Telesat

Comments for the

Regional Telecommunications Review 2021

Issues Paper

Australian Government – Regional Telecommunications Independent Review Committee (RTIRC)

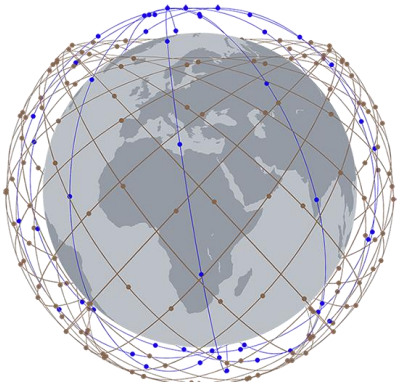
September 30, 2021

COMMENTS OF TELESAT

1 Telesat welcomes the opportunity to provide these Comments in response to the Australian Government's Regional Telecommunications Review of 2021.

I. EXECUTIVE SUMMARY

2 With over 50 years of operating experience, Telesat has grown into one of the world's largest and most innovative satellite operators providing reliable and secure satellite-delivered communications solutions to broadcast, telecom and government customers globally. Today, Telesat provides satellite services to key customers across Australia through our global channel partners and service providers.



3 Telesat is now undertaking one of the most ambitious, innovative and advanced space programs ever conceived: a state-of-the-art, next generation satellite constellation initially consisting of 298 satellites in Low Earth Orbit (LEO) known as Telesat Lightspeed. This advanced network will be the world's most technologically capable LEO constellation, leveraging highly advanced satellite architecture and next generation technologies including optical inter-satellite links, in-space data processing, Artificial Intelligence and Machine Learning. Operating under Telesat's global Ka-band priority spectrum rights, Telesat Lightspeed has been optimized to serve the fast-growing broadband connectivity requirements of fixed and mobile network operators, aeronautical and maritime users, enterprise customers and governments. Telesat Lightspeed will be manufactured by world-leading industry partners, including Thales Alenia Space as prime manufacturer of the Lightspeed constellation.

4 Given the generational technological leap in innovation for space-based communications, LEO satellite constellations have transformed broadband connectivity and are now recognized and endorsed by governments worldwide as a critical component to bridging the digital divide. Canada, the United Kingdom, the United States of America, China, Russia, as well as the European Union have all invested millions – and in some cases billions – of dollars in LEO constellations and are

working hand-in-hand with industrial partners to develop domestic LEO capabilities. For Telesat Lightspeed, the Governments of Canada, Quebec, and Ontario have all invested over C$2.5 billion collectively in the program in order to leverage this unique solution and secure Lightspeed capacity to connect all of the remaining underserved areas in Canada today.

5 Bridging the digital divide is a major endeavor that requires a plethora of technologies leveraged together, to make sure every community and region is fully connected to affordable high-speed Internet and mobile LTE and 5G connectivity. With every community having different population density and demand, different geographical distance from existing core Internet links and different local conditions and landscapes, the optimal combination of technologies that is best suited to connect every area will vary. However, the common denominator in connecting every community is ensuring that an affordable, high-quality backhaul connectivity, or "Internet pipe", is coming into the community, and that is where enterprise-grade LEO satellite technology plays a critical role in bridging the digital divide for rural and hard-to-reach areas that are the most underserved. As Telesat's comments will demonstrate, Telesat Lightspeed is the only enterprise-grade LEO constellation that is able to enable true universal high-speed connectivity, including 5G, to every corner of the world, including the North and South poles, with unparalleled low latency and data capacity, at affordable rates. Telesat has over 50 years of experience operating satellites to connect rural and remote communities around the world and is now leveraging this expertise in its most ambitious and innovative program to date, Telesat Lightspeed. Telesat would like to again thank the RTIRC for undertaking this consultation and we look forward to engaging with the Committee further on the transformational impact Telesat Lightspeed could have across Australia.

