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Melbourne

To :

Productivity Commission

via online submission form

Submission on 5-year Data and Digital Dividend inquiry

Thank you for the opportunity to submit comments on the Productivity Commission's latest public inquiry into Australia's Data and Digital Dividend.

This submission is in reference to the Interim Report No.2 issued on 23 August 2022 and in particular Section 3.1 of the Interim Report on 'Investing in regional digital infrastructure'.

I have over 30 years' experience in engineering, commercial and regulatory roles in telecommunications in Australian and international markets.[1] In particular, I was Chief Technology Officer of NBN Co from 2009 to 2014.

Since leaving NBN Co, while working in Hong Kong, and now since my return in 2019 to Australia, I have made numerous public comments regarding Australia's fixed broadband market on my blog (see http://www.mclarenwilliams.com.au/blog) and submissions to ACCC, Productivity Commission and parliamentary inquiries.[2]

In a recent post on the Telstra / TPG Telecom regional mobile network sharing deal, I have mentioned the Productivity Commission's Interim Report and some of my early thoughts related to this submission.[3]

I am currently a consultant with Hardiman Telecommunications Ltd, a boutique consultancy providing a range of services related to the telecommunications sector across Europe, Asia and Africa.[4] The comments in this submission are purely my own and should not be seen as the opinions or views of anyone else.

General Comments

Section 3.1 of the Interim Report highlights an important area of concern regarding Australia's digital infrastructure. A coherent policy for investment in regional fixed and mobile broadband connectivity has been lacking in Australia for many decades.

[1] For more details, please refer to my Linked In profile: https://www.linkedin.com/in/mclarengary/
[2] Please see previous submissions to ACCC Communications Market Study (https://www.accc.gov.au/system/files/Submission%205%20-%20Gary%20McLaren.pdf), the Joint Standing Committee on the National Broadband Network (https://www.aph.gov.au/Parliamentary_Business/Committees/Joint/National_Broadband_Network/smallbusinessandcase/Submissions) and the ACCC's inquiry into Superfast Broadband Access Service (SBAS) and Local Bitstream Access Service (LBAS) declaration inquiry (https://www.accc.gov.au/system/files/Gary%20McLaren%20-%20submission%20to%20the%20LBAS%20%26%20SBAS%20declaration%20discussion%20paper.pdf)
[3] McLaren, G. 2022. *TPG and Optus fight just the latest drama over Australia's bush telegraph.* Available at https://www.mclarenwilliams.com.au/2022/10/06/tpg-and-optus-fight-just-the-latest-drama-over-australias-bush-telegraph/
[4] See http://www.telecoms.net/

In a 2018 article for the *Australian Journal of Telecommunications and the Digital Economy (ATJDE)* titled 'What Now for Australia's NBN?'[5] I summarised the policy flip-flops regarding regional telecommunications investment spanning the period from Telecom Australia to the current NBN under the heading 'Australia's Bush Telecommunications Problem'.

In essence Australia's political landscape has preferred a policy regime where the necessary cross-subsidy to fund investments in the uneconomic regional areas of Australia is hidden behind its state-owned monopoly companies – originally this was the Post Master General's department which carried over into Telecom Australia / Telstra and is now the case with NBN Co.

During the period of Telstra's staggered privatisations in the late 1990s and early 2000s there was an attempt at transparent funding under the Universal Service Obligation (USO) when the ACMA sought to determine the subsidy by economic modelling and arrange for the subsidy to be borne by the industry as a whole rather than relying solely on Telstra. However, as the former Minister for Communications admitted in 2015[6], this process became 'highly politicised' with the levy being determined by a 'negotiated settlement' via ministerial determinations.

The arrival of the NBN saw a near-complete reversion back to the PMG / Telecom / Telstra process of leaving the cross-subsidy largely hidden within the fixed line monopoly's business model of using the higher profits from urban telecommunications services to subsidise the uneconomic regional services.

NBN Co Cross-Subsidy for Regional Areas lacks transparency and is incomplete

As pointed out in the Interim Report, current funding of regional telecommunications is significant but the vast majority is hidden behind NBN Co's internal cross-subsidy.

