OptiComm Co Pty Ltd - Supporting Submission 14 July 2017

Australian Senate Environment and Communications Legislation Committee review of the *Telecommunications Legislation Amendment (Competition and Consumer) Bill 2017* and the *Telecommunications (Regional Broadband Scheme) Charge Bill 2017*.

This Supporting Submission is provided to explain the reasoning behind the views and proposals set out in the OptiComm document titled "Executive Summary of Submission to Senate Committee regarding RBS Charge".

1. Introduction

Our submission concentrates on the new tax (**the RBS Charge**) proposed to assist in funding the nbn's services in non-economic areas and set out in the *Telecommunications Legislation Amendment (Competition and Consumer) Bill 2017* and *Telecommunications (Regional Broadband Scheme) Charge Bill 2017* (together, **the Bills).**

OptiComm is one of a small number of carriers that own high speed fixed line telecommunications networks and will be required to pay the new tax. At $7.10/month/service, the size of this new tax is enormous and represents over 25% of the price of wholesale broadband. It is over 100 times the per service contribution that telecommunications companies currently make to fund the Universal Service Obligation (**USO**). This will have a seriously detrimental effect on fixed line broadband operators, being the largest single expense in operating their networks. The new tax will be larger than our staff costs, larger than our backhaul costs and larger than our rent costs. This will result in significant price hikes in retail broadband, particularly for the cheaper, lower speed fixed line broadband services commonly favoured by budget conscious families.

OptiComm understands that the nbn will operate at a loss in the non-economic regional and rural areas that will be serviced by nbn Co's fixed wireless and satellite infrastructure and that the Government's intention has previously been to fund services in non-economic areas via cross subsidisation from nbn Co's services in profitable areas. The Bills propose altering this funding arrangement by placing a new tax on all high speed fixed line services unless subject to listed exemptions, which in effect creates a narrowly targeted industry levy. Industry levies for funding telecommunications services in rural and regional Australia are a long standing and generally accepted part of the telecommunications industry via the Telecommunications Industry Levy which funds the USO. The Bill's proposed new tax, however, is different as the tax will be collected only from a narrow segment of the telecommunications industry rather than the industry in general. Most carriers and carriage service providers will not be required to pay the levy and the burden of paying for the nbn in non-economic areas will fall on a small number of carriers and their end-user customers. This results in the captured carriers being required to pay a far higher tax than would be necessary if the tax was collected from the broader industry.

We believe that this narrowly targeted tax:

- will fail to achieve the Bills' funding objectives;
- is based on a view that underestimates the competitive importance of mobile and fixed wireless broadband; and
- will seriously distort competition in telecommunications markets.

This submission sets out our concerns, which were also described in our submissions to the Bureau of Communications Research's (**the BCR**) consultation on nbn non-commercial services funding options.

We ask that the Senate Committee recommend amendments to the Bills in order to replace the narrowly targeted new tax with a levy similar to the existing USO and collected from all participants of the telecommunications industry.

2. The new tax will fail to achieve the Bills' funding objectives

2.1 The collection base of the tax

nbn Co, and its metro customers, are expected to contribute the lion's share of the tax, i.e. about 95% of the $9.8 billion that the BCR estimates is required to subsidise regional and rural services. We consider that it will be unsustainable to collect this very large amount via the narrowly targeted tax. In contrast, the BCR estimated that if the tax was collected from the broad base of the telecommunications industry, nbn Co would only have to pay about 13% of the required amount.[1] The size of the tax is so high that it will distort competition and result in consumers deciding to buy substitute broadband services delivered by alternative technologies that are made comparatively cheaper because they are not subject to the tax. We consider that the Department of Communications and the Arts (**DOCA**) has underestimated the growing threat that mobile and fixed wireless broadband poses to nbn Co's market share. To ensure ongoing funding of the nbn's fixed wireless and satellite services the new tax should be collected from the broad base of the telecommunications industry.

2.2 Inaccurate assessment of tax collection base

The Government has estimated that nbn Co's fixed wireless and satellite services will generate a net cost of $9.8 billion over 30 years. This is a very substantial amount and if its funding is to rely upon cross subsidisation and an industry tax then clearly accurate measurements of the tax's collection base are vital. We understand that the tax's collection base, i.e. Superfast fixed line services in operation (**SIOs**) relies on research conducted by the BCR when considering funding options for the nbn's non-economic network. Unfortunately, the BCR's assessment of current and future Superfast fixed line SIOs is inaccurate.

The BCR's assessment was based upon incomplete and incorrect data that was gathered from a range of sources including some non-credible sources such as online discussion forums[2]. The BCR overestimated current SIOs and its estimate of future SIOs is unreliable. For example, the BCR substantially overestimated OptiComm's SIOs. Accurate data regarding OptiComm's SIOs was provided to the BCR in our November 2015 submission. Such inaccuracies risk under-recovery of funds that the government hopes to obtain in order to support the nbn's fixed wireless and satellite networks. This will necessitate either the tax having to be increased or the Government contributing more funds to nbn Co via general tax revenue.

2.3 The tax should be collected from a general base of the industry

The nbn's non-commercial fixed wireless and satellite services in regional areas should be supported by a tax that is collected from all facets of the telecommunications industry,

[1] Australian Government, Department of Communications and the Arts, Bureau of Communications Research, *NBN non-commercial services funding options,* Final Consultation Paper, October 2015, p.63.
[2] Ibid, p.60.

i.e. much as the USO levy has for many years funded Telstra's provision of telephone services in non-commercial regional areas.