II. ANSWERS TO CONSULTATION QUESTIONS

Key Issues: Adequacy

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?

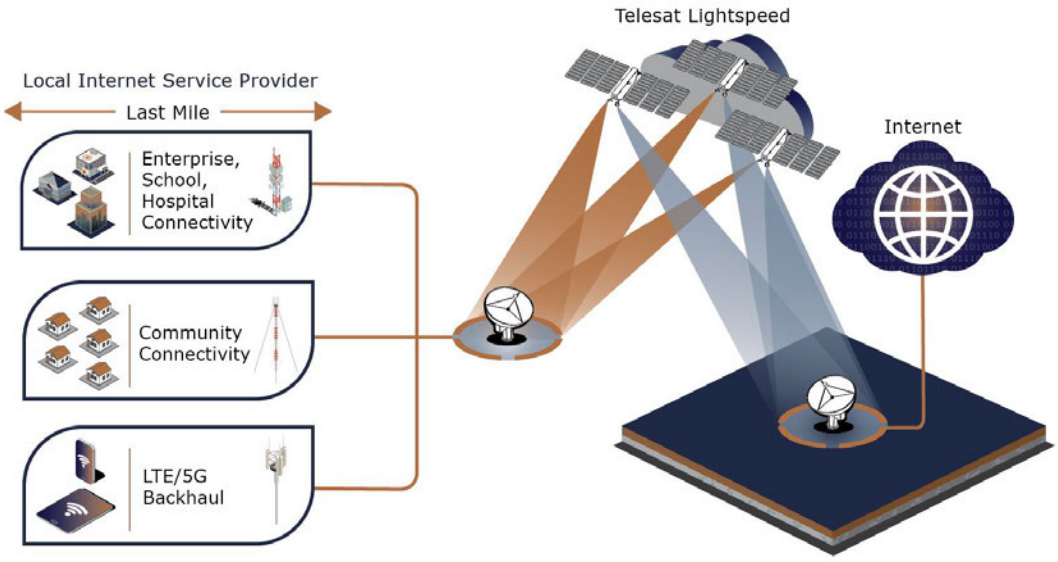
6 Globally, we are witnessing an exponential increase in the demand for affordable high-speed broadband and mobile connectivity, driven by the growing digital economy and the very rapid evolution of technology every day. It is no surprise that this is also the case in Australia, where a digital divide remains apparent between urban areas that have affordable access to high-speed broadband connectivity, and rural and remote communities which remain underserved and sometimes completely unconnected to this day. Telesat has over 50 years of experience serving some of the harshest and most challenging environments in the world. An example of this is Canada, which, like Australia, shares similar geographical challenges, having large landmasses with variable topography and challenging terrain, and sparse population in rural and remote regions. For this reason, it is important to consider all viable options to bridge the digital divide and connect underserved communities to enable them to access the digital economy and essential daily needs from teleworking to remote learning, online healthcare and government services. The Australian Government has been a leader in this space, having recognized not only that broadband is fundamental for economic development and social prosperity, but also recognizing that governments have an important role to play in coordinating, funding and developing large-scale broadband infrastructure. However, in order to meet rising current and future needs, Australia needs to consider pathways that leverage the significant private sector investments made by global operators to deliver a large-scale broadband network that encompasses key, necessary features that will support the demand and technological requirements of the future. These network features must include low latency[1] with high capacity available to rural and remote areas (multiple Gbps), coupled with high resiliency and redundancy at affordable rates.

[1] According to the US Federal Communications Commission (FCC), latency (or delay) is the time it takes for a data packet to travel across a network from one point on the network to another. The standard for low latency is at or below 100 milliseconds round-trip time. Low latency is essential to support interactive online services.