The ACCC has estimated the total losses that have been and will be incurred by NBN Co for the provision of the Fixed Wireless and Satellite networks from 2009 to 2040 to have an NPV of $12.949 billion in 2020 dollars.[7] On a simple annualised basis this amounts to a cross-subsidy of approximately $418 million per annum.[8]

The Regional Broadband Scheme (RBS) levy on non-NBN high speed broadband providers (which was finally implemented in 2021 after being first announced in 2014) was created to partially compensate NBN Co for these losses by imposing a levy on NBN Co's competitors in urban areas. Based on reports for the first 6 months (1 January 2021 to 30 June 2021) of the RBS levy's operation, the total annualised amount is $655.4 million,[9] of which the non-NBN fixed line operators are contributing $23 million[10] (or 3.5%) which corresponds roughly to their

[5] McLaren, G. 2018. 'What Now for Australia's NBN?'. *Australian Journal of Telecommunications and the Digital Economy* Vol 6, No 4, Article 162. http://doi.org/10.18080/ajtde.v6n4.162. Published by Telecommunications Association Inc. ABN 34 732 327 053. https://telsoc.org

[6] Fletcher, P. 2015. *Speech to the ACCAN USO Forum.* Retrieved from https://www.paulfletcher.com.au/portfolio-speeches/speech-to-the-accan-uso-forum

[7] ACCC, 2020. *Report on modelling of the Regional Broadband Scheme levy initial base component*. Retrieved from https://www.accc.gov.au/regulated-infrastructure/telecommunications-and-internet/national-broadband-network-nbn-access-regulation/regional-broadband-scheme-levy-report/accc-report-on-modelling-of-the-regional-broadband-scheme-levy-initial-base-component

[8] This figure is calculated by simply dividing the NPV amount of $12.949 million by the 31 years.

[9] The higher annualised figure for 2021 of $655.4 million is presumably because the timeframe for recovery of the losses is just 19.5 years annualised losses rather than the full 31 years over which the losses have been calculated by the ACCC.

[10] ACMA, 2022. *Regional Broadband Scheme charge assessment* webpage. Retrieved on 8 October 2022 from https://www.acma.gov.au/regional-broadband-scheme-charge-assessment

market share of high speed broadband services.[11] NBN Co must manage the remaining losses within its own business as it is not subject to the RBS levy.

Currently, the RBS scheme excludes any contributions from operators providing services over wireless broadband technologies. It is anticipated that the number of fixed wireless services will growing significantly over the next 5 to 10 years as 5G technologies enable the mainstream Mobile Network Operators (Telstra, Optus and TPG Telecom / Vodafone) to deliver higher broadband speeds to fixed customer premises equipment (CPE).

According to the ACCC there were only 31,000 non-NBN fixed wireless and satellite services as of June 2021.[12] However, TPG Telecom has reported it had 80,000 fixed wireless services as of the same date, with a target to grow to 160,000 fixed wireless services by 30 June 2022.[13] TPG Telecom have also stated that migration of customers from the NBN to fixed wireless technologies is driven by significant commercial incentives, with savings of $50 million per annum of costs paid to NBN Co for every 100,000 customers migrated.[14]

Given the incentives for Telstra and Optus to also choose fixed wireless technologies to deliver high speed broadband services at lower costs in areas where they have spectrum underutilised for mobile network purposes it is likely that the number of fixed wireless services will significantly exceed the current number of non-NBN fixed broadband services.

This has recently been confirmed by NBN Co in its March 2022 Special Access Undertaking (SAU) submission where it stated that 'increasing competition from 4G and 5G network operators is driving sustained and increasing net churn off the nbn network", with a forecast net churn of 263,000 customers in FY22 and 283,000 customers in FY23.[15]

Based on these forecasts it is likely that approximately 600,000 fixed wireless broadband services will be operating in urban areas by mid-2023. This will represent approximately 7.5% of the 8 million broadband services expected in NBN Co's fixed line footprint and is likely to continue to grow well over 10% of services after 2023. This is significantly higher than the current share of 3.5% for non-NBN fixed line broadband services as stated above.