2.4 Mobile and fixed wireless broadband

The decision to impose a narrowly target tax rather than broad tax is largely because the DOCA considers that mobile and fixed wireless broadband networks are not a competitive threat to nbn Co's fixed line network in commercially profitable areas. We disagree with the DOCA's view. Our view regarding the competitive threat to the nbn from mobile and fixed wireless broadband networks is set out in Appendix 1 to this submission. We consider that competitive distortion created by the narrowly targeted RBS Charge seriously damages the ability of nbn Co and other fixed line operators to compete in wholesale and retail broadband markets.

3. Distortion of competition in telecommunications markets

3.1 Taxing goods or services can cause distortion of competition

Placing a tax on a good or service increases its costs, which reduces its appeal to consumers and accordingly, reduces its ability to compete in the markets in which it is sold. The extent of distortion depends on several factors, including:

- the size of the tax;
- whether there are substitute goods or services;
- whether the good or service is considered a luxury or a necessity; and
- consumer discretionary spend levels.

For example, if a government wants to protect local car manufacturers, it can place a tax on imported cars that makes them more expensive in comparison to the locally made car. Consumers will tend to buy the cheaper locally made car even if it is inferior to the imported car. The higher the tax, the less likely it is that consumers will buy the imported car.

The RBS Charge is a very high tax on a narrow segment in a dynamic market. Most consumers consider broadband a necessity so demand will remain strong in the face of price increases up to a point where consumers decide that it is simply too expensive. Obviously, the Government wants and needs consumers to be able to afford to buy fixed line broadband services on the nbn, so its retail price needs to be constrained. However, there are substitute services. Broadband can be provided via fixed wireless or mobile networks. Any significant price increase in fixed line services will make consumers seriously consider and possibly shift their buying preference to the substitute. Consumer willingness to accept a substitute that they consider inferior depends on their assessment of the degree of inferiority and how much cheaper it is than the superior product.

Fixed wireless broadband is a direct substitute to fixed line broadband. It provides comparable speeds and comparable data quotas at a comparable price. If fixed wireless broadband is cheaper than a fixed line service made more expensive because of the RBS Charge, consumers will choose the fixed wireless service.

Mobile broadband on current 4G networks is generally regarded as a complementary service rather than a substitute to fixed line broadband, however about 21% of adult Australians only use mobile broadband for internet access.[3] The advantage of fixed line

[3] ACMA (2015), Research snapshots: Australians get mobile.

broadband over mobile broadband is that it has far higher download quotas. This is a very important advantage to some consumers but not all, as a lot of consumers do not require high download quotas. The Productivity Commission's research recognised the asymmetrical nature of broadband consumption, with a small percentage of consumers being very heavy downloaders and a large percentage of consumers being light downloaders.[4] Consumers with low download requirements will consider that 4G mobile broadband is a substitute service if faced with a significant price increase for fixed line broadband. The 2020 commercialisation of 5G mobile is likely to provide far higher download quotas and significantly erode the current advantage of fixed line over mobile broadband.

3.2 Frontier Economics report

In our submission to the BCR's consultation, we provided a report from Frontier Economics (**attached**) regarding the economic principles that should apply to the funding of non-commercial services. We ask the Senate Committee to have regard to Frontier Economics' very informative report.

Frontier Economics noted that it was disappointing that the BCR was restricted in its findings by the narrow terms of reference given to it by the DOCA and stated:

> The funding arrangements proposed, which only levy suppliers of fixed line high-speed networks only (a 'narrow levy'), have a higher risk of market distortion but offer no specific advantages over broader funding arrangements. The BCR and the Government should consider broader funding arrangements given these risks to efficiency and competition.[5]

Frontier Economics concluded its report by saying:

> The Government's policy approach of relying on 'industry contributions' for the funding of non-commercial services is unfortunate in two respects.
>
> The first issue is that it gives some pretence that consumers do not ultimately bear the impact of any taxes or levies imposed on industry, when clearly this is the case (at least in the long run).
>
> The second issue is that it removes better sources of funds which would be less distortionary than industry levies, including broader tax funding or spectrum fees. Alternatively, the government could instruct nbn Co to simply target a lower rate of return – calculated using the same figures prepared by the BCR – that is more consistent with running losses in non-commercial areas.
>
> The BCR's analysis is therefore necessarily a second best approach that makes compromises and creates risks of distortions in incentives. Standard economic theory suggests the way to minimise these distortions is to levy over as broad a base as possible. Further, there appears to be no strong case for any particular set of consumers of communications services to (not) bear the levy. In our opinion, this suggests there is a strong a priori case for levying all users of communications services, perhaps defined as per the existing USO (TIL) arrangements. This indeed was the finding of the Vertigan Review panel.
>
> The BCR's analysis of funding arrangements suggests that it has found enough evidence and principles to support an alternative narrow levy approach. It follows from

[4] Australian Government, *Telecommunications Universal Service Obligation*, Productivity Commission Inquiry Report, No. 83, 28 April 2017, p. 44.
[5] Frontier Economics, *Funding non-commercial nbn services, A report prepared for OptiComm*, October 2015, p.1.

our analysis in the previous sections that we are not convinced that the BCR has made the case for a narrow levy. In fact, we consider that its approach will deliver inferior outcomes compared to a model that has the following elements:

- A broad-based levy on all users of communications services, funded via contributions from networks and service providers serving those users
- A fixed forecast 5 year subsidy required to meet the efficient costs of delivering the non-commercial services, with nbn Co to bear the cost of overspending and benefit from underspending.