7 This is the unique solution offered by Telesat Lightspeed. Telesat's next generation LEO broadband network was designed to address customer needs based on decades serving enterprise and government customers worldwide. Telesat Lightspeed is built to enable an enterprise-grade, low-latency, fibre-like and affordable broadband service as well as LTE and 5G to every corner of the world. It offers a future-proof, cutting-edge design, architecture, and service offering that are unmatched with any other LEO constellation or large-scale broadband network in the world. The Telesat Lightspeed network will bridge the digital divide everywhere in Australia, using its initial 298 satellites in polar and inclined orbits, and offering terabits of affordable global broadband capacity at fibre-like speeds.

8 For rural connectivity, Telesat leverages a partnership driven, community-focused business model where Telesat partners with a local Internet Service Provider (ISP) to bring affordable backhaul broadband capacity into the community, enabling the delivery of affordable high-speed services to every household, business, school, hospital, and institution. Furthermore, Telesat will work directly with local Mobile Network Operators (MNOs) to bring dynamic 5G backhaul to cell towers, extending the 5G footprint on the edge of the network ensuring that connectivity doesn't end when one leaves the home.

Figure 1 - Telesat's community aggregator business delivery model



9 Telesat Lightspeed is the fastest and most effective solution to connect hard-to-reach rural and remote areas anywhere in Australia and the world, where the business case for fibre, microwave and other broadband solutions is weak or unachievable. Lightspeed will be able to ensure that the remaining Australian population lacking high-speed Internet is fully connected on an accelerated timeline to fibre-quality Internet as well as LTE and 5G. By enabling universal, high-speed connectivity to every resident, every community and every business in Australia, Lightspeed – and our local partners - will help create opportunities and include everyone in the digital economy, enabling economic growth, job creation, and innovation through teleworking, remote learning, e-health, online financial and government services, and many other applications.

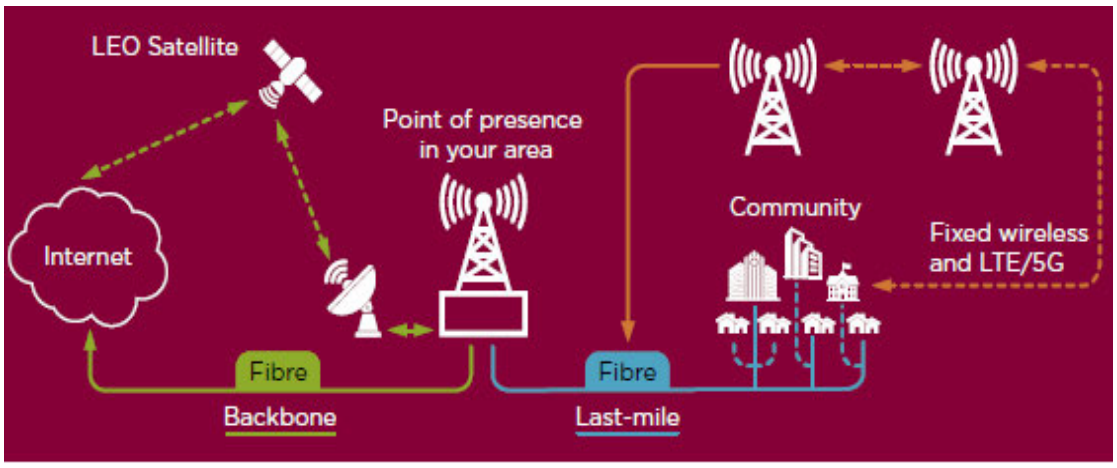
2. What changes in demand, barriers or challenges need to be addressed when it comes to telecommunications services in regional, rural and remote Australia?

