



Australian Government
Productivity Commission

Telecommunications
Universal Service
Obligation

Productivity Commission
Inquiry Report
Overview & Recommendations

No. 83, 28 April 2017

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The Productivity Commission

The Productivity Commission is the Australian Government's independent research and advisory body on a range of economic, social and environmental issues affecting the welfare of Australians. Its role, expressed most simply, is to help governments make better policies, in the long term interest of the Australian community.

The Commission's independence is underpinned by an Act of Parliament. Its processes and outputs are open to public scrutiny and are driven by concern for the wellbeing of the community as a whole.

Further information on the Productivity Commission can be obtained from the Commission's website (www.pc.gov.au).

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OVERVIEW

Key points

- In a digital age, the voice-based telecommunications universal service obligation (TUSO) — worth \$3 billion over 20 years (net present value) and consisting of basic telephone and payphone services — is anachronistic and costly. It should be wound up by 2020.
- Rapid developments in telecommunications technology are transforming people’s lives. The growing demand for ubiquitous digital connectivity provides a strong case for reform that reflects evolving policy, market and technological realities.
- The sizable public investment in National Broadband Network (NBN) infrastructure will provide high-speed (voice-capable) broadband to all premises (on request) across Australia by 2020 — at a quality that is, for the most part, superior to what has been available. Wholesale prices will also be capped nationally and across its different technology platforms. As such, the NBN has been designed to narrow the city–country digital gap with cross-subsidies from commercial to non-commercial services within a funding envelope.
- Australians are also well served by mobile networks, with over 99 per cent of people having access to mobile telephony (and to a slightly lesser extent, broadband) where they live.
- Leveraging off the NBN and mobile networks means that the objective of universal service can be reframed to provide baseline (or minimum) broadband and voice services to all premises in Australia once the NBN has concluded its rollout phase, having regard to the accessibility and affordability of these services. Increasingly, broadband will be the main medium for voice services.
- For the vast majority (more than 99 per cent) of premises, the combination of the NBN and mobile networks is likely to meet or exceed minimum standards for universal service delivery. As such, the TUSO is no longer needed.
- Current market trends and policy settings suggest that telecommunications services will continue to be affordable for most people.
- To the extent that there are any remaining availability, accessibility or affordability gaps, current trends and policy settings suggest that these are likely to be small and concentrated. The TUSO can therefore be terminated once the NBN is fully rolled out and replaced by a set of targeted policy responses for:
 - (up to 90 000) premises in pockets of the NBN satellite footprint without adequate mobile coverage
 - cohorts of users with particular needs.
- Programs to address these gaps should be flexible, allow for community input and facilitate informed consumer choice. Their costings should be transparent and subject to competitive tendering where feasible.
 - The narrow scope and small scale of these programs tip the balance towards funding from general government revenue as opposed to an industry levy.
- While transitioning to this new universal service framework is complex and will take a few years, the transition process needs to start immediately. The fundamental roadblock posed by the opaque contract with Telstra, and the surrounding legislative architecture, should be addressed promptly and systematically.
- The current pattern of disparate and siloed policy reviews and proposed legislative reform raises concerns about the coherence of policies to address universal service objectives and must be carefully managed and coordinated.

Overview

Telecommunications is fundamental to any modern society. It plays an increasingly important role in the delivery of private and public sector services across the economy. Access to telecommunications services is also a key enabler of social inclusion — allowing people to connect with family, friends and communities, and call for assistance in emergencies.

The telecommunications universal service obligation (TUSO) is one of several policy instruments to meet the Australian Government’s universal service objectives. It was introduced in the 1990s (when the sector was being deregulated) to ensure ‘reasonable access’ to a *standard telephone service* and payphones for all Australians on an ‘equitable’ basis, regardless of where people reside or work. At that time, telecommunications was centred on basic telephones, and the TUSO was enacted to benefit consumers by affording them a ‘provider of last resort’ for voice telephony.

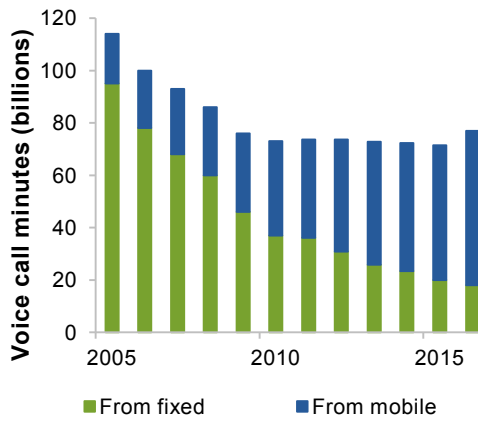
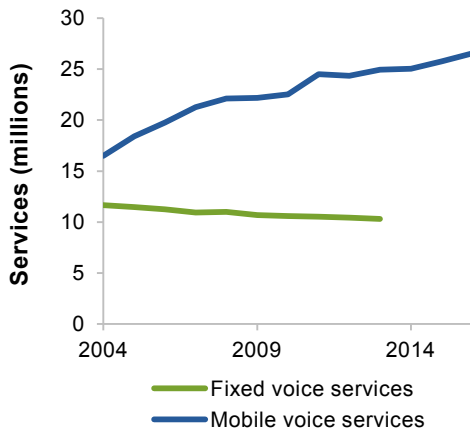
Today, it is nearly impossible for most Australians to imagine life without smartphones, modems and WiFi. Connectivity has pervaded homes and businesses, allowing almost instant access to information, services and people globally. The proliferation of internet protocol-based networks is enabling ‘convergence’ to take place — with different services now integrated over a single network, accessible through all-in-one devices, and increasingly through common appliances such as smart televisions. In view of the economies of scope and scale on offer, service providers are increasingly in the business of providing telecommunications for all media (data, video and voice) simultaneously.

From the perspective of users, some defining trends are also emerging (figure 1). Australian consumers are revealing a growing preference for mobile devices. One in three Australian adults across both capital cities and regional areas now rely solely on their mobile phones for voice services, with 99.3 per cent of the population covered by at least one mobile network. Notwithstanding some variation across regions, income levels and age groups, Australians are also avid internet users. They send some 190 million emails through Gmail each day and 15 million of them use Google Search each year.

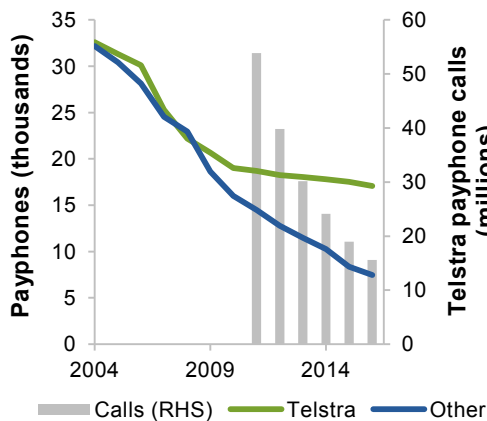
At the same time, telecommunications services are becoming more affordable — thus lowering the cost of economic and social transactions — with large benefits to individuals, businesses and governments. Prices of telecommunications services have fallen substantially over the past decade, in absolute terms and even more so relative to other essential services. Over that time, quality has also continued to improve. Unlimited voice calling and messaging are now standard inclusions in many mobile and home phone plans, while data allowances and speeds continue to increase.

