



**Australian Government**

**Department of Communications and the Arts**



# Regulation Impact Statement

Establishing an ongoing funding arrangement for nbn's  
fixed wireless and satellite networks

## Introduction

This Regulation Impact Statement (RIS) has been prepared by the Commonwealth Department of Communications and the Arts. The purpose of this RIS is to assist the Australian Government to make a decision about the design and implementation of a funding arrangement for providing broadband services to regional areas, which cannot be provided on a commercial basis. These services are being provided by NBN Co Ltd (nbn) using satellite and fixed wireless technologies.

In 2013 the Government commissioned the Independent Cost-Benefit Analysis of Broadband and Review of Regulation (the Vertigan Review). The Vertigan Review considered funding arrangements for fixed wireless and satellite services. In December 2014 the Government responded to the Vertigan Review, deciding to introduce a funding arrangement for those services. The Government published its decision in the *Telecommunications and Structural Reform paper* (the 2014 policy paper).<sup>1</sup> The funding arrangement would be supported by an industry charge to fund the net costs generated by nbn's fixed wireless and satellite networks, replacing the company's opaque internal cross subsidy. This proposed charge is known as the Regional Broadband Scheme (the Scheme).

In bringing its broadband policy reforms forward, the Government has adopted the following overarching principles<sup>2</sup>:

- Regulation should allow competition at both the retail and wholesale infrastructure levels.
- To the greatest extent possible, industry players should be treated consistently under the regulatory framework.
- New high speed broadband access networks (which control 'last mile' connections to consumers) should be vertically separated.

The proposed Scheme goes directly to the second principle.

This RIS is supported by the work and consultation undertaken by the Department of Communications and the Arts' Bureau of Communications Research (BCR) in 2015.<sup>3</sup> This RIS should be read in conjunction with the 2014 policy paper, the associated November 2014 RIS that accompanied the Government decision to release that paper, and the BCR's final report released in December 2016.

This RIS has been developed in accordance with the Australian Government Guide to Regulation, March 2014, issued by the Office of Best Practice Regulation (OBPR) in the Department of the Prime Minister and Cabinet, and in consultation with the OBPR. Relevant guidance notes issued by the OBPR have also been taken into account.

The Department has prepared a standard form RIS as the proposal is considered to have a relatively minor impact on the economy and is likely to impact a limited number of businesses. The issue has previously been considered by Government.

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<sup>1</sup> *Telecommunications and Structural Reform paper*, published in December 2014.

[https://www.communications.gov.au/sites/g/files/net301/f/Telecommunications\\_Regulatory\\_and\\_Structural\\_Reform\\_Paper\\_-\\_11\\_December\\_....pdf](https://www.communications.gov.au/sites/g/files/net301/f/Telecommunications_Regulatory_and_Structural_Reform_Paper_-_11_December_....pdf)

<sup>2</sup> See the *Telecommunications and Structural Reform paper*, published in December 2014.

[https://www.communications.gov.au/sites/g/files/net301/f/Telecommunications\\_Regulatory\\_and\\_Structural\\_Reform\\_Paper\\_-\\_11\\_December\\_....pdf](https://www.communications.gov.au/sites/g/files/net301/f/Telecommunications_Regulatory_and_Structural_Reform_Paper_-_11_December_....pdf)

<sup>3</sup> <https://www.communications.gov.au/departmental-news/further-consultation-nbn-non-commercial-services>

## What are the non-commercial services and why are they non-commercial?

Non-commercial services are those where the revenue from the service is less than the full cost of providing the service. In its 2016 Report the BCR confirmed high speed broadband services delivered by nbn, over its fixed wireless and satellite networks were non-commercial

The BCR used the incremental cost test to determine whether the fixed wireless and satellite networks were non-commercial. In the case of the fixed wireless and satellite networks, revenues are less than direct costs and so it is clear that they are non-commercial. More detail is at **Attachment D**.

Even if nbn were to increase its prices for the non-commercial services to reflect the true costs of providing these services, they would likely remain non-commercial, because fewer people would take up services. This is because there is a limit to how much consumers are willing to pay (WTP) for broadband. The Vertigan Review found that the WTP for services was substantially lower than costs for fixed wireless and satellite services.

## What is the problem being solved?

This RIS considers how best to sustainably fund non-commercial broadband services in regional Australia. There are almost 7 million Australians living in regional areas.<sup>4</sup> To date, broadband services in these areas have been poor.<sup>5</sup> In 2009, the Government established nbn to rollout broadband across Australia. The company had planned to rollout fixed wireless and satellite services to approximately one million premises.<sup>6</sup> The prices for services were to be largely the same across different parts of Australia, regardless of the costs of providing services. nbn's fixed wireless and satellite services are provided predominantly in regional areas, although they may also service urban fringe areas.

The most recent analysis from the BCR estimates that the total net cost incurred by nbn's satellite and fixed wireless networks will be approximately \$9.8 billion (net present value) between 2010–11 and 2039–40.<sup>7</sup> Because these services (in aggregate) cost more than they earn in revenue, they are known as 'non-commercial' services. This definition is used throughout this document. A part of the cost has already been expended. For example, approximately [CIC] of capital expenditure has been spent by nbn rolling out the fixed wireless and satellite networks from 2009–10 until 2014–15. A further \$1.69 billion in capital expenditure is expected to be spent by 2017–18, by which time the rollout of the fixed wireless and satellite networks will almost be complete.<sup>8</sup>

Originally it was intended that the net costs from the fixed wireless and satellite networks would be funded through an opaque cross subsidy from nbn's more commercial fixed line services. The current arrangements implicitly expect that other nbn users will fund net costs on fixed wireless and satellite services, through the prices charged for nbn's commercial services. nbn was originally intended to be an

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<sup>4</sup> The term 'regional' is used in this report to refer to areas of Australia that are not urban. There are approximately 6.7 million Australians living in Inner Regional, Outer Regional, Remote and Very Remote Australia. See 3218.0 - Regional Population Growth, Australia, 2013–14 <http://www.abs.gov.au/ausstats/abs@.nsf/Latestproducts/3218.0Main%20Features152013-14?opendocument&tabname=Summary&prodno=3218.0&issue=2013-14&num=&view=>

<sup>5</sup> Broadband Availability and Quality Report found that there are 1.4 million premises in Australia where fewer than 40 per cent of premises can access a fixed broadband service. The report found that typically, premises in this category are typically located in regional or remote areas of Australia, or in small pockets of poor service in metropolitan and outer metropolitan areas, see page 3, [https://www.mybroadband.communications.gov.au/upload/documents/Final\\_report%20\(2\).pdf](https://www.mybroadband.communications.gov.au/upload/documents/Final_report%20(2).pdf)

<sup>6</sup> When the rollout is complete, the fixed wireless network will cover approximately 600,000 premises, and the satellite network will cover approximately 400,000 premises. For comparison, nbn's fixed line network will cover 10.9 million premises.

<sup>7</sup> As nbn does receive revenue from customers using the fixed wireless and satellite networks, some of the costs involved with providing these services are already recovered by nbn. A breakdown of this cost appears at **Attachment E**.

<sup>8</sup> See nbn's 2016 Corporate Plan, page 16.

effective monopoly. This arrangement was supported through regulatory protections.<sup>9</sup> In 2011, the Government introduced amendments to the *Telecommunications Act 1997*, seeking to ensure that non-nbn providers operated on the same structural basis. The provisions grandfathered existing networks, built before 1 January 2011. The provisions have not succeeded, as network providers have expanded into population dense areas with existing infrastructure beyond what was originally conceived through the grandfathering provisions.

Functioning competition is not in itself problematic and should be encouraged where entrants have lower costs than nbn, but the requirement for nbn to provide fixed wireless and satellite services means that entrants have an advantage over nbn in this respect.

Competition is occurring in the high speed broadband infrastructure market. For example, TPG is rolling out a network to high value apartment blocks. Whilst it is difficult to precisely quantify the speed of this rollout, news media suggests that in February 2016 TPG was approaching 1,000 apartment blocks.<sup>10</sup> There is also evidence to suggest that the retail offering provided over these alternative fibre networks is, in practice, lower than retail prices on nbn's network. For example, as a retail service provider over nbn's network, TPG offers a 100 megabit per second service for approximately \$100 per month.<sup>11</sup> TPG's wholly owned subsidiary Wondercom offers an identical service over TPG's network infrastructure for approximately \$70 per month.<sup>12</sup>

The current method of funding non-commercial services is not aligned with greater competition for high speed fixed line infrastructure provision. As currently structured, nbn is at a competitive disadvantage to comparable providers that do not face similar costs of providing fixed wireless and satellite broadband services. As competition intensifies, there is a risk that nbn will be less able to support its internal cross subsidy.

While nbn is able to reduce its prices in commercially viable areas to respond to competition if it does so, it will be less capable of supporting cross subsidies to fixed wireless and satellite services.<sup>13</sup>

The size of the net costs from fixed wireless and satellite services that are borne by nbn's commercial services is in the order of [CIC] per service per month (in 2017-18 nominal terms). In terms of the competitive impact, the average revenue per user obtained by nbn is ~\$40 per month, meaning that the funding of those services is a significant share of the cost recovered from commercial users, at [CIC]. The size of the competitive impact is large because, even though the fixed wireless and satellite networks will only make up 1 million of nbn's approximately 12 million premises reached by the network, the net cost for each service is very large, at \$105-110 per premise per month. Or to put this another way, the net cost of those services are expected to be \$9.8 billion in net present value terms.

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<sup>9</sup> Chiefly the amendment made to Parts 7 and 8 of the *Telecommunications Act 1997* in 2011. More information on the legislative history of Parts 7 and 8 is below.

<sup>10</sup> See <http://www.itnews.com.au/news/tpg-close-to-passing-1000-buildings-with-fibre-415107#ixzz40IWS0ifc>

<sup>11</sup> See [https://www.tpg.com.au/nbn?utm\\_source=nbn\\_front&utm\\_medium=CPC&utm\\_campaign=nbn\\_front](https://www.tpg.com.au/nbn?utm_source=nbn_front&utm_medium=CPC&utm_campaign=nbn_front)

<sup>12</sup> See <https://www.wondercom.com.au/fttb>

<sup>13</sup> Supported by the Government's decision to move to a price cap model – see the *Telecommunications and Structural Reform paper*, published in December 2014.

[https://www.communications.gov.au/sites/g/files/net301/f/Telecommunications\\_Regulatory\\_and\\_Structural\\_Reform\\_Paper\\_-\\_11\\_December\\_....pdf](https://www.communications.gov.au/sites/g/files/net301/f/Telecommunications_Regulatory_and_Structural_Reform_Paper_-_11_December_....pdf)

## Why is Government action needed?

Government has committed to rolling out a ubiquitous high speed broadband network. The decision to rollout broadband services to non-commercial areas is largely completed or contracted. Hence this is not a question of whether Government should be involved but of what the best form of funding should be, given that fixed wireless and satellite services are to be provided.

In considering how the problem should be solved, the Government has had regard to the principles it adopted in the 2014 Policy paper, particularly that to the greatest extent possible, industry players should be treated consistently under the regulatory framework.

From these general principles, a series of six objectives have been developed. These objectives must be considered against each other in context. These objectives have been adapted from the principles used by the BCR in consulting with stakeholders.

### These six objectives are:

Objective	Description
<b>Transparency</b>	<p>The design, implementation and costs of a non-commercial funding mechanism should facilitate scrutiny and evaluation.</p> <p>Transparency allows stakeholders and the Government to monitor performance of funding arrangement outcomes, and cost information supports decisions to improve arrangements as appropriate.</p>
<b>Contestability</b>	<p>The arrangements should minimise barriers to entry or other impediments to all participants.</p> <p>The arrangements should be equitable to all segments of market participants.</p>
<b>Competitive neutrality</b>	<p>The arrangements should address advantages (or disadvantages) that some participants would otherwise have over others.</p>
<b>Sustainability</b>	<p>The mechanism used to fund the provision of the non-commercial service should be viable for the anticipated period the non-commercial obligation will be in effect.</p> <p>The mechanism should be secure and reasonable in the face of changing social, political, technological and economic circumstances to fund fixed wireless and satellite net costs over the longer term.</p> <p>The mechanism should provide certainty to industry stakeholders of any obligations.</p> <p>The design of the arrangements should not conflict with or undermine other regulatory objectives.</p> <p>The funding schemes should be simple. The more complex the scheme is to administer, monitor and implement, the less likely it is that its objective will be achieved and the more costly it will be to administer.</p>

Objective	Description
<b>Economic efficiency (allocative/productive and dynamic)</b>	<p>Non-commercial funding models should be assessed by whether they support or constrain productive, allocative or dynamic efficiency.</p> <p>Allocative efficiency includes consideration of the distortionary impact of taxes and levies on demand for goods and services.</p> <p>Productive efficiency is minimising the cost of providing a particular service.</p> <p>Dynamic efficiency is ensuring that allocative and productive efficiency improve through time.</p>
<b>Equity</b>	<p>The Scheme obligations should consider how any funding arrangement will fall across society. Equitable outcomes for beneficiaries and funders of fixed wireless and satellite services should also be considered.</p>

## Existing policies relevant to assessment of funding options for non-commercial services

Funding options for fixed wireless and satellite services detailed in this RIS fit within the context of a range of legislation and Government policies that apply to nbn. These are summarised below.

