Telstra continues to dominate the market and there is limited effective competition for fixed and mobile services in regional areas. Telstra is the only available provider for 46 per cent of fixed line services in regional areas¹. The Centre for International Economics estimated that this lack of competition has resulted in Telstra customers paying a premium of up to \$650 per year for fixed line services.²

Australia's large geography, low population density and unique market structure requires the utmost care in public policy and regulatory settings. This is critically important in relation to any subsidy mechanisms, since these have the potential to facilitate access and affordability for niche customer groups, but also, as the current approach demonstrates, a serious potential to entrench and extend inefficiencies and undermine competition. Subsidies should be a last resort and only used if a model can be developed which ensures a minimal impact on competition, and encourages efficiencies in infrastructure and competition through infrastructure sharing and co-investment in infrastructure which promotes equity of access and drives retail competition.

There is a mistaken view that market-based mechanisms cannot deliver more in terms of improved telecommunications services for regional Australia. This view has inevitably led to ad-hoc public funding to extend existing infrastructure without taking account of the fundamental negative long-term impacts of this approach. This approach has neglected the fundamental constraints on delivering sustainable and ongoing improvements in telecommunications services. It has also continued to benefit the incumbent telecommunications service provider and entrench the dependence of many regional Australians on this single provider.

The current USO is a costly subsidy scheme for legacy fixed-line voice services delivered predominantly over Telstra's copper network and payphones. This is despite the opportunities provided by the roll-out of the NBN which will provide broadband access to all Australians by 2020, the strong and increasing consumer preference for mobile services, and the rapid decline of fixed-line voice services.

¹ Centre for International Economics, Australia's telecommunications market structure, 2015

² Centre for International Economics, Australia's telecommunications market structure, 2015



Four successive Regional Telecommunications Reviews³ have all noted the failure of the current USO to achieve its stated purpose. Other recent government reviews and reports, including the Australian Infrastructure Plan⁴ and the Agricultural Competitiveness White Paper⁵, have also noted the need for USO reform. There have also been influential political voices raised in support of reform of the USO, in addition to the views of telecommunications industry experts. There is now strong, renewed momentum from government, regional, consumer and telecommunications industry stakeholders for a serious and long-overdue reform of the current USO.

VHA's submission highlights the current USO's negative impact on competition for telecommunications services and the significant advantages it provides to Telstra as the incumbent universal service provider. In particular, our submission highlights that:

- The current USO is outdated and inflexible. It is focused on directing large funds to subsidise copper network voice services and payphones until mid-2032. All of these areas will not only receive broadband and voice services via the NBN, but the current USO also locks in the delivery of fixed-line voice services despite the growing consumer preference for mobile.
- The current USO is a substantial tax on telecommunications services providers and their customers. It taxes smaller players even if they are loss-making to subsidise a highly profitable incumbent operator. (Benchmarking of the profitability of incumbent operators in western markets is provided in Attachment 1).
- The current USO distorts competition in regional Australia and restricts investment by competitors by heavily subsidising Telstra at the expense of its competitors. This provides Telstra with subsidised sunk cost infrastructure which gives it a clear competitive advantage in deploying further regional infrastructure such as its mobile network.
- The true cost of Telstra providing the current USO is unknown and has never been subjected to detailed public scrutiny. The payments provided to Telstra are likely to significantly exceed its

³ Estens, Connecting regional Australia : the report of the Regional Telecommunications Inquiry, Australian Government, 2002; Glasson, Regional Telecommunications Review, Australian Government 2008; Sinclair, Regional Telecommunications Review, Australian Government, 2012 and; Shiff, Regional Telecommunications Review, Australian Government, 2015

⁴ Infrastructure Australia, The Australian Infrastructure Plan, 2016

⁵ Agriculture Competitiveness White Paper: Stronger Farmers Stronger Economy, Australian Government, 2015



costs. In effect, this provides a significant public subsidy to Telstra, which is also the most profitable telecommunications services provider. This exacerbates the competitive advantage accruing to Telstra in regional Australia.

- The current USO provides Telstra with other benefits not available to its competitors, which have never been taken into account in assessing the true net cost (cost less benefits) of the USO. This includes economies of scale and scope in regional telecommunications investment, advertising on subsidised payphones, the provision of the proprietary Telstra Air Wi-Fi service (again on subsidised payphones), and brand benefits from being seen as the ubiquitous provider of telecommunication services. While other countries have taken specific account of these benefits - as many of them can be valued according to standard methodologies⁶ - these substantial additional benefits to Telstra have to date been ignored in Australia.

A modern universal service arrangement

The Productivity Commission should seriously consider the option of phasing out the current USO as the NBN rollout is completed. However, VHA acknowledges that Australia's challenging geography and low population density in regional Australia, as well as the benefits of universal access to affordable modern communications services, mean that some form of ongoing universal service arrangement should be considered. If this is recommended then great care must be taken in designing such a scheme to ensure that it delivers the services that consumers actually value over time and that it does not have substantial detrimental impacts on investment and competition.

In addition, VHA's submission notes that:

- Access to reasonable quality voice and data services should be considered as an essential service for all Australians.
- Any universal service arrangement must be technology-neutral. There are many technologies which can deliver voice and data services (fibre, copper wire, fixed wireless, Wi-Fi, mobile) and any

⁶ Ofcom, Review of the Universal Service Obligation, Statement, 14 March 2006.



arrangement should be flexible enough to ensure that the most efficient technology can be used to deliver universal services.

VHA supports a technology-neutral view of universal communications and the 2015 Regional Telecommunications Review⁷ recommendation that government, in consultation with industry and consumer groups, should develop a new standard for voice and data that is regularly reviewed as technologies and consumer demands evolve.

USO in the age of the NBN and mobile

It seems incontrovertible that the current USO should be phased out as the NBN fixed wireless and satellite footprint is rolled out. NBN Co. will effectively deliver the bulk of the USO requirements through the deployment of infrastructure which not only delivers high speed broadband data services, but also can deliver reasonable voice services.

The NBN will deliver fixed broadband access to all Australian premises by 2020, more than a decade before the end of the TUSOP agreement in 2032. Both NBN Co.'s fibre and fixed wireless technologies have been designed to provide voice capability. Voice services can also be provided over NBN Co.'s satellite service. The copper continuity obligation for users within the NBN fixed wireless and satellite footprints can therefore be phased out. Some limited exceptions might be considered, for example bushfire-prone areas, but only following a detailed cost-benefit analysis against alternatives (such as the hardening of mobile networks in these areas). The quality of satellite voice services should similarly be assessed as technological developments make voice over IP (**VoIP**) increasingly competitive over time, and according to a cost benefit analysis of the benefits and alternative methods of provision of high quality, low latency voice services.

The quality and extent of mobile coverage is a major concern of people in regional Australia. If a universal service funding scheme is retained, it should be flexible enough to allow that concern to be addressed. With more flexible funding, the Mobile Black Spot Programme could be extended and evolve into a model which provides subsidies not only for capital expenditure, but also operating expenditure.

⁷ Schiff, Regional Telecommunications Review, Australian Government, 2015



This would help lower the barriers to regional mobile network expansion – especially the high cost of transmission services.

The role of NBN Co. should also be re-examined as it could help to facilitate much-needed improvements in mobile coverage and competition. This could be through the provision of low-cost satellite and terrestrial backhaul for mobile operators, improved and lower-cost infrastructure sharing through greater use of fixed-wireless towers for co-location of mobile equipment and the delivery of wholesale mobile services in some areas.

The current Mobile Black Spot Programme, while well-intentioned and having delivered positive outcomes in the first round, has room for improvement to ensure a sustainable and competitive model. Without adjustments, it may in fact further entrench Telstra's dominance in regional mobile services. An improved Mobile Black Spot Programme, with greater incentives and obligations for infrastructure sharing, increased co-investment, and subsidies for not only capital expenditure, but operating expenditure particularly for backhaul access, together with the NBN, can significantly improve regional mobile coverage in an efficient and competitive manner. (A summary of common global approaches to infrastructure sharing is attached as Attachment 2).

Redirecting USO funding

As the current USO is phased out, we do not understand any basis on which the funding currently provided to Telstra should continue. Telstra has always maintained that the current USO payments are mere cost-recovery for Telstra. Although few in the industry appear to agree with this assertion, according to Telstra's own logic if the obligation is removed and compensation was provided on a cost-recovery basis, the compensation can be wound back as the obligation to incur the cost is phased out. In other words, current USO payments are for services provided and as the NBN and mobile services replace legacy fixed-line voice services, the USO obligation on Telstra can be wound down and payments proportionately reduced over time without any adverse impact on Telstra. In any case, it makes sense for Telstra's USO obligation to be revised, because it would be far less costly to achieve universal service objectives with other technologies which are becoming available.

If any ongoing universal service funding model is retained, this funding should be redirected to a new technology-neutral fund which would provide a flexible, efficient and dynamic framework to support necessary loss-making regional telecommunications infrastructure and services, as recommended by the 2015 Regional Telecommunications Review.

Consumer safeguards

VHA believes there remains an ongoing role for consumer safeguards and support for customers, particularly those on low incomes, some indigenous communities and others in regional and remote



areas and those with disabilities. The existing consumer safeguards should be updated to reflect the provision of voice and data services in a technology neutral environment. VHA notes these are being separately reviewed by the Department of Communications and the Arts in parallel to the Productivity Commission's inquiry and we have limited our comments on these issues in our submission. To the extent that affordability is considered an ongoing issue, the alternative of direct income support to targeted consumer groups should be evaluated as an alternative alongside universal service funding.



1. Introduction

1.1 The Productivity Commission's USO Review

The Australian Government provided terms of reference to the Productivity Commission on the review of the USO arrangements. The terms of reference for the USO suggest that the existing USO arrangements may not be effective.

The Productivity Commission published an Issues Paper in June 2016 entitled Telecommunications Universal Service Obligation, dated June 2016.

VHA understands that the primary task of the Productivity Commission is to determine what government policies may be required to support universal access to a minimum level of retail communications services. This will require consideration of the nature, scope and objectives of a universal service arrangement.