Figure 1 Key trends in the Australian telecommunications sector

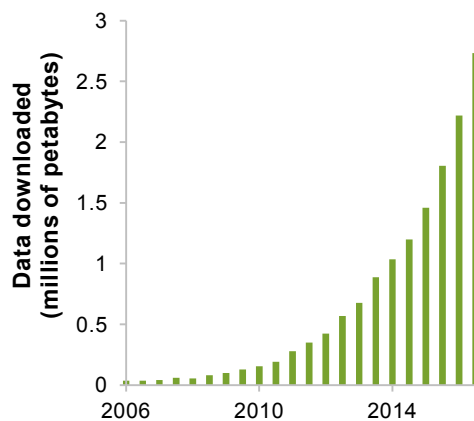
A shift from fixed to mobile services



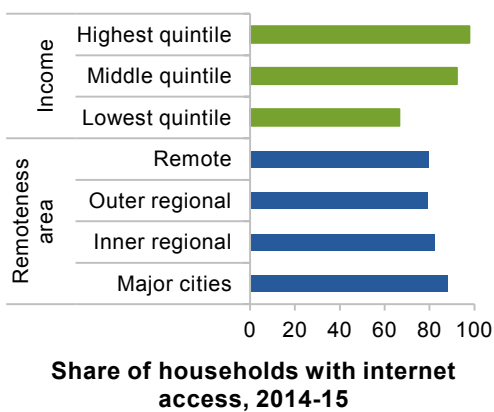
Payphones increasingly redundant



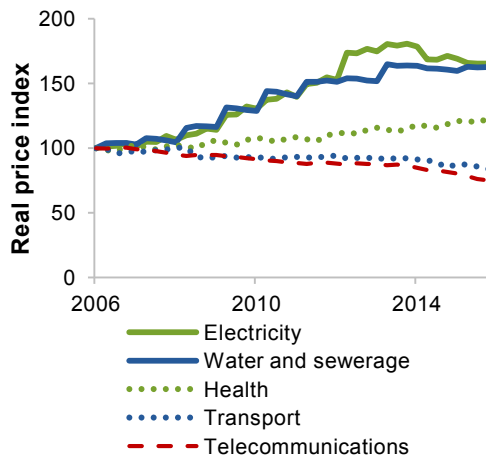
Exponential growth in data usage



Some variation by income and region



Becoming relatively more affordable



In parallel, the Australian Government is making substantial investments in the National Broadband Network (NBN) with an expectation that NBN Co Limited (nbn) will provide high-speed broadband (peak download speeds of at least 25 megabits per second) to all households and businesses on request, as soon as possible (expected to be by 2020). Currently, more than 4.5 million premises can connect to NBN infrastructure. nbn has a capped wholesale price across its fixed-line (92 per cent of its footprint),¹ fixed wireless (5 per cent of its footprint) and satellite (3 per cent of its footprint) networks.

Against this rapidly evolving landscape, this inquiry provides a timely opportunity to review the role of government in supporting universal telecommunications services. That said, there are a number of ongoing disparate government reviews and proposals that intersect with this inquiry (box 1), and if not carefully managed, would potentially disrupt what could be a clear and coherent pathway to reforming universal service arrangements.

Box 1 Ongoing reviews and legislative proposals relevant to this inquiry

- Consultations on communications accessibility (Department of Communications and the Arts)
- Consultations on spectrum reform legislative proposals (Department of Communications and the Arts)
- Review of the Australian Communications and Media Authority (Department of Communications and the Arts)
- Market study of the communications sector (Australian Competition and Consumer Commission)
- Inquiry into the declaration of mobile roaming (Australian Competition and Consumer Commission)
- Performance audit of the contract management of *standard telephone service* and payphones universal service obligations (Australian National Audit Office)
- Exposure draft of the Telecommunications Legislation Amendment (Competition and Consumer) Bill 2017 (which includes the proposed Statutory Infrastructure Provider regime)
- Exposure draft of the Telecommunications (Regional Broadband Scheme) Charge Bill 2017

The Commission's approach

In line with international practice, the Commission has defined universal service to encompass the key distinct, but related, elements of universality:

1. *availability* — the service is available to all premises (on request) and is subject to a minimum quality

¹ Fixed-line includes fibre to the premises, to the basement, to the curb, to the node and hybrid fibre-coaxial.

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2. *accessibility* — the service is accessible by all people irrespective of their personal (physical, cognitive and cultural) attributes
 3. *affordability* — the purchase of the service does not place undue hardship, particularly on people with low incomes.

The framework adopted in this inquiry deliberately recognises that market mechanisms and commercial interests have the primary role in enabling universal access to a *baseline* quality of telecommunications services. This confines any potential role for government to instances where there are *availability*, *accessibility* or *affordability* gaps in service provision, or where there is some form of market failure. However, these ‘market gaps’ or ‘market failures’ do not in themselves provide a case for government intervention, because such interventions typically generate costs as well as benefits to the community — both directly and indirectly. A case can be made for government to intervene only where there is a net benefit to the Australian community. The relative merits of policy options should then be assessed against cost-effectiveness criteria including:

- the cost to the community of achieving a minimum quality of service
- technological neutrality
- impacts on competition and incentive effects on service providers
- administrative costs and regulatory compliance burdens, with regard to flexibility to adjust to future developments.

The inquiry draws on a wide range of evidence but the analysis of several matters has been hampered by a paucity of data and the commercial-in-confidence nature of some of the information provided by participants. Where the Commission received such information, it has carefully considered the information and made necessary judgments.

The TUSO is past its use-by date

Australia has a plethora of policies and programs broadly designed to enable universal access to telecommunications. The Commission’s conservative estimate is that at least \$1 billion is spent on such policies annually (table 1). This does not include the Government’s sizable investment in NBN infrastructure (with a commitment of \$29.5 billion to date),² or the expected ongoing costs of supplying non-commercial services over NBN infrastructure. Fundamentally, these measures are aimed at ensuring that telecommunications services are available, accessible and affordable to geographical areas or cohorts of users that may be high cost and uneconomic to serve. The TUSO is only one of several subsidised telecommunications programs.

² The Australian Government announced in November 2016 that it will loan \$19.5 billion to nbn, with the expectation that this loan will be re-financed on external markets in 2020-21.