### Statement of expectations

Following the recommendations of the 2003 Review of Corporate Governance of Statutory Authorities and Office Holders (the Uhrig review)<sup>14</sup> Statements of Expectations (SoE) are issued by the Government to Commonwealth Companies, setting out relevant government policies and expectations on how these companies should conduct their operations. The latest SoE for nbn was issued on 24 August 2016.<sup>15</sup>

Relevant to the delivery of fixed wireless and satellite services, the SoE specifies that nbn should build the network in a cost-effective way, using the technology best matched to each area of Australia within the constraints of the Government's public equity capital limit, as set out in the Equity Funding Agreement, and deliver a network capable of download data rates of at least 25 megabits per second to all premises.

### Special Access Undertaking

The Special Access Undertaking (SAU), as accepted by the ACCC on 13 December 2013, is a key part of the regulatory framework that governs the price and other terms on which nbn supplies services to access seekers who are supplying services in downstream retail and wholesale markets.<sup>16</sup>

The SAU has a term that runs to 30 June 2040 and operates via a modular structure. The first part (known as Module 1) applies for the first 10 years (during which time the network will be built). Module 1 includes detailed price terms and a limited set of non-price terms. The second part of the SAU (known as Module 2), commences on 1 July 2023 and its terms are generally expressed at a higher, more

<sup>14</sup> See <http://www.finance.gov.au/sites/default/files/Uhrig-Report.pdf>

<sup>15</sup> The SoE is available here: <http://www.nbnco.com.au/content/dam/nbnco2/documents/soe-shareholder-minister-letter.pdf>

<sup>16</sup> The SAU is available here: [http://www.nbnco.com.au/content/dam/nbnco/documents/NBN%20Co%20SAU%20-%20Varied%20on%2018%20November%202013%20\(clean%20version\).pdf](http://www.nbnco.com.au/content/dam/nbnco/documents/NBN%20Co%20SAU%20-%20Varied%20on%2018%20November%202013%20(clean%20version).pdf)

principled level. The SAU contemplates that further detail will be incorporated over time via nbn submitting replacement modules for ACCC consideration.

To account for the transition to the multi-technology mix approach, nbn lodged a variation to the SAU with the ACCC on 27 May 2016. The variation proposes to:

- retain the current SAU arrangements, most aspects of which are technology neutral (including the modular structure)
- extend the SAU's service, product and price coverage to incorporate FTTB, FTTN and HFC (and the option to incorporate future variants such as FTTdp; and
- make a very small number of changes based on experience with operating under the SAU to date.

The ACCC is currently in the process of considering the SAU variation.

The SAU works in conjunction with nbn's Wholesale Broadband Agreement (WBA).<sup>17</sup> Whereas the SAU includes a mechanism to set the maximum price (for example) that nbn can charge for services, the WBA is the contractual agreement between nbn and its retailers that specifies price and non-price terms.

In providing a service over the nbn, nbn's access seekers must purchase both Access Virtual Circuit (AVC) and Connectivity Virtual Circuit (CVC) services from nbn (amongst other things<sup>18</sup>). In simple terms, AVC is the supply charge and CVC is the capacity charge (or quasi usage charge).<sup>19</sup> Retailers can aggregate multiple AVCs on one CVC (with options for different 'traffic class' qualities)—in essence CVC capacity is shared between end users. The amount of CVC an access seeker purchases for each AVC and its traffic class has a large bearing on the quality of the service experienced by an end user particularly during the peak period on the access seeker's network.

Access seekers mix and match different AVC and CVC combinations as part of developing their retail products.

### Parts 7 and 8 of the Telecommunications Act

Parts 7 and 8 of the Telecommunications Act (the Tel Act) provides rules about the supply of high speed broadband, and were put in place in their current form in 2011.

Part 7 provides that networks built or upgraded after 1 January 2011 must not supply a fixed line broadband services to residential and small business customers if they do not also provide a layer 2 bit stream service. A layer 2 bit stream service has the normal meaning used in the telecommunications industry, which is generally taken to be an Ethernet service for the transmission of data between two points on a network.<sup>20</sup> nbn is not bound by Part 7 as it is required to operate on a wholesale only basis and offer services at the lowest practical layer of the OSI stack. Part 8 requires that operators of high speed broadband offer services on a wholesale basis.

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<sup>17</sup> See <http://www.nbnco.com.au/sell-nbn-services/supply-agreements/wba2.html>

<sup>18</sup> For example, clause 1A.4.2 provides that nbn can require that the supply of an AVC to a retail providers can be on the condition that the retailer also acquire another product.

<sup>19</sup> See clauses 1A.3.2 and 1A.3.3 for the definitions used in the SAU.

<sup>20</sup> See the ACCC's Layer 2 bitstream service declaration Final report, February 2012 for more discussion about the definition of a layer 2 bit stream service, available here:

<https://www.accc.gov.au/system/files/Local%20bitstream%20access%20service%20declaration%20-%20final%20report.pdf>

Taken together, the intention of Parts 7 and 8 are to ensure that other non-nbn providers of high speed broadband can provide end users with similar services to nbn (that is provide access to a broadband service of 25 Mbps or more) and do so on an open access basis.

Parts 7 and 8 include a range of exemptions. In particular, exemptions are provided to networks in place prior to 1 January 2011. This exemption remains in force in the event of small upgrades extending the existing infrastructure by no more than 1 kilometre.<sup>21</sup>

In September 2013, TPG Telecom announced its intention to build a fibre-to-the-basement (FTTB) network with the potential to reach more than 500,000 premises in metropolitan areas in Sydney, Melbourne, Brisbane, Perth and Adelaide. However, it is not subject to Part 7 and 8 of the Act because it had a network (albeit one that was focussed on the business market) that was already capable of supplying superfast carriage services before 1 January 2011, and is extending that network by less than 1 kilometre.

On 11 September 2014, the ACCC announced that it did not consider TPG was in breach of Part 7 or 8. On the same day as the ACCC's announcement, the Minister for Communications announced that he would consult on a new carrier licence condition declaration relating to superfast networks. Subsequent to this, the Minister for Communications made a new carrier licence condition declaration requiring that specified carriers provide high speed broadband on a wholesale non-discriminatory and equivalent basis until 30 June 2015, and after that be required to comply with general separation and supply obligations, and layer 2 wholesale service obligations.<sup>22</sup> The carrier licence condition is part of the Government regulatory transition process, explained in more detail below.

### Future reform

In its 2014 policy paper, the Government acknowledged that an effective telecommunication regulatory regime was compromised by legislative and regulatory reform undertaken between 2009 and 2011, particularly in relation to Parts 7 and 8.

In the 2014 policy paper the Government announced that it would introduce a package of reforms to move towards a more effective regulatory arrangement. The reforms would proceed in an ordered sequence to minimise disruption to the industry and enable nbn to complete its rollout.

The transition period and pre-nbn privatisation phases set out in the 2014 policy paper are beyond the scope of this RIS, however it is intended that legislation allowing for greater structural flexibility for non-nbn providers and establishing a Statutory Infrastructure Provider proceeds at the same time as legislation implementing transparent funding for fixed wireless and satellite services. These two other measures are subject to a separate RIS, and are summarised below:

1. **Amendments to Parts 7 and 8:** The Government will introduce legislation to repeal Part 7. In addition, the legislation will require certain networks offering high-speed broadband to be structurally separated as a default and offer non-discriminatory access. The legislation will remove the 1km statutory exemption. The legislation will also provide for the ACCC to authorise functional separation arrangements (subject to undertakings from carriers detailing satisfactory arrangements for access and equivalence to minimise anti-competitive effects). The arrangements will include appropriate grandfathering measures for pre-existing high-speed broadband networks. In line with the proposed arrangements for nbn the non-discrimination arrangements for other providers will be reviewed at the same time.

<sup>21</sup> See 141B(4)(c)(i).

<sup>22</sup> See Carrier Licence Conditions (Networks supplying Superfast Carriage Services to Residential Customers) Declaration 2014, <https://www.legislation.gov.au/Details/F2014L01699>



2. **Statutory infrastructure provider:** The Government will introduce legislation imposing Statutory Infrastructure Provider obligations on nbn on an area by area basis, once nbn has a well-established presence in each area. The arrangements will also allow SIP obligations to be applied to other carriers on an area by area basis where appropriate.

It is important that the funding arrangements for fixed wireless and satellite services, amendments to Parts 7 and 8 and the Statutory Infrastructure Provider reforms proceed as a package because they are integrated and dependent. While the Parts 7 and 8 reforms are designed to provide greater structural flexibility for firms and therefore more commercial opportunities, this could impact on nbn's ability to fund its fixed wireless and satellite services. Sustainable funding arrangement for those services will assist in balancing this arrangement.

Similarly, while the Statutory Infrastructure Provider obligations will make clear nbn's obligations to deliver infrastructure, including in rural and remote areas, it is important that there is a mechanism to contribute to the cost of non-profitable fixed wireless and Satellite infrastructure. Conversely, industry is likely to want to see a legally binding requirement on nbn to provide infrastructure if it is to contribute to its cost.

## What policy options are being considered?

There are five options that are being considered. These options reflect the options considered at the time of the Government's 2014 Policy paper and additional options that have arisen through consultation.

Beyond these five options, two other options are possible, but have not been considered. That is, the Government could:

- Provide nbn with a regulated monopoly.
- Cease the rollout of the fixed wireless and satellite networks and sell these assets.

These options have not been considered because they are inconsistent with the Government's election commitments. For example, the "Coalition's Plan for Fast Broadband and an Affordable NBN" document states that "The Coalition will remove or waive impediments to infrastructure competition introduced to provide a monopoly to Labor's NBN..." and that "NBN Co will proceed with its existing satellite and fixed wireless networks...".<sup>23</sup> These options are not considered to be preferable in any case.

- A regulated monopoly on provision of services would deny end users the benefits of competition and reduce competitive pressure on nbn to provide services rapidly and efficiently.
- Ceasing the fixed wireless and satellite rollouts at this point would leave these substantially complete, although there would be some households and businesses that would not obtain broadband availability. The sale of these assets would occur at a substantial loss on expenditure to date and potentially they could not be sold at a positive price. This would leave nbn in a similar position to now in terms of having to fund net costs on its fixed wireless and satellite services, because the revenue from the sale of assets would be insufficient to cover costs expended.

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<sup>23</sup> See "The Coalition's Plan for Fast Broadband and an Affordable NBN", <http://ipa.webcontent.s3.amazonaws.com/NBN/The%20Coalition%E2%80%99s%20Plan%20for%20Fast%20Broadband%20and%20an%20Affordable%20NBN.pdf> page 9 and 10.

Options under consideration are as follows:

- **Option 1: Do nothing:** nbn would continue to fund net costs from its fixed wireless and satellite services through an internal cross subsidy. This would minimise government intervention in the operations of nbn comparable businesses, however this would leave nbn and its users as the only funding source for those services.
- **Option 2: Budget funding:** The provision of broadband services to non-commercial areas is a loss-making activity undertaken for community benefit. It is generally agreed that the best way to fund a loss-making community benefit is through Commonwealth Budget (the Budget) funding as it may minimise market distortions and is economically efficient. This would capture the largest funding base possible to support the Government's objective of providing high speed broadband services to all Australians.
- **Option 3: The Regional Broadband Scheme:** A transparent and more effective funding arrangement would be introduced to fund nbn's non-commercial services through contributions sourced from owners of high-speed broadband access networks—i.e. the nbn and networks comparable to the nbn. Relative to current arrangements an opaque part of nbn's cost recovery will be made explicit. The Government will provide the ACCC with sufficient powers to monitor the introduction of these arrangements.
- **Option 4: Targeted post-market subsidies:** This option would involve consumers paying charges that reflected nbn's and retailer's costs in non-commercial areas (likely to be upward of \$170 per service per month).<sup>24</sup> End users facing difficulty meeting these charges could apply for assistance, for example, in the form of a means tested subsidy payment. The assistance could be funded from Budget. This would allow nbn to set cost based prices, require consumers with an ability to pay those rates to do so, and provide subsidies for those who could not. This would involve substantial administration costs to manage the subsidy eligibility and would likely leave the capital expenditure made in nbn fixed wireless and satellite services stranded as prices would be too high for many users who are not eligible for a subsidy to take-up services.<sup>25</sup> Administration costs would be lower if eligibility was linked to eligibility for existing welfare programs. This option would also be inconsistent with nbn being subject to a price cap.
- **Option 5: Delay and consider funding arrangements alongside the universal service obligation (USO) review:** The current USO funding is used to fund the provision of voice services to all Australians, in the same way as the Scheme would fund the provision of broadband services to all Australians (noting that there are some differences). The Productivity Commission is undertaking a review of the current USO. Including consideration of the funding for the funding of fixed wireless and satellite services could better align obligations of the telecommunications industry.

