



Western Australian Government Submission

Joint Standing Committee Inquiry on the rollout of the National Broadband Network (NBN) in rural and regional areas

May 2018

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PREFACE

The Australian Government's Joint Standing Committee (the Committee) Inquiry on the National Broadband Network (NBN) released its first report in September 2017, providing 23 recommendations to improve its services nationally. Six of these recommendations are directly related to improving NBN services for regional communities and businesses across Australia.

The Western Australian Government has serious concerns regarding the rollout of the NBN in rural and regional communities and has written to the Commonwealth Government on numerous occasions explaining that digital connectivity is one of the biggest challenges faced by producers and regional communities. The Western Australian Government commends the Committee for taking a particular focus on the regional rollout of the NBN.

In particular, the Western Australian Government would like to highlight the significant productivity impacts that would result from the Commonwealth Government's decision to downgrade hundreds of farming businesses in regional and rural locations across Western Australia from its original plans for fixed line or fixed wireless services to Sky Muster satellite services.

Western Australian farmers are embracing technology advances to improve efficiencies. However, they are finding it increasingly difficult to contend in a global marketplace without connectivity comparable to that of their international competitors.

Western Australia is the largest Australian state, covering the entire western third of the continent. While the majority of its population resides in Perth, most of the major economic drivers are based in the regions, including key export industries in mining and agriculture. The agriculture and food sector is Western Australia's second major export industry producing more grain than any other state in Australia. In 2015-16, the gross value of Western Australia's agricultural production was \$8.2 billion, up from \$7.9 billion in 2014-15, and its total wheat production in 2015-16 of 8.5 million tonnes equates to over 38 per cent of Australia's total production (22.3 million tonnes). It is important for the Commonwealth Government to consider a 'production value' scale when prioritising NBN Co's infrastructure in the rural and regional areas of Western Australia and that it not just be based on population density.

Without high quality internet connectivity in place, rural and regional Western Australia will struggle to sustain the performance and viability of some of its 14,500 agriculture related businesses that are currently providing employment for approximately 183,600 people (10 per cent of Western Australia's population in 2015-16).

A KPMG study titled "Infrastructure for smart farming" undertaken in August 2016 for the then Department of Agriculture and Food Western Australia (now part of the Department of Primary Industries and Regional Development) found that the business case for investing in infrastructure to enable digital connectivity in agriculture is compelling – the potential value in productivity uplift for grain farming in Western Australia is estimated at \$1.1 billion over a 20 year period.

WESTERN AUSTRALIAN GOVERNMENT INITIATIVES

Telecommunications is a Commonwealth Government responsibility. However, the shortfall between community needs and Federal Government support has compelled the Western Australian State Government to take action.

The digital economy presents regional Western Australia with some key challenges. As high-capacity broadband access becomes essential for households and businesses, a lack of access, or high cost of access, to faster communication services can be a barrier to regional residents, businesses and service providers fully engaging with the digital economy.

Regional Australia needs digital connectivity to take advantage of emerging opportunities from technologies such as the 'internet of things'. This is essential to enable significant productivity gains in industry sectors such as mining and resources, agriculture and food processing, as well as professional services. Access to digital connectivity in regional Western Australia will offer access to new markets, supports new product development, enables on-demand service delivery and provides a platform for innovative business models.

The Western Australian Government has made it a priority to improve the provision of digital connectivity across its regions and is currently undertaking a number of initiatives, listed below which aim to help overcome some of the key digital connectivity deficiencies impacting regional and remote locations of the State. These programs are targeting areas that are under-served by the NBN network.

1. State Telecommunications Infrastructure Audit (STIA)

In July 2017, the State Minister for Regional Development, Agriculture and Food, and the State Minister for Innovation and ICT commissioned the STIA to capture locational and capacity information of telecommunication assets in Western Australia to build a comprehensive and consolidated picture of telecommunication infrastructure. The STIA was conducted between August - November 2017 and is being used to identify gaps in digital connectivity across regional Western Australia as well as informing the Government in the development of new initiatives to address such gaps, for example, the Digital Farm Program, referred below.

2. Agricultural Telecommunication Infrastructure Fund (ATIF)

The \$17 million ATIF has been established over four years to 2021-22 to support the improvement of innovative infrastructure that will strengthen the growth and business productivity of the agricultural sector of Western Australia. The Government is currently progressing in identifying potential projects and co-investment opportunities under the fund.