Table 1 Programs that address telecommunications universal service objectives
Includes GST

<i>Program</i>	<i>Indicative annual funding</i>
	\$m
Telephone Allowance	611
Standard telephone service USO	253
Mobile Black Spot Program	48
Payphones USO	44
Programs to support digital inclusion	29
Emergency Call Service	22
National Relay Service	22
Voice only Customer Migration	17
Remote Indigenous telecommunications programs	5
Total	1 051

As a legislative requirement imposed on Telstra (box 2), the TUSO provides for a *standard telephone service* to all premises in Australia upon request, and payphones that are generally accessible. It remains largely focused on fixed-voice handsets and voice calls over fixed-line copper connections. While these services are still valued by some constituents, particularly those in regional and remote Australia without access to mobile services, the demand for TUSO services is clearly falling. Consumer needs are instead overwhelmingly being met by a wide range of digital technologies and applications. The TUSO does not harness solutions that could be more cost-effective in meeting genuine community needs and expectations.

Further, as a non-contestable obligation upon one provider and partly funded by other providers, it effectively stymies competition. In imposing this obligation, the Australian Government did not demand transparency and accountability of Telstra. The basis for its funding (a total of around \$3 billion in net present value terms over the 20-year contract to 2032) is unclear and disputed.

The Australian National Audit Office recently announced a performance audit of the contract management of selected telephone universal service obligations. That aside, it is evident that Telstra's active fixed retail voice services have declined from over 8 million to under 6 million services in the past decade.³ The proportion of these services that could be considered non-commercial is unknown. Equally, there is no requirement on Telstra to specify which of its payphones are non-commercial. Increasingly, Telstra is using its payphone infrastructure to provide WiFi (Telstra Air) to its customers in metropolitan areas.

³ This overstates the number of actual fixed voice services in use given that around 4 per cent of Australian adults receive a fixed voice service as part of a service bundle but do not actually connect the service to a telephone.

Box 2**The Telstra USO Performance Agreement (TUSOP Agreement)**

The TUSOP Agreement between the Australian Government and Telstra, which commenced in 2012, provides the basis upon which Telstra receives payment for performing its regulated obligation as Australia's telecommunications universal service obligation (TUSO) provider. The Agreement is one of a series of separate, yet interrelated, agreements signed by the Government, Telstra and NBN Co Limited to enable the construction and operation of the National Broadband Network (NBN) infrastructure.

Under the Universal Service Regime set out in the *Telecommunications (Consumer Protection and Service Standards) Act 1999* (Cth), Telstra has an obligation to ensure that *standard telephone services* and payphones are accessible to all people in Australia on an equitable basis, wherever they reside or carry on business.

The TUSOP Agreement reflects this regulated obligation, but outlines the terms against which Telstra would receive payment from the Government for fulfilling the TUSO until 2032, being \$253 million and \$44 million per year (including the Goods and Services Tax) for the supply of *standard telephone services* and payphones, respectively. Funding is met through an Australian Government (non-indexed) contribution of \$100 million per year and through the Telecommunications Industry Levy paid by eligible carriers.

The Agreement also includes non-TUSO contractual arrangements with Telstra for the provision of the emergency call service, voice-only customer migration activities, and the migration of public interest services to NBN infrastructure.

With the limited evidence available, Commission estimates suggest that the TUSO could imply an annual *standard telephone service* subsidy ranging anywhere between \$250 and \$2800 per 'TUSO' service, and an annual average subsidy of \$2600 to \$50 000 per payphone.

In an age where basic telephones and payphones are rapidly becoming obsolete, the lack of transparency and accountability makes the continuation of current arrangements difficult to justify from the point of view of those who contribute to its funding. It also raises some intrinsic challenges in attempting to assess the value of the TUSO to the broader community. This is compounded by the exceptionally long-term nature of the contract — a feature that sits oddly against the highly dynamic nature of the sector.

Even though universal access to telecommunications services is viewed as important and some users still value their landline as a trusted technology, the weight of evidence suggests that the costs of the TUSO are likely to outweigh its benefits. Further, these costs can only be expected to increase over time in line with the costs of maintaining the deteriorating copper network.

The Commission's assessment is that the TUSO is a blunt instrument and is not fit for purpose against the evolution of telecommunications needs and solutions. While Telstra may have acted with goodwill in fulfilling its contractual obligations, these arrangements no longer serve the best interests of the Australian community. The TUSO should be

wound up and replaced by a new universal service framework to reflect policy, market and technological realities.

A new universal service objective

The ability to access internet content and services is becoming increasingly integral to the everyday life of most Australians. Access to digital data not only affects individuals by making life simpler, but also businesses and government by enabling decision making, transactions and processes to take place effectively and efficiently. It also underpins the current wave of disruptive digital technologies.

For people located in remote areas or with disability, internet access enables a level of engagement with friends, education, information and government that is otherwise not possible. For instance, *myGov* (providing access to Centrelink, Medicare, the National Disability Insurance Scheme, the Australian Tax Office, and other government services) is now one of the biggest digital services in Australia, with 10 million registrations on its website and an average of 160 000 people using the platform each day. The Government's recent expansion of its digital transformation agenda is intended to reinforce this trend by making access to government services more user-friendly and digital by default. From a community perspective, the potential value of digital data is substantial.

In this context, and given the sizable investment in NBN infrastructure and the extensive coverage of mobile networks, Australia's universal service policy objective can now be reframed to provide *baseline* broadband and voice services to all premises, while having regard to the accessibility and affordability of these services.

Broadband is capable of providing internet *and* voice services. It is increasingly the medium through which voice communication is being delivered. By taking analogue audio signals and turning them into digital data that can be transmitted over the internet, voice over internet protocol (VoIP) technology effectively provides an alternative way of making phone calls (typically at a much lower cost than traditional phone systems and with additional functionality). Notably, 4G technology for mobile phones (and in a few years, next generation 5G) provides voice services entirely through dedicated VoIP.

The universal service policy objective should be defined in terms of a *baseline* (or minimum) quality rather than an aspirational standard. This *baseline* should be set with a realistic imposition on public funding. As such, it should be set to meet the basic needs of most Australians in the majority of circumstances. This recognises that:

- there are material costs to the Australian community in providing these services on a universal basis, particularly where they would not ordinarily be provided by market forces
- it is likely to be more cost-effective to address particular needs through targeted policy rather than through a broader universal service policy
- market pressures will ensure that consumer needs for additional features are met.

Currently, separate standards for broadband and voice-only services apply at the wholesale and retail levels, and a complex and opaque mix of regulatory and contractual arrangements. The Government has proposed legislation outlining the role of statutory infrastructure providers for the provision of broadband at the wholesale level. This will guarantee that end-users continue to have access to underlying telecommunications infrastructure and services after the NBN is rolled out. The Government is also intending to review consumer safeguards at the retail level.