Such a model will perform better on the grounds of allocative and productive efficiency, support competitive neutrality and be more consistent with the existing USO (TIL) funding approach which delivers funding from a broader range of communications users and does not distort between different networks, service providers or technologies.[6]

3.2 nbn Co has also argued that a narrowly targeted tax will distort competition

With regard to the need to avoid funding arrangements that gives mobile carriers a competitive advantage over fixed line carriers, nbn Co said in its submission to the BCR's consultation:

> nbn considers that the principle of competitive neutrality should also be adopted when considering the appropriateness of funding options. It is also critical to ensure that funding options facilitate a level playing field and that competition is not distorted so that no network operators are advantaged or disadvantaged. In this regard funding options should seek to minimise uneconomic effects on prices for fixed line services.[7]

nbn Co also encouraged a broad funding base for the tax and recognised that mobile and wireless broadband services are close substitutes for services on the nbn, as follows:

> nbn considers that equity outcomes would be best served by broadening the base of services on which the levy is added as much as possible. As discussed in section 5.1 this should include services which are close substitutes to those provided over the nbn network including mobile data and broadband services.[8]

nbn Co went on to explain the economic reasons that a broad revenue based levy should be applied rather than a tax constrained to fixed line networks, as follows:

> The principles outlined by the BCR for the design of funding options (see section 4) strongly favour sourcing funding from as a broad a range of services as possible, including from those provided on fixed line networks (i.e., providing telephony and less than 25Mbps broadband services) and wireless network services. Those principles also support designing a levy that can be passed through to end-users in a manner that does not distort competition or entry decisions.
>
> There is a broad range of funding options that might be considered by the BCR. The possible arrangements will have very different consequence for those who ultimately contributes and on the size and effect of impacts on competition and consumption decisions.

[6] Ibid, p.14
[7] nbn co limited, nbn non-commercial services funding options, nbn submission in response to Bureau of Communications Research Consultation Paper, June 2015, public version, p 8
[8] Ibid, p. 12

nbn considers that a revenue based levy that spreads the funding across the broadest range of services is most appropriate. This is for the following reasons:

- First, a revenue based levy will, in contrast to alternatives mechanisms (such as a network based levy), ensure that the funding arrangements do not fall disproportionally on network owners and therefore do not unduly affect entry decisions. If the funding arrangements operate as a charge on participating in the market, they will affect the number of operators who enter a market and hence the competitive tension within the market.

- Second, as the effect of sourcing funds from particular operators or end-users is to raise the price of the services that are consumed, broadening the basis will minimise the effect of those higher prices on consumption choices. In competitive markets, a levy reduces economic efficiency as prices deviate from the cost of production. The wedge between price and cost discourage consumption of the good even though end-users value the service at more than its cost. The value of this lost consumption is commonly referred to as a "deadweight loss". Basic tax theory tells us that this deadweight loss increases exponentially with the size of the levy. That is, for a particular service as the required levy increases the size of the deadweight loss grows at an increasing rate.[9]

  This basic insight into tax theory is the basis of calls to broaden the basis of taxes that fall on economic activity. That is, a small amount of tax on a wider range of activities involves less distortion than larger amounts of tax on particular activities. The consequence for the BCR in the design of its funding arrangements is that it should seek to broaden the funding eligibility to reduce economic distortions.

- Third, funding options that are restricted to services above 25Mbps are likely to create competitive distortions by creating a wedge between prices above and below this threshold. nbn does not consider that bright line market distinctions can be drawn that separate the provision of high speed services above a specified download rate using fixed line technologies from other high speed data services such as mobile data and broadband access services. This is because services at the boundaries of those market definitions will be economic substitutes in the minds of end-users.[10] In Australia, wireless broadband services are consistently recording speeds of between 12-15Mbps (on existing 4G networks that do not yet utilise the capability of 700MHz spectrum).[11]

It is therefore important that proposed funding options ensure that these competitors (and providers of services which are close substitute services) to nbn for fixed line services contribute equally to the funding of losses arising from the provision of nbn™ fixed wireless and satellite services. This will not only aid economic efficiency and equity, it will also reduce uneconomic distortions to competition.[12]

3.3 The Vertigan report

In 2014, the Government engaged a panel of experts to conduct an independent cost-benefit analysis and review of regulation to analyse the economic and social costs and benefits (including both direct and indirect effects) arising from the availability of

[9] Ibid, nbn footnote number 7: For a simple linear demand curve, it can be shown that the deadweight loss triangle grows with the square of the rate of the tax
[10] Ibid, nbn footnote number 8: For example, end-users will be sensitive to the relative price of a 20Mbps and a 30Mbps services.
[11] Ibid, nbn footnote number 9: http://opensignal.com/assets/pdf/reports/2015_03_opensignal-state-of-lte-report_mar_2015.pdf
[12] Ibid, pp 16-17

broadband of differing properties via various technologies, and to make recommendations on the role of Government support and a number of other longer-term industry matters. The panel released the Vertigan report, which carefully assessed how non-economic nbn services in regional and rural areas should be funded.

The Vertigan panel recommended writing down the value of nbn assets deployed in non-economic areas, stating that such an approach would "have the merit of recognising immediately the future losses the project will impose on the community and are therefore consistent with sound public sector practice".[13]

In regard to the appropriateness of an industry levy to fund non-economic services, the Vertigan report stated that if such a levy is applied instead of using consolidated revenue then the levy should be a broad-based industry levy, as follows:

> By far the best option for funding any ongoing subsidy would be through consolidated revenue. Among other advantages, that would allow Parliament and the public to assess in an ongoing way the benefits of using taxpayer funds for this purpose rather than others. However, should that option not be adopted, the panel recommends that, if an ongoing subsidy is required and its minimum amount can be reliably determined, a single, annual, broad-based industry levy, covering both voice and broadband services, be imposed to fund that subsidy. This would be similar to the current arrangements for the Universal Service Obligation (USO)…[14]

3.4 The Productivity Commission's USO report

The Productivity Commission's recent review of the USO recommended that nbn Co have an ongoing role in providing USO services.[15] Any ongoing role that nbn Co has as the USO provider would involve the provision of services on its satellite and wireless services in non-economic areas. It is clear that USO policy and the funding of the nbn's non-economic services are closely related issues that must be considered together to ensure an aligned outcome.