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<sup>24</sup> The service price would reflect nbn's standard wholesale prices, the non-commercial service loss estimated by the BCR, of \$105-110 per month (BCR final report, p. 8) and retail costs.

<sup>25</sup> The *Independent Cost Benefit Analysis of Broadband and Review of Regulation, Volume II, The Costs and Benefits of High-Speed Broadband* found that there would be net costs per premise connected of almost \$7000, from delivering fixed wireless and satellite services. The willingness to pay was estimated at one quarter of the cost in total, indicating that willingness to pay is substantially below cost for these services and hence nbn could not charge prices that would enable it to recover costs.

## Who is affected and what is the impact?

The options considered in this RIS have both financial costs and benefits, and economic costs and benefits.

### Financial impacts

This section considers the financial impact of each option on different parts of the community. It considers the impact on:

- nbn.
- nbn end users.
- nbn comparable providers.
- end users of nbn comparable providers.
- the Budget.

All financial impacts are approximate and presented in net present value terms, discounted at 6.46 per cent, and calculated until 2039–40.

#### Option 1: Do nothing

The whole \$9.8 billion net cost from the fixed wireless and satellite networks would be recovered from nbn's end user base (expected to be 8 million active customers by 2020).<sup>26</sup> End users of nbn comparable providers would not contribute to the provision of the satellite and fixed wireless networks.

At present, nbn's end users in the fixed line network pay approximately [CIC]<sup>27</sup> in subsidy per service per month to support those services. There is a risk that in response to market forces, the subsidy per service would likely increase (as the fund base diminishes) or there would be increased likelihood that taxpayers (through the Budget) would have greater exposure and would reduce the value of the investment in the nbn.

Because this is the base case, the financial impact has been set to nil, and other options are compared to this option.

Party impacted	Financial impact
nbn	Nil.
nbn end users	Nil.
nbn comparable providers	Nil.
End users of nbn comparable providers	Nil.
Budget impact	Nil.

<sup>26</sup> See nbn's 2016 Corporate Plan, page 9.

<sup>27</sup> This is the projected real cost per service per month in 2017-18 dollars.

### Option 2: Direct Budget funding

The net cost generated by the fixed wireless and satellite networks would be funded from the Budget.

It is likely that there would be less cost discipline on nbn, as the constraints from regulatory arrangements and the Government equity cap would become looser, but this is not reflected in the estimates of financial impacts. The BCR and ACCC both noted that nbn would face greater incentives for cost efficiency if the costs for providing those services were mainly borne by nbn itself.<sup>28</sup>

nbn comparable providers would be negatively impacted, as nbn would be competing without its cost disadvantage. This would either result in lower entry, lower market share or lower profitability for nbn comparable providers.

Party impacted	Financial impact
nbn	Gains as its will be able to compete on the same cost basis as other providers (estimated to be [CIC]). <sup>29</sup>
nbn end users	Gains as prices could fall.
nbn comparable providers	Losses, as nbn would be better able to compete.
End users of nbn comparable providers	Gains, as nbn competition would lead to lower prices.
Budget impact	Losses, as funding would come direct from the budget (-\$9.8 billion).

### Option 3: Regional Broadband Scheme

The net costs generated by nbn's fixed wireless and satellite services would be shared across all users of high speed fixed line broadband, through a charge known as the Regional Broadband Scheme.

nbn and nbn comparable providers would pass the charge on to their end user base. Infrastructure providers would compete on the same cost basis. There would be some administrative costs in facilitating payments from the charge. In total, nbn end users would pay less in the long term and the net proceeds from the charge may enable nbn to reduce its prices faster.<sup>30</sup>

<sup>28</sup> Bureau of Communications Research 2015, *NBN non-commercial services funding options: final report*, December; ACCC submission to the NBN non-commercial services funding options -final consultation paper November 2015.

<sup>29</sup> This estimate is based on advice provided by nbn, which considered the impact of not introducing a funding arrangement relative to its current business outlook. This net present value of the impact is [CIC], and assumes an average revenue per user of [CIC] and is based on conservative assumptions of the marginal impact of each additional 100,000 premises rolled out by competing carriers.

<sup>30</sup> It is expected that competitive pressure will act to induce nbn to drop its prices in the fixed line market. (This statement will only hold if nbn's competitors seek to price below nbn's prices) More broadly, over the long term the SAU will require nbn to drop its prices commensurate to the revenue it generates from the funding arrangement. (Importantly, as nbn will be the largest contributor to the charge it will only be able to drop its prices by the amount paid by other network operators not by the amount of the total charge)

The BCR undertook a projection of the market until 2022 in the event that the charge was introduced, and estimated that there could be 380,000 nbn comparable services provided by other providers by this time.<sup>31</sup> Note that this competition impact applies equally to Option 2.

There would be no impact on the Budget.

Party impacted	Financial impact
nbn	Gains as its will be able to compete on the same basis as other providers (estimated to be between [CIC]).
nbn end users	Gains, from slightly lower nbn prices.
nbn comparable providers	Losses, as nbn would be better able to compete and some minor compliance costs. <sup>32</sup>
End users of nbn comparable providers	Losses, as non-nbn providers will now bear some of the burden of funding fixed wireless and satellite services, and may choose to pass this on to end users. At most this cost will be [CIC] inclusive of administration costs over ten years.
Budget impact	Nil.

#### Option 4: Targeted post-market subsidies

Non-nbn networks would be able to charge market rates for their fixed wireless and satellite services. If nbn comparable providers sought to enter the market providing those services, additional safeguards would need to be put in place to prevent costs from increasing.

nbn end users would be the beneficiaries of a grants program, which could be means tested. The net costs generated by the fixed wireless and satellite services would be funded from the Budget.

This option has the greatest level of uncertainty associated with it, as a detailed scheme would need to be devised to estimate the quantitative impact. In particular, the level of means testing would need to be determined. If the income threshold for means testing was set low, a substantial number of consumers would not take up a satellite or fixed wireless service, leaving nbn's assets underutilised. If the income threshold was set high, this option would have substantial administrative costs, but not have substantial positive impacts above Options 2 and 3 (i.e. it would simply be a more expensive way of delivering the outcomes outlined in Options 2 and 3).

<sup>31</sup> Bureau of Communications Research 2015, *NBN non-commercial services funding options: final report*, December, page 10.

<sup>32</sup> See **Attachment C**. Across industry these are expected to be approximately \$43,000 per year.

Party impacted	Financial impact
nbn	Some overall revenue gain from flexibility to raise prices above current price caps in non-commercial areas, resulting in higher prices but lower uptake.
nbn end users	Gains for end users in commercial areas as there would be marginally lower cross subsidisation by nbn. Losses for consumers in non-commercial areas as prices would increase to match the cost of providing the service (less any subsidy provided).
nbn comparable providers	Losses, as nbn would be somewhat better able to compete in commercial areas. To a large extent nbn would continue to provide the bulk of funding for fixed wireless and satellite services from its commercial services, which would mean impacts would be small.
End users of nbn comparable providers	Gains, as nbn competition would lead to marginally lower prices.
Budget impact	Loss, depending on the amount of post-market subsidies provided, and the cost of administering the scheme.

#### Option 5: Delay

The \$9.8 billion net cost from the fixed wireless and satellite networks would be recovered from nbn's end user base until alternative arrangements are put in place. The financial impact of doing so would depend on how long new arrangements were delayed. A five year delay has been assumed for the purposes of this option, at which point it assumes that Option 3 is implemented (except that the end date is shifted to 2045-46).

End users of nbn's services would pay for fixed wireless and satellite services whilst new arrangements were put in place. This would exacerbate nbn's cost disadvantage and competitive position during the period of delay. Eventually, nbn would be placed on the same cost basis as its competitors, but the positive impact of the funding arrangements has a disproportionately high impact on nbn's business case the sooner it is implemented, because nbn's competitors are not able to establish a first mover advantage.

Party impacted	Financial impact
nbn	Gains as it will be able to eventually compete on the same cost basis as other providers (estimated to be [CIC]). <sup>33</sup>
nbn end users	Gains from lower nbn prices.
nbn comparable providers	Losses as nbn better able to compete (after [CIC]) plus administration costs. <sup>34</sup>
End users of nbn comparable providers	Losses as would eventually face the charge.
Budget impact	Nil. <sup>35</sup>

**Economic efficiency impacts**—As the BCR has noted, the economic welfare of society is typically maximised when the following three components of economic efficiency are achieved<sup>36</sup>:

- **Productive efficiency**—It is important that a funding mechanism does not distort a provider's incentives to adopt the best mix of technologies and exploit economies of scale, thus delivering services at the lowest possible cost. Similarly, it is important that the funding mechanism does not lead the service provider to be more concerned about devoting resources to protect their subsidy rather than investing in more economical and innovative delivery solutions.
- **Allocative efficiency**—Economic resources should move freely towards their most highly valued uses. That is, as far as possible the design of the Scheme should minimise the additional costs imposed on society due to the diversion of resources away from their more highly valued uses. If resources are diverted into activities that are less highly valued from a national perspective, then the community will be worse off.
- **Dynamic Efficiency**—A funding arrangement should aim to not deter a provider from investing in and innovating their service delivery approach. A funding arrangement may create dynamic inefficiencies if it undermines incentives to innovate to contain costs over time, or to provide new services. Flexibility also supports dynamic efficiency. If the delivery mechanism for funding the Scheme is too rigid, it could create market distortions if changing technologies and consumer preference generate potentially cheaper ways of achieving the objective of the funding arrangement.

All options to fund fixed wireless and satellite services will have efficiency impacts, in terms of distorting decisions relative to those that would be made were services to be provided in a competitive and efficient market.

Quantifying these efficiency impacts is difficult—however, we can identify the direction of differences. The overall efficiency impacts of different options reflect how they impact on allocative, productive and

<sup>33</sup> Based on a [CIC] impact to nbn's business case (see foot note 16), and discounted given that nbn's competitors would have a cost advantage for a substantial early period, and therefore would have first mover advantage.

<sup>34</sup> See **Attachment C** for information about the expected administrative costs.

<sup>35</sup> However, note that the return that tax payers make on the nbn is likely to be reduced.

<sup>36</sup> Bureau of Communications Research 2015, *NBN non-commercial services funding options: final report*, December.

dynamic efficiency, as set out in the table below, with impacts measured relative to the do nothing option.

Option 2 (Budget funding) would likely improve allocative efficiency relative to doing nothing, but would reduce cost and service level pressure on nbn and therefore could lower productive and dynamic efficiency.

Option 3 (Regional Broadband Scheme) would improve allocative efficiency, because nbn and nbn comparable providers would be treated equally. It would have only a small negative impact on productive/dynamic efficiency as long as most of the revenue from the charge was from nbn (i.e. a charge whereby nbn and nbn comparable, but not mobile broadband, were captured). If the funding base was expanded to mobile broadband providers (for example) nbn would have less incentives to control costs.

Option 4 (post-market subsidies) would reduce allocative efficiency, largely because the capital costs for fixed wireless and satellite services would be sunk, and, at cost reflective prices few people would use the network. Option 5 (delay of industry charge) is similar to Option 3, except occurring later.

Option	Name	Allocative efficiency impacts relative to option 1	Productive / dynamic efficiency impacts relative to option 1
1	Do nothing	N/A	N/A
2	Direct budget funding	Increased distortions from funding from tax revenue Reduced distortions from funding from only nbn users	Lower productive/dynamic efficiency
3	The Scheme	Reduced distortions from funding from only nbn users	Similar to do nothing
4	Targeted post-market subsidies	Reduced distortions for commercial areas Substantial net costs in non-commercial areas, as costs incurred regardless	Similar to do nothing
5	Delay	Reduced distortions from funding from only nbn users once implemented	Similar to do nothing

A detailed explanation of the different allocative, dynamic and productive efficiency impacts is at **Attachment A**, estimating the magnitude of the various distortions.



## Who will you consult?

The options explored in this RIS have undergone consultation at three different points.

### Vertigan Review

In August 2014 the Vertigan Review delivered its report, entitled “Independent cost-benefit analysis of broadband and review of regulation—Volume I—National Broadband Network Market and Regulatory Report”.

In developing this report, the panel consulted broadly. On 13 February 2014 the panel released a Regulatory Issues Framing Paper that focussed on structural issues and sought views from industry and the public on the structure and regulatory environment for Australia’s future broadband market. The panel received 43 public submissions.<sup>37</sup> To encourage submissions the panel also held an industry forum on 24 February 2014, inviting a number of key stakeholders to attend and express views. The framing paper was a broad ranging consultation process that considered a range of commercial and regulatory issues relevant to the nbn.