The Regional Broadband Scheme was conceived at a time when NBN Co's business model was changing to use a mixture of technologies in urban footprints and when TPG Telecom was threatening the rollout of an extensive Fibre to the Building (FTTB) network to compete with NBN Co.[16] It's my opinion that the scheme's real purpose, along with other significant regulation on non-NBN operators, was to increase the costs on TPG Telecom and other similar fixed network operators in order that they did not compete with and in some cases 'front-run' the NBN. These measures have been largely successful in entrenching NBN Co's fixed

[11] ACCC, 2021. *ACCC communications market report 2020-21,* p23. Retrieved from https://www.accc.gov.au/system/files/Communication%20Monitoring%20report.pdf. The ACCC market report states that as of June 2021 there were 274,000 high speed broadband services are supplied by non NBN companies: and NBN Co, 2021. NBN Co Weekly Summary report. Retrieved from https://www.nbnco.com.au/corporate-information/about-nbn-co/corporate-plan/weekly-progress-report, p3 states that as of June 2021 NBN Co's fixed line services were supplied to 7.73 million premises.
[12] Ibid, p23.
[13] TPG Telecom, 2022. *TPG Telecom Limited 2021 Full-Year Results* published on 24 February 2022. See p8. Retrieved on 8 October 2022 from https://www.tpgtelecom.com.au/sites/default/files/2022-02/4.%20220224_FY21%20Results_Presentation_FINAL%20with%20notes%20-%20Website.pdf
[14] Ibid, p8
[15] NBN Co, 2022. *Nbn Special Access Undertaking Variation 2022 – Supporting submission,* p57. Retrieved from https://www.accc.gov.au/system/files/NBN%20Co%20supporting%20submission_2.pdf
[16] McLaren, G. 2016. *Is the NBN Co Monopoly Now Safe?* Published on 2 August 2016 and available at https://www.mclarenwilliams.com.au/2016/08/02/is-the-nbn-co-monopoly-now-safe/

broadband monopoly, but it is becoming clear that fixed wireless technologies will continue to threaten the NBN business model.

In any event, the Regional Broadband Scheme is currently being charged on too narrow a range of services and imposes a significant burden on a small number of non-NBN fixed line operators thus reducing competition and overall broadband investment efficiency.

Furthermore, it should also be noted that the ACCC's estimate of the cross-subsidy does not include any allowance for loss-making services in the fixed network component of the NBN (ie. within the 92% of the network serviced by a mixture of fixed line technologies). It is safe to say that the subsidisation of loss making areas in the fixed network footprint will also be substantial and may even be of the same order as the losses for the Fixed Wireless and Satellite networks.

Ad Hoc Regional Funding Programs

Other government programs for regional telecommunications infrastructure appear to be entirely ad hoc and highly reliant on political considerations regarding sensitive regional communities.

The Interim Report refers to the Mobile Black Spot Program (MBSP) and Regional Connectivity Program (RCP) which have been Federal Government initiatives covering a range of different service types and technologies, including mobile, fixed wireless, fibre broadband, microwave and fibre backhaul.

It should be noted that funding is also provided to NBN Co directly, outside its standard financing arrangements (ie. equity and debt). According to its 2022 Annual Report, NBN Co received $547 million in government grants[17] made up of $480 million for Fixed Wireless upgrades, $33 million from the Regional Broadband Scheme and presumably the balance ($34 million) from state and local governments[18], adding to the opaque nature of NBN Co's regional cross-subsidy.

The Interim Report is correct to highlight the lack of transparency on how subsidies are provided in respect of the MBSP and RCP schemes. This lack of transparency also applies to other federal, state and local government initiatives that are also subsidising regional telecommunications investment.

Other Federal programs for funding regional telecommunications include :

- North Queensland Telecommunications and Energy Improvement Grants - $13 million[19], of which $2 million for NBN Co[20].