Baseline standards for broadband and voice services need to be established holistically. This is critical to developing a streamlined framework for broadband and voice services that captures both wholesale and retail components. It could also help to address the ‘accountability gap’ between wholesale providers and retail service providers inherent in vertically separated models of service provision. For wholesale providers, these *baseline* standards could be enacted under the proposed Statutory Infrastructure Provider (SIP) regime. Modifying the existing Telecommunications Consumer Protection Code offers one avenue to implement complementary *baseline* standards for retail service providers.

The NBN (and markets) have an important role to play

Leveraging off the NBN and mobile networks

NBN infrastructure will enable the provision of wholesale broadband services (with voice capability) to all premises (on request) within Australia, while mobile networks currently cover the supply of voice services (and to a slightly lesser extent broadband services) to around 99.3 per cent of the population.

The Commission’s assessment is that the service level provided by NBN, combined with existing mobile networks will be more than adequate to meet a *baseline* level of broadband and voice service availability for the vast majority of premises across Australia — particularly for all premises in the NBN fixed-line and fixed wireless footprints, and those in the satellite footprint with adequate mobile coverage.

By design, regulatory settings applied to nbn are conducive to promoting competition among retail service providers to deliver broadband services on NBN infrastructure once premises have been declared ‘ready for service’. All of nbn’s wholesale services have been declared under the *Competition and Consumer Act 2010* (Cth) by way of a Special Access Undertaking and a published Standard Form of Access Agreement. Having thus been declared, nbn’s standard access obligations require it to supply its wholesale broadband services on request to access seekers — wherever it is capable of doing so within the NBN footprint.

Given this regulatory impost and nbn’s uniform wholesale capped pricing model, the Commission considers that there is likely to be a retail presence throughout the NBN footprint that would enable all premises to access (voice capable) services. Indeed, the

evidence to date suggests that there are numerous retailers (around 140) offering services to consumers over the NBN. This includes 10 retailers offering services over nbn's *Sky Muster* satellites, which target remote Australia or the 'last three per cent'.

That said, the Government should monitor retail presence on the NBN with a non-automatic trigger for it to step in and competitively tender for the delivery of retail services to a particular area where retail presence is absent. This would give assurance to communities that retail services will be available.

Legislative backing to nbn's role as a universal service provider is an important prerequisite to nbn being privatised in the future. The Government intends for nbn to be the statutory infrastructure provider of last resort for broadband services. Its proposed SIP regime would assist in providing greater confidence to the community about nbn's role with respect to the provision of wholesale broadband services.

However, even under the proposed SIP regime, there is uncertainty and contention around the role of nbn (or any other designated statutory infrastructure provider) with respect to the provision of voice services, particularly within the NBN fixed wireless and satellite footprints. There is merit in the Government providing greater clarity in its proposed SIP regime about nbn's role (and that of any other designated statutory infrastructure provider) with respect to the provision of voice services.

nbn's impact on the economic efficiency of the telecommunications market once the NBN rollout is complete should also be reviewed, and this planned review should not be conditional — as it currently is now — on the timing of any Government consideration of the privatisation of nbn.

... with targeted intervention to address market gaps

While NBN infrastructure in conjunction with mobile networks is expected to deliver *baseline* broadband and voice services to the vast majority of premises across Australia, further government intervention may be warranted for the provision of voice services in pockets of the NBN satellite footprint without adequate mobile coverage.

Participants to this inquiry raised a number of concerns in relation to the *Sky Muster* satellite service. Many of these concerns stem from the frequency of service drop-outs. While the service has a target availability of 99.7 per cent, nbn has conceded that the service has so far performed below expectations.⁴

Participants also raised the incidence of power blackouts as a major issue. While all NBN technologies are dependent on power for their operation, power blackouts are relatively more common in regional and remote areas. Some were also concerned about latency,

⁴ This target does not include periods of unavailability due to signal attenuation (rain fade), which may be prevalent over parts of Australia that are prone to heavy rain.

particularly in emergency situations. The nature of geostationary satellite communications gives rise to a small but noticeable lag or latency in voice calls when communicating by way of *Sky Muster* to another satellite service.⁵

Commission estimates suggest that up to 90 000 premises, largely in the NBN satellite footprint, are likely to have inadequate mobile coverage. However, more work is needed to assess the feasibility of a targeted competitive tendering arrangement to fill this market ‘gap’ in voice services. The Australian Communications and Media Authority should work with all mobile network operators to identify the number and location of these premises.

The *Sky Muster* service is still relatively new and some teething problems are to be expected. Further, nbn has recently flagged a significant expansion in resources to remediate network failure issues and optimise the lifetime availability and performance of the satellite platform. The possibility that *Sky Muster* may be capable of delivering broadband and voice services of a *baseline* standard by the time the NBN rollout is completed should therefore not be ruled out. Such an assessment can only be made closer to that time based on actual performance data.

Even though the number of complaints as a proportion of active NBN services has fallen in recent years and concerns about the reliability of nbn’s other technology platforms are far less prevalent, their performance should also be monitored. As such, the Australian Communications and Media Authority should require nbn to report on the reliability of its networks, disaggregated to a reasonably granular level (by access technology at a minimum).

The *standard telephone service* USO should be replaced by a competitive tendering arrangement to address any gaps in voice services within the NBN satellite footprint. The new arrangement should be carefully designed and, in particular, be technologically neutral to allow for cost-effective solutions. Over the medium term, these could include Telstra’s existing networks, expanding mobile coverage, introducing alternative satellite services or expanding nbn’s fixed wireless networks. Ultimately, it is clear that most telecommunications services provided to regional and remote areas will need to be wireless.

Mobile services clearly play an important complementary role to NBN infrastructure. Many in the community see mobile services as an effective and preferable alternative to TUSO services, with the Mobile Black Spot Program garnering much support.⁶ However, while the program has increased the reach of mobile phone coverage in Australia, there is scope for improvement, including through a prioritisation of its objectives. The Government should commission an independent evaluation of the program before proceeding to the next funding round.

⁵ The latency of an NBN satellite call to a fixed-line, fixed wireless or mobile service (a ‘single hop’) is around 260 to 300 milliseconds, and around 670 milliseconds to another satellite service (a ‘double hop’).

⁶ There is a strong preference for using mobile phones for raising emergency assistance. The majority of calls to Triple Zero in 2015-16 originated from mobile phones (69 per cent), and less frequently from fixed lines (31 per cent). Public payphones accounted for almost 203 000 emergency calls in 2015-16 (2 per cent).

... and particular user needs

While NBN infrastructure and mobile networks are likely to address universal availability for the vast majority of Australians, there are some user groups whose specific needs are not likely to be addressed in the absence of further government intervention.

These groups include members of the community who governments have traditionally chosen to support on social equity grounds — people with disability⁷ or life-threatening health conditions,⁸ people living in remote Indigenous communities, some older people with limited digital literacy, and people without a permanent fixed address.