The Productivity Commission stated

> 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.[16]

The Productivity Commission also considered that acknowledged that:

[13] The Vertigan Review, *Independent Cost-Benefit Analysis of Broadband and Review of Regulation Report*, p. 104
[14] Ibid, p. 21
[15] Australian Government, *Telecommunications Universal Service Obligation*, Productivity Commission Inquiry Report, Recommendations 5.1, 5.2 and 7.2
[16] Ibid, pp. 16-17.

> …in line with the principles-based approach to funding …, the choice of funding model should prioritise minimising distortions in the telecommunications market and be flexible, simple and transparent. In this context, alternative funding arrangements such as through general government revenue and/or a broad-based industry levy — should be looked at more closely before implementing a long-term narrow-based funding model in a dynamic industry.[17]

4. Conclusion

OptiComm believes in the economic and social importance of broadband. We agree with the Government's policy that the benefits of broadband should be available to all Australians wherever they live or work. We also agree that the provision of broadband to non-economic areas will only be achieved under a policy framework such as the nbn and that it is reasonable for this policy to be funded via contributions collected from the telecommunications industry rather than general tax revenue. However, we firmly believe that the contributions should come from the industry in general and must not be collected via a new tax that is placed solely on high speed fixed line services. The Bills' proposed narrowly targeted tax ignores the technological leaps in mobile and fixed wireless broadband that is enabling services on these networks to increasingly be a substitute rather than merely a complement to fixed line broadband. The narrowly targeted tax also severely distorts competition in telecommunications markets and is contrary to advice given by experts to the Government. In order to be sustainable and competitively neutral, the regional broadband scheme charge must be collected from all players in the telecommunications industry and the Bills should be changed to reflect this.

[17] Ibid, p.322.

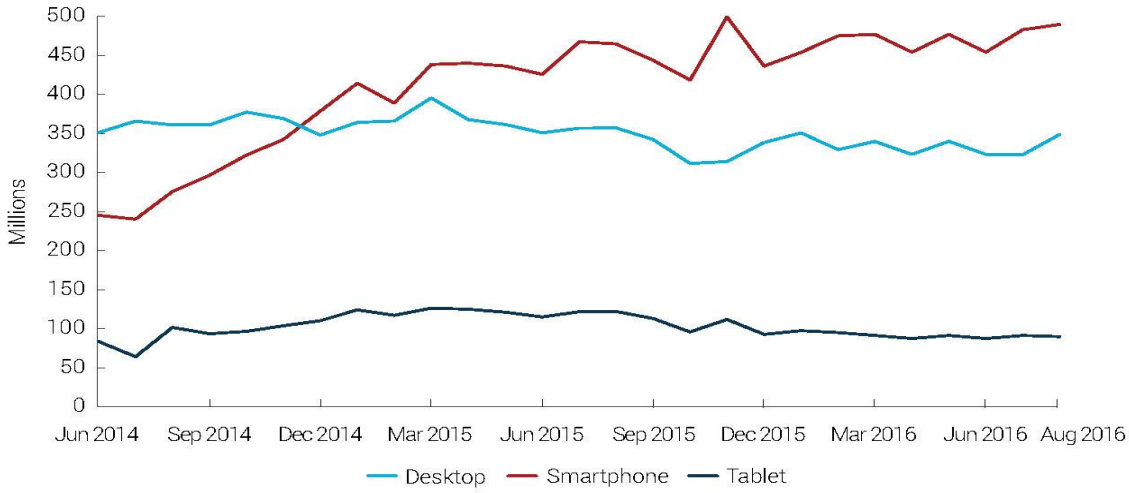
Annexure 1 – Mobile and fixed wireless broadband

1. The competitive threat of mobile and wireless broadband to nbn Co and other fixed line operators

The BCR's recommendations regarding funding for the nbn's non-economic services underestimated the relevance and growing importance of mobile and fixed wireless broadband, despite this fact being recognised in other studies recently published by the BCR. For example, in the BCR's October 2016 report titled "The communications sector: recent trends and developments", the BCR stated:

> In Australia, despite making up only a small portion of the total volume of data downloaded, downloads by mobile handsets grew by more than 70 per cent over the 12 months to June 2016. Smartphone usage has also overtaken the desktop in terms of total number of online sessions (figure 2). Illustrative of this trend, Google announced in 2015 that, for the first time, more searches in the US were made on mobile devices than on a personal computer. [18]

Figure 2. Total online sessions by device, per month



Source: Nielsen (2016), Traffic data provided by Nielsen's Market Intelligence around device-type comparison: trend analysis, Nielsen Online Ratings—Market Intelligence, August.

> Mobile carriers are increasingly offering competitive high-speed mobile broadband plans, with better coverage and much more generous data allowances. While fixed-line services have traditionally offered much better quality and value compared to mobile broadband, the advancements in 4G mobile network infrastructure have significantly reduced this gap. A consequence of the contraction of mobile prices, in addition to the greater availability of OTT services offering 'free' calls and the rising cost of line rental, has been the growing number of people without a fixed-line home service. As at June 2015, the number of adult Australians without a home telephone service was more than five million, up from two million in June 2010. Similarly, the number of mobile-only internet users grew from 19 per cent in December 2013 to 21 per cent in December 2014, with 3.9 million adult Australians relying exclusively on a mobile device for their home internet connection.[19]