The Issues Paper provided a brief background to the current USO and raised a number of questions regarding the future appropriateness of, and potential reforms to, the USO.

1.2 This submission

This submission responds to several aspects of the Issues Paper. In particular, we:

- Highlight the many factors that give rise to a serious need for reform, especially the changes to the telecommunications market and the serious negative competition impacts of the current USO.
- Examine the case for maintaining a universal service arrangement in any form in light of the current and potential future roles and activities of NBN Co.
- Consider forms of universal service schemes likely to give rise to the smallest distortions to competition and economic efficiency given the role of NBN Co. and technological changes within the telecommunications environment.
- Comment on the relative suitability of different models for achieving universal service objectives.
- Discuss alternative funding arrangements and transitional arrangements.



2 USO reform is overdue

2.1 The current USO arrangements

Telstra is obligated under the current USO to ensure standard telephone services (**STS**) and payphones are reasonably accessible to all people in Australia on an equitable basis, wherever they work or live.

The USO is funded by a fixed nominal contribution from taxpayers of \$100 million per annum, and a levy on telecommunications carriers that recovers over \$200 million per annum. This money flows only to Telstra, as the designated Universal Service Provider (**USP**).

In theory Telstra's obligation is technology-neutral (meaning it can choose the technology over which it provides a customer with this service). For example, in some remote areas Telstra provides customers with an STS over satellite. However, under the arrangements with the Australian Government, Telstra is responsible for operating and maintaining its existing copper network in areas outside of NBN Co.'s fixed-line footprint and for providing voice services over that network. This is known as the 'copper continuity' obligation.

Telstra undertakes its roles in accordance with legislation and the Telecommunications Universal Service Obligation Performance (**TUSOP**) Agreement it has with the Australian Government. The present agreement ceases on 1 July 2032, but is subject to an interim technological review in 2022.

2.2 Reform driver: the current USO is focused on an increasingly out of date solution

The evolution of the telecommunications industry over the last two decades has undermined the case for retaining the USO in its current form. While we recognise that voice services are important for consumers, it is frankly untenable that government funding should be locked into a delivering a fixed voice service until well into the 21st century mostly via a technology of the early 20th century.

The first driver of change is the rapid escalation in the adoption of mobile phones from the late 1990s. Mobile phones had previously been used for relatively high-value business purposes, but falling handset prices and cheaper subscriptions drove strong and sustained growth in the use of mobile phones for personal use and less urgent commercial purposes.

From the mid to late 2000s, the advent of smart phones – which provide mobile internet and data-related services – has led to an enormous increase in the demand for mobile data, while new services such as video streaming have boosted the demand for high-speed broadband for consumers both at home and on the move.



In recent years, the convergence between fixed and mobile communications networks has accelerated with internet access, text and video communications now available across both fixed and mobile networks.

These developments seriously call into question the continued relevance and appropriateness of the current fixed-line voice USO, for two reasons.

First, from the consumer's perspective, a reliable mobile voice service is increasingly viewed as not only a substitute for, but increasingly superior to the traditional home and payphone fixed-line voice services.

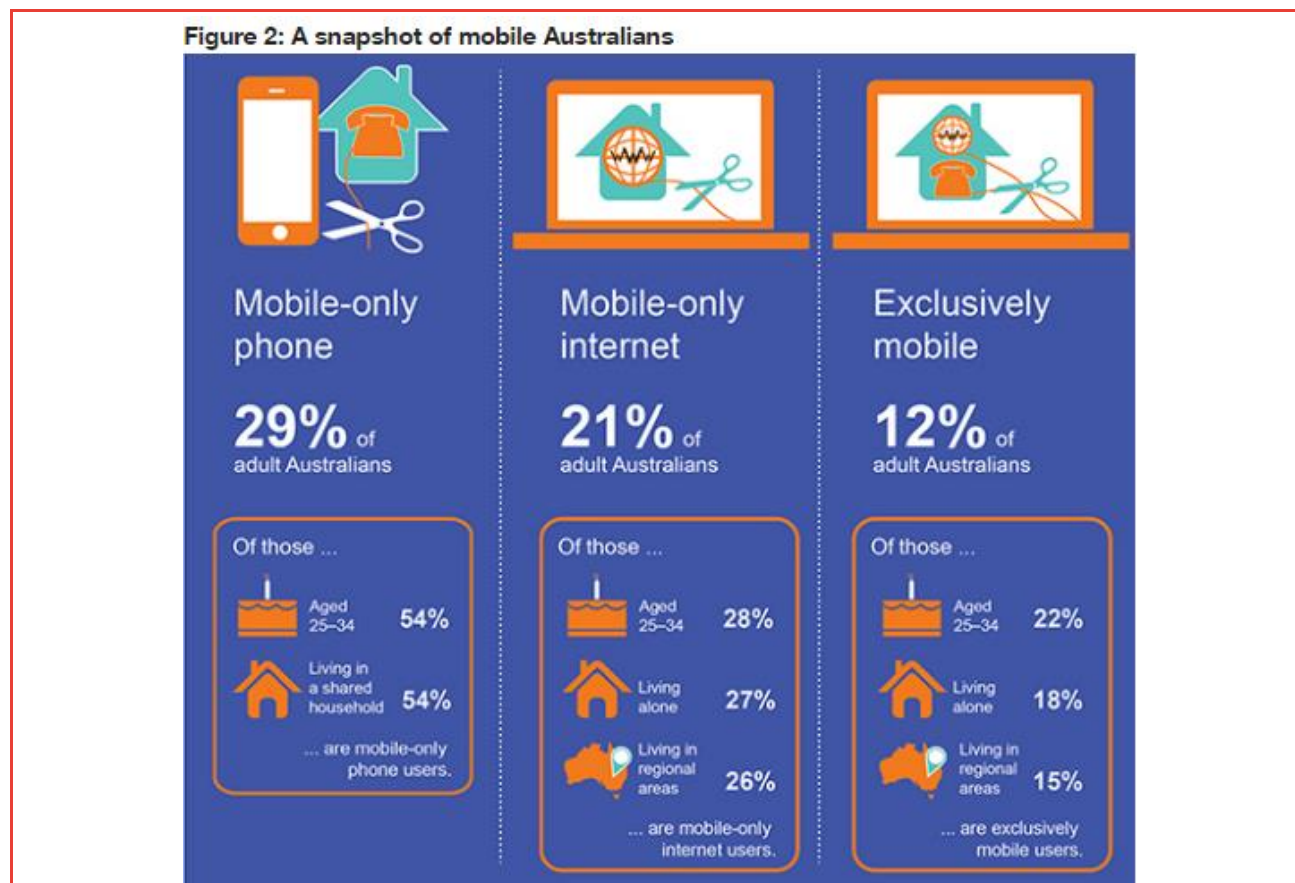
The following three exhibits demonstrate these trends:

- Many younger customers in particular no longer take out a fixed line subscription (Figure 1).⁸
- Regional customers are increasingly relying on their mobiles (Figure 2).
- Falling mobile call costs (typically provided within monthly value caps) have encouraged consumers to make calls from mobiles whereas previously they may have used a fixed line (Figure 3).

⁸ In June 2015, ACMA reported that 12% of all adult Australians were mobile-only consumers. Regional consumers were more likely to be mobile-only than metropolitan consumers: 15% of consumers in regional areas were exclusively mobile users, as compared with 10% in capital cities. See: <http://www.acma.gov.au/theACMA/engage-blogs/engage-blogs/Research-snapshots/Australians-get-mobile>



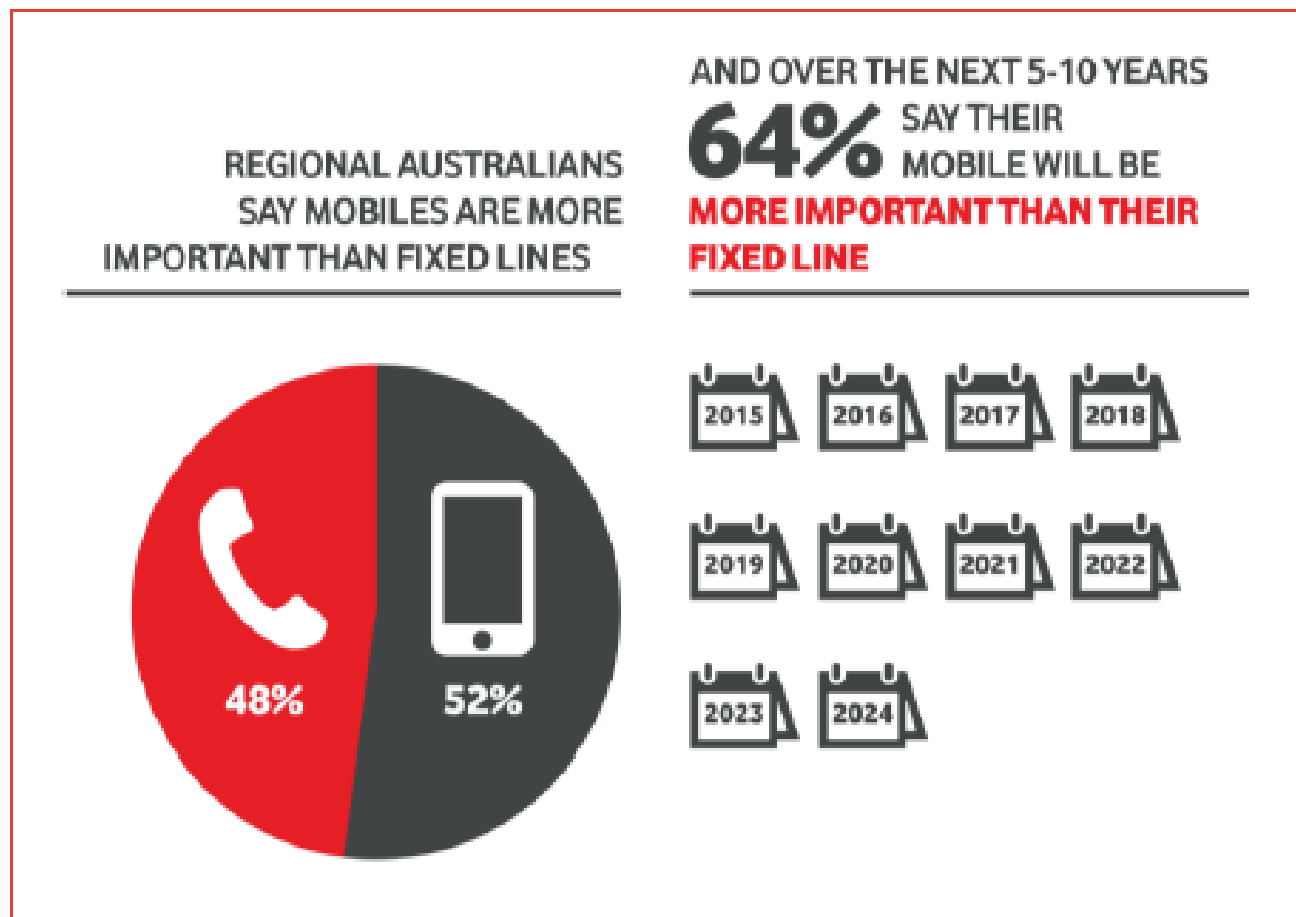
Figure 1: Mobile phone and broadband use, December 2014