The key issues noted by stakeholders relevant to non-commercial funding arrangements were as follows:

- **Complexity of subsidy arrangements:** the Australian Communications Consumer Action Network (ACCAN) argued that post market subsidies would potentially be complex to administer, especially in the context of a network that uses multiple technologies across the fixed line network. ACCAN advocated reconsideration of a charge (as noted in the earlier implementation study) to support the proposed Scheme.
- **Potential distortions:** The ACCC agreed that nbn’s fixed wireless and satellite networks were non-commercial, and that some form of subsidy may be required to fund the shortfall between costs and revenues. The ACCC advocated that a subsidy provided to support the Scheme should be as transparent and effectively delivered as possible, while minimising market distortions. The ACCC noted that Budget funding via a grant could potentially have a low distortionary impact. The ACCC also noted that an alternative would be the introduction of a charge or other fee on market participants.
- **Industry contributions:** Communications Alliance argued that, as a matter of principle, funding for fixed wireless and satellite services should come through Government, rather than the imposition of a charge or other industry funding mechanism. Telstra also argued that net costs generated by those services should be absorbed by nbn’s shareholder. In contrast, OptiComm was in favour of an industry funding mechanism. It argued “*Industry generated funding of non-NBN Co fixed access providers in regional or metro-fringe areas would enhance competition and reduce the reliance on government financed NBN Co networks. Those services should not be cross subsidised, they should be funded through an industry generated funding mechanism*”. Similarly, TPG was opposed to ‘do nothing’. It argued that the delivery of nbn’s fixed wireless and satellite services could be achieved through an industry wide charge (albeit, TPG argued that the charge should be applied to all telecommunications infrastructure providers and retailers, and on the basis that a portion of those services may be commercial). TPG also noted that Budget funding would be acceptable, noting that “*[the current] cross-subsidy model will tend to entrench inefficiencies in the important economic drivers of the Australian economy, being the major population centres.*”

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<sup>37</sup> Available here: <https://www.communications.gov.au/have-your-say/regulatory-framing-paper-nbn>

## BCR's consultation process

Members of the telecommunications industry, including nbn, were consulted on the amount and structure of the proposed funding arrangements through two consultation processes in 2015. The initial consultation period was 24 days (8 May—1 June 2015), and the second consultation period ran for 21 days (13 October—3 November 2015). In addition to this, some industry participants also met with the Department of Communications and the Arts outside these two consultation periods. Both consultation periods received thirteen and ten submissions respectively from interested parties, including all major carriers. The summary of both consultations is below. The Department would like to acknowledge the substantial assistance provided by nbn during the consultation process. Without the assistance of nbn, the financial projections included as part of this proposal would not have been possible.

### Consultation 1—key issues

In general, the submissions received in the first consultation did not indicate a significant opposition to the introduction of nbn non-commercial service funding arrangements. However, a number of issues and concerns were raised particularly with regards to cost measurement, eligibility and implementation.

- **Cost measurement:** A number of submissions considered that nbn non-commercial service costs should be assessed on an avoidable or incremental cost basis, as opposed to a fully allocated cost approach. VHA, Telstra and iiNet all advocated cost measurement on an avoidable or incremental cost basis as being more economically appropriate and reflective of the costs of an efficient competitor.
- **Use of a discounted cash flow approach:** Optus and John de Ridder advocated for the use of a Regulated Asset Base (RAB) / Building Block model (BBM) for determining non-commercial service net costs. All other respondents accepted a discounted cash flow analysis as being suitable. The Australian Competition and Consumer Commission (ACCC) accepted the use of a discount cash flow while also discussing how a BBM approach could be implemented.
- **Discount rate and terminal value:** In general, respondents indicated that prevailing market conditions should drive the discount rate. All respondents that addressed questions relating to the terminal value expressed concerns with including such a value.
- **Forecast period:** A number of respondents suggested that useful asset life should be used to determine the forecast period.
- **Eligibility:** Telstra argued that high speed networks that existed prior to 1 January 2011 (e.g. contemplated in the original nbn business case) and greenfields network investments made to date on the basis of no charge, should not be required to contribute to the charge. While there was general support for eligibility based on a service standard, some (e.g. nbn and John de Ridder) consider that mobile broadband should contribute to the fund. Others (e.g. iiNet) considered that eligibility should be extended beyond owners of high speed broadband access networks targeting consumer and residential services.
- **Contestability of fixed wireless and satellite services and access to the Scheme:** Submitters were divided over the issue of contestability. Telstra and Optus did not favour contestability of non-commercial service provision.
- **Universal Service Obligation:** There was some support for reviewing and merging the funding arrangements for the USO with arrangements for the Scheme. However, Telstra and Optus did not support changes to the current USO arrangements. Telstra argued funding arrangements for the USO target the provision of retail services whereas the charge arrangements for fixed wireless and satellite services should focus on the provision of wholesale services. Optus cited the incompatibility of the calculation base between arrangements for the USO which is based on eligible revenue and its preferred option of using the number of services in operation for the calculation of the funding for those services. nbn also supported the establishment of separate processes for the calculation and funding of non-commercial services.

## Consultation 2—key issues

The BCR considered issues raised by interested parties in the first consultation round and released a second paper for consultation. The following issues were raised:

- **Eligibility:** nbn, TPG, OptiComm and Vocus expressed significant concerns with an nbn comparable funding approach (i.e. a charge that targets fixed line services only), citing that it will increase fixed line pricing to the point of pushing end users to mobile broadband. In support of these claims, these network operators provided market analysis suggesting that mobile broadband is emerging as a substitute to nbn comparable fixed line services. TPG indicated it may commence offering services via fixed wireless in order to avoid meeting the proposed eligibility criteria. There is a risk that a fixed line only charge will lead to market exit or entrench barriers to entry, which contradicts the ‘competition ready’ outcomes sought by Government. Conversely, Optus and Telstra made submissions supporting a fixed line only base, stating that it is an appropriate response to the emergence of infrastructure based competition. The ACCC also made a submission supporting a fixed line only approach as it maintains cost incentives for nbn.
- **Treatment of legacy networks:** Telstra flagged concerns that the proposed charge would capture a number of networks that were in existence at the inception of the nbn and that are not in direct competition with nbn (e.g. the South Brisbane exchange). Telstra recommended that the charge should focus on competing networks only. Separately, OptiComm argued the Telstra ADSL and HFC networks are nbn comparable and should be considered eligible for the charge, regardless of the fact that these are transitioning to the nbn. Finally, TPG argued that placing a charge on networks in place prior to the inception of the nbn would act as a deterrent for investment in telecommunications.
- **Role of the ACCC:** the ACCC suggested it is suitably placed to handle future calculations of the charge, including considering the charge in the context of broader nbn regulatory requirements (such as the prudence and efficiency requirements under the SAU) and managing industry consultations.
- **Consultation on final model outcomes:** Optus, Telstra and OptiComm indicated they are unable to fully consider model outcomes without greater visibility into model assumptions and inputs.
- **Competitive neutrality:** The OptiComm submission (which included a commissioned paper from Frontier Economics) raised competitive neutrality concerns whereby firms such as OptiComm are at a competitive disadvantage compared to nbn as they believe that nbn is not required to earn a commercial rate of return (based on a long term IRR of 3.5%).

Beyond these three rounds of public consultation, the Government intends to consult on the exposure draft of any legislation developed for the preferred option.

## What is the likely net benefit of each option?

In the table below each option is mapped out and compared against each other option across the objectives set out in the “Why is Government action needed?” section. The table over the page also gives the direction financial and economic efficiency impact. In the table below, option 1 and 5 have been combined.

Objective / option	Option 1: do nothing	Option 2: direct budget funding	Option 3: Regional Broadband Scheme	Option 4: targeted post market subsidies	Option 5: delay
<b>Transparency</b>	✗ nbn's internal cross subsidy would remain opaque	✓ The cost of providing fixed wireless and satellite services would be transparent in Budget papers.	✓ The cost of providing fixed wireless and satellite services would be transparent and published by ACMA each year.	✓ The cost of providing fixed wireless and satellite services would be transparent in Budget papers.	✗ nbn's internal cross subsidy would remain opaque until the time that the funding arrangement was implemented.
<b>Contestability</b>	✗ Without a funding arrangement in place, it is unlikely that the fixed wireless and satellite services could be made contestable.	✓ In the future nbn could compete with other providers to provide fixed wireless and satellite services.	✓ In the future nbn could compete with other providers to provide fixed wireless and satellite services.	✓ In the future nbn could compete with other providers to provide fixed wireless and satellite services.	✗ Until the funding arrangement comes into place, it is unlikely that the fixed wireless and satellite services could be made contestable.
<b>Competitive neutrality</b>	✗ nbn would continue to face costs that its competitors do not.	✓ nbn could lower its prices in line with the amount of additional funding it received.	✓ The cost of fixed wireless and satellite services would be shared proportionally across all comparable providers.	✓ End users would receive direct subsidies.	✗ nbn would continue to face costs that its competitors do not until the funding arrangement is implemented.
<b>Sustainability</b>	✗ nbn would be increasingly uncompetitive. It may be unable to continue to fund services.	✓ The cost of the fixed wireless and satellite services would be sustainably funded.	✓ The cost of the fixed wireless and satellite services would be sustainably funded.	✗ The proposal would be complex and costly to administer.	✗ nbn would be continue to be uncompetitive on price until the funding arrangement was implemented. Depending on the period of delay, it may be unable to continue to fund fixed wireless and satellite services.

Objective / option	Option 1: do nothing	Option 2: direct budget funding	Option 3: Regional Broadband Scheme	Option 4: targeted post market subsidies	Option 5: delay
<p><b>Economic Efficiency: Allocative efficiency</b></p>	<p>✗ This proposal would lead to inefficient entry decisions by nbn comparable providers.</p> <p>End user decisions for commercial services are also impacted as they implicitly fund fixed wireless and satellite services.</p>	<p>✓ This proposal would not distort investment choices by broadband providers or end users. There would be distortions associated with direct budget funding, which could be in the order of \$1.5 billion (net present value).<sup>38</sup></p>	<p>✓ Entry decisions would be efficient as nbn and other broadband providers would face the same incentives.</p> <p>End users would shift away from nbn comparable services, because these providers would no longer have a cost advantage.</p> <p>There could be broader distortions, such as investment decisions to avoid paying the proposed charge (for example by favouring alternative technologies).</p>	<p>✗ This proposal would not distort investment choices by broadband providers or commercial end users. However, it would be likely that few people would take up fixed wireless or satellite services in the absence of a subsidy, with costs likely to be greater than \$110 per month . As costs will still be incurred, this implies inefficient use of the network.</p>	<p>✗ This proposal would lead to inefficient entry decisions by nbn comparable providers.</p> <p>End user decisions for commercial services are also impacted as they implicitly fund non-commercial services.</p>

<sup>38</sup> See **Attachment A** in relation to the likely size of distortions from Budget funding.

<sup>39</sup> BCR’s final report, page 8.

Objective / option	Option 1: do nothing	Option 2: direct budget funding	Option 3: Regional Broadband Scheme	Option 4: targeted post market subsidies	Option 5: delay
<b>Economic efficiency: Dynamic / Productive efficiency</b>	nbn would face incentives for cost and service efficiency over time based on the regulatory arrangement, shareholder (Government) pressure and debt market pressure.	✗ This may reduce cost constraints on nbn, and lead to service quality decisions that are inefficient because nbn would not itself bear the costs.	✗ This may reduce cost constraints on nbn, and lead to service quality decisions that are inefficient because nbn would not itself bear the costs. The impact would be small if most of the revenue from the charge was from nbn (i.e. a charge whereby nbn and nbn comparable, but not mobile broadband, were captured).	✗ This may somewhat reduce cost constraints on nbn, by loosening the price cap arrangements. This would be expected to be minimal given the small amount of revenue recovered from fixed wireless and satellite services.	✗ While nbn would face incentives for cost and service efficiency over time until the funding arrangement commences, once arrangements are in place it may reduce cost constraints on nbn, and lead to service quality decisions that are inefficient because nbn would not itself bear the costs.
<b>Equity</b>	✗ End users of nbn services in commercial areas would be subsidising non-commercial areas, regardless of the income and hardship levels of either user. End users of other fixed line services would not contribute to the costs of providing fixed wireless and satellite services.	✗ Taxpayers would fund fixed wireless and satellite services. This would mean that there would be subsidies for high income people in non-commercial areas.	✗ End users in commercial areas would be subsidising non-commercial areas, regardless of the income and hardship levels of either user.	✓ Users in non-commercial areas would be responsible for funding their own services except in cases of hardship.  Take-up of services would be very low in the absence of a subsidy, with prices higher than most people would pay.	✗ ✗ When implemented, end users of nbn services in commercial areas would be subsidising non-commercial areas, regardless of the income and hardship levels of either user. End users of other fixed line services would not contribute to the costs of providing fixed wireless and satellite services.