3. The Digital Farm Program

The Digital Farm is an initiative to test viability of last-mile solutions for clusters of farming enterprises in agricultural and pastoral regions which lie outside the current or planned NBN Fixed Wireless and Fixed Line footprint across rural and regional Western Australia. It aims to provide farmers with fast, reliable, affordable, and scalable broadband solutions that will support digital farming practices in the regions. The program will enable producers to use smart farming technologies such as cloud based data sharing and decision making tools to precisely manage their inputs in order to maximise production in the most cost effective and sustainable way. For example, the new connectivity to the farm gate will enable farmers to adapt and apply on-farm sensor systems and cameras to cheaply and accurately monitor the state of plants, animals and soils. The program offers grants of up to \$500,000 to service providers on a matching co-contribution basis.

4. WA Agricultural Digital Connectivity Infrastructure Study

A study has been commissioned to identify the impediments, proposed solutions, emerging business models and co-investment opportunities to enable the provision of enterprise grade digital connectivity in Regional Western Australia. This study will inform future digital connectivity opportunities for co-investment by the State Government aimed at filling the emerging gaps in service delivery.

5. Regional Telecommunications Project (RTP)

The State Government \$65 million RTP is expanding high speed mobile voice and data coverage through the establishment of 231 mobile base stations across Regional Western Australia for completion by 31 December 2018. The RTP has aligned with the National Mobile Black Spot Program (MBSP) in order to secure additional funding in partnership with the Commonwealth Government and telecommunications carriers.

6. eConnected Grainbelt Project

A three year State government \$10 million funded project with the aim of creating a more profitable Western Australian grains sector through increased use of technology and information enabling farm businesses to better manage risks. The project is working with Grower Groups across the Western Australian Grainbelt region hosting eDemonstration sites and demonstrating the value of technology in managing farm businesses through decision support tools and emerging technologies. The project incorporates a connectivity work stream focused at identifying emerging technologies/networks for deployment across grain enterprises faced with limited connectivity.

SUMMARY

This Inquiry into the rollout of the NBN in rural and regional areas focuses on the capability, capacity and reliability of its Satellite, Fixed Wireless and Fixed Line networks for regional Australia. Western Australia welcomes any opportunity to collaborate with the Federal Government and Industry to ensure that world-class communications infrastructure is delivered to all regional communities. This is crucial to protecting the interests of agricultural businesses in regional Western Australia and assisting them to continue to be globally competitive.

The NBN Co aims to be a nation-building infrastructure project designed to enhance Australia's global-competitiveness. This must include the provision of world-class digital connectivity to all regional areas, and especially to regions which make significant contributions to Australia's domestic production such as the agricultural and mining regions of Western Australia.

Increasing digital connectivity in rural and regional Western Australia will stimulate the emergence of new services and tradeable commodities through improved access to markets, improved learning and trading platforms and increased mobility through a connected world that will help break down the financial and social costs of remoteness and isolation. Areas with sub-par connectivity are at risk of becoming globally uncompetitive, which will result in declines in productivity, economic output and social amenity in regional Western Australia.

NBN Co's current plans reveal that regional Western Australia and the Northern Territory are both particularly disadvantaged compared to other states. In Western Australia, the vast majority of the regions which generate most of the state's production outside Perth are relegated almost entirely to NBN Sky Muster satellite. Issues impacting regional users include, high costs, service delivery, latency delays and lack of capacity to adequately meet their requirements.

The Western Australia State Government will continue to make strong representations to the Federal Government to ensure that Regional Western Australia has fair, equitable access to the telecommunications infrastructure needed for its continued social and economic wellbeing.

The key issues and recommendations fall under the following headings:

1. Commonwealth Government's Statement of Expectations
2. NBN Co's Infrastructure Utilisation Model
3. Open-Access, Common User Infrastructure
4. Lack of Consultation
5. Technology Mix and Prioritisation
6. Improved Communication and Transparency
7. Prioritisation of Rollout and its affect
8. Free Market and Monopolies
9. Universal Services Obligation

RESPONSES TO THE INQUIRY

1. Commonwealth Government's Statement of Expectations

RECOMMENDATIONS:

The Western Australian Government recommends:

- a) NBN Co's Statement of Expectations for the definition of "very fast broadband" be reviewed to specify that the Commonwealth and the NBN Co recognise that 25 Mbps is no longer considered 'very fast broadband'; and that NBN Co adopt up to 100 Mbps as a minimum requirement for this definition; and
- b) NBN Co's Statement of Expectations for the definition of "very fast broadband" should be revised, if necessary, every 3-5 years to cater for future changes to technology and demand.