2.2.1.1.1 Source: ACMA, <http://www.acma.gov.au/theACMA/engage-blogs/engage-blogs/Research-snapshots/Australians-get-mobile>



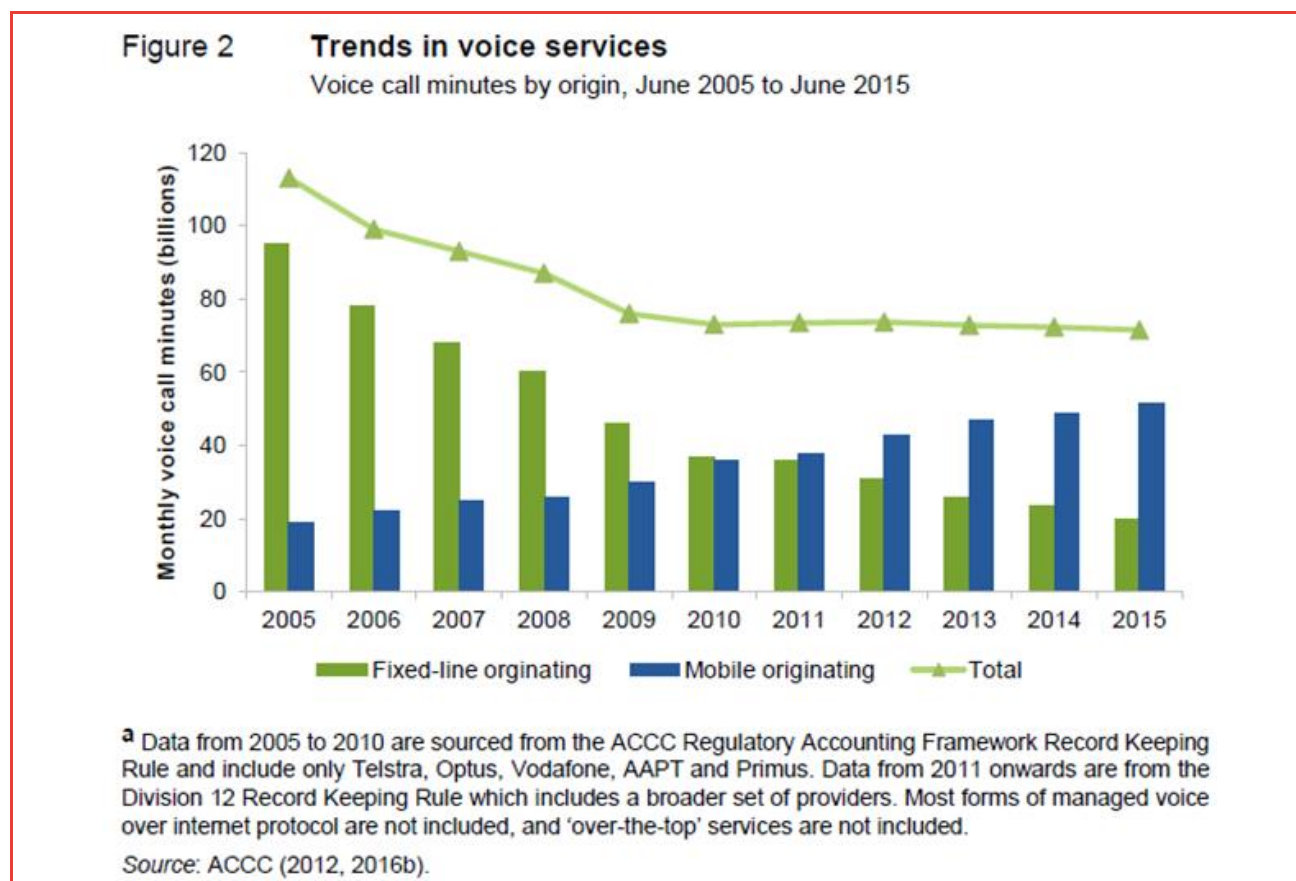
Figure 2: Regional attitudes to mobiles



2.2.1.1.2 Source: Empirica Research Report, Telecommunications in Australia, 2014.



Figure 3: Mobile for fixed call substitution



2.2.1.1.3 Source: Figure 2 in the Issues Paper, p.7.

The **second** reason for questioning the appropriateness of a fixed-line voice focused USO is that from the supplier's perspective, there are strong complementarities – that is, economies of scope – in the provision of all of these services: fixed voice, mobile voice, fixed broadband and mobile broadband.

Economies of scope arise for a number of reasons, but particularly because of the common requirement for a transmission network to supply any and all communications services to consumers. Such 'backhaul' enables the transportation of voice and data between the core network infrastructure and the local access networks or extremities of a service provider's network. This point is discussed further below.

These factors mean that a USO grounded in a standalone view of a universal fixed voice service supplied using the public switched telephone network (**PSTN**) is no longer appropriate.



2.3 Reform driver: the current USO gets more costly per service every year

As a result of the technological developments described, the aggregate number of customers with fixed-line voice subscriptions that use Telstra's copper network has fallen considerably.

It is not possible to track the change in the number of current USO customers directly. Despite receiving substantial industry and public funding, Telstra is not required to publicly detail the USO status of any phone it provides. The net cost of serving a USO customer depends on both revenues as well as costs of serving particular customers, and this information is also not readily available. However, we can surmise that falls in the volumes of USO customers will increase the per-customer cost of the USO to the extent that:

- The costs of maintaining Telstra's copper network to serve USO customers are materially fixed with respect to customer numbers.
- USO customer numbers are declining.

There is evidence to suggest, at least in the short to medium term, that many of the costs of serving USO customers on the copper network will be fixed with respect to customer numbers. Telstra has argued to the ACCC that:

In order for services still connected to the copper network to operate for end-users, Telstra must incur a significant amount of fixed costs – such as maintenance, power, rent etc, and there is no way in the real world to 'optimise' these costs away...⁹

Further, Telstra's operating costs will increase in USO areas:

Thirdly, there is a reasonable presumption...that the operating costs of [remote parts of] the network will increase over time. It has very long lengths, it is in the most hostile parts of the country and Telstra's job is to maintain it. We are not envisaging that they will be reinvesting in a new network. Rather, they will be maintaining it in its current operating condition. It stands to reason that the operating costs will rise over time in that sort of context. All of those things together tell a story in

⁹ Telstra, Telstra's Submission to the ACCC'S Draft Decision On Primary Prices In The Fixed Line Services Final Access Determination, May 2015.



which Telstra has an incentive to minimise the costs and if possible move out of this part of the business in the medium term.¹⁰

Two main pieces of evidence support the view that USO customer numbers are declining. The first is that there are broad declines in Telstra's fixed line subscriptions and payphones. Data from the ACCC indicates that:

- Total services in operation (SIOs) declined by **16 per cent** to 8.66 million between 2007 and 2016 (March)¹¹, which includes increases in DSL services.
- Voice-only services in band 4, which are areas where the net cost of serving customers will be highest, declined from 776,000 in 2007 to 463,000 in March 2016 – a total of **40 per cent**.¹²
- Total voice services in band 4 are estimated to have reduced by **24 per cent** over the same period (using voice-only plus wholesale & retail ADSL customers¹³).

Given the high fixed costs of supplying the copper network, the reduction in the number of subscribers has led to rising costs per subscriber, and hence, a rising level of USO funding per customer served. The rise in costs will only accelerate over time as more and more customers jettison their landlines and rely on VoIP via the NBN and mobile voice services.

It is also important to note that many of the fixed costs incurred by Telstra would be avoidable if no services were provided – meaning that Telstra may also be a beneficiary of USO reform so long as its avoided costs are greater than the payments it receives from government, industry and consumers.

¹⁰ Mr Daryl Quinlivan, Deputy Secretary, Infrastructure Group, DBCDE, Proof Committee Hansard, 2 February 2012, p. 38.

¹¹ ACCC, CAN snapshot data, available at: <https://www.accc.gov.au/regulated-infrastructure/communications/monitoring-reporting/telecommunications-reports-record-keeping-rules/quarterly-snapshots-of-ulls-lss-and-dsl>.

¹² Ibid.

¹³ Ibid. Telstra wholesale and retail customers are required to take a phone line as well as a retail or wholesale ADSL service.



2.4 Reform driver: the current USO arrangements are anti-competitive

2.4.1 *The current USO hurts competition in many markets, including in mobile*

Since the USO agreements have never been made public, let alone subjected to detailed scrutiny, it is difficult for any party to fully understand the nature and implications of the current USO, especially the extent to which the subsidies generate a profit for Telstra. While Telstra generally maintains that the current USO subsidies merely recover its costs, Telstra did notify the market on completion of its NBN deal with the Australian Government that the estimated net present value of the USO agreement to Telstra was \$700m.¹⁴ This is strong evidence of an over-recovery of costs.