Objective / option	Option 1: do nothing	Option 2: direct budget funding	Option 3: Regional Broadband Scheme	Option 4: targeted post market subsidies	Option 5: delay
Net financial impact	✗ Nil	✓ Strong net benefits.	✓ Strong net benefits.	✓ Weak net benefits.	✓ Weak net benefit.

### What is the best option from those you have considered?

Option 5 (Delay) has similar net benefits to Option 1 (Do nothing)—analysis suggests that delaying has many of the drawbacks but none of the benefits of other options. Option 5 (delay) is not considered further.

Option 4 (Targeted post market subsidies) would likely leave the capital expenditure in fixed wireless and satellite services as underutilised, as few people would be willing to pay upwards of \$170 per month for services. The Vertigan Review found that the willingness to pay for fixed wireless and satellite services was substantially below costs, which indicates that if the price was set on a cost basis people would not be willing to pay for the service. On this basis, this option would likely have net costs relative to Option 1 (Do nothing).

Option 2 (Direct Budget funding) and Option 3 (Regional Broadband Scheme) would likely have net benefits relative to Option 1 (Do nothing). Either of these options would have lower levels of distortive effects on the economy than Option 1 (Do nothing) because they would lead to an equal funding of fixed wireless and satellite services across highly substitutable high speed broadband services. The difference between the net benefits of Options 2 and 3 reflect a number of factors:

- Relative to Option 3 (Regional Broadband Scheme), Option 2 (Direct Budget funding) would likely reduce productive and dynamic efficiency. Option 2 (Direct Budget funding) would lead to less pressure on nbn to constrain costs and constrain service levels to those already committed (as long as nbn was itself paying the majority of the charge in Option 3). This is because under Option 2 (Direct Budget funding) funding for services would not come under the Government equity cap for nbn, leaving nbn in a less constrained financial position. There may also be pressure from stakeholders to increase expenditure, such as additional satellite capacity, that would not be subject to nbn's current commercial constraints.
- Relative to Option 3 (Regional Broadband Scheme), Option 2 (Direct Budget funding) would likely increase allocative efficiency. This is because a larger funding base (general taxes) would be expected to have a smaller economic cost than an industry charge. This difference may be relatively small because demand for nbn comparable services is likely to be relatively inelastic, and other taxation instruments impose distortions of their own that are not insignificant.
- Relative to Option 3 (Regional Broadband Scheme), Option 2 (Direct Budget funding) may have a small saving in administration costs.

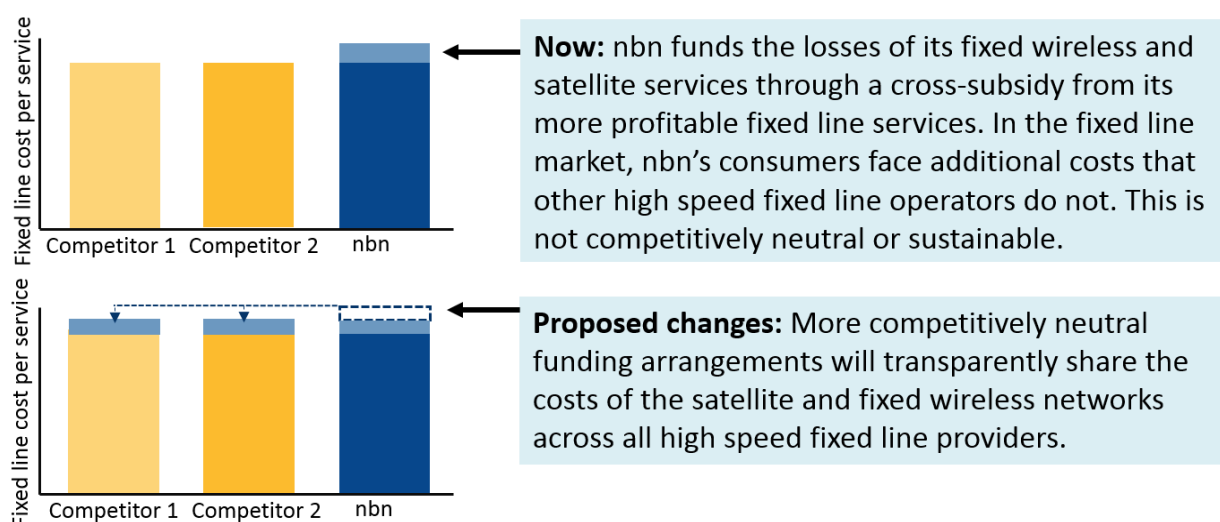
Option 2 (Direct Budget funding) and Option 3 (Regional Broadband Scheme) are unlikely to have any substantive negative impact on competition. Instead, both would act to ensure that all high speed broadband providers are contributing to the costs of fixed wireless and satellite services.

The precise difference in net benefits of these options is not able to be measured. The BCR and ACCC both noted that nbn would face greater incentives for cost efficiency if the costs for providing fixed

wireless and satellite services were mainly borne by nbn itself.<sup>40</sup> The BCR also recommended a charge on fixed line broadband providers on the basis that the benefits in productive and dynamic efficiency from ensuring costs were mainly borne by nbn itself outweighed the lower allocative efficiency from a narrow charge. These arguments favour Option 3 (Regional Broadband Scheme) as the option with the highest net benefit, although there are some uncertainties about the potential magnitude of the different impacts of these options. Consequently, on balance Option 3 is recommended. Note that the 2014 RIS concluded that Option 2 would directly impact on the Budget, and was not feasible.

Under Option 3 the opaque cross subsidies which are currently embedded in nbn’s wholesale prices will be replaced by transparent funding provided via contributions sourced from owners of high-speed broadband access networks—i.e. nbn and networks comparable to the nbn. The proposed funding arrangement does not represent a new cost for the industry—or consumers—as a whole, although the distribution of the cost would now extend to fixed line networks competing with the nbn.

The intended impact of the new funding arrangement is further illustrated in the diagram below. The diagram below is illustrative only and it is not expected that there will be price parity between nbn and all of its competitors.



### Implementation

Following the Government’s decision in 2014, BCR developed advice on options to replace the current arrangement, where nbn funds fixed wireless and satellite services through an internal cross subsidy, with direct funding arrangements based on industry contributions.

### What options were considered in the 2015 BCR review?

The BCR considered sub-options for the development of a charge on industry to cover non-commercial service net costs, as well as advising on the implementation of such as charge. The BCR found that:

- overall, the net costs from providing fixed wireless and satellite services would be \$9.8 billion in net present value terms to 2040.

<sup>40</sup> Bureau of Communications Research 2015, *NBN non-commercial services funding options: final report*, December; ACCC submission to the NBN non-commercial services funding options -final consultation paper November 2015.



- on a per premises basis, the net costs are estimated at \$105 per month for fixed wireless services and \$110 per month for satellite services.<sup>41</sup>

The BCR recommended a charge of \$7 (in real 2015 terms) per month per service<sup>42</sup> in operation (SIO) be applied to nbn comparable services to fund the identified non-commercial service net costs. The charge would apply to nbn commercial services and owners of nbn comparable networks.

The BCR also considered a funding option that included mobile and other telecommunications providers. A key reason the BCR recommended a charge on nbn comparable providers was that the funding arrangement limited to nbn and comparable industry participants would maintain existing commercial incentives for nbn to control costs, determine appropriate service standards and innovate.

The following table summarises the financial outcomes based on updated modelling undertaken by the Department of Communications and the Arts:

Financial estimates	2017–18	2021–22
<b>Per-SIO contribution monthly amount (nominal)</b>	\$7.10	\$7.82
<b>Per-SIO contribution annual amount (nominal)</b>	\$85.2	\$93.8
<b>non-nbn annual contribution</b>	\$40 million	\$44 million
<b>nbn annual contribution</b>	\$370 million	\$781 million
<b>Total annual collection</b>	\$410 million	\$825 million

Following the BCR's work, a draft non-commercial funding arrangement model has been developed. This section considers key policy questions associated with the implementation of the model. Administrative details about the proposed model appear at [Attachment B](#).

## Who should the funding arrangements apply to?

While the Government's decision to implement an industry funding mechanism focussed on contributions sourced from owners of high-speed broadband access networks, another option would be to apply the charge to all telecommunications industry participants, including mobile broadband providers. The extension of the funding arrangement across the whole of the telecommunications market was considered as part of the BCR's final report.

Under an industry wide contribution option, the number of firms contributing to the funding mechanism would increase, reducing the industry amount on a per line basis. It may be the case that consumers treat non-fixed line services (chiefly mobile broadband) as a close substitute to high speed fixed line broadband services.

However, the evidence to date suggests that this is not the case, and it will be many years before mobile broadband and high speed fixed line broadband services are directly substitutable.

<sup>41</sup> See the BCR's final report, page 8.

<sup>42</sup> This amount includes administration costs for the scheme, and is an approximation.

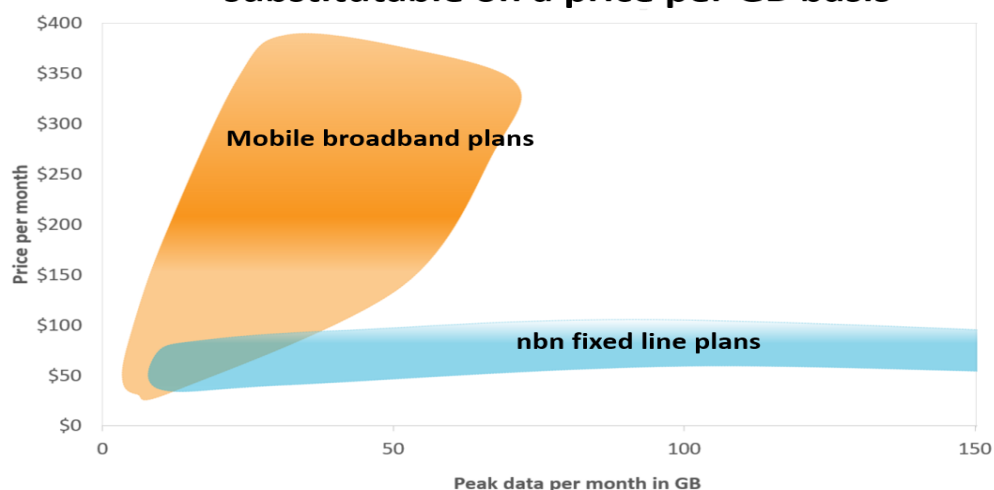
As part of its Superfast Broadband Access Service (SBAS) declaration inquiry<sup>43</sup>, the ACCC found in its final report that while mobile broadband may be a substitute for high speed broadband services for some end users, this is not generally the case because of the functional differences between the services. For example, mobile networks may not support data intensive applications and that there appears to be a substantial difference in the data allowances and per gigabyte pricing between mobile and fixed line broadband services.

For example, the ACCC found that high speed fixed line broadband services are typically around the 25/5 Mbps level with monthly download limits of around 100GB. One such offer from Exetel costs \$49 per month. In contrast, the latest large mobile offerings from TPG is at 12/1 Mbps service with a month download limit of 50 GB at 12/1 Mbps for \$70 per month.

Given this disparity of pricing and capacity, the ACCC's draft SBAS decision found that it is unlikely that end users would substitute mobile broadband services in the event of a small but significant non-transitory increase in price in the provision of superfast broadband services.<sup>44</sup>

The chart below further illustrates the point. This chart graphs representative samples of mobile broadband plans against nbn fixed line plans. This demonstrates the substantial disparity between the mobile and fixed line broadband plans currently available on the market.

### Mobile broadband plans are not currently substitutable on a price per GB basis



Given the likelihood that mobile and fixed line broadband form two different markets, to include mobile broadband in the funding arrangements would effectively create a cross subsidy from mobile broadband to the fixed line market. If mobile broadband become increasingly substitutable for fixed line high speed broadband then the legislative arrangements could be reviewed at that point.

<sup>43</sup> See <https://www.accc.gov.au/system/files/SBAS%20-%20ACCC%20draft%20decision%20-%20public%20version%20-%20November%202015.pdf> for a copy of the final decision.

<sup>44</sup> The ACCC formed a similar view in relation to ADSL services that they are likely to be a weak substitute for superfast broadband services from an end user perspective.

## Should there be any exemptions?

The 2014 policy paper indicated that the cross-subsidies which are currently embedded in nbn's wholesale prices will be replaced by transparent funding provided via contributions sourced from owners of high-speed broadband access networks that target residential and small business customers.