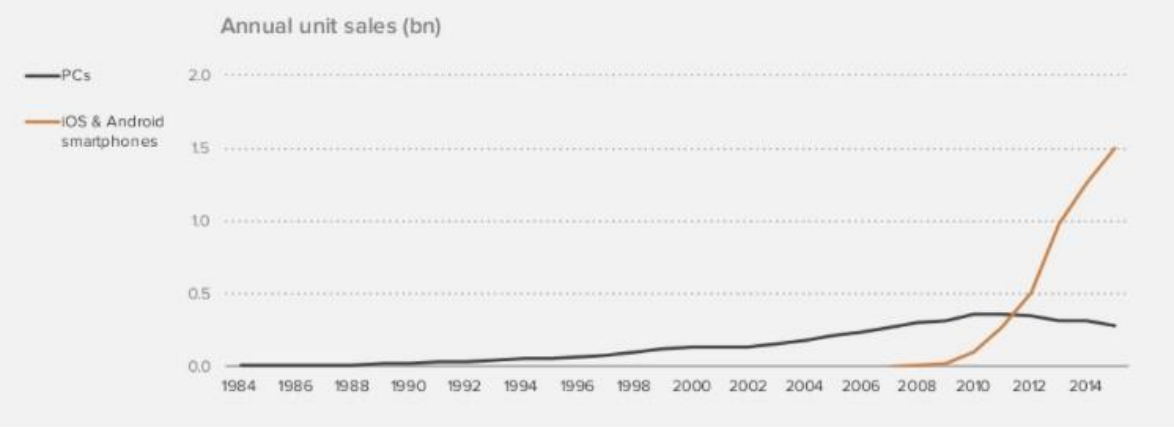
We note that the BCR's report goes on to state:

> Most of the population who use mobile broadband appear to use it as a complement to, rather than as a substitute for fixed-line services. While on the one hand, increasingly affordable mobile broadband plans could encourage more households to

[18] BCR, *The communications sector: recent trends and developments*, p 6
[19] Ibid, p 8 referring to data from ACMA (2015), Research snapshots: Australians get mobile.

give up fixed-line services, there could also be an incentive to retain or even to return to fixed-line services for their download capacity.

However, the BCR's view that mobile broadband is a complement and not a replacement of fixed line broadband is based upon total download statistics gathered by the Australian Bureau of Statistics in late 2015[20], which fail to have regard to the changing consumer preferences towards mobile broadband communications technology and significant advances in mobile technology. With the launch of multi-touch smartphones in 2007 and app stores in 2008, global smartphone sales have steadily increased and since 2011 have absolutely outstripped PC sales. This is demonstrated clearly in the graph below.



Smartphone sales overtake PC sales globally from 2011[21]

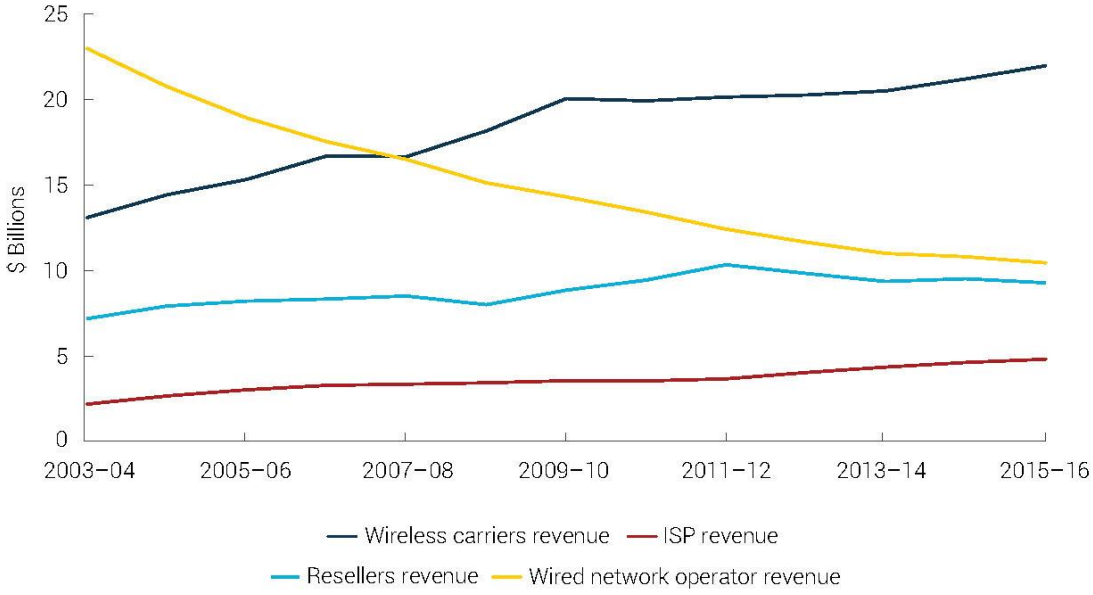
The increasingly prevalence of mobile over fixed data is broadly recognised in the telecommunications industry. For example, Cisco estimates that by 2020, Wi-Fi and mobile-connected devices will generate 78 percent of Internet traffic.[22]

With regard to the spread of revenue in the telecommunications industry and the growth in mobile services compared to fixed line services, the BCR recently stated:

> As a result of the increasing demand for mobile services among consumers, as discussed above, the mobile service industry has experienced rapid growth over the past 30 years. Since the introduction of Australia's first analogue mobile network in 1981, mobile technology has expanded to allow for the delivery of a broad range of services, including voice, messaging and internet access. While fixed-line revenues have been in decline over the last decade, the provision of mobile or wireless services has been a growth industry, generating an estimated $22 billion in revenue in 2015–16 (figure 7).[23]

[20] Ibid, p 9
[21] Benedict Evans, Mobile is eating the world, March 2016.
[22] Cisco Visual Networking Index Predicts Near-Tripling of IP Traffic by 2020, https://newsroom.cisco.com/press-release-content?articleId=1771211
[23] BCR, *The communications sector: recent trends and developments*, p 11

Figure 7. Telecommunications services revenue by industry, 2003–04 to 2015–16



Source: IBISWorld (2016), 'J5911 Internet service providers in Australia industry report', February; 'J5803 Telecommunications resellers in Australia industry report', February; 'J5802 Wireless telecommunications carriers in Australia industry report', March; 'J5801 Wired telecommunications network operation in Australia industry report', April.