The current USO payments are notionally designed to compensate Telstra for its supply of services to USO customers. However, even if we accept that Telstra does not over-recover the costs of providing the USO (a proposition which is not without controversy), the ongoing provision of the USO provides other benefits to Telstra which are not fully accounted for and which accentuate Telstra's incumbency advantages not only in the fixed-line market, but also in mobile voice and data services. This has harmed, and is continuing to harm, competition in the market for mobile services.

The current USO arrangements harm competition because they:

- Offset part of Telstra's costs of delivering transmission backhaul capability to regional areas.
- Do not require Telstra to share the benefits of this arrangement (in the form of lower incremental costs of transmission) with other mobile network operators. In fact, Telstra has done the opposite, charging substantial premiums well above cost for regional transmission.

Since the current USO subsidises Telstra's copper and payphone network it also effectively subsidises Telstra's transmission network. Telstra requires a transmission network to supply fixed line services and payphones. It can also use this transmission network to supply backhaul for transporting data between Telstra's mobile towers and its core network. By contributing to the costs of its backhaul capacity, the current USO provides Telstra with a strong advantage in providing mobile services in regional areas where other operators lack significant backhaul infrastructure. For other operators to compete with

¹⁴ Telstra, "Financial Summary of the Proposed Arrangements", attachment to Telstra Media Release, 23 June 2011, "Telstra Signs NBN Definitive Agreements."



Telstra in these areas, they would have to incur the costs of backhaul investment that Telstra has already incurred as a result of its USO obligations and funding.

Moreover, once Telstra has been able to utilise its subsidised backhaul capacity to launch its first mobile tower in an area, that 'beachhead' site can form the base for a local microwave transmission network that can enable other towers in the vicinity to utilise the same backhaul (see Kalgoorlie-Boulder Case Study below). In this way, backhaul capacity that was originally subsidised through the USO can and does facilitate Telstra's expansion of mobile coverage across regional areas. This makes it extremely difficult for other mobile operators to compete on equal terms.

In 2014, the ACCC commented that:¹⁵

Because Telstra remains the dominant supplier of transmission services, particularly in regional areas, making sure that access seekers can achieve any-to-any connectivity is essential if they are to be able to provide downstream services in different locations.

The Australian Communications Consumer Action Network (ACCAN) similarly observed that:¹⁶

Regions that do not have access to competitive backhaul are likely to face increased costs for services. This is due to the monopoly prices that transmission owners may charge in these areas and the limited number of retailers who are willing to supply services in those areas. Uncompetitive backhaul is also likely to lower the quality of services, as services may be under provisioned and over utilised.

While the ACCC's recent regulatory actions to reduce the domestic transmission capacity service (**DTCS**) pricing will help to reduce the extent to which Telstra's competitive advantages are further extended, they do not change the fact that the USO subsidies and Telstra's high transmission pricing to competitors have left regional Australia with a legacy of serial advantages to Telstra. These first-mover advantages are particularly evident, and will remain.

¹⁵ ACCC, Domestic Transmission Capacity Service, Final Report, Public Version, March 2014

¹⁶ ACCAN submission to the Regional Telecommunications Review, 15 July 2015, p.17.



2.4.2 Payphones and Wi-Fi networks

Payphones were once a vital service for many consumers without fixed-line phones. However, the rapid growth in mobile phones means that payphones are largely an anachronism and are only of marginal benefit to many consumers.

Notwithstanding their limited direct role in helping consumers, by funding the provision of payphones and the transmission network that serves them, the current USO arrangements continue to assist Telstra to compete in other markets.

Many Telstra payphones now function as wireless 'hot spots', but only for Telstra's mobile and home broadband customers. The 'Telstra Air' service allows Telstra customers to use part of their home broadband allowance, or a 'free' additional download cap for mobile-only customers, in selected locations.¹⁷ Many of these locations are in regional centres – for example, there are 13 Air hotspots in the Shepparton area (Victoria), 7 in Tamworth (New South Wales), 3 in Murray Bridge (South Australia) and 4 in Hervey Bay (Queensland). Access to Telstra Air makes Telstra home broadband and mobile subscriptions more attractive to customers and offers an advantage its competitors cannot realistically match. Payphones also carry advertising, which helps defray some of the costs of provision.

While NBN Co. will make its wholesale access network available to all RSPs at the same price, each RSP will be responsible for operating or leasing backhaul transmission capacity from one of NBN Co.'s 121 Points of Interconnect to the RSP's own core network. Telstra's extensive regional backhaul network could allow it to provide a higher-quality super-fast service to regional customers at a lower cost without fundamentally being any more efficient or innovative than other RSPs.

2.4.3 The Mobile Black Spot Programme

The Mobile Black Spot Programme is briefly discussed by the Productivity Commission in its Issues Paper. There is no question that the first round of the Mobile Black Spot Programme has provided significant benefits to consumers in regional and remote locations by improving mobile coverage and competition.

¹⁷ <https://www.telstra.com.au/broadband/telstra-air>



VHA has been a vocal supporter of the Mobile Black Spot Programme however there is a real risk that without evolving the Mobile Black Spot Programme over time, it risks becoming another mechanism through which taxpayer funds further entrench Telstra's dominance in regional mobile services. Despite relying on a competitive tender process to select mobile operators to provide base stations in areas with inadequate mobile coverage, in reality Telstra faces little competition across areas where other mobile network operators lack backhaul capacity to support the cost-effective rollout of these new base stations. Although backhaul access and pricing arrangements have been included in the Programme's guidelines, the Issues Paper itself notes that:

...the extent of infrastructure sharing may, in practice, be limited by ownership of backhaul infrastructure.

In Box 1, we illustrate the nature of the problem with reference to a lightly populated area of Australia where competition is weak due to first mover advantages. The need to evolve the Mobile Black Spot Programme over time, including the provision of funding to reduce backhaul access costs, is discussed below in Section 3.6.



Box 1: A case study of first mover advantage in regional mobile services

Economists have long recognised that first-mover advantages can be significant in driving market structure, even among firms that are otherwise similar in terms of their efficiency:

...first-mover advantages may drive a significant wedge between two leading firms even in the absence of any important difference in their intrinsic efficiency levels.¹⁸

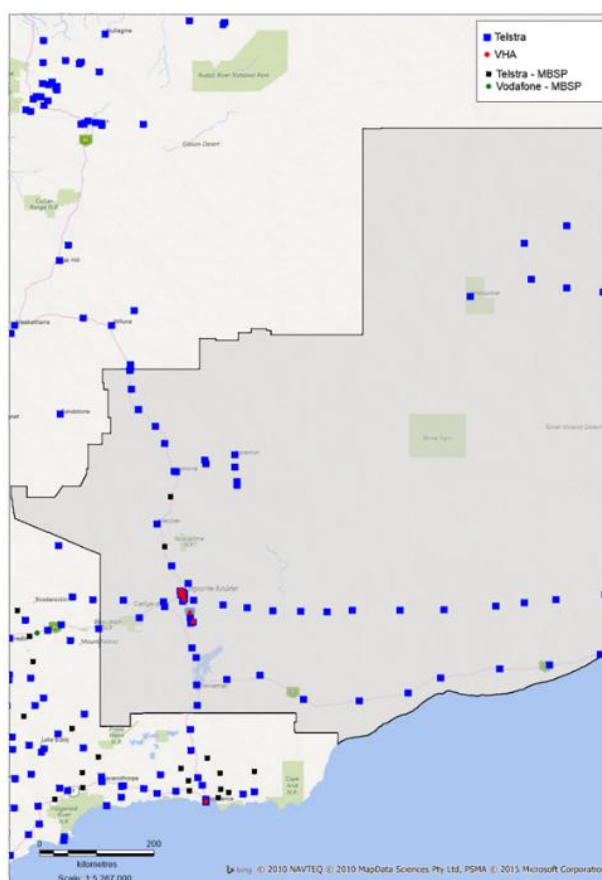
The Kalgoorlie-Boulder statistical area is a good example of how such advantages can play out in practice. This area has very low population density and limited non-Telstra infrastructure in place, reflecting both the inhospitable environment, but also the impact of USO and state subsidies for Telstra to deploy infrastructure which either directly or indirectly subsidises Telstra's mobile network build. The figure below shows this area, with the blue dots representing Telstra mobile base stations and the red dots representing VHA base stations. If there is a desire to extend existing mobile coverage within this area, Telstra's existing infrastructure means that it will have an overwhelming cost advantage in doing so.

Competitors must incur sunk costs in winning the awards (to extend their networks to the edge of Telstra's existing network where black spots are most likely to arise) whereas Telstra has already incurred these sunk costs.

This means that the incremental costs of Telstra extending its network will be far less than it is for competitors, because competitors have limited capacity for sharing their existing infrastructure with new infrastructure.

This advantage holds even if the state or national governments contribute funding to network extensions, and insist on competitive tendering for the extension. The scale and scope advantages of Telstra

resulting from being the first-mover means that it is near certain to win these awards. The policy concern is that, over time, the current situation may continue to worsen as Telstra leverages its pre-existing market coverage, market share and market premium to continue to reinforce its market dominance in regional Australia.



¹⁸ John Sutton, Sunk Costs and Market Structure, 1991, p. 206.



3 A modern universal service arrangement that is in consumers' interests

Technological change provides a catalyst for a new universal service arrangement. Any forward looking arrangement should both draw on and enhance competition between fixed line, satellite, wireless and mobile networks to provide voice and broadband services, at both fixed premises and outside of these premises.

In this section, we first describe the objectives that a new universal service arrangement should aim to meet, and the service coverage that is required to meet these objectives. We then describe how a combination of reliance on NBN Co. and other subsidy schemes, such as an evolving Mobile Black Spot Programme and direct consumer subsidies, can deliver services and provide better outcomes than the alternative of largely relying on legacy copper wire technology for the next 16 years.

3.1 Relevant objectives of a modern universal service arrangement

Before moving on to consider how the current USO could be reformed, it is necessary to identify what objectives a universal service arrangement should aim to meet.

Section 4 of the Issues Paper seeks input on appropriate objectives for universal service policies, including “whether objectives such as universal availability, affordability and accessibility are appropriate”.¹⁹

These objectives align with the broad scope of the USO rationales cited in the Issues Paper, which were drawn from OECD literature – namely:²⁰

- Promoting broader economic benefits, in which context, the promotion of competition must be included given the links between competition and broader economic benefits.
- Capturing network externalities.

