

Submission to the Regional Telecommunications Review 2021

About Vocus

Vocus is an Australian-owned specialist fibre and network solutions provider operating Australia's second-largest intercapital network, and is a key enabler of the Australian satellite industry. In total, the Vocus terrestrial network comprises ~30,000km of secure, high-capacity fibre supported by the 4,600km Australia Singapore Cable and the 2,100km North West Cable System between Darwin and Port Hedland. As part of this network Vocus also owns and operates more than 300 facilities – known as Controlled Environment Vaults (CEVs) – which have emerged as critical ground infrastructure assets for global satellite operators seeking to provide services in Australia. Vocus owns a portfolio of brands catering to enterprise, Government, wholesale, small business and residential customers across Australia and New Zealand.

Executive Summary

Vocus submits that the telecommunications industry is on the cusp of a technological breakthrough which will revolutionise connectivity for Australians in regional areas – requiring a major rethink of Government policies and funding programs, and necessitating greater investment in regional fibre backhaul.

Low Earth Orbit satellites, or LEOs, are poised to deliver a step-change in both the speed and capacity of broadband services in regional Australia, and will also provide the capability to deliver voice services that are virtually indistinguishable from traditional landline telephony. At least four LEO operators including Starlink (a division of SpaceX), OneWeb, Telesat, and Amazon's Project Kuiper are launching global LEO satellite constellations and have all indicated their intention to serve the Australian market.

The availability of high-capacity fibre infrastructure in regional Australia is fundamental to establishing a local LEO market. LEOs are just as dependent on fibre backhaul on the earth as they are new satellites in the sky. The breakthrough speeds offered by LEO technology can only be realised if there are dozens of new satellite ground stations in regional areas, all connected to high-capacity fibre. Yet many regional areas remain subject to a monopoly market for fibre backhaul – a factor which will limit the ability of LEO operators to establish ground infrastructure, constrain competition, and put upward pressure on prices.

Government funding programs often overlook the critical role that fibre backhaul plays in the regional telco market. Subsidies are typically targeted solely at last-mile services, when investment in fibre backhaul could deliver greater economic and social benefits – particularly when LEOs will deliver faster broadband speeds than the last-mile services being funded today.

The Regional Backbone Blackspot Program (RBBP), a Government initiative to establish fibre backhaul competition on monopoly routes, is an ideal example of the tangible benefits delivered by competition in regional backhaul markets. The RBBP has led to lower wholesale prices and the availability of more products and services compared to monopoly routes.

The imminent arrival of commercial, competitive, and universally-available voice and broadband services delivered by LEOs has dramatic implications for existing Government policies and funding programs. Today, regional telecommunications are delivered via a myriad of overlapping policies and subsidies including the Universal Service Obligation (USO), Regional Broadband Scheme (RBS), Mobile Black Spot Program (MBSP), Regional Connectivity Program (RCP), and numerous State Government programs of a similar nature.

While these programs have delivered tangible benefits to many regional communities, they have also created an inefficient tangle of cross-subsidies which regularly overlap and overbuild one another – at a total cost (to both taxpayers and consumers) of more than a billion dollars every year.

With LEOs capable of delivering voice and broadband services superior to existing Government-subsidised services, there is an urgent need for Government to reconsider the efficacy and economic efficiency of its regional telecoms funding programs. If current programs continue unchanged, Australians in regional areas will be left with inferior services that are subsidised by both taxpayers and consumers – when a recalibration of funding could see this spending provide superior technologies and a far better experience for regional users, likely at much lower cost.

Response to the Committee's Questions

Key Issues: Adequacy

Changing Demand

1. *What telecommunications services are required in regional Australia to meet current and future needs? Are there any things regional communities and businesses need to do, but can't, on their existing services?*
2. *What changes in demand, barriers or challenges need to be addressed when it comes to telecommunications services in regional, rural and remote Australia?*
3. *How have the Government's policies and programs affected telecommunications service outcomes in regional, rural and remote Australia? How can these be improved?*

As the 2018 Regional Telecommunications Review found, "there is no fundamental difference in data needs between regional and metropolitan consumers. In our view, some Australians using the Sky Muster service are being held back economically and socially by the constraints of the satellite network, particularly as demand for data and the use of digital technology increases." (p25).

LEO satellites, supported by high-capacity terrestrial fibre infrastructure, will provide the technological breakthrough required to deliver metro-comparable services in regional areas.

