A. List of Questions

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?

The predominate telecommunications services required in the Riverina Murray and Ovens Murray regions are fixed fibre and wireless fibre broadband services. While mobile voice and mobile data services in theory provide the region coverage and speeds that can support our community in areas that do not have fixed or wireless data services, the region's geography is an inhibitor for residents that need to roam between towers. Not having the fibre backbone required to support our communities and industries heavily restricts the ability for the below needs:

- Large scale, secure e-commerce business management/processing
- Secure, cloud-based computing off premise
- Operate sufficient home-based work reliably
- Utilize industry standard IoT technologies for operational/efficiency improvements
- Access tele-health solutions effectively and in a home location
- Participate sufficiently and continuously in online learning
- Obtain reliable and timely emergency information

2. What changes in demand, barriers or challenges need to be addressed when it comes to telecommunications services in regional, rural and remote Australia?

Historically, a defining barrier in the Riverina Murray and Ovens Murray regions has been the commercial model ~~of~~ for the justification for development. Currently telecommunications providers apply a commercial model that does not translate to a regional setting, as the development justification must deliver a cost benefit that simply isn't possible in remote areas. Mobile voice and data connections per tower are the lead indicator and the cost of maintenance follows closely behind. Maintenance is conducted for the most part remotely and many of our regional councils deliver a skill set that can be leveraged to overcome most onsite issues.

The majority of funding programs for connected infrastructure have also created barriers due to their 'place based' approach. There needs to be a shift in focus to prioritise emerging regional growth corridors and logistic routes. Satellite solutions are not viable in these areas as it is too unreliable and cannot handle the network loading required.

3. How have the Government's policies and programs affected telecommunications service outcomes in regional, rural and remote Australia? How can these be improved?

Place based telecommunications infrastructure development has focused on population density as the driving factor in delivery, exacerbating accessibility gaps in remote and regional areas. The Government is encouraged to pivot towards an approach that supports a high concentration of primary industry and addresses global trends in the delivery of connected infrastructure ie: what are the competitive demands that telecommunications infrastructure can support leading progress in this space.

Policies that have limited global investment in innovative technologies that can provide a collaborative, lower cost regional solutions, has stunted progress in regional telecommunications service delivery. Local private sector investment is considered to be too costly to grow at scale for our large landmass. It has also created a market monopoly that limits access in lower socio-economic regional areas.

There also needs to be a review of governance in new and existing developments that ensures provision and access to connected infrastructure is delivered in line with essential amenities, setting a minimum standard of fibre for all new developments. Further, said connected infrastructure must be supported by the private sector provider at the time of installation not at the time of connection.

Part 20A of the Telecommunications Act needs to remain in force. This requires developers to conform to providing pit and pipe infrastructure for provision of telecommunications (NBN). However, current policy only stipulates that the fibre provider is responsible once the established site wishes to connect a service, this requires more regulatory action from NBN to ensure their infrastructure is also implemented at the time of construction, without which we will continue to see new developments without fibre to the pit or premise.

New policy is needed to ensure NBN takes ownership of the pit and pipe as part of the Plan of Subdivision Conditions of Consent. Only after these conditions are met would Council enable approve the Plan of Subdivision for registration.

Related to this is an apparent lack of strategic planning by NBN to ensure the expansion of the fibre to the premises service footprint in regional urban growth corridors. We have a situation in Albury where new subdivisions and estates being established in our urban growth areas are not being connected via fibre to the premises, despite pit and pipe infrastructure being provided by the developer, NBN have indicated this is because they fall beyond the original rollout 'footprint' identified for fibre services and network planning and design cannot cost effectively accommodate its upgrade. NBN are requiring residents in these estates to connect to lesser quality fixed wireless services. There needs to be a requirement on NBN to strategically plan for network expansion and to align fibre service footprints with urban growth corridors to ensure quality and equitable service provision to properties within built up areas over time.

4. How do service reliability issues impact on regional communities and businesses? How do outages, including in natural disasters, impact on communities and businesses?

The reality is in our regional area the unreliability of our communication services has and will continue to lead to loss of life directly and indirectly. Unlike dense urban and sub-urban areas there are not always network overlays that allow for failures in some networks to not lead to such critical outcomes. The 2019/20 bushfire season highlighted how quickly a natural disaster changes and how quickly it impacted services such as 3G/4G towers being destroyed and the smoke and heat affecting tower signals. Satellite services are no longer viable during a natural disaster as they rely on visibility for signal strength which is the only means of connecting for a substantial portion of our community.

Without a blended approach to connected infrastructure that provides multiple points of redundancy our region will not have the reliability of services. Meaning that a transition to mobile data over fixed data only creates more problems.

Congestion rates increase during a natural disaster occurrence, peak periods of tourism and increased population density in growth corridors. This increases outages and their frequency limiting emergency services ability to respond and remain connected during the response period. It also causes businesses to be unable to trade effectively with on average 20-55 outages a day experienced during peak periods with no other redundancies available to them. The economic impact of this is unquantifiable due to its frequency and broad effect.