10 The demand for affordable high-speed broadband is growing exponentially in Australia and globally, while the barriers and challenges to bridging the digital divide remain unchanged. Vast geographical areas, challenging terrain, natural disasters, and financial challenges all constitute significant barriers to achieving true universal connectivity in rural areas. The key barrier however is access to backhaul connectivity, also known as backbone, which represents the main "Internet pipe" and broadband supply brought into a community. The distinction between backhaul and last-mile connectivity is of great importance in order to understand the true challenge of universalizing rural connectivity. Last-mile networks, or access networks, represent the smaller ramification networks that distribute connectivity from the main backhaul link to the end users in the community (*Figure 2*[2]). In densely populated areas and in community cores, terrestrial solutions such as fibre and fixed wireless networks constitute viable and cost-effective options to deliver last-mile connectivity to households, businesses, schools, health centres, and institutions. However, bringing high-speed Internet and 5G backhaul connectivity *into* a rural or remote community at affordable economics constitutes the main challenge. For example, delivering backhaul connectivity using fibre links to rural and hard-to-reach communities that are far from

[2] Federation of Canadian Municipalities, *Roadmap to connectivity: A guide to connecting your community to affordable, high-speed Internet*, 2021.

an existing core fibre link is often an extremely costly and lengthy undertaking, and can often be impossible.

Figure 2 - Backhaul is the main challenge to connect rural communities



11 This is where enterprise-grade LEO satellite broadband technology is able to close the business case where terrestrial technologies cannot. Today's ground-breaking space-based broadband technology in low earth orbit, that can offer Internet and mobile services everywhere on earth with fibre-like speeds, can be the exact backhaul solution required for rural connectivity. Telesat Lightspeed, in particular, focuses on connecting communities as a whole to affordable, high-speed broadband and LTE and 5G in order to enable every possible connectivity application to every household, every business and every institution across Australia, by partnering with local ISPs to deliver an enterprise-grade, low-latency, and high-capacity affordable service. Where fibre, microwave, and other broadband technologies are too costly to deploy, take too much time, and are vulnerable to natural disasters, LEO satellite connectivity is the most efficient, most effective, and most affordable solution. This is particularly demonstrated by the current global space race for LEO constellations as a key, fundamental solution to connecting underserved rural and remote communities in every country and achieving government connectivity targets on an accelerated timeline and in the most affordable and efficient way possible. Namely, in 2019, the Government of Canada signed a $600 million agreement with Telesat to help connect underserved rural and remote communities in Canada, especially in the North, to high-speed broadband connectivity at reduced rates by leveraging Telesat Lightspeed. Similarly, this year, the Government of Ontario

signed a $109 million investment in Telesat Lightspeed to offer affordable backhaul connectivity to every community in Ontario and help bridge the digital divide in the province once and for all.

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

12 The Australian Communications and Media Authority (ACMA) has recently lowered the apparatus licensing fees. Differentiated fees are also implemented across different population densities in Australia with the cost of equipment deployment in low-density population areas and remote locations to be significantly lower than the one in medium and high population density locations. This provides a substantial incentive to service providers and operators in reducing the cost needed for service provision in these areas.

13 In addition, Australia's Government has rightfully acknowledged broadband as a key priority and component to regional economic development and social prosperity, pioneering a national broadband program that aims to connect all of Australia. Government-backed, large-scale, and coordinated national programs are significantly important when it comes to broadband, as they allow for substantial public investment, leveraging private sector investment, in next generation technologies and broadband infrastructure that otherwise would not be financially accessible or inclusive of everyone. In the face of rising digital demand, it is very important to consider a forward-looking, holistic broadband solution that is scalable and that truly tailors to future digital needs. A future-ready broadband network must encompass key features that will ensure the digital needs of tomorrow are met. These features include low latency, to deliver real-time connectivity and a fibre-like experience, high capacity available to rural and remote areas, including multiple Gbps of data capacity to ensure all users are receiving the capacity that they need, high resiliency and redundancy features to ensure a robust, highly redundant and reliable network, and affordable economics to ensure the service is accessible to everyone. In addition to these features, which are all staples of Telesat Lightspeed, a forward-looking broadband network also needs to consider industrial and enterprise needs, in addition to consumer needs. This particularly refers to the extension of 5G connectivity to support the use of Industry 4.0 and advanced technologies, driving innovation and productivity in every economic sector. Australia's mining industry and