The BCR's final report also considered this and other potential exemptions:

- **Exempt networks transitioning under the definitive agreements:** The final report considered that migrating networks should be exempt from charge contributions, given the complexity and cost involved for capturing services that will not be in operation beyond 2020.
- **Exempt networks established prior to, or not competing with, the nbn:** The final report considered exclusions for all networks constructed pre-2011, all networks declared as 'adequately served', networks where a non-nbn infrastructure provider of last resort has been declared, and all other existing high-speed networks which nbn has chosen not to overbuild. On balance, the final report concluded that these networks should not be excluded on the basis that all residential and small business customers in the fixed line footprint should contribute, that including these networks would ensure that all networks faced the same costs for funding fixed wireless and satellite services, and that existing regulation in Parts 7 and 8 of the *Telecommunications Act* that exempt pre-2011 networks are much more onerous than the proposed funding mechanism.
- **Exempt networks that earn less than a revenue threshold or are small:** The final report concluded that setting a revenue threshold in line with the \$25 million revenue Telecommunications Industry Levy (TIL) threshold would undermine the competitive neutrality objective of the funding arrangement. Instead, the BCR's final report recommended excluding small networks with less than 2,000 SIOs on the basis that the administrative costs of applying the charge to these networks would outweigh the benefits.

### Networks serving medium and large businesses

The BCR also considered an exemption for networks serving medium and large businesses. In its final report, the BCR noted that the nbn was competing for business in the medium and large business markets. On this basis the BCR noted that "it seems reasonable that nbn should contest these markets on a level playing field basis, suggesting grounds for introducing funding arrangements that ensure equal contributions towards NBN non-commercial services"<sup>45</sup>. At the same time, the BCR noted that including networks servicing medium and large businesses would expand the charge base and improve allocative efficiency outcomes. Against this, the BCR considered the policy rationale of the existing Parts 7 and 8 of the *Telecommunications Act 1997*, noting that the provisions in these parts do not extend to networks serving medium and large businesses because infrastructure competition generally exists in these markets. Further, the BCR noted that while access lines to medium and large businesses were potentially high value, they are expected to be relatively small in number compared to lines serving residential and small business end users. Consequently, on balance the BCR favoured excluding networks servicing medium and large business customers.

Since the BCR's final report a number of other issues have come to light. In particular:

- nbn has increasingly sought to expand its network to service medium and large businesses and is actively pursuing these commercial opportunities.
- it is reasonable to include networks serving medium and large businesses as they are also consumers of high speed broadband.

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<sup>45</sup> BCR's Non-Commercial Services Funding Arrangement Final Report, March 2016, page 60.

- there are compliance costs for networks to determine whether the end users on their networks are small or medium businesses. For example—it may be difficult for a wholesale network provider to determine how many employees the customers of its retailers have. This is particularly difficult if staffing numbers fluctuate from month to month.

On this basis, it is proposed that networks servicing medium and large businesses be included in the charge base.

An exemption for pre-existing networks is not proposed because it would be complex to administer and open the arrangements to challenge (in terms of whether an individual SIO was active pre-2011 for example).

In addition, the possibility of a charge has been forecast since the Implementation Study (see the explanatory memorandum and revised explanatory memorandum for the *National Broadband Network Companies Bill 2010 Telecommunications Legislation*).

### Wholesale price impact

The 2014 policy paper indicated there will be no additional costs to consumers as a whole relative to current nbn pricing—an opaque part of the costs of the nbn will be made explicit, and would be spread across all consumers of comparable broadband services. The paper also indicated that the Government would provide the ACCC with sufficient powers to monitor the introduction of these arrangements.

Consequently, it is expected that nbn drops its wholesale prices commensurate to the net proceeds from the charge it receives under the funding arrangements. There are options to implement the position outlined in the 2014 policy paper. The Government could:

- **Apply the current SAU arrangements.** nbn would be permitted to maintain its prices to recover costs it incurs in the initial build phase. When nbn has operated profitably for some time it will 'pay back' these initial losses, and it is expected that further downwards pressure will then be placed on its prices. This framework is already in place, is already monitored by the ACCC, meets the requirements of the 2014 policy paper and provides nbn with pricing flexibility.
- **Require nbn to drop its prices immediately, commensurate with the amount of the proceeds from the charge it is paid each year under the funding arrangements.** This would require the Commonwealth to impose an additional binding obligation on nbn and would reduce nbn's pricing flexibility (in a period in which it is making very substantial losses). In practice it would be very difficult to monitor this approach. It would mean though that nbn Retail Service Providers would experience an immediate small wholesale price drop.

The current arrangements are sufficient and nbn should consider the revenues from the funding arrangements as revenues for the purposes of the SAU. This arrangement is already monitored by the ACCC, is already implemented, and provides nbn with pricing flexibility.

### How should the administrative costs of the charge be funded?

The administrative costs of the funding arrangements include costs incurred by:

- the ACCC in terms of calculating the charge amount on commencement and at the end of each five year cycle, and costs incurred in monitoring the nbn's prices.
- the Australian Communications and Media Authority (ACMA) in monitoring compliance, undertaking enforcement action, collecting funding arrangement revenues and in publishing funding arrangement payments and receipts.
- The Department of Communications and the Arts for administering the contract with nbn.

A portion of these costs are expected to be absorbed by these administering entities.

Costs are estimated to be \$0.9 million in aggregate from 2016–17 through to 2019–20.<sup>46</sup>

There are three options for how these costs can be funded:

- **Administrative costs of the funding arrangements would be funded through the charge:** This is expected to include the ACMA's costs to collect the charge, and undertake any necessary reporting, and the Department of Communications and the Arts' cost to administer the contract. This option would have no direct impact on the Budget and ensures that the entities that have caused the need for regulatory intervention bear the cost of that intervention. This option would increase the cost of the charge per-SIO, but because administration costs are expected to be low, the impact is expected to be minor.
- **All administration costs associated with the funding arrangements would be funded through the Budget:** This would spread the cost of administration of the funding arrangements across the widest tax base.
- **Part Budget funding:** The ACCC's role would be funded through the Budget, and the ACMA's costs would be funded through its existing funding mechanism, taking contributions across the general fees on the telecommunications industry. This option would reduce the impact on the Budget, and there is substantial crossover between those entities that fund the ACMA and those entities that are expected to be covered by the charge.

The administrative costs should be included in the charge, on the basis that administrative costs are expected to be minor.

Other implementation detail is at [Attachment B](#).

## Review

It is proposed that the funding arrangements are regularly reviewed. It is proposed that the Department of Communications and the Arts should undertake a policy review as needed, but not less than once every five years.

In addition, there are a range of mechanisms built into the charge implementation that would allow the Government to adjust the charge in the event that there are unintended consequences. For example, the Government could set the charge per-SIO to \$0 if it wanted to delay the impact of the charge, or put the arrangement on 'hold'.

## Conclusion

The funding of broadband services to rural and regional Australia addresses a long standing issue in the Australian telecommunications market. Whilst different approaches have been taken over the past two decades, the sustainability of arrangements have always raised questions.

The arrangements in place at the moment are not transparent, not effective and unsustainable. The full cost of the fixed wireless and satellite services are recovered through an opaque internal cross subsidy from nbn's fixed line customers. nbn is now at a competitive disadvantage to comparable providers that do not face similar costs of providing non-commercial broadband services. nbn will be less able to support its internal cross subsidy as competition intensifies. nbn needs to be able to reduce its prices in

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<sup>46</sup> See **Attachment C**.

commercially viable areas to respond to competition. If it does so, nbn will be less capable of supporting cross subsidies to those services.

The magnitude of this competitive impact is relatively large, because while those services will only make up 8 per cent of the total nbn rollout, the net costs are very large, and the markets that nbn is under pressure in are relatively profitable.

This RIS has considered a range of options to address this issue.

The relative net benefits between Budget funding and the introduction of the Regional Broadband Scheme are difficult to measure, but on balance, the introduction of the Scheme through an industry charge is recommended because Budget funding would reduce incentives on nbn to contain costs (resulting in a reduction of productive and dynamic efficiency).

The introduction of the Scheme through contributions sourced from owners of high speed access networks will sustainably fund nbn's non-commercial service net costs in regional Australia. It will also reduce the likelihood of a future call on the Budget to renew or replace satellite and fixed wireless assets.

Under the arrangements, nbn will pay approximately 95 per cent of the charge, resulting in a real transfer of between \$40 million and \$60 million to nbn each year. At the same time the reform will mean that nbn will be capable of competing in the highly profitable fixed line market on the same basis as other providers.

The proposed funding arrangement does not represent a new cost for the industry—or consumers—as a whole, although the distribution of the cost would now extend to networks competing with the nbn. It is an option familiar to the industry as a result of the Universal Service Obligation funding arrangements and is therefore likely to be accepted by market participants.

## Attachment A—Allocative, Dynamic and Productive Efficiency impacts

### Allocative efficiency impacts from Government budget funding.

If non-commercial net costs are funded from the Government budget then this would require taxes to be higher than would otherwise be the case. The Australian Treasury 2015 presents evidence of the distortionary impacts of different types of taxes. Previous studies have also examined distortions from taxation, as inputs into tax discussions such as the Henry tax review. A summary of three previous studies is set out in the table below.

The distortionary impacts of taxation vary from zero or even negative for a land tax to 70 cents per dollar of revenue raised for taxes such as stamp duty. A relatively efficient tax, such as a GST or personal income tax, is estimated to have a distortionary impact of ~15–20 cents per dollar of revenue raised, based on estimates from Australian Treasury 2015.

For funding non-commercial services, a distortionary impact of 15 cents per dollar would equate to overall net costs of \$1.5 billion (net present value) relative to doing nothing, based on the BCR's estimated net costs of \$9.8 billion for non-commercial services. For an increase in the GST, the distortions would be marginally higher at \$1.9 billion (net present value).

### Relative efficiency of selected taxes by study

KPMG Econtech 2010 <sup>47</sup>	Marginal excess burden	KMPG Econtech 2011	Marginal excess burden	Australian Treasury 2015	Marginal excess burden
Municipal rates	0.02	Land tax	0.09	Broad based land tax	-0.1
GST	0.08	GST	0.12	Personal income tax (labour & capital)	0.16
Land taxes	0.08	Personal income tax	0.24	Broad based GST	0.17
Labour income tax	0.24	Motor vehicle stamp duty	0.33	Current GST	0.19
Conveyancing stamp duties	0.34	Payroll tax	0.35	Labour income tax	0.21
Motor vehicle stamp duties	0.38	Company tax	0.37	Company tax	0.50
Corporate income tax	0.40	Commercial transfer duty	0.74	Stamp duty on conveyances	0.72
Payroll tax	0.41	Residential transfer duty	0.85		

Note: Marginal excess burden is the cost of the tax due to changing it by a small amount (usually such that total government revenue increases by \$1).

<sup>47</sup> Modelling and results were prepared for and incorporated into the Henry Tax Review

Sources: KPMG Econtech 2010, CGE analysis of the current Australian tax system, prepared for Department of Treasury, 26 March; KPMG Econtech 2011, Economic analysis of the impacts of using GST to reform taxes; Australian Treasury 2015, Understanding the economy-wide efficiency and incidence of major Australian taxes.

### Allocative efficiency impacts from funding from users

The distortionary impact of funding the fixed wireless and satellite services net costs from end users will depend on how many end users decide not to take up services as a result of the charge. This in turn will reflect the price change that the charge leads to (relative to budget funding) and the price responsiveness of users.

The price change from a charge of \$7 (in real, 2015 terms) applied to nbn comparable services would be similar to an increase of 10%, with a retail plan costing ~\$70 on average.

The responsiveness of consumers to price (the price elasticity of demand) is likely to be relatively low. For example, Dutz et al (2009) found that elasticities from dial-up to broadband were about -0.69 in 2008—that is, a 10 per cent rise in the price of broadband would lead to a 6.9 per cent decline in the number of people choosing broadband versus dial-up internet.<sup>48</sup> At higher speeds, Dutz et al (2009) found much higher elasticities—generally larger than -4. This makes sense, as another high-speed plan (such as 50/20) is a closer substitute to a very high-speed plan (100/40) than is dial up internet. The former estimates are most relevant for the application of a charge across nbn comparable services. There is the potential for elasticities to change depending on technological advances such as in mobile broadband.

The estimated net costs of funding fixed wireless and satellite services from users of nbn and nbn comparable services (Option 3), for different measures of consumer responsiveness, are set out in the table below. The most likely estimate of net costs is \$235 to \$470 million (net present value). Option 1 (do nothing) would have higher allocative efficiency costs than this, because it would distort decisions across different suppliers of comparable broadband services—or, if nbn lowered prices to compete, would lead to higher prices for commercial users in areas where competition did not emerge.

The estimated net costs from funding from users are somewhat below the losses from the taxation literature relevant for direct government funding. However, the measures of the losses from taxation account for flow-on distortions across the economy, while the estimates below are for the market for nbn comparable services only.<sup>49</sup>

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<sup>48</sup> Dutz, M., Orszag, J. and Willig, R. 2009, *The substantial consumer benefits of broadband connectivity for US households*, Commissioned by the Internet Innovation Alliance. See [http://internetinnovation.org/files/special-reports/CONSUMER\\_BENEFITS\\_OF\\_BROADBAND.pdf](http://internetinnovation.org/files/special-reports/CONSUMER_BENEFITS_OF_BROADBAND.pdf)

<sup>49</sup> Technically, taxation impacts are measured in a general equilibrium framework, while the estimated losses from user funding are estimated in a partial equilibrium framework.