Many of the needs of these user groups pertain to the accessibility of telecommunications services. Measures to address these needs should be cost-effective, technologically neutral, targeted, flexible and consumer-focused, while supporting efficient competition and innovation where possible. Accessibility and affordability measures should be more fully considered within the Government's foreshadowed telecommunications consumer safeguards review.

However, the needs of some user groups — people in regional and remote communities with inadequate mobile coverage, and people with no permanent fixed address and no access to a mobile phone — may also relate to the availability of services. The Commission proposes a funding program for some form of community telecommunications (which could involve payphones, mobile charging stations, and public WiFi) to replace the payphones USO. The program should be flexible as to the form of service to be provided. It should target locations outside of mobile coverage, reflect the specific needs or preferences of a user group, and involve competitive tendering where feasible. The Government could consider carving out remote Indigenous communities from the program and meeting their needs through a separate program.

What about affordability?

There are no systemic affordability issues in relation to telecommunications. Real prices of both fixed and mobile services have continued to decline rapidly over time — by some 54 per cent for mobile services and 51 per cent for fixed voice services between 1998 and 2016, and by 21 per cent for digital subscriber line broadband services over the nine years to 2016. This downward trend is in contrast to trends evident across many other key service sectors such as electricity and water (figure 1).

Similarly, while overall spending on telecommunications services has increased (typically because consumers are using more services), household expenditure on

⁷ The National Relay Service provides a phone solution for people who have a hearing or speech impairment.

⁸ Priority Assistance customers get priority for fault repairs on their home phone line.

telecommunications as a share of disposable income remains relatively small (less than 3 per cent) and has declined slightly over the past decade. Several household surveys suggest that most respondents view telecommunications services as affordable.

At a wholesale level, nbn has committed to a number of long-term price controls. In addition, nbn provides discounts on the unit cost of network capacity as more capacity is purchased. While these factors will continue to place downward pressure on prices, nbn expects that users will face slightly higher bills because of growing demand for higher capacity broadband services and faster speed tiers.

Some people on low incomes may find it difficult to afford these services. A survey by the South Australian Council of Social Service — involving around 500 low-income Centrelink recipients and Low Income Health Care Card holders — reported that 62 per cent of the respondents experienced either difficulty in paying for, having to cut back, or having to stop using one or more telecommunications services due to financial hardship. Two thirds of respondents also rated telecommunications costs in the top five most important factors in their day-to-day household budgets. Due to their circumstances, some user groups — especially people living in remote Indigenous communities and people who are homeless — rely on pre-paid mobile phones where the unit cost can be well above the contract rates on offer for post-paid mobile phones (the so-called ‘poverty premium’), although pre-paid prices have been falling.

There are currently several measures that directly seek to address affordability, including measures as part of Telstra’s carrier licence conditions, and the Australian Government’s Telephone Allowance (adjusted by the Consumer Price Index). As NBN infrastructure and mobile networks become the primary channel for the delivery of universal broadband and voice services, the effectiveness of these measures should be reassessed and included as part the Government’s planned review of consumer safeguards. In principle, affordability is more effectively addressed through transfer payments under the tax-welfare system than through pricing cross-subsidies.

How much funding and who should pay?

How a universal service policy is costed and funded can affect its overall efficiency. However, determining the level of funding to be directed to a universal service program can be fraught. Service providers typically have better information about the costs of service provision than governments, and, moreover, future costs are unknown and can only be estimated. Having a discovery process that helps to reveal the efficient cost of service provision is therefore essential to ensure that public funds are used judiciously and that any adverse impacts on competition are minimised.

Where service provision can be contested by several providers, carefully designed competitive tenders can emulate the outcomes of competitive markets. Well-designed tenders can incentivise providers to keep their prices close to their best estimate of the efficient cost of delivering the service. However, where markets are thin and not

contestable, tendering processes are less likely to deliver efficient outcomes. In these circumstances, measures that improve transparency and accountability become even more critical to ensuring that taxpayers and consumers get value for money. This calls for independence in determining the level of funding, as well as the use of benchmarking and transparency in reporting.

Determining who should pay is also challenging. The principle that those who benefit should pay does not hold for universal service policies because these policies, by their nature, benefit some people who government has assessed should not or cannot fully pay for the service. This presents a challenge in developing a funding model that is optimal from the community's standpoint.

Two broad funding approaches for addressing market gaps and particular needs in universal service delivery have been considered in this inquiry — an industry levy and funding through general government revenue. Both approaches can distort investment and/or consumption behaviour in the telecommunications sector in ways that do not deliver the greatest possible benefit to the community. The issue is to identify and implement the approach that is likely to distort behaviour less.

Funding targeted programs

The quantum of funding is also relevant. The larger the funding envelope, the larger the potential distortions and costs to the community. The Commission's assessment is that the scale of the proposed government intervention (and hence funding) required across all dimensions of universal service — *availability, accessibility and affordability* — is likely to be smaller following the completion of the NBN rollout than is currently the case under the TUSO. As such, the distortionary impacts of either funding approach can also be expected to be smaller irrespective of the funding model adopted.

This takes the assessment of the relative merits of the two funding approaches largely to matters of implementation and administrative costs.

Budget-funded measures have the advantage of clear parliamentary accountability, administrative simplicity and transparency. They are subject to contestability among agencies for scarce taxpayer dollars. Moreover, applied to programs that have a redistributive objective (such as affordability measures), funding from general government revenue means that the same targeted eligibility criteria used for many other such policies can be applied to telecommunications services.

An industry levy, particularly if broad-based, is likely to be difficult to design well and costly to administer in a sector such as telecommunications where the players and the levy base are constantly changing. The emergence of Over-the-Top services (such as Skype and Netflix) exemplifies this challenge. As a general rule, a levy should treat all providers of substitutable services in the same way. However, the different and often global nature of Over-the-Top providers makes it difficult in practice to subject them to the same rules as those imposed on traditional telecommunications service providers.

While there will always be some level of fiscal and political risk associated with budget-funded measures, the Commission's assessment is that the measures recommended in this inquiry should be funded principally through general government revenue. As with an industry levy, the risks of cost-padding and gold-plating could be managed through competitive tendering, independent and transparent costing processes, and regular reviews.

Funding consequential impacts of the proposed reforms

In response to the draft report, nbn submitted that the Commission had overstated the expectations that the Australian Government had placed on it. In nbn's view, its role is to provide a broadband and/or voice service to premises on request in the fixed-line footprint, and a broadband service to premises on request in the fixed wireless and satellite footprints. Telstra, meanwhile, is responsible for supplying voice service infrastructure in the fixed wireless and satellite footprints until 2032, a role laid out in the TUSOP Agreement. nbn also contended that it has provisioned its networks in anticipation that less than 60 per cent of premises across its fixed wireless and satellite footprints would request an nbn service due to the assumed continued availability of Telstra voice and digital subscriber line broadband infrastructure in these areas. Reforms to universal service policy, nbn argued, would increase take-up rates for nbn's fixed wireless and satellite services (all of which have been assessed by the Bureau of Communications and Arts Research as non-commercial), thus imposing additional net costs on nbn.