ISSUE:

The Commonwealth Government's Statement of Expectations dated August 2016 states that 'very fast broadband' is defined as *"...peak wholesale download data rates (and proportionate upload rates) of at least 25 megabits per second to all premises, and at least 50 megabits per second to 90 per cent of fixed line premises as soon as possible. NBN Co should ensure that its wholesale services enable retail service providers to supply services that meet the needs of end users."*

While this ambition is laudable, it does not allow for future expected demand growth, with global competition constantly increasing and technology developments constantly improving service standards. For example, ultrafast broadband (100 megabits per second (Mbps) to 1 gigabits per second (Gbps) is already being widely-deployed in other advanced economies around the globe.

As at April 2018, Australia is currently ranked 56th overall in average Internet speeds. There is little doubt that regional speeds taken separately would perform even less on a global comparison, however, there is no specific index that measures regional speeds.

Ultra-high speed digital connectivity delivered ubiquitously across regional Western Australia would have a significantly positive impact on a wide range of industries and community services, including:

- Agriculture - smart farming, variable rate spraying, stock monitoring;
- Healthcare - remote diagnostics, telehealth, disease monitoring;
- Tourism - social media, marketing and promotion, live video, safety;
- Aquaculture - remote sensor monitoring, remote feeding, population growth monitoring;
- Resources - remote sample analysis, autonomous vehicles, logistics;
- Emergency Services - rich media capabilities for first responder personnel and vehicles, bushfire tracking, search and rescue;
- Police - high definition video monitoring of crime hotspots, tracking of suspects, vehicle identification; and
- Education - remote learning, online free courses amongst numerous others.

2. NBN Co's Infrastructure Utilisation Model

RECOMMENDATION:

The Western Australian Government recommends:

- a) NBN Co adopt a restructured wholesale pricing model that eliminates the Connectivity Virtual Circuit (CVC) and the usage constraints that it imposes with its costs. A new model should focus on an approach that motivates the uptake of the highest-achievable network speeds for all and permits near 100 percent network utilisation.

ISSUE:

Much of the existing NBN Fixed Line network is currently artificially-constrained where there is often vast capacity available and unused. Modelling to release the capacity where it exists in regional Western Australia will deliver additional speeds at virtually zero incremental cost. This constraint is imposed (primarily) by the NBN Co CVC pricing model, which makes access to available capacity over-costly to service providers who are in turn unable to supply sufficient capacity to users in regional Western Australia and still make a profit. Consequently, in many parts of the regional network, a vast quantity of wholesale capacity goes unused simply because it costs too much.

There is an air of desperation in some rural and regional towns of Western Australia where the digital needs of businesses and residents are growing faster every year, however are not able to take advantage of capacity that exists on the network, even though the cost of making it available to them is nearly zero.

The CVC pricing model reflects NBN Co's mechanism for managing its internal resources through a constraints-based model, which actively discourages full utilisation of its infrastructure.

Through increasing discounts being offered to larger data volume purchases (wholesale), the recent changes (trial) to CVC pricing has provided a pricing signal to RSPs that seems to have marginally encouraged improved infrastructure utilisation, however, it has not solved the fundamental problem of an unnecessarily-constrained network.

The NBN was established to underpin and enable nation-building, globally-competitive digital infrastructure and the prioritising of the digitisation of Australia's economy. Western Australia is concerned that the current NBN Co's CVC pricing model and its roll on effect will continue to slow down the investment of infrastructure in regional Australia. A new pricing model which motivates and encourages higher infrastructure utilisation would enable this.

3. Open-Access, Common User Infrastructure

RECOMMENDATIONS:

The Western Australian Government recommends:

- a) Mandating an open-access policy for co-location of communications infrastructure on all structures co-funded or subsidised by the Government; and
- b) Co-location access policies should be developed cooperatively by governments and independent experts to ensure that access is not unduly restricted by prohibitive regulations, administrative barriers and costly overheads.