### Efficiency impacts of funding from users

Price responsiveness of consumers (elasticity of demand)	Per cent of customers not taking up services as a result of the charge	Estimated net costs (\$m. npv)
-0.2	-2.0%	-94
-0.5	-5.0%	-235
-1	-10.0%	-470
-1.5	-15.0%	-705

### Productive and dynamic efficiency impacts

Different options are likely to lead to different levels of cost constraint on nbn, in its provision of fixed wireless and satellite services and more generally. It is very difficult to measure how much this could impact on costs. To give a sense of the order of magnitude, we have mapped out different levels of net cost if nbn becomes less efficient than anticipated (see below).

- The loss of productive efficiency is a cost increase applied across time. A 1% reduction in productive efficiency would have a net cost of \$120 million (net present value), a 5% reduction a net cost of \$600 million and a 10% reduction a net cost of \$1.2 billion.
- Dynamic efficiency is where costs or allocative efficiency does not improve or worsens over time. For example, if efficiency worsens by 0.5% per year, relative to current expectations, then this would cost \$573 million (net present value). Higher levels of efficiency loss over time could lead to losses of over \$1 billion.

Overall levels of inefficiency reached by organisations with whose incentives to control costs are not as strong as a private sector business can reach levels of 20-30 per cent:

- Economic Insights 2014 found that efficiency (based on operating costs) for NSW Government owned electricity distributors ranged from 40% to 60% of an efficient firm.<sup>50</sup> Based on this and other analysis, the Australian Energy Regulator considered that AusGrid, the largest of the NSW electricity distributors, should be allowed costs 24% below their proposed operating costs.<sup>51</sup>
- The CIE 2015 found that government operated train and bus services in Sydney were 20-30% less efficient than a benchmark efficient operator.<sup>52</sup>
- PWC 2015 considered that privatisation of public utilities could have productivity gains of 5 to 15% for electricity, water and nbn and 35% for transport.<sup>53</sup>

The main option that we consider would reduce productive and dynamic efficiency is Option 2 (direct budget funding), as this option would fund the net costs from nbn providing fixed wireless and satellite services through the Budget, and outside of existing regulatory and shareholder constraints. A broad-based industry charge could also reduce productive and dynamic efficiency. The BCR and ACCC both noted that nbn would face greater incentives for cost efficiency if the costs for providing those services were mainly borne by nbn itself.<sup>54</sup> The changes in efficiency incentives from alternative funding options for those services are not as different as between a government owned and regulated business, and a

<sup>50</sup> As reported in Australian Energy Regulator 2015, *Overview: AusGrid final decision 2015 to 2019*, p. 39.

<sup>51</sup> Australian Energy Regulator 2015, *Overview: AusGrid final decision 2015 to 2019*, p. 41.

<sup>52</sup> The CIE 2015, *Efficiency of NSW public transport services*, prepared for IPART, December.

<sup>53</sup> PWC 2016, *Modelling of potential policy reforms*, prepared for Infrastructure Australia, February.

<sup>54</sup> Bureau of Communications Research 2015, *NBN non-commercial services funding options: final report*, December; ACCC submission to the NBN non-commercial services funding options -final consultation paper November 2015.

private business. The impact of a greater part of funding for those services coming from Budget or other outside services would be expected to be considerably smaller than this, and would also depend on what other mechanisms could be put in place to control costs and service standards.

#### Efficiency impacts of funding from users

<b>Change in productive efficiency</b>	<b>Net cost</b>	<b>Change in dynamic efficiency</b>	<b>Net cost</b>
Per cent	\$m, npv	Per cent/year	\$m, npv
-1%	-120	0.5%	-573
-5%	-600	1.0%	-1,187
-10%	-1,200	2.0%	-2,556

## Attachment B—Implementation detail

Options surrounding design of the charge have been considered by the Department, in consultation with interested parties including members of the telecommunications industry. This attachment summarises the aspects of that design which the Department considers best underpins a sustainable and effective arrangement to fund nbn's fixed wireless and satellite services including a charge on nbn and nbn comparable providers.

### Objectives

The charge will introduce sustainable and transparent funding of nbn's fixed wireless and satellite services and ensure that nbn's competitors are subject to the same costs as nbn. The arrangement will ensure that nbn and its competitors operate on a more level playing field to sustainably fund the provision of those services in regional Australia, including asset renewal and replacement (thereby avoiding a future call on the Budget). The funding reforms will complement other market reforms, for example, promoting network competition in greenfields by allowing nbn to charge for the installation of network infrastructure in greenfields sites.

### Costs to be recovered

The net costs to be funded will be those generated by the nbn fixed wireless and satellite services. Other net costs (for example in relation to some areas of nbn's fixed line services) should not be included as they cannot currently be quantified and these networks are profitable overall.

The net costs associated with those services should be assessed over the period 2010–11 to 2039–40 (a longer period or an increase in the charge per service would be required if the arrangements are delayed). This will allow a sufficient timeframe to average the net costs incurred during the initial build phase while allowing for consideration of reasonable operating and replacement capital costs.

### Determination of the charge amount

The charge amount will be determined by the Minister for Communications after considering advice from the ACCC. This will allow the charge to take into account the ACCC's expert opinion and provide substantial flexibility to the Government in determining and adjusting (if needed) the charge's coverage or operation.

### Cost calculation methodology

A discounted cash flow (DCF) approach will be used, because it directly and transparently aligns with financial projections, can readily accommodate future updates, aligns with the SAU and provides the most consistent outcomes.

Legislative provision will allow flexibility in the event that circumstances change such that an alternate approach can be introduced at a later time.

### Cost allocation methodology

The avoidable cost methodology will be used because it is consistent with the approach taken in calculating the community service obligations of other Government Business Enterprises, such as Australia Post, and best recognises efficient asset usage and expenditure. This approach was also recommended by the BCR.

## Implementation date

The legislation for the scheme will begin on 1 July 2017.

The first reporting period will be between 1 July 2017 and 30 June 2018, with collection in the second half of 2018. Aligning the funding arrangement with financial years will lower compliance costs for industry. Setting the first collection period from 1 June 2017 will avoid retrospectivity issues, aligns with the Government's policy statement, allows industry to adapt to the reform and allows government agencies to put in place the necessary administrative arrangements.

## Review of charge amount

A review of the charge amount will be undertaken by the ACCC at least every five years, whilst permitting the ACCC to undertake a review outside of the set review points. The proposed five year period will provide industry with some investment certainty, and allowing the ACCC to undertake reviews outside of the set review points will allow the Minister to adjust the charge in the event that major changes to the charge forecasts were expected.

It is intended that the ACCC collects information in the first reporting year to allow it to recalculate the per-service amount for the second year if necessary.

At each review point, there will be an adjustment to allow over (or under) recovery of costs to be returned (or charged) to industry as a whole through a lower (or higher) charge fee per-SIO. Retrospective refunds are not proposed due to the high administration costs.

## Transparency of payments

As outlined by the 2014 policy paper, the transparency of the funding arrangement is a critical element of the proposal.

The amounts paid to the ACMA under the funding arrangements will be published each year.

## Revenue collection

The ACMA will be tasked to collect the charge as it administers existing telecommunications levy mechanisms (i.e. the Eligible Revenue Reporting process) that could be leveraged, and because it is familiar with the sector.

An offset provision will be introduced, to allow payments made by nbn to be counted against payment made to nbn. The operation of the set off provisions will not impact on the transparency of the arrangements.

A special account will be introduced to further improve the transparency of the funding arrangements.

## Policy review

The Department of Communications and the Arts will undertake periodic policy reviews, and on an ad-hoc basis in the event of major market changes, asset renewal or technology changes. This would support the sustainability of the fixed wireless and satellite services funding arrangement.

Note that should those services be provided by a different entity to nbn, then there would be a need to revise mechanisms for cost control. In this case, there would be weaker incentives for the entity providing fixed wireless and satellite services to control costs, because it would largely be paid for by

another entity. In this case, risks for cost over-runs and under-runs should be shifted to the provider of those services.

### Changes in the telecommunications market

Because of rapid changes in broadband technology, new and improved technologies may warrant an expansion of the categories of entities captured by the charge.

Regular policy reviews of the arrangements (every five years), would include consideration of the charge base.

## Attachment C—Implementation costings

Under the preferred model, the expected implementation and operating costs of administration for the funding agreements are expected to be \$0.9 million over 4 years to 2019–20.

Entity	Function
ACCC	<p><b>Recalculating the charge for the first 5 year cycle</b></p> <p>On commencement the ACCC would re-calculate the charge based on the latest SIO and fixed wireless and satellite services estimates. This would require the ACCC to undertake complex financial calculations and undertake market forecasts.</p>
ACCC	<p><b>Consulting on approach/setting up framework</b></p> <p>On commencement the ACCC would include consulting on various options/considerations for the ACCC in performing its role under the legislative framework and amending any record-keeping rules (where relevant) to enable the ACCC to perform its monitoring role, but possibly other things.</p>
ACCC	<p><b>Monitoring</b></p> <p>Each year the ACCC would consider the information provided by industry on the actual number of SIOs in the market and consider the financial information provided by nbn. In considering this information, the ACCC would make a decision on whether it ought to initiate a pricing review earlier than planned.</p>
ACCC	<p><b>Re-calculating the charge amount for 5 year cycles</b></p> <p>The stage is similar to the pricing review for the first 5 year cycle, although the ACCC expects this would be a more extensive task in which they would consider any lessons from the first five years of the funding arrangements, or otherwise alter the approach in response to the scheduled policy review.</p>
ACCC	<p><b>Price monitoring</b></p> <p>The ACCC would monitor nbn's prices to determine the extent to which the proceeds from the charge had resulted in lower wholesale prices. It is proposed that these costs are absorbed into the ACCC's existing nbn price monitoring function.</p>
<b>TOTAL ACCC over 4 years</b>	\$0.2 million
ACMA	<p><b>Staffing</b></p> <p>ACMA staff would consider whether SIO information provided by industry is consistent with its expectations, or whether enforcement action should be considered. Staff would also receive information from providers, prepare invoices, collect monies and reconcile receipts. It is expected that this work would be partly absorbed into the ACMA's existing Telecommunications Industry Levy (TIL) work. In addition ACMA would also publish the amounts providers were liable for and enforce the charge obligations.</p>

Entity	Function
<b>ACMA</b>	<b>IT upgrade</b> ACMA report that they will be implementing the secure online system (TELLER) for telco carriers to report eligible revenue for TIL calculations in mid-2016. The TELLER system is an “off the shelf” product that ACMA has customised to meet the particular needs of the telco industry for the reporting of eligible revenue and collection of the TIL. The ACMA anticipates annexing our established capabilities with this system to be the most effective method of administering the NCS charge. The annexing of the ACMA’s established CRM/Intellex system for NCS charge collection involves a moderate setup cost.
<b>Total ACMA over 4 years</b>	\$0.6 million
<b>Department of Communications and the Arts</b>	<b>Contract administration</b> As part of arrangements, the Department of Communications and the Arts (DCA) would need to negotiate and administer a contract with nbn for the payment of proceeds from the charge. It is expected that negotiation would take three months, and require four FTE (one FTE annualised). Each year, the DCA would need to pay nbn the charge proceeds. It is estimated that this would take .5 months and require three FTE (.125 FTE annualised). The Department would absorb these costs.
<b>Total administration costs</b>	<b>\$0.9 million</b>

## Compliance costs

Under the preferred model, the expected compliance costs (excluding costs of administering the charge) per annum are expected to be \$67,000 in aggregate per year, or approximately \$4,333 per year on average per firm currently in the market. As per Guidance Note ‘Regulatory Burden Measurement Framework’ issued in February 2016, because the compliance costs fall beneath \$2 million per annum, these costs have not been agreed by the Office of Best Practice Regulation.

Under the preferred model, the expected compliance costs per annum are as follows:

Entity	Cost estimate	Function
nbn and nbn comparable providers	\$43,000 p.a.	Enforcement and record keeping: As part of the arrangements, providers will need to determine how many eligible SIOs they operate and advise the ACMA. It is expected that providers will be aware of the number of eligible SIOs they operate on a month to month basis, for billing purposes. Likewise, providers already need to provide information to the ACMA for other telecommunications purpose (e.g. as part of carrier license requirements). Nonetheless, we estimate that eligible carriers may need to undertake some work to ensure that they are compliant with the charge requirements, particularly in determining whether SIOs they operate are eligible for the charge. We estimate that a regulatory officer in each provider would spend approximately .5 months undertaking this work, each year <sup>55</sup> .

<sup>55</sup>An annual salary of \$100,000, and that there are 10 eligible firms operating in the market.

Entity	Cost estimate	Function
nbn	\$0	nbn has advised that there are no material ongoing compliance costs, relative to budget, even though additional resources may be required in administering the charge. However, there may be substantial transaction costs for nbn. Consequently, an 'offset' provision is proposed.