The Commission has sought information from nbn on the potential magnitude of this impact. However, nbn has advised that it is not in a position to assess the incremental costs of universal service policy reforms without further information, including on the specifications of *baseline* services and the number and location of TUSO services provided by Telstra. On the basis of its own assessment, the Commission maintains a degree of scepticism about the materiality of these costs. The reasoning behind this view is fully outlined in the inquiry report but essentially revolves around the increasing degree of substitutability between retail services on the NBN and mobile services. For example, current voice-only TUSO customers in the satellite or fixed wireless zones who have adequate mobile phone coverage would most likely take a mobile service rather than a retail NBN service.

Further, the anticipated provisioning by nbn (of less than 60 per cent as above) for fixed wireless and satellite services may be too low. The actual future take-up rate of retail NBN services is unknown, so disentangling the impact of removing the TUSO from that caused by underprovisioning would be difficult.

The funding of nbn's non-commercial services should, moreover, not be considered independently of universal service policy reforms. In this context, the Commission has faced a unique challenge in responding to proposed government policy on the funding of nbn non-commercial services (the Regional Broadband Scheme) before the conclusion of this inquiry.

The Regional Broadband Scheme is proposed to (at least initially) include only a narrow levy base. In principle, the choice of funding model for non-commercial services should seek to minimise distortions in the telecommunications market, the risk of which is heightened with a narrowly-based long-term industry levy. As such, the Government may need to revisit the merits of alternative funding arrangements for nbn's non-commercial services.

Transitional matters

The Commission recognises that implementing a new framework for universal service provision will be complex and will need time. The TUSOP Agreement and the surrounding legislative architecture, as well as the lack of critical evidence to inform a meaningful renegotiation of the contract are key hurdles that will need to be addressed.

Existing mechanisms for negotiating changes within the agreement are highly restricted. They provide few options for review, and mostly centre around finding cost-savings for Telstra. Given this, the Commission considers that, in its current form and with a 20-year term, the TUSOP Agreement presents a fundamental roadblock to the implementation of the Commission's recommendations. Implementing the recommendations put forward in this inquiry will clearly require a major renegotiation of the contract.

The terms of any contract renegotiation are ultimately a matter for the Australian Government and Telstra. While there will be costs to renegotiation (including a possible financial penalty to the Government), an effective transition strategy should be carefully staged against key considerations around timing, stakeholder engagement and legislative requirements.

Payphones

With regard to payphones, there is a strong case for winding back Telstra's contractual obligations as soon as practicable. The evidence of the demise of payphones is clear. Juxtaposed with the extensive coverage of mobile services, the continuation of a blanket payphones USO cannot be justified from a community-wide perspective.

There would be benefits to both the Government and Telstra from such a move — lower levy liabilities, reduced regulatory impost on Telstra, and an opportunity for Telstra's existing payphone services to be repurposed with a more commercial, innovative focus. Importantly, from a community-wide perspective, this would allow for a better targeted allocation of funding to areas of genuine need for some form of community telecommunications service.

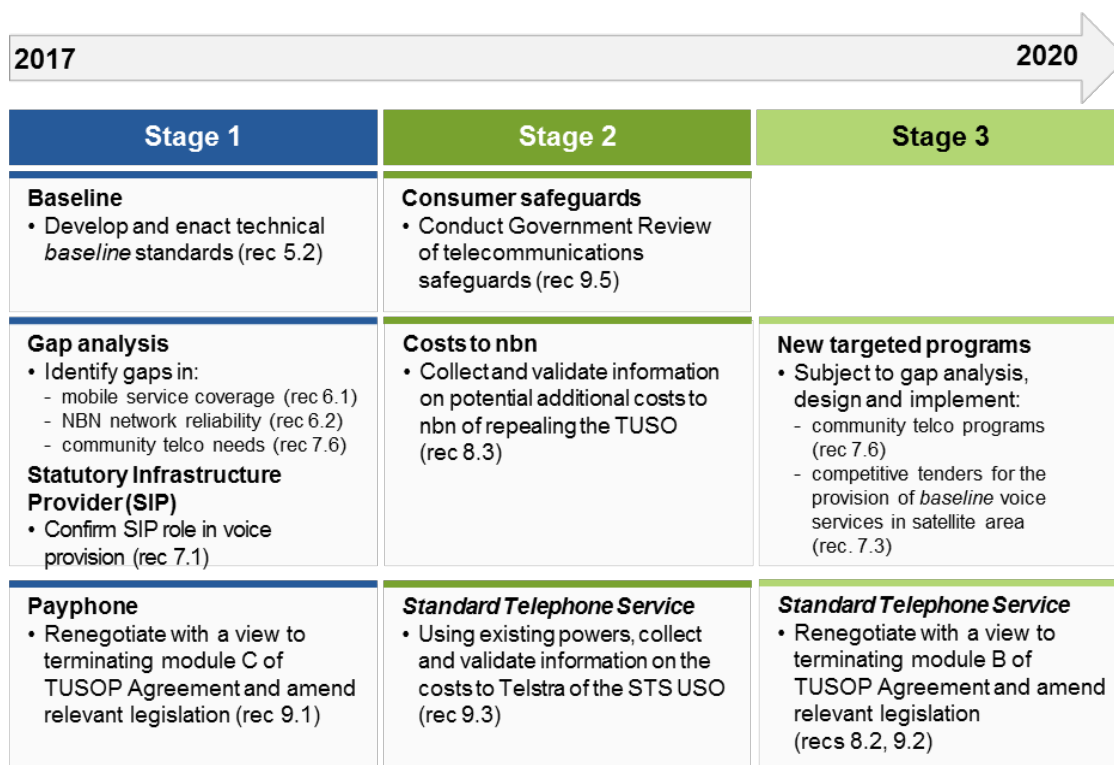
Standard telephone services

In relation to the *standard telephone service* USO, the Commission's view is that this should be wound up once NBN infrastructure is fully rolled out. Prior to this, the groundwork for a renegotiation of the TUSOP Agreement needs to be laid with a clear view to replacing the *standard telephone service* USO in 2020 (or once the network is fully rolled out, if later) with selected targeted assistance. Preparatory work should include two parallel streams of activity:

- **formal information gathering** from Telstra in relation to the provision of *standard telephone services* and payphones, to estimate their costs net of the subsidy. This could be undertaken under existing powers of the Australian Communications and Media Authority and/or the Australian Competition and Consumer Commission to make record keeping rules that would require Telstra to maintain and provide records about the fulfilment of the *standard telephone service* USO
- **a cross-portfolio consumer safeguards review** to ensure that reforms to universal service arrangements are underpinned by a unified framework of consumer safeguards. The Government's planned review of consumer safeguards provides an appropriate vehicle for this.