The above graph makes it abundantly clear that the ability of fixed line operators to pay new taxes is being steadily eroded, in complete contrast to the revenue and ability of wireless carriers.

With regards to improved data caps and lower prices for mobile broadband services, the BCR stated:

> The industry-wide improvements in network performance, and increasingly comparable national coverage maps, have meant increased efforts by carriers to grow their market share. This has placed downward pressure on pricing and, with increased data availability, supporting increased value to mobile consumers. Despite high levels of capital expenditure, the average mobile subscriber cost per megabyte is falling, having already halved between 2005 and 2013 while there has been a 1000-fold increase in the amount of data available on Telstra data plans over the past 13 years. For example, there is some anecdotal evidence that Telstra lowered its premium price point in 2015 and started offering cheaper mobile plans with much larger data offerings.[24]

In comparing the amounts of data downloaded between fixed line and mobile operators and the effect of mobile competition on fixed line revenue, the BCR stated:

> Fixed-line telecommunication networks are the heavy lifters in the provision of large data volumes. As at June 2016, around 93 per cent of all data downloaded in Australia was via fixed-line networks, compared to only 7 per cent downloaded over wireless or mobile networks. Since 2011, downloads across all technologies have grown at a very fast rate, which has resulted in fixed-line carrying a constant proportion of total downloads. However, despite its importance in providing internet services, the revenue generated by Australia's fixed network industry has more than halved in recent years, from $23 billion in 2003–04 to $10.3 billion in 2015–16. This drop can be attributed to a number of factors, including the introduction and widespread adoption of mobile and OTT communication services, which in turn have reduced the need for households to utilise landline telephony for everyday communications.[25]

[24] Ibid, p 13 (The BCR's references are removed from the quote)
[25] Ibid, p 14 (The BCR's references and graphs are removed from the quote)

In regard to the impact of new technology, the BCR noted that:

- 5G, the fifth generation of mobile technology will supersede the current 4G technology.
- Telstra has announced plans for its 5G network launch in 2020.
- 5G networks are expected to support far greater levels of data growth compared to current mobile networks, creating a greater reliance on small cell technology.

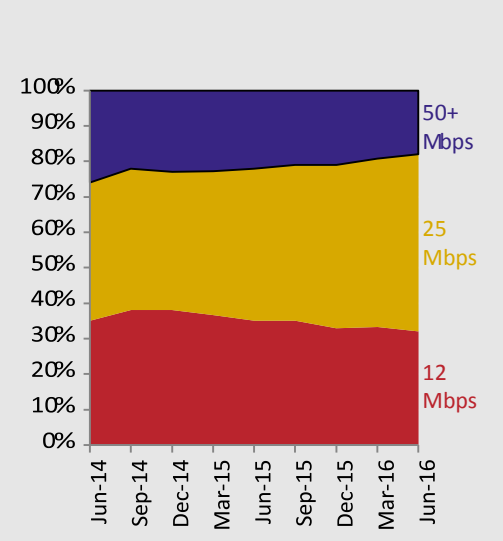
The BCR estimated that of all new communications technology, 5G mobile technology would have the greatest impact and that this impact would occur within a short time frame, i.e. within 3 years' time.[26] It is evident from the data that the BCR has referred to in its report that even though fixed line broadband is currently the heavy lifter in terms of download, consumer preference is to use their mobile device when using the internet far more frequently than their fixed line service. Added to this is the fact that, even when at home, consumers tend to use their mobile devices more than their readily available laptop or desktop computer, but just connected through their home's WiFi. With increasing data caps and decreasing mobile broadband costs, there is real potential that ever increasing numbers of consumers will disconnect their fixed line service and rely solely upon their mobile broadband service. Increasing the cost of fixed line broadband by imposing the proposed tax will add to this fixed line to mobile broadband substitution.

A great deal of the bandwidth used in fixed line's heavy lifting is video streaming. However, advances in compression technology, caching content closer to end-users and adaptive streaming technology is significantly reducing video's bandwidth requirements. This is now resulting in large increases in video streaming to mobile devices, with corresponding decreases in fixed line viewing. This preference has been particularly prevalent amongst young people.[27]

Evidence shows that most consumers are unwilling to pay higher amounts for faster broadband speeds. The graph below is from a report prepared by Communications Chambers for Deutsche Telekom and published in January 2017.[28] Interestingly, Communications Chambers based the graph on connection data collected from nbn Co's annual reports and stated:

> A market test of demand for bandwidth to the premise is provided by the nbn in Australia, where different speeds are offered at different price points. [The graph below] shows revealed behaviour, with 84% of fixed line customers taking a speed of 25 Mbps or less. The distribution of customers across packages is consistent with research on stated consumer preferences which showed incremental willingness-to-pay falling to close to zero for speeds approaching 100 Mbps.

[26] Ibid, p 21
[27] For the specific sources that this paragraph relies on please see:
Brian Williamson, Communications Chambers, Mobile first, fibre as required – the case for Fibre to 5G (FT5G), January 2017, p10, available at
http://static1.1.sqspcdn.com/static/f/1321365/27426046/1485297189777/Mobile+first+fibre+as+required+-+the+case+for+%27FT5G%27.pdf?token=9h1P3bJFvJRAjEl%2BRMmsJN0HeYA%3D
[28] Ibid, p14



Graph: Declining willingness to pay for higher speeds

This demonstrates that most consumers do not consider the availability of higher speeds on fixed line networks is an important competitive differentiator over the range of speeds currently available on mobile and wireless networks. It also demonstrates that the Government's decision to exempt networks from the new tax on the basis that they offer speeds below 25 Mbps and therefore are not comparable to the nbn does not reflect the reality of how Australian consumers use the nbn as 84% of consumers choose to buy a service of 25 Mbps or less even though they could buy a faster speed if they wanted to and were willing to pay more.