In early 2020 Starlink, the LEO division of SpaceX, commenced live commercial trials in Australia. Starlink called the live trial service a "Better Than Nothing Beta" providing download speeds of 50Mbps to 150Mbps. These marketed speeds appear to be conservative, with media articles reporting Australian users experiencing download speeds of more than 340Mbps and upload speeds above 40Mbps.

Starlink says the typical latency on the service is 20ms to 40ms – comparable to terrestrial broadband technologies and a giant leap from the 600ms latencies typically seen on regular satellite services.

Starlink rooftop dishes come at an up-front cost of \$709 plus \$100 shipping, with a monthly connection fee of \$139 for unlimited data. Considering that both commercial and NBN satellite services have comparatively low data caps, and a 100Mbps fixed-line NBN connection with unlimited data typically retails between \$100 to \$110 per month, LEO satellite services are broadly comparable to metro broadband in terms of both price and speed.

The next-generation broadband speeds offered by LEOs are dependent on high-capacity, low-latency fibre infrastructure and a widespread network of ground stations. But today, many regional areas continue to be served by a monopoly backhaul provider – which will stymie the establishment of LEO ground stations and put upward pressure on prices.

Many of these areas are economically unviable for a second fibre provider to invest in competitive infrastructure. This is a key area where Government co-investment could incentivise additional private investment in fibre infrastructure, in turn delivering all the benefits of competition in regional areas.

An example of where such programs have been a success is the Regional Backbone Black Spot Program (RBBP). Announced in 2009, the RBBP was an Australian Government initiative with the objective of providing competitive wholesale backhaul services on underserved regional routes. Vocus (under its Nextgen Networks business) won the role to design, construct, manage, operate, and maintain around 6,000km of new backbone transmission links on behalf of the Australian Government, with the network delivering competitive backhaul on routes which had previously been subject to a monopoly.

The RBBP contract requires Vocus to provide services on open and equivalent terms and conditions. In practical terms, this means that Vocus cannot obtain an advantage when directly selling its own RBBP services to entities other than wholesale customers.

The RBBP program is a standout example of how Government and private sector co-investments can provide improved telecommunications services and reduce prices in regional areas. Backhaul prices on RBBP routes are demonstrably lower than routes served by only one carrier, as well as seeing more products and services available. In addition, the Government's initial investment has led to Vocus

continuing to invest in the asset (which remains owned by the Commonwealth, with Vocus holding Indefeasible Rights of Use for a set contract term) by upgrading the network to offer faster speeds and higher capacities at lower prices.

The RBBP network was designed with points of interconnect in many locations along the route, and these points of interconnect (or Controlled Environmental Vaults – CEVs) are already playing an important role in the burgeoning LEO satellite industry. LEO operators are able to use these points of interconnect to establish ground infrastructure (e.g. satellite dishes) with access to high-capacity fibre backhaul in regional and remote locations. This ground infrastructure is as critical to service delivery as the satellites in orbit – meaning the RBBP fibre network will continue to play a central role in the provision of regional broadband services for many years to come.

Beyond LEO ground stations, competitive regional fibre is also critical to connect LEOs back to data centres (DCs). While historically datacentres have been based in capital cities, this market has shifted towards the establishment of ‘edge’ datacentres – a distributed architecture where facilities are at the edge of the network, rather than centralised at major metro hubs.

The benefit of edge datacentres for regional areas is that computing and storage of data occurs much closer to end-users in regional communities – meaning that data no longer has to travel back and forth to major metro datacentres, and can instead be processed locally. This is particularly important for cloud services which require low-latency connections to effectively operate, as valuable time is saved by processing and storing data at the edge.

As with LEO ground stations, the availability of competitive, high-capacity fibre is fundamental to the deployment of edge DCs in regional communities.

Vocus submits that the emergence of LEO satellites and edge DCs should lead to policy and funding reforms to improve telecommunications outcomes for regional and remote Australia.

Today, regional telecommunications networks are directly subsidised and cross-subsidised via a tangle of Government programs which regularly overlap and overbuild each other.

There is the Universal Service Obligation (USO), which sees Telstra paid around \$250 million a year to maintain the voice-only Standard Telephone Service in regional Australia. This is partially a direct Government subsidy of \$100 million a year, and partially via the Telecoms Industry Levy (TIL) which collects around \$250 million a year for a range of public interest telecoms services including the USO.