¹⁹ Issues Paper, Information Request – Rationales and Objectives, p.19.

²⁰ Issues Paper, pp.16-17.



- Providing non-commercial services (especially in regional and remote areas).
- Addressing social or equity concerns.
- Promoting access to government services.

All of these rationales for a continuing universal service arrangement are likely to be relevant to some degree. Because of the significant equity dimension and government service delivery elements to universal service, a reasonable premise is that regional users should expect a reasonably similar service quality and price as those living in the cities. Access to reasonable voice and data services should be considered as an essential universal service for all Australians. A technology-neutral approach would allow flexibility to include an element related to mobility as consumers in regional areas have strong preferences for services they can use not just at their homes or workplaces.

That being said, the key question is what level of availability, affordability and accessibility objectives can be justified given the large cost differences between supplying services in different areas. Before we turn to this question, we first note that the objectives are utilitarian or outcomes-focussed. They are not instrumental or concerned with the mechanism or technology by which services are delivered. Without ignoring the need for adequate transitional arrangements (see Section 6), we strongly agree that any universal service policy should not seek to mandate the use of a particularly technology.

For example, it would be appropriate for universal service policy to seek to ensure that regional users can access adequate quality voice and data services. However, it should not seek to prescribe that such access must be provided through a fixed line copper network, just because that is what customers have used in the past. In this vein, the Issues Paper asks:²¹

- Whether the NBN should be treated as an alternative (wholesale) USO service.
- Whether there is any justification for funding two sets of infrastructure (the NBN and the existing USO standard telephone service) in the highest cost areas.

These are issues that we consider in the following sections.

²¹ Issues Paper, Information Request – Rationales and Objectives, p.19.



3.2 Coverage of a modern universal service arrangement

Section 5 of the Issues Paper discusses a range of high-level policy issues surrounding the current USO. It begins by outlining the alternative forms a universal service arrangement could take and then requests stakeholder input on a number of specific questions concerning:²²

- The scope and quality obligations that ought to lie within a telecommunications universal service policy; and
- The appropriate role, if any, of universal service providers (**USPs**).

In particular, the Issues Paper raises the question of whether there should continue to be a 'voice services safety net' for certain users and whether users in regional or remote locations more generally should reasonably expect the same telecommunications services prices and quality as urban consumers.²³

These are similar question to those that policy-makers have already needed to confront in relation to broadband services when setting the parameters for the NBN rollout. They are also similar to the questions that policy-makers continually face in relation to mobile services through the scope and funding of the Mobile Black Spot Programme. Therefore, it makes sense for the questions raised in section 5 to be considered within the context of:

- The current and potential future roles of NBN Co; and
- The evolution of the Mobile Black Spot Programme.

NBN Co. has been tasked with the responsibility of meeting a range of obligations regarding the timing, coverage and speed of fast broadband services across Australia.²⁴ The nature of these obligations reflects policy-makers' contemporary views of what kind of broadband services Australians should be able to access, and over what timeframe and at what prices those services should be made available. We note

²² Issues Paper, pp.21-22.

²³ Issues Paper, p.22.

²⁴ Letter entitled, 'Government Expectations', from The Hon Malcom Turnbull MP and Senator The Hon Mathias Cormann to Dr Ziggy Switkowski, Executive Chairman, NBN Co, dated 8 April 2014 (Statement of Expectation), available at: <http://www.nbnco.com.au/corporate-information/about-nbn-co.html>



that the proposed quality and speed of NBN broadband is intended to and will enable relatively bandwidth-intensive applications such as VoIP, video conferencing and streaming.²⁵ This suggests that policy-makers have adopted a fairly expansive view as to what quantity and quality of fast broadband services the vast majority of Australians ought to be able to access.

In this context, it would appear that it is difficult to justify ongoing funding of a parallel PSTN infrastructure. In fact, due to the complementarities between fixed broadband service and other fixed services, there is a strong case that NBN Co. already implicitly bears obligations that will ensure universal delivery of voice services using its broadband infrastructure.²⁶

Alternative infrastructure to fixed line may also bring broader economic and social benefits than fixed line infrastructure. Mobile services in particular are likely to be more important for users in regional areas for public safety reasons and to increase economic participation. VHA agrees with ACCAN that:

Extended coverage not only improves the safety and well-being of people living in remote areas, it also allows greater participation with the digital economy. With the availability of internet access through mobile devices, extended coverage not only means the ability to make and receive calls, but also provides the capacity to engage with the digital economy. This allows regional and remote Australians to conduct business, access essential services, and more readily participate with Australian society.²⁷

This position is supported by the policy position of the present government:

Mobile connectivity is a critical part of daily social and business interaction and it is vital for personal safety. This is as true for people living in remote regions as it is in cities.²⁸

To summarise, a relevant universal service arrangement must include both voice and data, and not preclude different technologies which may deliver those services more efficiently from time to time. To

²⁵ <http://www.nbnco.com.au/blog/the-nbn-project/fixed-wireless-faqs.html> <http://www.nbnco.com.au/blog/the-nbn-project/country-takes-on-city-with-access-to-world-leading-broadband.html>

²⁶ If this protection is seen to be lacking, NBN Co could be designated as the Universal Infrastructure Provider to enable all RSPs to provide 'fixed' voice and broadband services of an acceptable quality to all premises in Australia. See, for example, Coutts Communications, Better telecommunications services for all Australians, Rethinking the Universal Services Obligation, A report for VHA Hutchison Australia, 2015, p.13.

²⁷ ACCAN Position Statement on regional and remote mobile coverage, April 2013, p.4.

²⁸ <https://www.liberal.org.au/latest-news/2016/05/24/turnbull-government-commits-60-million-mobile-black-spot-programme>



determine the specific levels of performance and reliability of this universal service, we support the 2015 Regional Telecommunications Review recommendation that government, in consultation with industry and consumer groups, should develop a new standard for voice and data. VHA believes that this should be regularly reviewed as technologies and consumer demands evolve.

3.3 Delivering services to fixed premises

Given the expansive broadband coverage and speed parameters adopted for the NBN rollout, it is worthwhile considering the quality of voice services that will, or can, be provided or facilitated via the NBN.

If voice services will or can be provided, the Productivity Commission should then consider whether voice services delivered using the NBN wholesale infrastructure are so inferior to the primary subject of the current USO – fixed line telephony – as to justify the maintenance and funding of a separate network infrastructure with all of the direct costs which this entails as well as the profound negative impacts on competition which this results in.

Our understanding, based on our assessment of current commercial offerings and NBN Co.'s progress, is that consumers in regional and remote Australia will in time be able to access voice VoIP services via NBN infrastructure that are reasonably comparable to those supplied via the existing copper network. Many areas also already have, or are likely to have in future, one or more mobile networks also supplying comparable voice services. Over time, there would therefore be little economic or social benefit in continuing to oblige Telstra to provide a fixed voice service over its copper network in those areas. Accordingly, there would be no need to maintain the USO in its current form.

In order to determine whether NBN Co.'s current or modified mandate could effectively supplant the existing USO, it is necessary to resolve whether all of NBN Co.'s delivery channels could provide an acceptable wholesale voice service to RSPs. 'Acceptable' in this context primarily refers to whether the voice service offers reasonable clarity and reliability, or whether it is prone to drop outs or suffers from excessive latency. One factor relevant to acceptable reliability is the reliance of VoIP services on centralised power distribution, however this can be overcome and is being overcome by the provision of a battery backup service.

3.3.1 FTTP, FTTN and Fixed Wireless

There is no question that FTTP, FTTN and fixed wireless can support the provision of high-quality voice services.



In a previously-prepared report for VHA, Professor Reg Coutts has suggested that both fixed wireless and satellite broadband-enabled voice services will be capable of providing PSTN-equivalent voice services:²⁹

The fixed wireless network the NBN is deploying is using point to point LTE technology that is capable of delivering a high quality Voice over LTE (VoLTE) service. The NBN satellite delivery of broadband is also capable of delivering a telephony service called Traffic Class 1 (TC-1)... In the long term future satellite deployments (or partnerships) could deliver even better low latency solutions.

ACCAN has suggested that while the NBN's fixed wireless technology is capable of providing a reliable voice service, there are still concerns with the reliability of VoIP over satellite:

For consumers in fixed wireless areas, voice services can be delivered over the NBN or the remaining copper network. Consumers here will have the option of services. The wireless technology is proving to provide a reliable voice service. Consumers in satellite areas will be in a similar position; however, there are issues of latency (delay) and greater vulnerability to interruptions in services caused by weather conditions.³⁰

3.3.2 Satellite

It is slightly less clear at this stage whether NBN Co.'s alternative delivery channels, particularly satellite, can offer PSTN-equivalent voice service to all locations.

We understand that VoIP over satellite presently suffers from a small degree of latency (about 0.5 seconds), although this may be similar to that experienced by mobile phone users in remote areas. VoIP via satellite can also suffer from 'rain fade' under torrential downpour conditions, but this can be compensated for by increased power.

These issues seem likely to be only temporary. The quality of voice service provided via NBN's satellites is likely to be superior to that offered via the existing satellite, and even some mobile services, to date. This is due to the relatively cheap (subsidised) wholesale satellite service NBN Co. is offering to RSPs, which will allow RSPs to provide a less 'squeezed' and thus higher-quality service than has hitherto

²⁹ Coutts Communications, Better telecommunications services for all Australians, Rethinking the Universal Services Obligation, A report for VHA Hutchison Australia, 2015, p.13.

³⁰ ACCAN submission to the Regional Telecommunications Review, 15 July 2015, p. 29.



typically been available. RSPs can also improve quality and reduce latency if they prioritise voice traffic on ground networks by setting aside minimum channels of capacity.