The increasing data caps in mobile broadband plans mean that the single perceived competitive advantage of particular importance that fixed line broadband has because of higher data capacity is eroding and price will become the most important competitive differentiator.

A $7.10 monthly tax represents over 25% of the cost of wholesale broadband. Placing this tax solely on fixed line carriers means that they are significantly disadvantaged against their mobile competitors. This will open up a price gap that will result in consumers disconnecting fixed line services and shifting to mobile only or fixed wireless services. The decrease in fixed line end-users will place even more pressure on nbn Co's ability to cross-subsidise from economic areas in order to fund its non-economic areas.

In February 2016 OpenSignal published the following commentary about 5G mobile technology:

> AT&T plans to get its feet wet in the still murky 5G pond this year, joining arch-competitor Verizon and operators around the world in conducting early trials of the technology. AT&T announced its 5G roadmap on Thursday, detailing plans to test out ultra-high-speed networks in the millimeter wavelengths this year in both the lab and in the wild. The first city on its list will be Texas state capital Austin, conveniently located down the expressway from AT&T's corporate HQ in Dallas.
>
> AT&T, however, appears to be taking a much more conservative stance on 5G unlike its competitor Verizon. Instead of promising an overnight revolution in mobile data, AT&T says its initial 5G focus will be on fixed wireless broadband – in essence using 5G connections as an alternative to cable, DSL and new fiber broadband links. For that reason, Austin may not only be a convenient choice for AT&T but also a strategic choice. Austin is a Google Fiber city, and a handful of its residents are starting to get their first taste of a 1 Gbps home broadband connection. AT&T is already experimenting with its own fiber-to-the-home service called

> GigaPower, but it may now be toying with the idea that it could provide the same kind of gigabit service without digging any trenches and stringing any cables.[29]

The relevance of OpenSignal's commentary to the Bill's tax collection base is that the world's largest carrier, AT&T, is using 5G mobile technology to rollout a fixed wireless network in direct competition with an incumbent fibre network, despite the fibre network being owned by the world's second most valuable company, Google/Alphabet, and despite there being many other cities where AT&T could rollout the network without facing such a strong level of existing infrastructure based competition. To warrant such an investment, AT&T clearly considers that a 5G network can directly compete with a fixed line fibre to the home network. Believing that Australia's fixed line networks won't face the same competition from mobile/ networks is simply a head in the sand position, especially given that most of Australia's fixed line networks are a multi-technology mix and of a lower technical standard than Google's FTTH network in Austin.

On 31 January 2017, Telstra announced that its 4G LTE network is already capable of providing 1Gbps download and 150Mbps upload speeds in Sydney, Melbourne and Brisbane and that it expects to roll out the technology to Adelaide and Perth this year. Telstra emphasised that the 1Gbps service is both a stepping stone and a key supporting layer for its future 5G rollout as it will provide network redundancy.[30] iTnews reported that:

> The telco also hopes the new service will tempt consumers in CBD and fringe areas to go mobile and not bother with a fixed line broadband connection at all. Telstra's director of wireless engineering Channa Seneviratne, said "We also see an increasing number of people who rent and who choose not to get a fixed line broadband service. This would be perfect if you've got a number of people in the family [or sharing the home connection]."[31]

Telstra clearly envisages that consumers will regard Telstra's 4G LTE services as a substitute for fixed line broadband services on the nbn. It is also clear that Telstra expects to win both residential and business market share in the lucrative metro areas where nbn Co needs high market share in order to cross subsidise its loss making services in rural and regional areas.

In January 2017, AT&T announced that its initial 5G lab trials are already achieving speeds up to 14 gigabits-per-second (Gbps) over a wireless connection. AT&T also stated that:

> In lab trials, we've successfully tested a connection with less than 3 milliseconds of latency, which surpasses any current LTE network technology. Latency impacts things like the time between pressing play and seeing a video start to stream or between hitting a web link and seeing a webpage begin to load. The industry expectation for 5G is latency less than 5 milliseconds.

AT&T also said:

> Here's additional color around our 5G Evolution:
>
> - **1 Gbps Speeds in 2017:** The continued deployment of our 4G LTE-Advanced network remains essential to laying the foundation for our evolution to 5G. In fact, we expect to begin reaching peak theoretical speeds of up to 1 Gbps at some cell sites in 2017. We will continue to densify our wireless network this year through the deployment of small cells and the use of technologies like carrier aggregation, which increases peak data speeds. We're currently deploying three-way carrier aggregation in select areas, and plan to introduce four-way carrier aggregation as well as LTE-License Assisted Access (LAA) this year. [**OptiComm note: this year, AT&T is getting speeds of 1 Gbps on its existing 4G mobile network, i.e. speeds comparable to the maximum speeds on nbn Co's fixed line network on a 4G mobile network even before 5G mobile networks are rolled out commercially. This is corroborated by Telstra's demonstration of live network trials to Australian media on 31 January 2017 described above.**]

[29] https://opensignal.com/blog/2016/02/12/att-will-trial-5g-this-year-pitting-it-against-google-fiber/
[30] Comms Day, 1 February 2017
[31] iTnews, 1 February 2017, https://www.itnews.com.au/news/telstra-to-boost-cbd-4g-speeds-to-1gbps-449349

- **5G Video Trial with DIRECTV NOW**: In the first half of 2017, we plan to conduct a trial in Austin where residential customers can stream DIRECTV NOW video service over a fixed wireless 5G connection. As part of this trial, we'll also test additional next-generation entertainment services over fixed 5G connections. The trial will include multiple sites and devices, and we expect to further advance our 5G learnings – especially in how fixed wireless mmWave technology handles heavy video traffic. And over time, the reach of our 5G deployments will be enhanced even more as customers discover new, innovative mobile-first video services.