manufacturing industry are only two examples of the sectors that will rely more heavily on 5G networks, however, the transformational nature of 5G will a driving force for every economic sector. Telesat Lightspeed is well positioned to support the extension of 5G networks to cover all of Australia, through delivering 5G backhaul and partnering with MNOs in Australia to expand the 5G footprint way beyond its current reach. Australia needs to be ready to face future digital needs by having a holistic, national approach – just like it has in the past – prioritizing national programs that target broadband solutions that are most future-ready and most appropriate not only to bridge the digital divide in the most affordable, expeditious way, but also to provide a real bedrock to support future technological requirements and digital applications on the network.

Service reliability

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

14 Service reliability, continuity, and resiliency are some of the most important aspects of any telecommunications network. It is crucial to enable real-time and seamless connectivity and data transfers that are essential for modern day digital operations and cloud applications. Network resiliency, with reliable, real-time connectivity is further essential when it comes to natural disasters, when telecommunication networks are most needed. Individuals, public safety and national security providers including police, paramedics, fire fighters, and the military need to be able to access mission-critical and often vital broadband and mobile services without any interruptions.

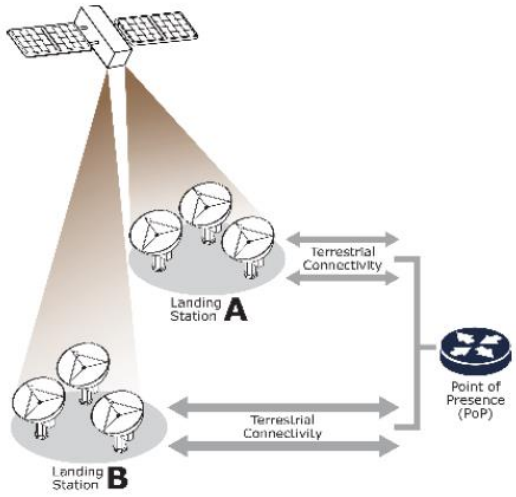
15 Telesat, with its current fleet of 16 geostationary satellites, has been offering mission-critical services to the Government of Canada's frontline national security and public safety departments for decades, including the Department of National Defence (DND), the Royal Canadian Mounted Police (RCMP), the Canadian Coast Guard, and the North American Aerospace Defense Command (NORAD) North Warning System overlooking the Arctic. Telesat connects hundreds of satellite-dependent communities across Canada, offering essential

broadband and mobile connectivity for daily use cases and ensuring millions of Canadians have access to the 911 mobile vital resource. Having served enterprise and government customers for over 50 years, Telesat understands the criticality of a satcom data link to a user, whether on land, at sea, or in the air, and has thus designed a highly dynamic LEO system with redundancy built in at every level whilst using state-of-the-art technologies to ensure users always stay connected.

16 The Telesat Lightspeed architecture offers redundancy at multiple levels to ensure highly resilient service to a user terminal:

- **Space resiliency**: the Telesat Lightspeed constellation will have satellites that are interconnected in a mesh via optical links. Furthermore, multiple satellites are in the view of a user terminal, unlike GEO systems where there is only one visible satellite. This translates to multiple transport route options to connect a user terminal, with the network deciding the optimal satellite assignment and traffic routing to favor long term availability to ensure that users get their provisioned data rates and performance.

- **Ground resiliency** with multiple feeder links and redundant ground infrastructure that provide end-to-end transport path diversity. Each satellite has four feeder link antennas that enable simultaneous connections to multiple Landing Stations for seamless handovers. Each Landing Station consists of multiple tracking antennas that communicate with the satellites. Multiple Landing Stations connect to a Point of Presence (PoP) with seamless switchover capability, providing redundant paths in the case of weather impairment at one of the Landing Stations. All of the ground facilities will be orchestrated by Telesat's network management system so the network can dynamically adapt to network and weather events, including natural disasters.