VHA submits that it is highly unlikely that the costs of maintaining the copper network just to provide a (potentially) slightly better quality of voice services than those available via some of NBN Co.'s infrastructure would justify the additional expense to taxpayers and consumers. If a USO funding mechanism is retained, then a cost-benefit analysis should be undertaken which estimates whether a better outcome could be delivered with USO contributions to:

- Assist NBN Co. to offer wholesale NBN-enabled voice services as close as reasonably possible to PSTN quality.
- Promote the coverage expansion and quality of regional mobile services in a way which promotes competition and affordability.

3.4 Mobile services

As noted above, consumers are increasingly regarding mobile voice services as not only a substitute for fixed-lines services, but in many case a superior service to a fixed-line voice service. Indeed, given the additional mobility benefits, it would be reasonable for access to mobile voice and data services to be considered as at least an alternative to – if not a more important service than – fixed voice in delivering a universal telecommunications service.

That being said, the economics of mobile network deployment are very challenging in regional areas. The nature of this challenge was well expressed in the recently-completed Regional Telecommunications Review:

...Despite..the fact that Australians enjoy among the highest penetration of mobile broadband in the world, the low population density over the remaining geography means that new approaches are needed to assess the priorities of those in the 70 per cent of Australia's land mass that has no mobile coverage, and to improve poor coverage elsewhere. These geographies are economically challenging for the extension of existing high speed mobile networks.³¹

³¹ Regional Telecommunications Review 2015, p. ix.



However, there is no question consumers in regional Australia value mobile network coverage. The Regional Telecommunications Review commented on the importance of coverage in regional areas:

Submissions to the Review confirmed that the quality and extent of mobile coverage was a major concern of people in regional Australia. Regional Australians have a higher dependency on mobiles than their urban counterparts because of the broader geographic range within which many conduct their working and everyday lives...³²

Australia's low population density means that there are areas with no mobile coverage, and areas where it will only be economically viable to have one mobile network infrastructure. However, this does not mean that consumers could not receive the benefits of competition as multiple retailers can easily compete on the basis of one mobile network infrastructure. Australia has some of the most challenging geography and areas with the lowest population density in the world, and therefore the need for the greatest rationalisation and efficiency in infrastructure. Despite this we see some of the lowest levels of infrastructure sharing in the world.

In most countries, many forms of infrastructure sharing proliferate – co-investment in, and sharing of passive infrastructure (eg mobile towers), sharing of power and transmission, sharing of active network infrastructure, and provision of the most efficient form of wholesale mobile services – a single infrastructure which provides wholesale mobile services to other operators through national inter-carrier roaming. If some form of universal service funding continues, greater thought must be given to how that funding can be used not only to incentivise further infrastructure investment, but also how incentives and obligations can be put in place to ensure that the benefits of competition are enhanced.

The 2011-12 Sinclair Review³³ identified the reliability of communications during emergency situations, especially mobile communications, as a major concern for people in regional areas. The McKell Institute commented that:

This has placed an additional need to ensure that regional areas and bushfire or cyclone prone areas receive adequate mobile coverage.³⁴

³² Ibid.

³³ Australian Government, 2011-12 Regional Telecommunications Review Report, 5 March 2012, pp.iv, ix.

³⁴ McKell Institute, Superfast Broadband, The future is in your hands, October 2013, p.41.



This suggests that it may be reasonable for access to voice services to be provided by mobile networks in some regional areas. Cost constraints however mean mobile coverage cannot be truly 'universal', in the sense of covering all or most of Australia's land mass.

3.5 Expanded mobile services via the NBN

In VHA's view, the most logical and efficient approach to expanding regional mobile coverage is to leverage NBN Co.'s network as much as possible. In fact, this should be considered irrespective of what the Productivity Commission recommends in relation to the current USO.

The NBN could be used to support mobile service delivery through one or all of:

- Access to lower cost backhaul, particularly through NBN Co.'s extensive transmission network and satellite capacity which could be used for backhaul for mobile base stations.
- Improved fixed wireless tower sharing, by designing towers that can more easily accommodate co-location of mobile infrastructure on NBN towers.
- Delivery of a wholesale mobile service via fixed wireless towers, which, given NBN Co.'s fixed wireless technology solution (effectively the same LTE network as 4G mobile networks), can be accommodated relatively easily.
- Spectrum sharing, particularly as NBN Co. has been gifted spectrum to use for its fixed wireless network which can also be used for 4G LTE services over mobile networks.

While only some of this is presently part of NBN Co.'s mandate, in VHA's view there is a strong case to require NBN Co. to offer its infrastructure to provide these services at an incremental cost. This would help both expand mobile coverage and competition while helping to defray NBN Co.'s rollout costs and minimise NBN Co.'s negative cash flow imposition on taxpayers. As the NBN Co.'s CEO, Mr Bill Morrow, explained while in his previous role as CEO of VHA Australia:

It is important to understand that mobile services are not a competitor to the NBN; they are in fact an ideal complement. At the technology level, the NBN is a perfect enabler and facilitator for mobile. Mobile networks need fixed infrastructure to take the traffic from the mobile tower to the rest of the world. NBN can help deliver better services and increased coverage in areas where



mobile coverage and competition is scarce. It can also improve mobile network performance in the cities feeding data hungry consumers.³⁵

Other independent organisations such as ACCAN also support using the NBN to improve mobile coverage in a way that boosts competition at low cost.³⁶

VHA's view is that a useful complement to the USO arrangements would be for the government to modify NBN Co.'s mandate to oblige it to assist the delivery of improved mobile service coverage, where feasible, and at incremental cost. Where this incremental cost is significant, then part of the current USO funds could be utilised to compensate NBN Co. for the costs it would bear in meeting this obligation.

3.6 An evolving Mobile Black Spot Programme

An additional approach to expanding regional mobile service is through an evolving Mobile Black Spot Programme. A share of funds formerly designated for the current USO but no longer utilised for that purpose could be applied to extending and refining this scheme to ensure it is delivering the best outcomes in terms of mobile coverage and competition.

As noted earlier in this submission, the current Mobile Black Spot Programme has delivered good outcomes in round one, but without an evolving model over time, it may inadvertently help to entrench Telstra's dominance in regional mobile services. While allowing Telstra to leverage its network scale and scope economies may meet the objective of avoiding infrastructure duplication, it does not necessarily offer the best value for money for taxpayers.

VHA's experience to date has been that Telstra is unwilling to enter into arrangements which are true co-build or co-investment arrangements, with it preferring a 'landlord-tenant' model where it retains control over important infrastructure-related decisions.

As a consequence, a better approach could be to impose more extensive obligations on the successful tenderer for mobile bases stations in future rounds. Previous work from Frontier Economics and the

³⁵ McKell Institute, Superfast Broadband, The future is in your hands, October 2013, p.7.

³⁶ Australian Communications Consumer Action Network, Submission to the Regional Telecommunications Review 2015, 15 July 2015, p. 20



GSMA has noted that, in many countries around the world, operators have *voluntarily* entered into commercially negotiated agreements to share certain parts of their network infrastructure.

According to a 2011 survey among European regulators, in the vast majority of countries, operators have engaged in such agreements voluntarily. In some countries such as the Netherlands, France and Lithuania, network sharing is mandated. In other countries like Portugal, Italy, Finland and Switzerland and also outside of Europe like India³⁵ and Pakistan, network sharing is encouraged by the authorities by means of including infrastructure sharing as one of the evaluation criteria in bid submissions, offering legal incentives and simplifying civil work procedures as well as publishing best practice guidelines and recommendations.³⁷

The sharing of infrastructure effectively represents a reduction in rollout costs, and in low-demand areas this cost saving may be the difference between operators deciding to roll out and not rolling out.

Frontier's work has indicated that – perhaps unsurprisingly – network sharing can create material savings. Frontier analysed the example of N4M (“Net4Mobility”) which is a joint venture between Telenor and Tele2. The two operators started sharing their 2G and 4G network and spectrum pool in 2008. The network sharing agreement led to CAPEX savings of up to 46% and OPEX savings up to 29%.

Frontier's report concluded that:

Network sharing is a well-tested model which is used in many countries around the world. There is a clear commercial rationale for operators to voluntarily enter such agreements which is to save costs. To the extent that network sharing reduces the cost of rolling out, it can be pivotal in the decision of whether or not to cover remote areas. Moreover, if the right safeguards are in place, competition will not be affected negatively and competitive neutrality will be maintained. Regulating authorities should therefore take a positive stance on network sharing and encourage operators to engage in such agreements as it has the potential to provide greater mobile coverage.³⁸

³⁷ Frontier Economics, Benefits of network competition and complementary policies to promote mobile broadband coverage: A report prepared for the GSMA, February 2015, p. 48.

³⁸ Ibid.



Current policies focus on mandating 'passive' sharing of towers, transmission and power, but we consider that for black spots more 'active' sharing obligations should be required as a condition of funding. These more active options could include:

- A Multi Operator Radio Access Network Arrangement (MORAN) – which provides for sharing of the radio access network (RAN) and antennas, as has been adopted in jurisdictions such as the United Kingdom and Greece.
- MORAN plus spectrum pooling, which also provides for the sharing of spectrum.
- Inter-carrier national mobile network roaming as seen in many jurisdictions including New Zealand, South Africa, the United States, Canada and Spain. It is particularly interesting that all the other western economies with large land masses and areas of low population density (the USA, Canada and New Zealand) have all required national roaming between mobile networks to ensure that both coverage and competition are delivered in regional areas.

Such obligations ought to apply to the winner of any government funding, whether it is Telstra utilising its extensive backhaul network, or another mobile operator drawing on negotiated access to NBN Co.'s access network.

Another consideration is the extension of government funding under the Mobile Black Spot Programme to subsidise the operating expenses of regional mobile networks. The main barrier to further expansion of mobile networks is operating expenses, especially backhaul, rather than the capital costs of building the mobile base station itself. Currently the Mobile Black Spot Programme provides funding for the capital cost of mobile base stations only. This is understandable given that funding to date has been on an ad-hoc basis, making longer-term commitments difficult. If however some part of the current USO funding arrangements were made available to support mobile services, this would allow commitments to longer term funding of operating expenses just as it has to date for fixed copper and payphone services.