Telstra contributes the largest annual share of the TIL – around \$140 million¹ – effectivity paying itself to deliver the USO. But in 2020 NBN contributed more than \$16 million to the TIL – and as NBN’s revenues inevitably grow, so will its share of the TIL. This means NBN will be paying Telstra tens of millions of dollars a year to keep its USO copper network operational in the same areas that NBN is required to operate its own loss-making fixed wireless and satellite networks.

At the same time, NBN’s fixed wireless and satellite networks are subsidised via the Regional Broadband Scheme (RBS). The RBS is expected to raise over \$741 million in its first year of operation to offset NBN’s regional network losses of \$12.9 billion for the period of 2009-2040, with 95% of the total annual cost expected to be paid by NBN to itself and competitive telcos (including USO provider Telstra) paying the remaining 5%.

The result is an absurd situation where Telstra pays the majority of USO funding to itself, and NBN pays the majority of RBS funding to itself – but where Telstra and NBN also increasingly pay each other to operate duplicative networks. Combined, the USO and the RBS cost ~\$1 billion annually to subsidise overlapping networks serving the same users in the same areas of regional Australia.

Additionally, there have been six funding rounds of the MBSP, which funds new mobile network coverage in many of the same areas that are already covered by the USO and RBS. There is also the RCP which subsidises new local telecoms infrastructure in areas which are already connected to Telstra USO copper and NBN fixed wireless and satellite.

¹ <https://www.acma.gov.au/publications/2020-11/rules/telecommunications-industry-levy-assessment-til-2019-20>

There are also numerous State Government subsidy programs including NSW Gig State, Victoria's mobile coverage program, and the WA grainbelt fixed wireless program.

While each of these programs has delivered tangible benefits to many regional communities, they have also created a tangle of cross-subsidies which overlap and overbuild regional telecoms infrastructure.

The imminent arrival of next-generation LEO satellites will make many of these existing programs and legacy technologies redundant, providing an opportunity to consider a new contestable solution and a more efficient, coherent, and holistic approach to funding regional telecommunications.

Service Reliability

4. *How do service reliability issues impact on regional communities and businesses? How do outages, including in natural disasters, impact on communities and businesses?*
5. *How might such impacts be addressed to ensure greater reliability? How can the network resilience be addressed in regional areas?*

LEO satellite technology will provide a new layer of redundancy for people living in regional areas, offering a critical alternative to terrestrial technologies during outages and natural disasters.

No communications technology is impervious to natural disasters – fixed-line, mobile, and even broadcast services can be impacted by bushfires, floods, and other extreme weather events. So while there is no 'silver bullet' technology to keep people connected during natural disasters, LEO satellites will offer another alternative when other forms of connectivity are subject to outages.

LEO satellite dishes also offer relatively quick and simply setup compared to traditional satellite dishes, making them more flexible during disasters. Traditional satellite dishes require professional installation and are physically fixed to a rooftop. LEO satellite dishes self-calibrate and can be set up by the user virtually anywhere, without necessitating permanent fixtures. And while current LEO services cannot be used while moving, they are easy to relocate – meaning they could be used as a connection of last resort while fleeing a natural disaster if mobile services were impacted.

COVID-19

6. *How did the use of digital services change for regional consumers and businesses during the response to the COVID-19 pandemic? What insights for future service delivery does this provide?*

Vocus experienced unprecedented increases in network traffic at the onset of COVID, and these traffic levels have never – and likely will never – go back to pre-COVID levels. Our experience was that COVID caused the acceleration of digital adoption and the resulting demand for bandwidth, in both the business and consumer markets. A major impediment to increasing digitisation in regional areas is access to metro-comparable broadband services and pricing.

Indigenous Australia

7. *What can be done to improve the access and affordability of telecommunications services in regional, rural and remote Indigenous communities?*

LEO satellites services will allow for a step-change in voice and broadband availability for remote Indigenous communities. LEO dishes are relatively low-cost and easy to deploy compared to fixed line, mobile, or traditional satellite communications, and could be utilised to deploy community Wi-Fi solutions with both data and voice.

Key Issues: Opportunity

Regional Development

8. *How can investment in telecommunications infrastructure work with other programs and policies to encourage economic development in regional Australia?*

9. *What role could innovation, including new models, alternative investors or new ways of doing business, play to encourage investment in regional telecommunications infrastructure? What are the barriers?*

Vocus submits that policy settings should be shaped to incentivise local private investment rather than prioritising or protecting Government enterprises.