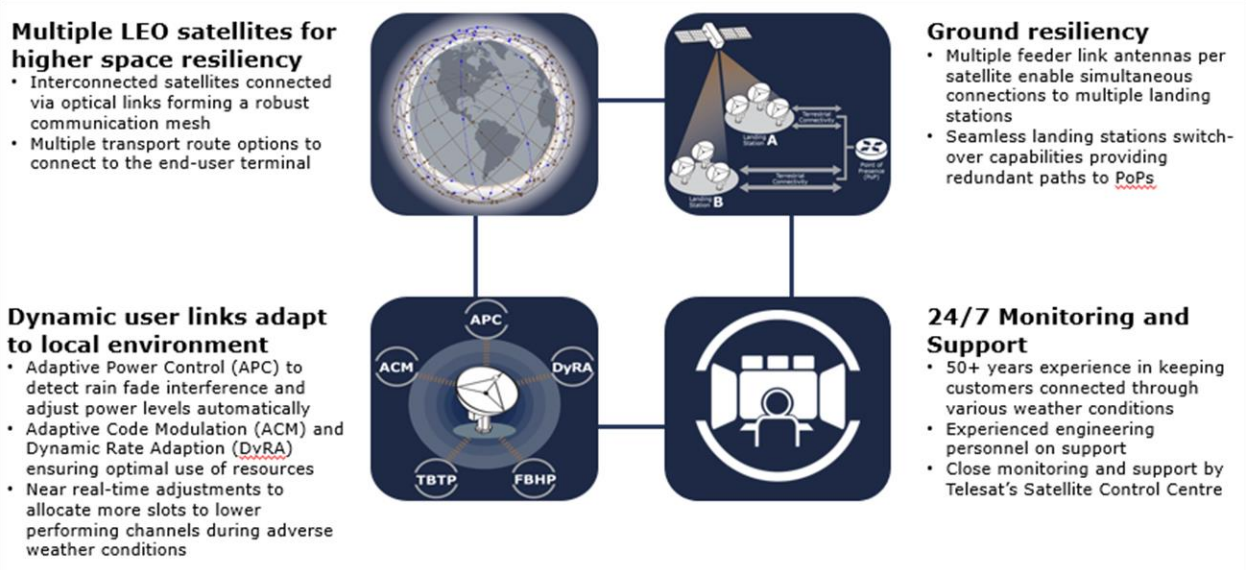


- **Dynamic user links** for optimal resource allocation adapting to local user environment. Telesat Lightspeed satellites are designed using state-of-the-art technologies, with the

ability to optimize resources for degraded local environment conditions such as rain fade and extreme weather conditions. The Telesat Lightspeed system will employ advanced mechanisms to ensure resource allocation to users can adapt to the local user environment.

- **Satellite and Network Control Centers** with 24/7 monitoring and support by experienced staff. Telesat has more than five decades of experience in ensuring that communication services provided to its customers remain connected through all adverse conditions that impact the network. All routine operations within Telesat's Satellite Control Center are conducted using automated procedures run from master schedulers residing on the fleet control systems. Operations are monitored around the clock at Telesat's Satellite Control Centre and a team of experienced senior engineers are always on hand to trouble shoot any critical anomalies. This legacy of engineering excellence, reliability and industry leading customer service will continue into the new Telesat Lightspeed era.

Figure 3 - Unparalleled Network Resiliency with Telesat Lightspeed



17 With these exceptional resiliency features, Telesat's Lightspeed satellites will allow for unmatched service reliability everywhere in Australia including regional areas and particularly under adverse conditions or natural disasters, ensuring a continuity and high quality of service that can make a truly vital difference in such scenarios.

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?