Reliability issues also cause a lack of innovation across all sectors from emergency services, health, education, industrial and commercial business verticals to public services. Our regional services are unable to invest in the development of new systems that improve serviceability and responses to our community's needs.

Additionally, reliability issues will impact on the economic viability of regional communities.

Telecommunications are critical for business operation and growth. It enables businesses to deliver requisite standards of customer service and communications standards required to be competitive in a global marketplace. While many SMEs in regional locations have developed digital strategies to ensure the ongoing success of their business, telecommunications infrastructure is holding them back.

Contributing to the frustration is the lack of communication providers that service regional locations. This decreased competition leads to increases in operating costs associated with telecommunications, often with no service benefit.

We have seen the requirement for a greater degree of flexibility in terms of remote working associated with the COVID-19 pandemic. This together with an influx of new residents from capital city locations has created additional pressure on the service reliability of our telecommunications infrastructure. With all the work being done to create economic hubs in regional locations, it is critical that this is supported by telecommunications infrastructure that matches that available in capital cities. The resulting factor of substandard services in regional locations will mean industries and businesses will relocate back to locations where connectivity is adequate, in light of our ever increasing reliance on online services.

5. How might such impacts be addressed to ensure greater reliability? How can the network resilience be addressed in regional areas?

The most robust and necessary solution is building fibre to as many premises as possible and only looking to fixed wireless solutions as a secondary sub-optimal solution. Resiliency on such a large scale will only come to the region if the investment is made to ensure the infrastructure is planned and implemented with longevity. This can be done through subsiding NBN to purchase existing dark fibre to bolster if the incentive is for more new fibre to be laid against the adjoining dark fibre.

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?

The COVID-19 pandemic saw the most rapid transformation in digital adoption in our region's history. Regional trade was the greatest adaptor of digital tools to perform existing services for the community while finding new opportunities for national trade. However, this proved to have its own barriers with the reliability of connection in most areas limiting the ability to conduct functional e-commerce. We lack capacity in our regional networks, and the demand continues to increase with the need for trade and the transition of workforce from the cities to our regions.

It has also shifted a large portion of our region's workforce online, with the greatest regional employment sector being Health Care and Social Assistance followed closely by Retail and Public Administration and Safety. Essential service delivery online by these sectors has proven incredibly challenging due to lack for consistent connectivity at most residences and hub locations. As the largest local council in the region, Albury City has experienced firsthand the impacts this has on workforce delivery. The below areas have been identified by the workforce as not viable to work remotely online due to inaccessibility:

East Albury locations – 3.8kms from the CBD, NBN Fixed Wireless, unable to conduct work online - relying on mobile data signal which is currently overloaded due to traffic

Leneva – 17kms from the CBD, NBN Satellite, unable to conduct work online – Mobile data signal to weak to support consistent connection

This provides as an insight into the impact on our service delivery as local government, our workforce along with many others must expose themselves to risk of illness due to their inability to remain safe at their homes and conduct their public service duties. It also demonstrates that it is not viable long term for those reliant on mobile data, the cost of utilising this service as the main pathway of connectivity will continue to cause equitable issue for those impacted. It's simply not affordable long term.

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

Our indigenous communities need access to subsidies that will make obtaining the right source of connectivity financially viable. An Indigenous connection program supported by telecommunications providers and government agencies is needed to build capacity in our indigenous communities through infrastructure while also providing education programs. This will improve digital literacy, affordability and provide emerging generations with the access to new pathways of education.

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

Investment in telecommunications infrastructure in our region aligns strongly with Growing Australian industries through trade. The region's primary economic output is Food Product Manufacturing, along with other valuable international and domestic commodities such as steel, timber, and machinery. Investment will allow these sectors to leverage new technologies that deliver data driven insights leading to improved business operations and efficiencies. On a global scale, transparency around process, tracking and delivery assurance is highly valuable. Telecommunications infrastructure investment along logistic corridors will support our primary industries in utilising new machinery and M2M technologies to demonstrate capacity and value in our global trade commodities.

Network expansion and blackspot programs also need to support tourism product development and growth in the visitor economy. The current place based and connections criteria needs to be adjusted to provide opportunity for improved coverage in areas subject to high levels of temporary visitation, including forecast visitation driven by product development investment. An example is Wonga Wetlands in Albury. With more than 65,000 visitors to the site each year and development of a Visitor Education and Experience Centre and 12km Wagirra Trail extension along the Murray River under construction, visitation numbers are expected to rise significantly. The quality of mobile coverage in the area is poor to non-existent, despite its location within 6km's of the Albury CBD. To date, despite considering the opportunity, telecommunications providers have been unable to seek funding due to limiting program assessment criteria.

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?