[17] NBN Co, 2022. *NBN Co Annual Report 2022,* p133.
[18] NBN Co, 2022. *NBN Co Annual Report 2022,* p27. According to the NBN Co Annual Report 2022 a total of $76 million of RCP funding and $20 million in funding from State and Local governments has been committed. Also see NBN Co website on projects: https://www.nbnco.com.au/blog/the-nbn-project/sweet-16-projects-enhancing-regional-connectivity
[19] Department of Home Affairs, 2021. Announcement by the Hon David Littleproud MP. 1 July 2021 Retrieved from https://minister.homeaffairs.gov.au/davidlittleproud/Pages/over-$14-million-for-telecommunications-and-energy-supply-for-north-qld-01-07-2021.aspx
[20] NBN Co, 2022. *NBN Co Annual Report 2022.* p36

Some examples of State government funding are :

- Connecting Victoria Program - $550 million[21], including $110 million to NBN Co.[22]
- NSW Regional Digital Connectivity Program - $400 million[23]
- NSW Connecting Country Communities Fund - $50 million[24]
- WA Digital Connectivity – past projects - $125 million[25]
- WA Digital Connectivity Program – new projects - $48.6 million[26]
- South Australia's Mobile Network Extension Devices Pilot Program - $10 million[27]

Ongoing Universal Service Obligation payments to Telstra

The Interim Report does give passing reference to the Universal Service Obligation (USO) that remains in place to ensure that standard telephone services and payphones are reasonably accessible across Australia.

Under the legislation and agreements made with Telstra at the time of the introduction of the NBN, Telstra is obligated to maintain its fixed line copper network until 2032 in areas where there is no NBN fixed line service available.

The Productivity Commission held an inquiry in 2016 and released a report in 2017[28] on these arrangements and recommended that the USO be wound up. The Federal Government, however, has continued the program, albeit under the framework of a 'Universal Service Guarantee' that involves both broadband and the standard telephone service.

The USO subsidy paid to Telstra is fixed at $270 million per annum, with $100 million being paid by the Federal Government and the remainder ($170 million) shared across industry on a pro-rata basis. In 2021, Telstra's contribution was approximately 53.2% of the industry's share of $170 million.

In my submission to the Productivity Commission's 2016 inquiry,[29] I highlighted that the NBN Co Fixed Wireless network is entirely capable of supporting the standard telephone service and that the USO payments to Telstra to maintain the copper network in these areas are not required. However, the USO for the standard telephone service in NBN satellite areas may still be necessary given the latency limitation of satellite communications using the NBN satellites. Newer satellite technologies (ie. Low Earth Orbit satellites) may now mean that there are

[21] Department of Jobs, Precincts and Regions, Victoria. Retrieved from https://engage.vic.gov.au/connecting-victoria
[22] NBN Co, 2022. *NBN Co Annual Report 2022,* p26
[23] NSW Government. Retrieved from https://www.nsw.gov.au/snowy-hydro-legacy-fund/regional-digital-connectivity-program
[24] NSW Government. Retrieved from https://www.nsw.gov.au/regional-nsw/programs-and-grants/regional-growth-fund/connecting-country-communities-fund#:~:text=The%20NSW%20Government%20created%20the,Broadband%20internet%20access.
[25] WA Government. Retrieved from https://www.agric.wa.gov.au/econnected/mobile-connectivity-regional-telecommunications
[26] WA Government. Retrieved from https://www.mediastatements.wa.gov.au/Pages/McGowan/2022/04/48-point-6-million-dollar-boost-for-mobile-and-broadband-in-the-regions.aspx
[27] SA Government. Retrieved from https://www.pir.sa.gov.au/funding_and_support/funding/mobile_network_extension_devices_pilot_program
[28] Productivity Commission, 2017. *Telecommunications Universal Service Obligation – Productivity Commission Inquiry Report No. 83, April 2017.* Retrieved from https://www.pc.gov.au/inquiries/completed/telecommunications/report/telecommunications.pdf
[29] McLaren, G. 2016.*Submission to Productivity TUSO Inquiry – 20 July 2016* Retrieved from https://www.pc.gov.au/__data/assets/pdf_file/0016/202282/sub018-telecommunications.pdf

significantly more cost effective options than maintaining Telstra's USO obligations and payments, even in the NBN satellite coverage areas.