ISSUE:

Just as the NBN was established as a wholesale infrastructure service provider designed to deliver non-discriminatory access to all RSPs on its network, a similar model should be considered for other government-funded or government-subsidised communications infrastructure. For example, mobile base stations constructed to house regional mobile communications transmission equipment (Mobile Black Spots Programme and other Emergency Service Organisation networks), which, if affordable access arrangements could be mandated, in many cases, would enable lower cost deployment of fixed wireless infrastructure in regional areas, whether it be NBN Fixed Wireless or private Fixed Wireless infrastructure.

The current practice of often erecting duplicate infrastructure for government-subsidised mobile phone towers alongside existing NBN Fixed Wireless towers (or vice versa) is unnecessary, undesirable from a visual amenity perspective and wasteful of taxpayer funds.

Stronger incentives for carriers and NBN Co to share infrastructure in regional areas should be considered.

A key finding of the 2017 State Telecommunications Infrastructure Audit referred to above, identified a significant amount of under-utilised government, community and privately-owned communications infrastructure exists across regional Western Australia, which can be leveraged cost effectively resulting in enhanced digital connectivity for the regions across the State. Other key findings included the deployment of infrastructure is driven by commercial imperatives, where, Communications Services Providers (CSPs) focus on population and economic activity centres as they are addressable and commercially viable markets for them; and that we are seeing the need and deployment of local access "last-mile" networks across regions, which the Government's Digital Farm Program is targeted at.

4. Lack of Consultation

RECOMMENDATIONS:

The Western Australian Government recommends:

- a) A reconsideration of the recommendations in Report 1 of the Committee for the rollout of the NBN, including the establishment of a Western Australian rural and regional reference group. NBN Co should increase proactive government and community consultation during pre-planning and rollout in regional areas to ensure openness and accountability; and
- b) NBN Co and Telstra should collectively advise government and communities of their future plans for those communities that are currently served by ADSL but which lie in Sky Muster service areas.

ISSUE:

NBN Co should consider establishing a Western Australian reference group particularly in rural, regional and remote Western Australia to ensure they are being considered when it comes to accessing reasonable and reliable internet to conduct their businesses, education, social and recreational activities.

In 2017, more than 6,000 residents and a number of businesses across 17 Western Australian towns were downgraded from the originally-proposed NBN fixed wireless services to Sky Muster satellite services, without any community or State Government consultation.

The majority of these towns are located in prime agricultural areas such as the Wheatbelt region, where access to fast, reliable, affordable, symmetrical and scalable broadband is crucial to driving agricultural productivity through digital farming practices. These locations, including some towns are: Chadwick, Darkan, Dowerin, East-Dongara, Eneabba, Goomalling Town, Hamelin Bay, Horrocks Town, Jalbarragup, Koorda, Mingenew, Narembeen, Northampton East, Ravensthorpe South, Watheroo, Windabout, and Wyalkatchem. The Western Australian Government was not consulted prior to this decision.

With some overlap, there are also 23 regional Western Australian towns currently on ADSL/ADSL2+ services that have been assigned to NBN Sky Muster satellite. In the majority of cases, with a few exceptions¹, neither NBN Co nor Telstra have provided guidance to government or communities as to whether these regional communities will eventually be involuntarily disconnected from ADSL services and forced onto Sky Muster or have the option to retain ADSL services.²

¹ www.itnews.com.au/news/nbn-co-finally-reveals-satellite-users-who-will-lose-adsl-473766

² www.itnews.com.au/news/nbn-co-wont-say-how-many-adsl-users-will-end-up-on-satellite-449011?

5. Technology Mix and Prioritisation

RECOMMENDATIONS:

The Western Australian Government recommends:

- a) NBN consider ceasing its FTTN plans and where FTTP is uneconomical, install only FTTC services; and
- b) Given the admission by NBN Co of the indefinite loss-making nature of the NBN Fixed-Wireless business model³, the Commonwealth Government should explore cooperative arrangements with carriers, RSPs and local infrastructure owners to extend high speed services into areas now designated to be served by Fixed-Wireless and Sky Muster. Introducing cooperation in the investment in and use of regional telecommunications infrastructure means better returns on investment, lower costs for service providers and genuinely competitive services for end users of broadband services - domestic and business.