A contemporary example is NBN's two Sky Muster satellites: while they have delivered a great improvement to broadband services available in regional Australia, they also required a significant public investment of ~\$2 billion as well as ongoing cross-subsidies from both NBN's profitable operations and private telcos (in the form of the Regional Broadband Scheme) until 2040.

The imminent arrival of commercial LEOs is likely to make NBN satellite services obsolete long before these subsidy programs are due to end.

Government should consider methods to support and incentivise private-sector investment, using its purchasing power to enhance competition and coverage rather than prioritising funding or subsidies towards a Government Business Enterprise.

As the owner and operator of a national fibre network with extensive infrastructure assets in regional Australia, Vocus is investing heavily in additional fibre and specialised satellite ground stations. In areas where private investment is economically unviable, Government should pursue policy solutions – such as the current Regional Connectivity Program co-investment approach – that incentivises or subsidises private operators to stimulate investment rather than prioritising public ownership of such infrastructure.

As mentioned earlier, an example of where this approach has had positive outcomes can be found in the Regional Backbone Blackspot Program (RBBP). This initiative delivered competitive backhaul on monopoly regional routes, leading to immediate and ongoing cost reductions, improved service availability, and a broader suite of products available.

Emerging Technologies

10. *To what extent will new technologies enable significant change to the delivery of telecommunications services in regional Australia over the next 5-10 years? Are there any barriers to accessing these technologies?*

11. *How can Government better support the rapid rollout of and investment in new telecommunications solutions in regional areas?*

As described above, LEO satellites are expected to provide a technological breakthrough which will significantly change service availability in regional Australia.

There are a number of ways Government can support the rapid rollout of LEO satellites.

First, Government should reform the overlapping and inefficient regional subsidy programs – the USO and RBS – which will put LEO satellite services on an unequal playing field against inferior subsidised services. While LEOs will deliver far higher broadband speeds with greater amounts of data capacity, they will be competing against NBN satellite services that are subsidised by both the taxpayer and the telco industry via the RBS. Similarly, while the USO technically only subsidises Standard Telephone Services (voice), in reality many of the copper lines used to deliver USO voice also provide fixed-line ADSL broadband in regional areas – meaning the broadband component benefits from the USO voice subsidy, again putting LEO services on an unequal playing field. Government should work to ensure there is a level playing field to support healthy competition in the consumer and business marketplace.

Second, Government should build on the positive experience of the RBBP and continue to fund competitive backhaul fibre in regional and remote areas. A key barrier to the rapid rollout of LEO satellite ground infrastructure is the limited availability of competitive fibre backhaul in regional areas. As a broad rule of thumb, a LEO satellite ground station will be used to provide a 500km coverage radius for commercial services – meaning the more ground stations, the more coverage. Unlike traditional satellites which can provide coverage to the entire country with only a small number of ground stations (NBN has ten), LEO satellites will utilise a constellation of thousands of smaller satellites, each with a smaller field of view – requiring many more ground stations to connect back into the internet. These ground stations have two

critical requirements – fibre backhaul and power. With so many areas of regional Australia still only served by a monopoly fibre backhaul provider, Government should consider ways to incentivise private investment in competitive infrastructure.

Third, Government can continue to reform the telecommunications carrier powers and immunities framework, including the *Telecommunications (Low-impact Facilities) Determination 2018* (LIFD). LIFD is an important determination which allows telcos to deploy low-impact infrastructure in a timely fashion by bypassing some State and local planning requirements, and the changes proposed in March 2021 will assist in the deployment of LEO ground infrastructure. Specifically, the proposal to increase the maximum diameter of a radiocommunications dish from 1.8 metres to 2.4 metres will allow assist in ground station infrastructure deployments for some LEO operators with requirements for dishes larger than 1.8m.

Maximising Outcomes

12. *How can different levels of Government, the telecommunications industry and regional communities better co-ordinate their efforts to improve telecommunications in regional Australia?*
13. *What changes to Government investment programs are required to ensure they continue to be effective in delivering improved telecommunications?*

Please see response to questions 1-3.

Key Issues: Awareness

Education

14. *How can regional consumers be better supported to identify, choose and use the best connectivity options for their circumstances, as well as to understand and use their consumer rights?*

No response.

Public Information

15. *To what extent is public information on connectivity options, including predictive coverage data and speeds, sufficient to help regional customers make informed decisions? What other information is needed?*
16. *What other matters should the Committee consider in its review and why are they important?*

No response.

Please direct any questions regarding this submission to:

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