3.7 Providing direct assistance to consumers

Another option which should be considered is targeted payments to low income customers to subsidise the affordability and take-up of VoIP services, or access to payment plans. This is common practice in other contexts, for example, electricity in which eligible electricity customers in Victoria receive a



discount of 17.5 per cent of household electricity bills.³⁹ Other concessions apply to those with life support equipment,⁴⁰ or concession card holders who rely on LPG or firewood for heating.⁴¹ Similar concessions apply in other jurisdictions.⁴²

While we understand the examination of many of the existing consumer safeguards with respect to the delivery of telecommunications services is subject to a separate review to be undertaken by the Department of Communications and the Arts, a number of these relate to the provision of the STS under the current USO. We note that the relevance of these, including the Customer Service Guarantee, has significantly declined due to dramatic changes in telecommunications technology with the reduced reliance on fixed-line voice services. There however, remains an ongoing role for consumer protections in relation to customer service standards for customers in regional rural areas.

More innovative funding arrangements for segments of consumers could also be developed. For example a technology-neutral fund, as recommended by the 2015 Regional Telecommunications Review, could support local community-led Wi-Fi projects or develop appropriate technology solutions to provide improved connectivity for farmers on their properties.

³⁹ <http://www.dhs.vic.gov.au/for-individuals/financial-support/concessions/energy/annual-electricity-concession>

⁴⁰ <http://www.dhs.vic.gov.au/for-individuals/financial-support/concessions/energy/life-support-machine-electricity-concession>

⁴¹ <http://www.dhs.vic.gov.au/for-individuals/financial-support/concessions/energy/non-mains-energy>

⁴² For example, see: <http://www.resourcesandenergy.nsw.gov.au/energy-consumers/financial-assistance/rebates> (NSW), <https://www.qld.gov.au/community/cost-of-living-support/electricity-gas-rebates/> (Qld), <https://www.sa.gov.au/topics/water-energy-and-environment/energy/rebates-concessions-and-incentives/energy-concessions> (SA).



4 The way forward for a modern universal service arrangement

The analysis presented in the preceding chapters makes the case for change, and identifies key elements of a more modern universal service arrangement.

In the following sections, we set out how the current USO could be reformed in a way that addresses the issues identified in Section 2 while meeting the objectives outlined in Section 3. The simplest approach would be to gradually wind down the current USO scheme in parallel with the progress of the NBN rollout, coupled with the replacement of the current USO with a new fund that would be technology-neutral. That is, as the NBN is rolled out, the current USO would be pared back such that it applied only in respect of those areas yet to be served by NBN Co.

4.1 The current fixed-line voice USO is redundant

The impact of the phased removal of the current USO scheme is unlikely to be as dramatic as it may appear. In fact, removal may have little consequence in terms of the service quality delivered to users, and, if the money currently spent on the USO is put to other uses, the service quality benefits could be large.⁴³

The rationale for this option is that government has already committed to NBN Co. as the fixed broadband infrastructure solution in areas of Australia that are currently reliant on the USO to deliver fixed-line voice services. Section 3 explained that all of NBN Co.'s delivery channels – FTTP, FTTN, fixed wireless and satellite – should be capable of providing customers with a reasonable quality of fixed voice service. Given NBN Co.'s undertaking to offer harmonised pricing for wholesale broadband services across the entry level product for all technology platforms,⁴⁴ customers across Australia should have no difficulty accessing adequate voice services from RSPs via VoIP wherever the NBN is fully operational.

4.2 A modern universal service arrangement

Again, we note that it is an option which should be seriously considered to simply wind down the USO funding arrangements. It has proved extremely difficult to put in place any subsidy regimes which are

⁴³ Alternatively, a similar level of service could be provided at lower cost to the government and taxpayers.

⁴⁴ <http://www.nbnco.com.au/sell-nbn-services/products-services-pricing/our-pricing-approach.html>.



efficient, effective and do not harm competition. However, if any ongoing obligations and funding arrangements beyond NBN are to be maintained, VHA would support a modern universal service arrangement with several interrelated elements, including:

- A new standard for voice and data that is regularly reviewed as technologies and consumer demands evolve.
- NBN Co.'s obligations to deliver wholesale broadband and voice services.
- A requirement for NBN Co. to assist the expansion of competitive mobile services in regional Australia through policies including the provision of wholesale mobile and backhaul services on an incremental cost basis (or a subsidised basis in particular cases).
- An evolving Mobile Black Spot Programme which results in greater network sharing and efficiencies than is currently the case.
- A new technology-neutral fund which would provide flexible support for necessary loss-making regional telecommunications infrastructure and services.

The further benefit of this approach would be that:

- It would maximise competition amongst RSPs using the NBN, which will drive affordability and service standards.
- By re-directing funds towards improving regional mobile services – both directly and via better use of NBN Co.'s existing infrastructure – in a competitively neutral fashion, it will enhance coverage and choice.



5 Funding a modern universal service arrangement

5.1 Current USO funding arrangements

The current USO costs are met in part by taxpayer funding and in part by an industry levy known as the Telecommunications Industry Levy which is paid by telecommunications carriers with eligible revenue of \$25 million or more.

NBN Co.'s funding for the delivery of universal broadband services on the other hand is essentially delivered through government funding, however cross-subsidies between lower cost urban fixed-line services will implicitly cross-subsidise higher cost services over time. The Bureau of Communications Research has recently consulted with stakeholders and reported to the Government recommending that these cross-subsidies could be made explicit and transparent.⁴⁵

5.2 A unified funding scheme

If a universal service arrangement is to be retained, there are several options which should be considered as superior alternatives to the current opaque USO funding arrangements. Since the scope of the services requiring subsidies necessarily reduces over time as NBN delivers universal access, it is entirely possible that the residual universal service funding can be covered by the government's \$100m contribution and no industry levy is required. Since virtually all Australians pay telecommunications carriers, the use of an industry levy is likely to be a more regressive form of taxation than the use of general Treasury funds.

5.3 Further funding decisions

Two further matters need to be resolved in the design of any fund to contribute to the costs of delivering services in rural and regional (or other high cost) areas.

The first matter is who should pay contributions into the fund. The second matter is how big the fund should be, and how should this be calculated?

⁴⁵ Bureau of Communications Research, NBN non-commercial services funding options: Final Consultation Paper, October 2015.



Economic efficiency of funding sources always supports broader rather than narrower revenue bases, because these reduce distortions in decision-making. From this perspective, if government wishes to support the provision of non-commercial services, the two most efficient ways to do this would be:

- To fund loss-making services from the budget.
- To accept a lower rate of return on its investment in NBN Co., reflecting a subsidy being provided to customers in loss-making areas.

The first of these is strongly favoured by the Vertigan Review:

By far the best option for funding any ongoing subsidy would be through consolidated revenue.⁴⁶

The superiority of this option derives from the fact that it does not tax (actual or potential) competitors of the firm delivering the service obligations and consolidated revenue is collected through tax mechanisms that have the lowest excess burden because they are harder to avoid.

Neither of these options have found favour with past governments, with successive governments retaining funding arrangements based on industry contributions.⁴⁷ This is notwithstanding that (a) it is a misnomer because these levies are passed through to consumers and (b) the industry already makes significant contributions through the payment of both corporate taxes and provides a major revenue source through fees paid for the acquisition of radiofrequency spectrum, for example.

If any industry tax is to be retained, then consideration should be given to the most efficient and fair base against which any industry tax is levied. To date contributions have been on the basis of revenue, which has meant that smaller and even unprofitable companies are required to subsidise the largest and most profitable industry player. Consideration should be given to whether contributions should be determined on a basis which is likely to have less deleterious impacts on competition, such as profit rather than revenue.

As indicated by the Productivity Commission, funding of the delivery of universal services should ideally reflect the true underlying net costs of provision. While that principle is clear, determining this amount is

⁴⁶ ibid.

⁴⁷ BCR, op.cit., p. 50.



rarely a straightforward exercise. Experience suggests that the optimal funding amounts are unlikely to be discovered through competitive tendering exercises, and estimates of net costs are beset by information asymmetries between the cost estimator and the firm supplying the service. Although such difficulties are real, the process for the making the NBN cross-subsidies transparent as commenced by the BCR provides an basis for compensating NBN Co. for its unprofitable delivery of fixed wireless and satellite broadband, and potentially, voice services.



6 Transitional arrangements

The Productivity Commission notes in the Issues Paper that there are a couple of key factors relevant to the implementation costs and timeframes of a new USO (or equivalent) policy.

A key issue is clearly the relevant terms and conditions under agreements applying to the current USO, in particular the TUSOP Agreement between Telstra and the Australian Government.

The Productivity Commission correctly notes that any transition to a new universal service arrangement should impose the least costs on the community. From society's point of view, an obligation to provide services (including services covered by a USO obligation) should be imposed on the entity that can meet the obligation most efficiently.

Transfers of money – such as those between the Government and Telstra – which have no impact on resources consumed should be ignored in this assessment. The payments accruing to Telstra are essentially a transfer and will occur regardless of the most efficient form of service delivery. The implication of the principle is straightforward. Transition to new arrangements should occur (and Telstra's current obligations should be removed) whenever the following conditions are met:

- (a) Services are available on the NBN; and
- (b) The incremental costs of NBN Co. or other (e.g. mobile) suppliers of providing universal voice services are less than the costs Telstra could avoid from no longer being obligated to supply universal voice services.

If that condition is met, then the services will be delivered at the lowest cost to society.⁴⁸ This occurs notwithstanding that the Government may end up paying Telstra for services it no longer delivers.

Based on the available evidence, we suggest that:

- Once its networks are fully operational, the incremental costs of NBN Co. meeting an equivalent wholesale voice obligation on its network would be close to zero.

⁴⁸ Technically this will be true so long as the cost of raising funds to pay Telstra is smaller than the cost saving in using NBN Co or an alternative supplier.



- Telstra still faces material avoidable costs in maintaining and operating its copper network (i.e. almost \$300 million per year, if the USO payments are at all cost reflective).