ISSUE:

Fixed Line Network: Variability in the condition of the copper network is known to directly affect broadband service quality and reliability, and acceptable communications speeds can only be achieved over very short distances. It is unlikely that the copper network is readily maintainable in the future except over the short distances that FTTC offers. FTTN expects too much from ageing copper cables whose condition is highly variable and so will make comparable performance between cables of differing length and condition impractical or impossible. This submission recommends FTTN to be removed from NBN Co's list of deployable technologies for these reasons. A commitment to FTTC as the only option to FTTP will improve long term economic value, and end user performance options.

Fixed Wireless Network: The performance of the NBN Fixed Wireless Network is limited by design, land topology and network architecture, which currently includes NBN Co's choice of spectrum (2.3GHz and 3.4GHz licensed spectrum). In addition, the choice of carrier equipment ("Carrier-Grade" LTE) and a decision to serve 90 per cent of towers with radio-microwave limited backhaul capacity rather than optical fibre backhaul.⁴

Consequently, with a maximum of 100 Mbps Committed Information Rate backhaul per tower, shared amongst up to 300 premises, the service will almost inevitably suffer network congestion on fully-populated towers and cannot be significantly improved without costly upgrades across nearly all equipment.⁵ This leads to a situation where the necessary wholesale bandwidth is unavailable for RSPs to acquire in order to comply with NBN Co and ACCC's performance requirements during times of peak demand. While fixed wireless has the potential to offer acceptable network connection performance, the approach by the NBN appears to be affected by budget constraints and even the currently reported performance problems for users of fixed wireless systems are likely to worsen as connected users increase. We strongly recommend NBN Fixed

³ Page 5 - Executive Summary "NBN non-commercial services funding options—final report (March 2016)"

⁴ www.nbnco.com.au/content/dam/nbnco2/documents/network-design-rules.pdf

⁵ Page 64 - www.nbnco.com.au/content/dam/nbnco/documents/nbnco-fixed-wireless-and-satellite-review-07052014.pdf

Wireless services be required to comply with performance criteria that match FTTP and FTTC services for busy hour connection speed, availability and coverage areas.

This submission proposes the following prioritisation of NBN Co's access technology (1 being preferred rank):

1. Fibre to the Premise (FTTP)
2. Fibre to the Curb (FTTC)
3. Fixed Wireless via partnerships with private/cooperative fixed wireless providers, or where not viable, NBN Fixed Wireless with strictly enforced performance levels for busy hour connection speed, availability and coverage.
4. Sky Muster satellite with strictly enforced performance levels for busy hour connection speed, availability and coverage.

For the above prioritisation to function effectively, reserving the use of satellite for the most remote customers must apply. As the NBN has been rolled out across regional Western Australia, the technology deployment rollout has altered. Towns that were earmarked early in the rollout were proposed to have FTTN for central areas and fixed wireless was to be utilised to service outlying areas of towns such as semi-rural properties and industrial areas.

Due to the changes and downgrading that has occurred, the outlying parts of towns in some regional areas are now only offered satellite services.

NBN Co has changed its rollout model for regional towns outside the South West area. Previously the deployments combined FTTN, fixed wireless and satellite. For towns such as Kalgoorlie, Broome and Port Hedland, amongst many others, NBN Co is now providing only FTTN or Sky Muster satellite. Satellite will be the only service available in the outer areas of affected regional towns, which may be semi-rural or commercial areas. In some instances, one side of the street has FTTN and the other only satellite.

This situation will no doubt be commonly experienced further in regional Western Australia, where satellite is the designated service. These issues are likely to severely hamper regional businesses in those areas preventing them from innovating on a global scale as their compatriots in early rollout towns can. Our experience is that acceptable service declines on fixed wireless and satellite services unless strict service levels are implemented, monitored and managed very well.

Many opportunities exist for NBN Co to partner with regional-scale organisations that are experienced with deploying adaptable, market-driven technologies (for example, Point to Point fixed wireless backhaul and Point to Multipoint wireless Last Mile services using Class Licensed 5.8GHz spectrum) that can be cost-effectively upgraded to best practice standards as technology evolves.

Currently available Class Licensed technology makes it feasible to deliver speeds of up to 100 Mbps to retail customers into many current NBN Fixed Wireless footprints that may be able to acquire only a few megabits per second on NBN Co's infrastructure. These services can be extended beyond the NBN Fixed Wireless footprint and into many Sky Muster areas for costs that are lower than the NBN Fixed Wireless business model permits. This approach would permit reserving Sky Muster and its limited capacity for the

truly remote areas and delivering fixed wireless speeds beyond the capability of NBN Fixed Wireless services, while operating on a sustainable business model.