A staged approach to the implementation of these and other transition activities is proposed in figure 2.

Figure 2 A staged approach to transition



Findings and recommendations

An evolving telecommunications landscape

FINDING 2.1

Technological progress is transforming the way in which people access and use telecommunications services, with benefits for individuals, businesses, governments and the wider community. Prices of telecommunications services are falling, while service quality is improving across both fixed and mobile platforms. Moreover, these services are converging, allowing users to readily choose between fixed and mobile access, and generating additional competitive pressure on service providers.

The TUSO is deficient and should be wound up

FINDING 3.1

Data on the number and location of premises covered by the telecommunications universal service obligation (TUSO) are scant. Tentative Commission estimates suggest that the TUSO could imply an annual subsidy for a *standard telephone service* ranging anywhere between \$250 and \$2800 per 'TUSO' service, and an annual subsidy for each payphone of anywhere between \$2600 and \$50 000.

FINDING 3.2

There is unequivocal evidence that the relevance of services covered by the telecommunications universal service obligation — the *standard telephone service* and payphones — is declining. Over the past decade, Telstra's active retail fixed voice services have fallen by about one quarter (from about 8 million to just under 6 million services), while the number of Telstra payphones has almost halved (from over 30 000 to around 17 000). One third of Australian adults in capital cities *and* regional areas now rely solely on mobile phones for voice services.

FINDING 3.3

In addition to its declining relevance, the telecommunications universal service obligation (TUSO) has serious deficiencies. It is a blunt instrument with a one-size-fits-all approach to universal service provision. Telstra's contractual obligations under the agreement with the Australian Government lack transparency and accountability. The basis for its funding (a total of around \$3 billion in net present value terms over 20 years to 2032) is unclear and disputed.

While landlines are still highly valued by some, particularly those in regional and remote areas currently with no mobile coverage, the TUSO is based on outdated technology.

Overall, the TUSO is no longer serving the best interests of the Australian community.

RECOMMENDATION 3.1

The Australian Government should wind up the telecommunications universal service obligation by 2020 in line with recommendations 9.1 and 9.2.

A lack of policy coherence

FINDING 4.1

A number of telecommunications consumer safeguards apply only to the provision of the *standard telephone service* and only to some service providers. The declining reliance on the *standard telephone service*, the increasing proportion of consumers agreeing to waive these safeguards (in particular, the Customer Service Guarantee), and the deployment of NBN infrastructure make the relevance of these safeguards questionable.

FINDING 4.2

The telecommunications universal service obligation is only one of several policies and programs that subsidise the provision and use of telecommunications services across Australia and across different cohorts of users. Conservatively (and excluding the NBN), at least \$1 billion per year is spent on such programs. Australians would benefit from a more integrated approach to meeting universal service objectives in telecommunications.

FINDING 9.4

The current pattern of ongoing discrete telecommunications policy reviews and proposed legislative measures raises concerns about the coherence of telecommunications policy development, with implications for the transition to, and the effectiveness of, any new universal service framework.

RECOMMENDATION 4.1

The Australian Government should, in consultation with State and Territory Governments, conduct a stocktake (by mid-2018) of all telecommunications programs that share universal service objectives with a view to rationalising these programs and improving their efficacy and cost-effectiveness.

The Australian Government should also work with State and Territory Governments to audit existing telecommunications infrastructure — including fibre networks — with a view to using and expanding these networks efficiently.

An updated universal service objective and *baseline*

FINDING 5.1

There are divergent quality settings for voice-only and broadband services, and a complex and opaque mix of regulatory instruments and contractual arrangements governing these settings.

RECOMMENDATION 5.1

The Australian Government should reframe the objective for universal telecommunications services to provide *baseline* broadband and voice services to all premises in Australia, having regard to the accessibility and affordability of these services, once NBN infrastructure is fully rolled out.

To contain costs to the broader community, the *baseline* should be set to meet the basic needs of most Australians in the majority of circumstances.

RECOMMENDATION 5.2

The Australian Government should, as a matter of priority:

- adopt a functional *baseline* standard for broadband and voice services at the premises as one that it is *reliable and intelligible*, irrespective of the technology used
- establish the commensurate technical *baseline* standards for these services.

These technical *baseline* standards should:

- be developed prior to the Australian Government's foreshadowed review of consumer safeguards
- be used to set both wholesale *baseline* standards in regulation (based on, for example, the proposed Statutory Infrastructure Provider regime) and complementary retail *baseline* standards (based on, for example, the Telecommunications Consumer Protection Code)
- apply once NBN infrastructure is fully rolled out
- be regularly reviewed and adjusted by the Australian Communications and Media Authority in a manner that balances the benefits of a higher *baseline* standard with the costs imposed on the broader Australian community.

Leveraging off the NBN and mobile networks

FINDING 6.1

Irrespective of the telecommunications universal service obligation, current trends and policy settings around NBN Co Limited make it likely that retail NBN services will be universally available on request after the full rollout.

FINDING 6.2

When the NBN is fully rolled out, the combination of the NBN and mobile networks is likely to supply retail broadband and voice services to most premises at a level that meets or exceeds *baseline* standards.

All premises are likely to receive a broadband service at or above a *baseline* standard, but premises in the NBN satellite footprint *and* without adequate mobile coverage are unlikely to receive a voice service that meets *baseline* standards. This is due mostly to the unreliability of the *Sky Muster* service (including the prevalence of power outages), and to a lesser extent to call quality issues.

RECOMMENDATION 6.2

The Australian Government should task the Australian Communications and Media Authority to require NBN Co Limited to report regularly and publicly on the reliability of its networks, delineated to a reasonably granular level (by access technology at a minimum).

RECOMMENDATION 7.1

As a matter of priority, the Australian Government should clearly define the role of NBN Co Limited, and any other designated providers, as statutory infrastructure providers of wholesale broadband *and* voice services in legislation (such as the proposed Statutory Infrastructure Provider regime).

RECOMMENDATION 7.2

The Australian Government should minimise any further intervention with respect to guaranteeing retail service provision over NBN infrastructure. The Australian Government should monitor retail presence on NBN infrastructure and, where this is found lacking, contract one or more retail service providers to service geographic areas following a competitive tender, where feasible.

RECOMMENDATION 7.4

The Australian Government should amend the *National Broadband Network Companies Act 2011* (Cth) (the Act) to ensure that the planned Productivity Commission review of NBN Co Limited (nbn) occurs once the full rollout of NBN infrastructure is completed regardless of whether or not privatisation of nbn is being contemplated. The review should cover the impacts of nbn on the economic efficiency of the telecommunications sector as well as all the matters already specified in section 49 of the Act.