- **First 5G Business Customer Trial:** Last fall, we launched what we believe to be the industry's first 5G business customer trial in Austin with Intel and Ericsson using millimeter wave (mmWave) technology, which can deliver multi-gigabit speeds using an unlicensed band of spectrum. We trialed several video streaming and conferencing experiences, and saw upload and download speeds around 1 Gbps during the first phase of the trial.

- **Additional 5G Trials**: We recently announced plans to team up with Qualcomm Technologies and Ericsson for mobile and fixed wireless trials in the second half of 2017. These trials are significant because they will be our first trials to use what we expect to be based upon the 5G New Radio specification being developed by the industry technology standards group 3GPP. Industry standards are important to enabling wide-scale 5G commercialization. The trials will test both mobile and fixed wireless solutions operating in mmWave spectrum accelerating commercial deployments in the 28Ghz and 39Ghz bands. They will showcase new 5G radio mmWave technologies for increasing network capacity while achieving multi-gigabit data rates.[32]

In September 2016, AT&T also announced Project AirGig, which it describes as a transformative technology that could one day deliver low-cost, multi-gigabit wireless internet speeds over power lines.[33]

The point that we are making is that very fast, high data capacity mobile and wireless broadband technology is not a pie in the sky idea, but rather it is already being made available and is increasingly likely to quickly be a substitute service rather than merely a complementary service to fixed line broadband technologies. Mobile and wireless broadband should not be ignored in funding the nbn's non-commercial services as their potential to take a substantial share of nbn Co's market in commercially economic areas is very real and realistically very likely, particularly if competition between fixed line and mobile/wireless broadband is distorted by a tax that discriminates against fixed line networks, such as the new tax proposed in the Bills.

Technologically advanced mobile and fixed wireless services are already commercially available and entrenched in Australia. Some of the options include high speed mobile 4G, 4GX, 4G Plus services available nationally on Telstra, Optus and Vodafone networks, 4G LTE available in some capital cities on Telstra's network, fixed wireless Ethernet available via BigAir in major metro and regional areas, Vividwireless fixed wireless service available in metro areas on Optus's 4G network, Adam Internet's WiMax service in metro Adelaide, Aussie Broadband's Fixed Wireless network in regional Victoria and a raft of fixed wireless broadband services on metro networks operated by new entrants such as Lightning Broadband, MyPort, Uniti Wireless and NuSkope. These high speed services offer a range of options to consumers, with increasing data caps and attractive pricing.

2. Financial and regulatory incentives to compete against nbn Co's fixed line network on mobile and wireless networks

There are clear financial and regulatory incentives for Australia's carriers to invest in wireless and mobile broadband technology to directly compete with nbn Co. Carriers providing services as retail service providers (RSPs) on the nbn make far lower margins in comparison to the margins that for some years they have made by acquiring declared

[32] http://about.att.com/story/att_details_5g_evolution.html
[33]http://about.att.com/newsroom/att_to_test_delivering_multi_gigabit_wireless_internet_speeds_using_power_lines.html

wholesale services on Telstra's copper network. When TPG announced this to the market in September 2016, describing the lower profit margins as "nbn headwinds", its share price plummeted from $11.84 to $8.63 in two days and currently trades at around $5.55. This announcement has wiped over $4B from TPG's market cap. Vocus's share price took a similar hit for the same reason, losing over $2.5B in value and is currently trading at considerably less than half the price that it was in mid- 2016.

Referring to TPG but the same applies to Vocus, New Street Research telco analyst Ian Martin said:

> "A major problem for future earnings was the higher cost of accessing and servicing customers on the nbn. The margin they make on consumers is largely the result of a $15 copper access price and over the next three years most of that business will migrate to the nbn, where they pay a $43 access price. A large part of the margin and the cash flow that drive TPG's consumer business is going to move from TPG to nbn in coming years."[34]

There is no doubt that Telstra, Optus and all other RSPs face the same "nbn headwinds" and will suffer substantially reduced revenue in providing fixed line services on the nbn rather than Telstra's copper network. The share prices of Telstra and the Singapore listed Optus are insulated because much of their revenue derives from their mobile networks and they have received and/or are receiving large sums from nbn Co for the transfer of network or customers.

The boards of these very sophisticated and large companies are not going to sit back and accept such significantly reduced earnings but will do everything possible to shift their customer base onto networks where they can earn a better profit and keep shareholders happy. For Telstra and Optus, the obvious strategy has been to steer their customers on to their mobile (and fixed wireless) networks with fixed line services becoming a complement to the mobile service where required. It is also hard to believe that TPG won't make use of the 2.5MHz and 1800MHz spectrum that it purchased in 2013 and 2016 for the same reason, to increase profits by reducing reliance on nbn Co's expensive fixed line wholesale products and also in reaction to legislation and carrier licence conditions imposed to limit the rollout and vertical integration of its FTTB network.

By exempting mobile and fixed wireless broadband services from the new tax, the Bills further increase the existing incentive for nbn Co's wholesale customers to substitute fixed line with alternative technologies. Though its definitive agreements with nbn Co prohibit Telstra from marketing its mobile network as a substitute for the nbn's fixed line services, Telstra's strategy to steer consumers towards mobile voice and broadband services is clear. It has been a long time since Telstra's TV advertisements have included anything that looks like a fixed line service, rather the clear focus in their advertisements is on mobile devices and mobile broadband access. This was made abundantly clear when Telstra announced its 4G LTE expansion plans earlier this year.

[34] http://www.smh.com.au/business/markets/tpg-profits-up-70-per-cent-but-shares-down-as-it-faces-nbn-headwinds-20160920-grk4hg.html