The Western Australian Government welcomes the opportunity to discuss its business models that show how regional and rural connectivity can be considerably reduced in price with an appropriate mix of technology and costs while not compromising service quality.

Sky Muster Satellite: Satellite was originally intended only as 'service of last resort' in that, where no other services were capable of being delivered economically, then satellite could be used. The current approach by NBN Co suggests it is using satellite services to delivery services where fixed wireless or cable services were intended to be used. There is no doubt that this approach is cost driven and will result in poor outcomes for users.

The current NBN satellite services offered in regional Australia, where no other alternatives are available, are not always delivering the bandwidths advertised, are hampered by latency issues and high associated costs. These issues are isolating regional businesses which are in need of a better quality product to engage with their clients and further their own transformation and growth. Without improvements or upgrades in these areas, regions will not be suitably enabled for digital services, adversely affecting jobs and growth in the short term and ultimately their viability in the longer term. There is currently no long-term plan in NBN Co's strategy for upgrading regional residents and businesses to higher grade services in areas now assigned to Sky Muster.

We strongly recommend limiting satellite coverage to truly remote communities and users, implementing strictly measured and reported service levels.

6. Improved Communication and Transparency

RECOMMENDATIONS:

The Western Australian Government recommends:

- a) NBN Co publish a policy which specifies clearly how it determines the assignments for fixed line, fixed wireless and Sky Muster in regional and rural areas of Australia as part of its regional planning process; and
- b) The ACCC provide more transparency in its broadband monitoring program that would permit access to regional performance details of how RSPs are specifically serving regional customers.

ISSUE:

The Western Australian Government acknowledges the recent updates made to NBN Co's website, now providing a level of detail (if available) around when the NBN network will be available, the technology that will be used and view a list of phone and internet providers in their area.

It is unclear however how NBN Co determines which technology type is allocated to each location in the regions. Information previously provided on NBN Co's website, which identified technology allocation and deployment beyond simple differentiation between fixed-line, fixed wirelesses and satellite, has been removed.

A clear and current NBN Co policy outlining the principles and criteria for technology deployment - by location stating how it decides how to allocate each technology in regional areas should be published for Fixed Line, Fixed Wireless and Sky Muster. This approach would provide increased transparency along with a fair and equitable means of service type assignment.

Providing public visibility of which technology is being planned for a given location will only improve the public perception of NBN Co's transparency, increase credibility and benefit everyone.

This submission acknowledges ACCC's monitoring broadband performance initiative and its inquiry into NBN Wholesale service standards, however, based on the information released by the ACCC to date, its report falls far short of providing useful regional performance information on how NBN RSPs are delivering services in regional areas. Currently no reporting has been released on specific regional performance.

7. Prioritisation of Rollout and its affect

RECOMMENDATIONS:

The Western Australian Government recommends:

- a) NBN Co to reassess its technology assignment criteria to prioritise Regional Production Value as a weighting metric and not just population density; and
- b) As NBN Co acknowledges that both its fixed wireless and Sky Muster services are unprofitable exercises throughout the life of the assets, (even under the most optimistic forecasts), it should engage with existing regional fixed wireless service providers and partner with these organisations to deploy sustainable fixed wireless services.

ISSUE:

NBN Co's regional prioritisation model needs to be reconsidered by moving away from population density as the primary economic driver across its Multi Technology Mix platforms, to one that takes into consideration those areas of high regional production value and enterprise customers. Most regional areas generate significant regional economic outputs, which, without access to globally-competitive digital infrastructure and digital services, are at risk of overseas competition.

This alternative prioritisation would more effectively protect Western Australia's regional economic production and encourage regional competitiveness much earlier than the current rollout schedule permits.

The choice of assigning Sky Muster satellite, Fixed Wireless or Fixed Line to a given area is one of a balance of needs and economic utility. Not every location justifies fibre, however current network design policy does not account for communities' requirements, and does not protect economic and monetary value of regional production either.