In any case the Productivity Commission should recommend a further review and re-iterate its previous recommendations for the USO to be wound down as part of its current inquiry.

Estimating the Total Cross-Subsidy for Regional Telecommunications

So how much is the total cross-subsidy for Australia's regional uneconomic telecommunications services?

This is a difficult question that requires deeper, rigorous analysis.

The below table is quick overview of the current annualised amount[30] that are being paid to various recipients to promote investment in uneconomic telecommunications services that I have mentioned in this submission.

Type	**Annualised Amount**	**Funding Source**	**Funding Recipient**
Universal Service Obligation for Standard Telephone Service and Payphones	$270 million	Industry levy : $170 million Federal Government : $100 million	Telstra
Regional Broadband Scheme for NBN Co Fixed Wireless and Satellite	$417 million[31]	Industry levy with additional $237 million for past NBN Co losses	NBN Co
Mobile Blackspots Program	$63 million[32]	Federal Government	Mobile Network Operators
Regional Connectivity Program	$63 million[33]	Federal Government	Telstra, NBN Co and others
NBN Fixed Wireless Upgrades	$96 million[34]	Federal Government	NBN Co
Connecting Victoria	$110 million[35]	Victorian Government	Various
NSW Regional Digital Connectivity	$90 million[36]	NSW Government	Various
Other State Government programs	$37 million[37]	WA and SA Governments	Various
Total	**$1.146 billion**		

[30] I have made some estimates of the period over which to amortise the one-off funding programs as per the footnotes below.
[31] The Regional Broadband Scheme for NBN Co's losses on Fixed Wireless and Satellite networks of $12.949 billion as calculated by the ACCC from 2009 to 2040 has been annualized over the 31 years.
[32] The Mobile Blackspot Program funding of $380 million has been assumed to be over six years
[33] The Regional Connectivity Program funding of $250 million has been assumed to be over four years.
[34] The NBN Fixed Wireless upgrade program of $480 million has been assumed to be over five years.
[35] The Connecting Victoria program of $550 million has been assumed to be over five years
[36] The NSW Regional Digital Connectivity and Connecting Country Communities programs of $480 million has been assumed to be over five years.
[37] The programs of the WA and SA governments of $183.6 million have been assumed to be over 5 years.

As can be seen, the estimate of the cross-subsidy amounts to over $1.1 billion annually.

Approximately 50% of the above payments are being provided directly by governments and 50% by industry levies on telecommunication operators.

The ad hoc nature, duplication and funding of obsolete services (ie. copper based telephone services) would suggest that these funding arrangements are highly inefficient and wasteful of both industry and government financial resources.

Moreover, these schemes are not likely to cover the full cross-subsidy as the loss-making areas of NBN Co's fixed network areas are not part of any scheme and must be absorbed within NBN Co's own accounts.

Sustainable Regional Telecommunications Funding

In my 2018 paper to the ATJDE journal I put forward an alternative means of funding and managing investment into the uneconomic regional telecommunications infrastructure.

In essence this would involve a levy on all retail telecommunications revenue in Australia. A levy of 2.5% was suggested for illustrative purposes. Such a levy would raise approximately $1 billion per annum and could be used to establish a regional telecommunications investment fund that is dedicated to telecommunications investment in the uneconomic areas of Australia. This fund would address the need for ongoing funding and enable such investment to be made in a timely manner and keep regional Australia at a similar benchmark to urban Australia. It may even be sufficient to contribute to additional investment to cater for funding enhanced network resiliency in the face of the increasing incidence of climate change and natural disasters that have often and will increasingly plague regional Australian communities.

By placing the levy on all retail telecommunications services (mobile, fixed, enterprise and other new services) the cost is shared across all users of Australian networks. A levy at the retail level would also reduce the likelihood of disputes between service providers related to the appropriate cost sharing, as all services would be treated equally in a competitively neutral arrangement.