### Cost estimates have also been prepared for other options:

Option	Entity	Cost estimate	Explanation
<b>Option 1: Do nothing</b>	Nil	\$0	There would be no compliance costs if the net costs from the fixed wireless and satellite services continue to be funded by nbn.
<b>Option 2: Direct Budget funding</b>	Nil	\$0	There would be no compliance costs if the net costs from the fixed wireless and satellite services were funded directly from the Budget.
<b>Option 4: Targeted post-market subsidies</b>	Consumers	\$13.9 million <sup>56</sup>	<p>Individuals seeking access to post-market subsidies would face some compliance burden in demonstrating that they are eligible for a subsidy. The level of compliance burden would be commensurate to the standard of proof required to demonstrate eligibility. For the purposes of developing compliance costings, it is assumed that a reasonably small number of documents would be required: proof of identity, proof of residence and proof of income. It is assumed that on average the typical consumer would spend two hours researching the scheme, gathering the necessary documents and checking that they meet the requirements. The number of consumers that this burden would apply to is dependent on the income (or other) threshold set. This RIS assumes that the threshold is set at \$52,000 (consistent with other Government programs, such as Family Benefit Part A). We assume that, based on nbn's forecast penetration rate and the ABS' estimate of income distribution across Australia, that 204,600 households would be eligible for a subsidy.<sup>57</sup></p> <p>This RIS assumes that assessment of consumers' claims is undertaken by the Government. If another body (such as the service provider) were to undertake this work, the Budget cost estimated in "Who is affected?" would apply as a compliance cost instead.</p>
<b>Option 5: Delay</b>	nbn and nbn comparable providers	\$43,000 p.a.	The compliance cost for the 'Delay' option would be identical to the preferred option, although would not impact on the entities involved until the funding arrangements were put in place.

<sup>56</sup> This figure is equal to OBPR's average wage (\$34.20) multiplied by 2 (for the number of hours spent researching options) multiplied by the number of eligible households (in this case: 204,600).

<sup>57</sup> See ABS' Household income in Australia, <http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/6523.02013-14?OpenDocument>



Option	Entity	Cost estimate	Explanation
			Enforcement and record keeping: As part of the arrangements, providers will need to determine how many eligible SIOs they operate and advise the ACMA. It is expected that providers will be aware of the number of eligible SIOs they operate on a month to month basis, for billing purposes. Likewise, providers already need to provide information to the ACMA for other telecommunications purpose (e.g. as part of carrier license requirements). Nonetheless, we estimate that eligible carriers may need to undertake some work to ensure that they are compliant with the charge requirements, particularly in determining whether SIOs they operate are eligible for the charge. We estimate that a regulatory officer in each provider would spend approximately .5 months undertaking this work, each year <sup>58</sup> .
<b>Option 5: Delay</b>	<b>nbn</b>	<b>\$0</b>	nbn has advised that there are no material ongoing compliance costs, relative to budget, even though additional resources may be required in administering the charge. However, there are may be substantial transaction costs for nbn. Consequently, a 'set off' provision is proposed.

Regulatory compliance costs for the five options explored in this document are set out below. The offsets referred to in this section refer to the proposed reforms to Parts 7 and 8 announced in the Government's 2014 Policy Paper. The Department warrants that the regulatory costs imposed by the preferred option will be offset by regulatory savings from these reforms.

## Option 1: Do nothing

### Average Annual Regulatory Costs (from Business as usual)

Change in costs (\$million)	Business	Community Organisations	Individuals	Total change in cost
<b>Total by Sector</b>	\$0	\$0	\$0	\$0

Cost offset (\$million)	Business	Community Organisations	Individuals	Total by Source
<b>Agency</b>	\$0.9 m	\$0	\$0	\$0.9 m

### Are all new costs offset?

yes, costs are offset

**Total (Change in costs—Cost offset) \$0.9 m**

<sup>58</sup>An annual salary of \$100,000, and that there are 10 eligible firms operating in the market.

## Option 2: Direct Budget funding

### Average Annual Regulatory Costs (from Business as usual)

Change in costs (\$million)	Business	Community Organisations	Individuals	Total change in cost
<b>Total by Sector</b>	\$0	\$0	\$0	\$0

Cost offset (\$million)	Business	Community Organisations	Individuals	Total by Source
<b>Agency</b>	\$0.9 m	\$0	\$0	\$0.9 m

Are all new costs offset?

yes, costs are offset

**Total (Change in costs—Cost offset) \$0.9 m**

## Option 3: Regional Broadband Scheme

### Average Annual Regulatory Costs (from Business as usual)

Change in costs (\$)	Business	Community Organisations	Individuals	Total change in cost
<b>Total by Sector</b>	\$43,000	\$0	\$0	\$43,000

Cost offset (\$million)	Business	Community Organisations	Individuals	Total by Source
<b>Agency</b>	\$0.9 m	\$0	\$0	\$0.9 m

Are all new costs offset?

yes, costs are offset

**Total (Change in costs—Cost offset) \$0.85 m**

## Option 4: Targeted post-market subsidies

### Average Annual Regulatory Costs (from Business as usual)

Change in costs (\$)	Business	Community Organisations	Individuals	Total change in cost
<b>Total by Sector</b>	\$13.9 m	\$0	\$0	\$13.9 m

Cost offset (\$million)	Business	Community Organisations	Individuals	Total by Source
<b>Agency</b>	\$0.9 m	\$0	\$0	\$0.9 m

Are all new costs offset?

no, all costs are not offset

**Total (Change in costs—Cost offset) \$13.0 m**

## Option 5: Delay

## Average Annual Regulatory Costs (from Business as usual)

Change in costs (\$)	Business	Community Organisations	Individuals	Total change in cost
<b>Total by Sector</b>	\$43,000	\$0	\$0	\$43,000

Cost offset (\$million)	Business	Community Organisations	Individuals	Total by Source
<b>Agency</b>	\$0.9 m	\$0	\$0	\$0.9 m

Are all new costs offset?

yes, costs are offset

**Total (Change in costs—Cost offset) \$0.85 m**

## Attachment D—Breakdown of satellite and fixed wireless net costs

In its final report, the BCR estimates that nbn's fixed wireless and satellite networks will have a net cost of approximately \$9.8 billion from 2010–11 to 2039–40 (net present value). This attachment provides greater detail on how this estimate was developed.

### Methodology

The BCR used an avoidable cost methodology. In essence, the BCR considered all costs (including capital costs) which would have otherwise been 'avoided' had the service not been provided. The BCR has adopted the following approach to identifying the avoidable costs of the satellite and fixed wireless services:

1. Categorise all nbn costs into:
  - a. costs that are directly attributable to the provision of satellite and fixed wireless services (e.g. satellite costs, fixed wireless tower costs, etc.)
  - b. costs that are directly attributable to the provision of fixed line services (e.g. cost of pit and pipe), or
  - c. common and indirect costs from assets and activities shared by fixed wireless, satellite and fixed line services (e.g. transit and labour costs).
2. Identify whether the common and indirect costs (under 1c) are:
  - a. unavoidable, as they do not vary irrespective of the deployment of the satellite and fixed wireless networks
  - b. partly avoidable, because they would be less if the satellite and fixed wireless networks were not deployed.
3. For those common and indirect costs that are partly avoidable, the BCR has allocated costs between the fixed line, fixed wireless and satellite networks based on the percentage of SIOs in a given financial year.

This approach results in around 1.2 per cent of all indirect or common costs being allocated to the fixed wireless and satellite networks from 2010–11 through to 2021–22. By comparison, the fixed wireless and satellite networks are expected to account for around eight per cent of all premises covered by nbn's network.

The BCR modelled non-commercial net costs to 2039–40.<sup>59</sup> This approach provides consistency between non-commercial service forecasts and the business case period considered under the SAU.

The BCR modelling included replacement costs for the capital in the fixed wireless and satellite networks. The BCR estimated that satellite assets (that is, the satellite and ground stations) would have a useful life of 15 years. The BCR estimated that the fixed wireless assets would have a useful life of 5 years for customer equipment, between 15 and 16 years for the fixed wireless base stations, and 7 years for the core network assets.

In considering the financial outcomes of the fixed wireless and satellite services, the BCR adopted the discounted cash flow (DCF) methodology. The DCF methodology involves estimating the future cash inflows and outflows, and applying an appropriate discount rate to those future cash flows.

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<sup>59</sup> 'Historical' costs of the interim satellite service were also included in BCR's modelling.

In the context of fixed wireless and satellite services, which are characterised by negative cash flows throughout the life of the project, the discount rate decreases net present value (NPV) net costs. In other words, the greater the discount rate, the smaller the overall net cost.

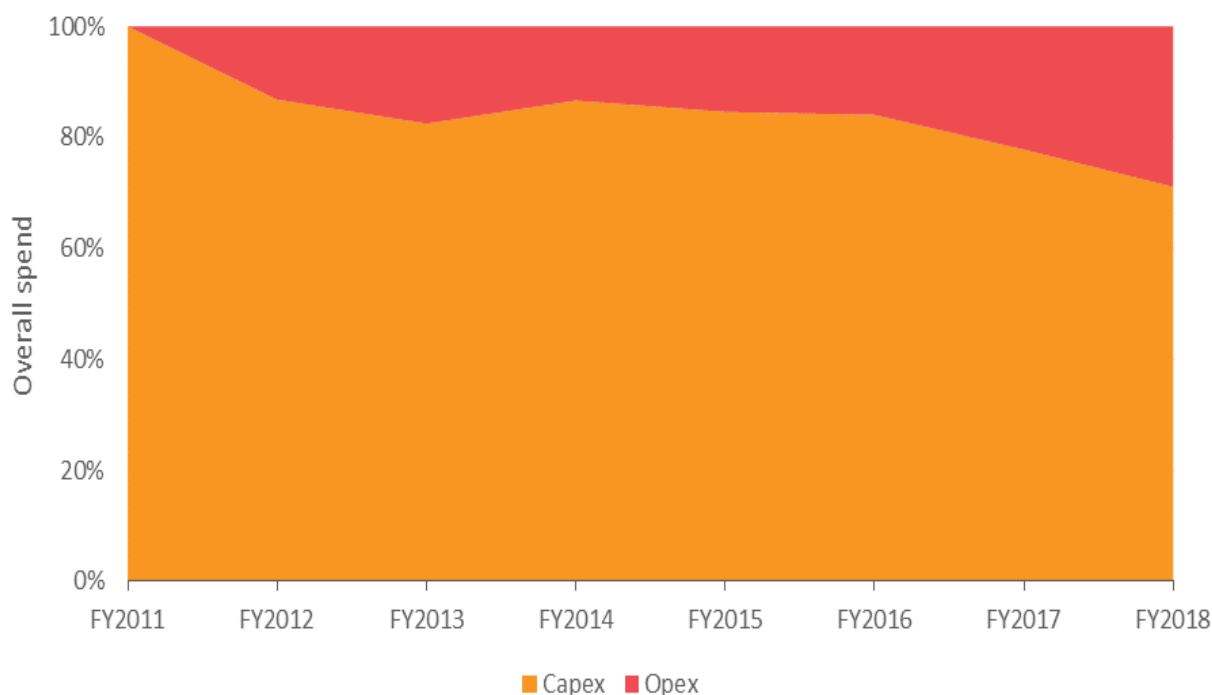
The BCR considers that the most appropriate discount rate for quantifying non-commercial net costs is the weighted average cost of capital (WACC) calculated by the method approved by the ACCC for nbn’s SAU—the risk free rate (10-year Commonwealth Government Bond spot rate) plus 350 basis points.

The WACC contemplated in the SAU is consistent with the Government’s competitive neutrality guidelines for determining a target rate of return. A risk-based approach allows for the application of a benchmark base cost of capital such as the Commonwealth long-term bond rate and the addition of a risk premium. The BCR used this approach to calculating the WACC value, and has used a discount rate of 6.46 per cent to give indicative NPV net costs estimates.

Once the NPV real charge per-SIO is estimated (estimated to be \$6.76 by the BCR, excluding services provided to medium and large businesses in 2014–15 dollars<sup>60</sup>), it is inflated each year by the consumer price index to generate the nominal charge per-SIO.

### Net costs of the fixed wireless and satellite services

The total net present value net costs of the fixed wireless and satellite services was estimated by the BCR to be \$9.8 billion. The figure below<sup>61</sup> shows the split of the overall spend for fixed wireless capital expenditure (capex) and operational expenditure (opex) from 2010–11 to 2017–2018, including common costs.



<sup>60</sup> Note that the Department has recalculated the charge amount per service to include services provided to medium and large businesses. This results in a charge of approximately \$7.10 per month per service, including administrative costs.

<sup>61</sup> See BCR’s NBN Non-Commercial Services Final Report, page 16, page 19.

The following figure shows the Satellite capex and opex from FY2011 to FY2018, including common costs.