The region offers a unique archetype with a capacity to provide opportunities to be a 'test bed' for new innovative technologies. With the support of robust telecommunication infrastructure and vast geographical opportunities at a significantly lower cost the region is lends itself to new investment.
With urban spawl yet to hit our regional cities in a major way, robust telecommunications infrastructure would allow for investment to test new technologies in Australia to overcome planning and density issues in our metropolitan cities. This could include smart factories (complete automation), all electric logistics routes including roads built to support charging capabilities, driverless car lanes, circular economy hubs where waste management systems can automate with manufacturing facilities to enable a complete system of re-utilisation.
The capacity to develop and test large scale emerging renewable energy opportunities such as hydroelectricity will require telecommunications infrastructure to effectively transmit and receive critical data. However, the cost investment in the region to test and develop renewable power sources is considerably less that urban centres and will deliver investors with greater opportunity to realise their capacity and scalability.
The barriers to embolising regional Australia with investment through innovative technologies is that we are limited by not having a standardised benchmark of telecommunication infrastructure capacity that is expectant of new investment in the digital and emerging technologies industry.
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The barriers embolising investment in innovative technologies is limiting regional Australia, not having a standardised benchmark of telecommunication infrastructure capacity that is expectant of new investment in the digital and emerging technologies industry.

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?

New technologies, such as those that connect to the Internet of Things, are becoming the norm now for regional Councils as a means of monitoring asset usage and understanding trends that can support better planning and growth strategies. Due to the limited reliability of telecommunication services and infrastructure regional areas, small-scale low-cost data networks have had to be built and managed by local governments. These practises are also being rapidly adopted by industry, leaving the need for networks such as 5G lessened in a regional setting due to the barriers posed and the commercial model of 5G seemingly not favouring regional areas. IoT technologies are becoming more cost effective as their industry application grows, and as the wave of 5G hasn't landed in regional settings, the technologies will be battling the embedded LoRaWAN solutions.
Technologies are progressing globally at a higher rate than the telecommunications infrastructure is to support them, this may have an impact on the types of services required in our region over the next 5-10 years. We need capacity and affordability over speed and slow roll out.

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

Collaborating with telecommunications and electricity providers to subsidisees the purchase of existing fibre and conduit infrastructure to build greater regional fibre capacity. This model needs to look at leveraging all fibre networks around the country and collaborating to deliver timelier and cost-effective services. Leveraging new GPS reduction in bandwidth, taking up new spectrum approaches to delivering connectivity.
Collaborate with LGA's to reduce asset risk, understand the limitations that telecommunication providers have with large scale regional roll outs and subsidise LGA's to maintain network infrastructure to reduce cost barriers. This can look to prioritise demand driven models, access and capacity can be scaled to regions with higher demand.

12. How can different levels of Government, the telecommunications industry and regional communities better co-ordinate their efforts to improve telecommunications in regional Australia?

Coverage maps need to be validated to remove the assumption of serviceability. Defining if the services have been provisioned and the type of service that has been provisioned.
Guarantees also need to be made to regional government agencies and their communities through the change in responsibility from the service provider only being responsible from when the service is connected. The responsibility must be on the provider to provision the infrastructure before the service needs to be connected.

A streamlined approach to the programs and funding available is also critical. The amount of information available for communities and businesses, from different sources, Departments or programs, is overwhelming and often leads to apathy or frustration and a resulting poor uptake of opportunities.

13. What changes to Government investment programs are required to ensure they continue to be effective in delivering improved telecommunications?

A review of the government priorities against telecommunication infrastructure providers commercial requirements, this will see a shift to a commodity-based/demand-based network investment out over a place-based investment. Ultimately bolstering the most vulnerable and disconnected Regional Australian's who provide a predominate number of regional exports.

A demand-based network approach will be effective in supporting regional centres during the boom of domestic travel, mapping areas of need where population concentration is high from a tourism perspective vs. residential concentration. This model also needs to be adapted to support the needs to regional LGA's to manage critical assets for their communities. Albury City owns and runs the regions Water and Wastewater Treatment plant, at which there is no mobile voice or data connectivity, limiting capacity to improve services through automation and posing high level of risk to our workforce in an emergency.

The removal of co-investment models with telecommunications providers and local government. Local government can provide support on a collaborative post development basis by upskilling our workforce to manage small cell towners etc.. The funding capacity simply does not exist in regional LGA's to invest in telecommunications infrastructure where it is not feasible for providers to service with fibre or mobile voice and mobile data, this is ultimately the responsibility of other levels of government, yet our communities must This model also does not factor in investment in lifetime cost of maintenance of the infrastructure, adding substantial risk to asset management budgets that are not sustainable.

A government centralised approach to telecommunication assets may also provide a model for Regional Australia that overcomes the limitations listed above. If the barriers of telecommunications providers continue to be based on a commercial model of connections per tower for mobile voice and mobile data, regional communities will never gain the access required or deserved. The government could seek to build independent towers and lease connectivity provisions to service providers.

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?

Complete transparency delivered from the appropriate government agency, the trust of our regional communities in telecommunications infrastructure providers is fractured. Transparency in what services are available to them in real time and in the future. These services also need to be more meaningful in their descriptor of service and what capacity it will provide them to live their lives or operate their business. Regional Australians have a different value system, the delivery of information needs to relate to how it will improve their liveability and livelihood. Engagement through social online platforms does not have the same cut through with our demographic as it would in more urban areas. Tactile engagement is best placed for education in regional Australia.