A legislated levy and fund would centralise the management of this investment in a way that was publicly accountable rather than the current regime of ad hoc grants that are prone to political influences rather than rational, evidenced based choices.

The Productivity Commission should consider recommending such a funding mechanism in its final report.

Competitive Market-based mechanisms for Digital Infrastructure

The Interim Report puts forward a competitive, market-based mechanism to deliver a more efficient mechanism for delivering a Universal Service Guarantee. I also suggested such an approach in my 2018 ATJDE paper.

However, such an approach needs to have a secure regular source of ongoing funding to ensure that the various network operators, including new entrants, are able to build up capability to respond to tenders and develop capabilities for servicing regional Australia. Ad hoc and

uncertain funding will likely result in funding going to the largest players who can leverage their existing networks (eg. Telstra and NBN Co) and restrict innovative solutions from newer technologies. This has largely been the case for the MBSP and RCP programs.

This new approach would supersede the existing range of ad hoc measures and the RBS, MBSP and RCP programs.

An opportunity may also exist for the fund to provide ongoing funding to NBN Co for its existing loss making investments in regional Australia (ie. Fixed Wireless, Satellite and parts of its fixed network) and hence enable it to continue to invest in these networks without placing a cross-subsidy burden on its own urban infrastructure and that of its competitors. This would have the additional benefit of enhancing competitive neutrality in the urban areas between NBN Co and its competitors in the areas where investment is economic (ie. urban Australia).

In any case, significant changes are urgently needed to address the inefficiencies , duplications and negative impacts on competition from the current funding arrangements.

Substantial changes are likely to also significantly impact NBN Co's SAU that is being considered by the ACCC, given that NBN Co is largely managing the cross-subsidy within its own business model. Competitive threats from different technologies (largely fixed wireless broadband) will make this difficult to achieve over the term of the SAU (ie. until 2040).

If the NBN Co SAU is approved on the current ad hoc, inefficient regional funding arrangements then there may be no opportunity to address these within the term of the SAU (ie. until 2040), locking in higher prices from the inefficiencies in broadband services across the nation.

Better Data to guide Investment

The centralisation of funding for investment in regional Australian telecommunications would enable more efficient and extensive data analysis, collection and modelling to inform the geographic areas and service types that are actually uneconomic and in need of subsidisation.

A new organisation put in charge of managing the efficient allocation of funding through competitive tendering would need to be well-informed of the technical, economic and market requirements to enable a successful process that encouraged best value for money.

Such an organisation could be established within the ACMA and co-ordinate its data requirements with the ACCC. Alternatively, the organisation could be established as a new agency giving the size of its budget and the need for transparency and accountability to the general public in terms of efficient use of the funds raised.

Conclusion

The Productivity Commission should be commended for putting a focus on the long running problems of Australia's regional telecommunications investment policies. Better data, sustained funding and a competitive, market based model for the delivery of services to regional Australians will be provide significant economic and social benefits.

The increasing challenges of climate change will be best mitigated by having a vibrant regional economy that can deliver new, climate-friendly, energy sources for Australia and for export that will eventually need to replace the current reliance on fossil fuel energy sources. Modern, effective and resilient telecommunication services will be key to enable these changes and also cope with the likely increase in climate linked events that will impact these same communities.

A centralised government run organisation should be given the accountability to efficiently fund, manage and monitor a competitive tender process for the necessary investments in what would otherwise be uneconomic areas for investment.

The Productivity Commission should put more emphasis on the need for a sustainable, ongoing funding mechanism for regional telecommunications infrastructure such as the retail based levy I have mentioned in this submission.

Given the current consideration of the NBN Co SAU, it is imperative that the inefficiencies, duplication and negative impacts on competition from the current ad hoc and fragmented regional funding schemes are addressed urgently. Otherwise these inefficiencies may not be able to overcome during the term of the SAU (ie. until 2040).

It is important that our political leaders and policy makers seriously consider changing the regional telecommunications funding and investment model as soon as possible to ensure Australia is best able to leverage its vital regional natural and human resources that have for a long time been a key part of the nation's competitive advantage.

Yours sincerely,

Gary McLaren