By example, the current network design policy has the following outcome in the Western Australian Shire of Chapman Valley. With approximately 400 dwellings, the cost of satellite deployment would be \$2.8 million, based on NBN's stated deployment cost of \$7,000 per residence. The Shire is 450km North East of Perth, with its economic

production value estimated at more than \$100 million per annum. A large portion of the residents would be better serviced with far higher network performance, at far lower cost, by the deployment of a regional (non-NBN) fixed wireless solution, or even fixed line services in some areas, and not require ongoing government subsidies. NBN's analysis currently estimates a required \$110/month subsidy for the life of the asset, based on a Discounted Cash Flow (DCF) model for every Sky Muster service.

8. Free market and monopolies

RECOMMENDATIONS:

The Western Australian Government recommends:

- a) Relaxing the existing restrictive legislation on Fixed Line services which prohibits third parties from deploying new optical fibre fixed line networks that would potentially compete with NBN. Exemptions should be provided to regional, rural and remote areas, which would permit third party providers deploying fixed line infrastructure, without regard to existing NBN Co infrastructure; and
- b) Regional infrastructure funded or co-funded by government should be delivered as open-access, common-user infrastructure.

ISSUE:

The Western Australian Government advocates for Open-Access, non-discriminatory, Common-User Infrastructure wholesale backhaul to reduce costs and increase sustainability for Last Mile providers. There are, in many areas of regional Australia, viable alternatives provided by wireless internet service providers (WISPs) that offer internet access services to businesses, and in some cases consumers, that are at higher bandwidths than available from the NBN Co and with much more consistent bandwidths.

Many WISPs are small operators in regional and rural Australia providing services to businesses and homes in their immediate vicinity, and offering excellent grade bandwidths and service beyond what the NBN Co can offer. They implement this by using fixed point-to-point and point-to-multipoint microwave technology in both apparatus licensed and class-licensed spectrum for their 'last mile' connectivity.

Dominating the residential market in regional and rural Australia, the NBN Co is making the business case for WISPs difficult.

The Commonwealth Government should avoid the development of privately-owned geographic monopolies, similar to what occurred in the USA cable TV industry, resulting in decades of poor service, poor performance and higher prices for the end users.

9. Universal Services Obligation

RECOMMENDATIONS:

The Western Australian Government recommends:

- a) An investigation into the available options for replacing the existing terrestrial voice network currently delivered under the Telecommunications Universal Service Obligation (USO); and
- b) NBN Sky Muster satellite should not be employed as a replacement for terrestrial USO voice services.

ISSUE:

The Commonwealth Government is considering early termination of its Universal Service Obligation (USO) with Telstra by 2020 as recommended by the Productivity Commissions Inquiry Report in 2017.⁶

The USO may be replaced by a competitive tendering process to deliver voice services via mobile phone networks and other technologies to serve those who are within the NBN satellite footprint, but without mobile coverage. Delivering voice services via NBN satellite has also been retained as an option in the report.

If this is to occur, up to 90,000 premises in pockets of the NBN satellite footprint without adequate mobile coverage could receive NBN satellite as a replacement voice service. This would result in a voice service that would fail to meet internationally accepted International Telecommunications Union (ITU) standards, due mainly to the unavoidable latency incurred with geosynchronous satellites.⁷

- Even under ideal conditions, voice services delivered over Sky Muster satellite could not comply with ITU-T Latency Recommendations, resulting in *"Nearly 100 percent users dissatisfied"*, according to ITU user research⁸ (On a two-hop call) (*ITU is the world standards organization in telecommunications*).
- The customer experience on a two-hop Sky Muster managed VOIP call is significantly worse than a call on a land line or a call on a satellite phone.
- Sky Muster was not designed to support real-time voice capability and therefore cannot be (fully) optimized for voice call traffic. NBN Co's CEO Bill Morrow, expressed in the February 2107 Senate Estimates Hearing that the NBN's Sky Muster satellite network *"was never designed for voice"*.
- Reliability of (geostationary) satellite services for voice calls is not suitable, especially for emergency calls where environmental factors such as storms or fire/smoke may block access to satellite services at a time when access is critical.
- Porting existing voice services onto NBN satellite would markedly disadvantage regional people by taking away an existing high-quality voice service and replacing it with a non-compliant, inferior and unreliable technology that was never designed to carry voice services.

⁶ www.pc.gov.au/inquiries/completed/telecommunications/report

⁷ ITU Recommendations G.107, G.109, G.114 - www.itu.int/ITU-T/recommendations/rec.aspx?rec=6254

⁸ ITU Recommendations G.107, G.109, G.114 - www.itu.int/ITU-T/recommendations/rec.aspx?rec=6254