Consequently, it is straightforward that requirements on Telstra to deliver current USO services should be completely removed as soon as NBN Co. has completed its roll out and is technically capable of delivering universal voice services. The copper continuity obligation for users within the NBN fixed wireless and satellite footprints can therefore be phased out. Some limited exceptions might be considered, for example bushfire-prone areas, but only following a detailed cost-benefit analysis against alternatives (such as the hardening of mobile networks in these areas). The quality of satellite voice services should similarly be assessed as technological developments make VoIP increasingly competitive over time, and according to a cost benefit analysis of the benefits and alternative methods of provision of high quality, low latency voice services.

6.1 A forceful recommendation is required

In principle, as Telstra's payments are designed to compensate it for the costs of providing current USO services, it should be no worse off from extinguishing the contractual arrangements. Indeed, it might be thought that Telstra would voluntarily give up its USO obligation and the associated stream of payments under plausible conditions, such as the direct costs of fulfilling the obligation exceeded the payments.

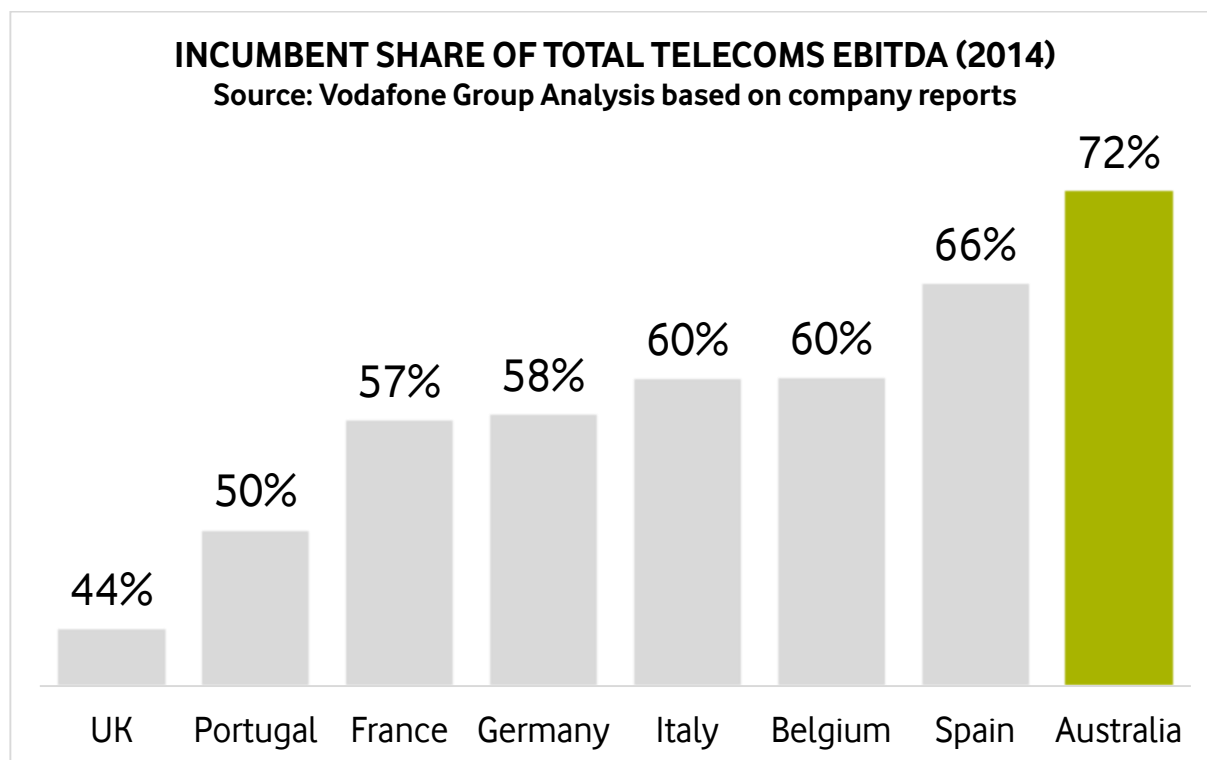
With that being said, available descriptions of existing Government-Telstra arrangements⁴⁹ suggest that the Government may have no unilateral option to cancel the existing arrangements.

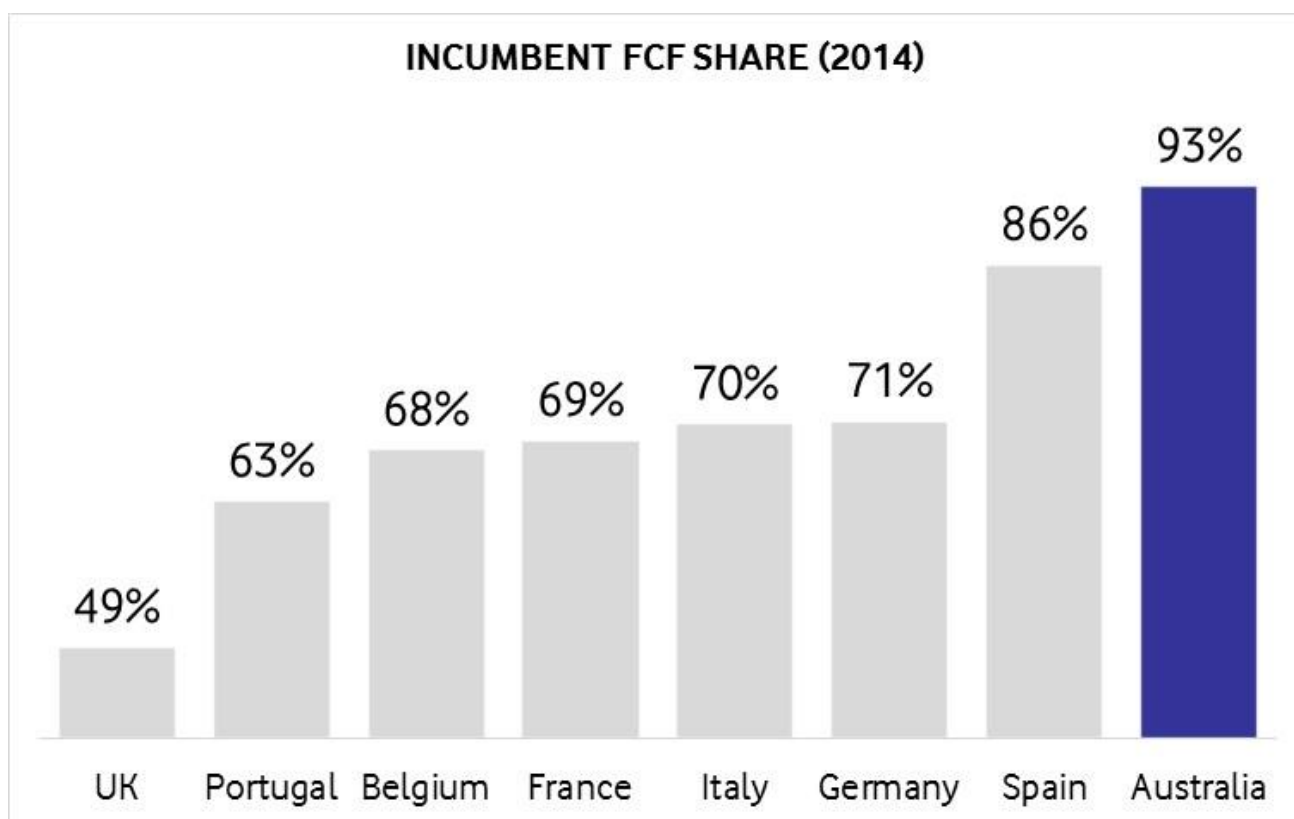
In VHA's view, the Productivity Commission could not necessarily rely on Telstra volunteering to end the arrangements. This is because Telstra will take into account not just the revenues and profits it earns directly through the USO levies, but also the additional revenues it earns from its market power in other markets, such as regional mobile services. This suggests that the Productivity Commission should recommend that the Government incrementally extinguish obligations on Telstra as soon as roll out of the NBN is complete in each area

⁴⁹ See the 2011 Definitive Agreements between Telstra and NBN Co, available at www.telstra.com.



ATTACHMENT 1 – BENCHMARKING OF PROFITABILITY OF INCUMBENT OPERATORS







ATTACHMENT 2 – SURVEY OF GLOBAL INFRASTRUCTURE SHARING AND ROAMING

Infrastructure-sharing/roaming agreements and regulation are common mechanisms used to reduce costs and maximise investment and coverage in mobile

Country	Roaming/sharing agreement
USA	Mandatory national roaming between mobile operators since early 1980s. Extended from voice to voice and data in 2011.
Canada	Mandatory national roaming between mobile operators since 2008.
New Zealand	Regulatory requirement to negotiate commercial agreement for national roaming resulting in commercial agreement between Vodafone NZ and 2 Degrees.
UK	2G/3G/4G: Whole of UK split into 2 zones with reciprocal active sharing with O2 (Telefonica)
Spain	3G reciprocal active sharing on 4,000 regional/remote sites (Orange)
Italy	2G/3G/4G: Consolidation to common grid in areas <35k inhabitants (TIM)
India	2G/3G: Three way JV for world's largest towerco "Indus" + reciprocal 3G national roaming on full footprint (Airtel and Idea), & JV for joint Wifi deployment (Airtel)
Ireland	2G/3G/4G: Passive network and transmission sharing (3)
Greece	2G/3G active sharing (Wind)
Romania	4G Active sharing in rural and regional, plus common grid planning in urban (Orange)
South Africa	Commercial agreement on full footprint 2G/3G national roaming (Cell C)

A variety of network sharing/roaming models are common globally

	Passive sharing Co-location	Passive sharing Co-investment	Active sharing ("Multi Operator Radio Access Network" MORAN)	Active sharing + spectrum pooling ("Multi Operator Core Network" MOCN)	Roaming
Shared	Towers, Transmission, Power)	Towers, Transmission, Power	+ Radio Access Network (RAN): Antennas etc	+ Spectrum	Full sharing: single network providing to multiple operators
Commercial model	Landlord/tenant, commercial rates	Co-investment	Various	Various	Wholesale roaming payments to network operator.
Complexity	Low	Medium	High	High	Low
Where	Blackspots	Blackspots	UK, Greece, rural Romania		NZ, S. Africa, Canada, USA, Spain, VHA/Optus