RECOMMENDATION 7.5

Before proceeding to the next funding round, the Australian Government should commission an independent evaluation of the Mobile Black Spot Program. Such an evaluation should consider measures to improve the program's operation, to best ensure that the program's objectives are prioritised and site selection is evidence-based.

RECOMMENDATION 6.1

As a matter of priority, the Australian Government should request that the Australian Communications and Media Authority work with mobile network operators to identify the number and location of premises in the NBN satellite footprint without adequate mobile coverage. This involves:

- developing metrics that give effect to the Commission's functional criterion that all premises with an *available* mobile service have outdoor mobile coverage of adequate strength to engage in voice calling of a *baseline* quality
- collecting data from mobile network operators to map the extent of mobile service availability that meets these metrics.

Addressing market gaps (including particular user needs)

FINDING 6.5

In the absence of the telecommunications universal service obligation — and given current policy settings, the full rollout of NBN infrastructure and the ubiquity of mobile services — the extent of market gaps (including particular user needs) in telecommunications is likely to be small and differ across groups.

FINDING 6.3

Certain groups of people with particular needs may experience gaps in the availability and accessibility of telecommunications services following the full rollout of NBN infrastructure and in the absence of further government intervention.

The groups most likely to experience difficulties include: people with disability and life threatening conditions; people living in remote Indigenous communities; some older people; people who are homeless; and users of telehealth, distance education and emergency services within the NBN satellite footprint who do not have adequate mobile coverage.

The costs of providing specialised services to meet the needs of these groups are likely to result in providers not offering the services, or providing them at a high price. Notwithstanding that technological advances could reduce these costs, the particular needs of some people in these groups warrant targeted government intervention.

FINDING 6.4

The affordability of telecommunications services has improved for most Australians although some people on low incomes may face financial hardship in accessing these services.

RECOMMENDATION 8.1

The Australian Government should use competitive tendering wherever feasible to deliver targeted telecommunications universal service programs. As a first step, the Government should test the depth of relevant market segments.

Where market depth is lacking and a competitive tendering process is not feasible, the Government should establish benchmarks against which to assess whether costs are acceptable. At a minimum, the Government should subject all proposed program costings to an independent and transparent validation process.

RECOMMENDATION 7.3

As a replacement for the *standard telephone service* USO, the Australian Government should introduce a competitive tendering arrangement for the delivery of *baseline* voice services where, within the NBN satellite footprint there is inadequate mobile coverage, and it is feasible to do so. This should only occur once the extent of any market gaps is fully determined (recommendations 6.1 and 6.2).

RECOMMENDATION 7.6

As a replacement for the payphones USO, the Australian Government should establish a funding program for a form of community telecommunications (that may involve payphones) that targets communities in areas where there is a market gap (including a particular user need). The program should be flexible in the form of services provided to communities, involve extensive local community input, and involve a competitive tendering arrangement, where feasible, to allocate funding.

How much funding and who should pay?

FINDING 8.1

Given the narrower scope of government intervention required following the full rollout of NBN infrastructure, the funding required for universal service programs is likely to be smaller than currently provided for the telecommunications universal service obligation.

FINDING 8.2

Small programs to meet telecommunications universal service objectives do not justify incurring the administrative costs and design challenges inherent to a broad-based industry levy. Funding these programs through general government revenue is likely to be simpler and less costly to administer.

RECOMMENDATION 8.2

The Australian Government should fund targeted measures to meet telecommunications universal service objectives principally through general government revenue rather than an industry levy. This would imply the ultimate removal of the Telecommunications Industry Levy.

RECOMMENDATION 8.3

The Australian Government should seek information from NBN Co Limited (nbn) on the potential incremental costs to nbn of the proposed reforms to telecommunications universal service policy. This should occur after *baseline* standards have been specified (recommendations 5.1 and 5.2) and nbn's role in providing *baseline* services is clearly defined (recommendation 7.1).

This information should be independently and transparently validated and exclude factors that nbn would be required to consider as part of its normal business operations.

Transitional matters

FINDING 9.1

The Commission's proposed reforms to universal service arrangements are incompatible with the current Telstra USO Performance Agreement.

The Agreement's review and payment mechanisms offer limited capacity for the parties to amend the contract in a way that aligns with these reforms. A significant renegotiation of the terms of the Agreement is likely to provide the most effective transition path to a fully overhauled universal service arrangement.

FINDING 9.2

To be effective, any renegotiation of the Telstra USO Performance Agreement needs to be informed by robust evidence on the net costs of services provided under that Agreement.

FINDING 9.3

A transition path away from the current telecommunications universal service obligation would need to be supported by necessary adjustments to the surrounding regulatory framework. Such adjustments include changes to consumer safeguards, Telstra's carrier licence conditions, and other policy measures. This would ensure that consumer safeguards are adequately considered, while removing inefficiencies and outdated mechanisms.

RECOMMENDATION 9.1

The Australian Government should:

- commence negotiations with Telstra with a view to terminate module C (payphones USO) of the Telstra USO Performance Agreement as soon as practicable
- amend the *Telecommunications (Consumer Protection and Service Standards) Act 1999* (Cth) and subordinate legislation to ensure Telstra's statutory obligation for the provision of payphones is terminated in line with its contractual obligation.

RECOMMENDATION 9.2

The Australian Government should:

- commence negotiations with Telstra with a view to terminate module B (*standard telephone service* USO) of the Telstra USO Performance Agreement shortly after the NBN is fully rolled out
- amend the *Telecommunications (Consumer Protection and Service Standards) Act 1999* (Cth) and subordinate legislation to ensure Telstra's statutory obligation for the provision of the *standard telephone service* is terminated in line with its contractual obligation.

RECOMMENDATION 9.3

The Australian Government should, as a matter of priority, undertake a detailed assessment of its data requirements for engaging in a future renegotiation of the *standard telephone service* and the payphones universal service obligations.

The Government should then direct the Australian Communications and Media Authority, and the Australian Competition and Consumer Commission, to utilise their existing information-gathering powers, where appropriate, to require the necessary information from Telstra.

RECOMMENDATION 9.4

The Australian Government should proceed with its foreshadowed review of the telecommunications consumer safeguards framework once technical *baseline* standards are defined (recommendation 5.2). The review should be undertaken from a whole-of-government perspective, and expanded to include an assessment of:

- what, if any, future retail safeguards are necessary
- what changes should be made to Telstra's carrier licence conditions
- the future role of accessibility and affordability measures, including the Telephone Allowance, the National Relay Service and relevant elements of the National Disability Insurance Scheme
- the consumer protection roles of various bodies including: the Australian Competition and Consumer Commission; the Australian Communications and Media Authority; and the Telecommunications Industry Ombudsman
- the need to clarify responsibilities for service quality (including fault repair) on the NBN.

RECOMMENDATION 9.5

The Australian Government should defer the next Regional Telecommunications Review, next scheduled for 2018. Any future reviews required under relevant legislation should only be conducted after the NBN is fully rolled out.