18 The COVID-19 pandemic had significant impacts on everyone and has significantly reshaped lifestyles and the status quo, not limiting itself to individuals but also greatly affecting businesses, governments, and institutions. The pandemic forced a very rapid and high-volume transition to digital services and digital platforms, putting unprecedented pressure on existing telecommunications networks. As teleworking became significantly more prominent, so did essential and lifeline services that needed to be delivered remotely. This included online healthcare and remote medicine, financial and government services, and other essential public safety and response services. These online interactive services translated into substantially more two-way, real-time data traffic, particularly upstream data, as more data was being uploaded to the cloud for videoconferencing, online schooling etc. requiring substantially more capacity and higher speeds from existing broadband networks. This trend in rising digital needs for high capacity, low latency and resiliency is expected to continue to increase after the pandemic as the world embraces new digital technologies and remote service delivery, further underlining the need to have a high-capacity, robust, scalable, future-proof, universal and affordable high-speed connectivity network that is inclusive of everyone and that enables economic growth and social prosperity today and tomorrow. Telesat Lightspeed is the only connectivity network that is comprehensive and holistic by design, and that provides an accelerated solution that is both affordable and future-ready to connect every single Australian.

Indigenous Australia

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

19 Indigenous communities are often some of the most under-connected and underserved when it comes to broadband connectivity, greatly limiting their economic development

opportunities and inclusion. With over 50 years of serving Indigenous communities around the world, Telesat fully appreciates the difficulties that Indigenous communities continue to face in accessing affordable high-speed broadband and continues to work hand-in-hand with Indigenous ISPs and community groups to enhance and expand the broadband service that these communities receive. Particularly, Telesat has been providing backhaul connectivity to Indigenous communities for decades, through partnering with local, Indigenous-owned ISPs and community groups. Today, Telesat connects numerous Indigenous communities globally to broadcast, Internet, and mobile connectivity, including 911 services, where satellite is often the only solution, using its geostationary satellite fleet. However, the speed and capacity needs that can be met by geostationary satellites are limited, which is what Telesat Lightspeed will address once and for all. Lightspeed will offer a complete connectivity solution to single Indigenous communities worldwide, that is both affordable and highly performant, matching fibre speeds and offering Gbps of data capacity. In order to improve the access and affordability of telecommunications services in regional, rural and remote Indigenous communities, the Government of Australia should design a consolidated funding program focused on delivering affordable high-speed backhaul connectivity to Indigenous communities. Any potential backhaul funding program should leverage the experience, technology, and significant private sector investments made by established global operators such as Telesat, a world leader in serving Indigenous communities and empowering Indigenous-owned ISPs.

Opportunity: Regional Development

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

20 Telecommunications networks constitute the foundation of economic development. Reliable high-speed broadband and 5G connectivity are fundamental drivers of economic growth and development across sectors, enabling economic and industrial activity through Internet, cloud, and mobile connectivity and allowing for productivity, growth and innovation. Thus, national industrial and infrastructure development programs must always include broadband development.

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?

21 In order to address the single largest barrier to universal, affordable regional connectivity – affordable high-speed backhaul – having access to dedicated, high-speed backhaul capacity to all of Australia's communities is the single most effective solution to ensure affordable high-speed Internet and 5G is facilitated not only in regional communities but also enterprises everywhere in Australia. The Government of Australia should look to enable the development of both open access broadband and 5G infrastructure as well as private industrial networks through Telesat Lightspeed backhaul, that supports the use of all potential users including communities, businesses, households, industries, telecom operators, ISPs, enterprise and government users.

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?

22 Developments in satellite communications technology has fundamentally changed the face of space-based broadband. LEO satellite constellations offer new, ground-breaking opportunities to deliver high-speed broadband and mobile connectivity to every corner of the world, bridging the digital divide in a highly efficient, accelerated manner that was not previously possible. Traditional broadband technologies such as fixed wireless infrastructure, fibre and even microwave, have not been able to close the business case of connecting rural and remote areas with sparse populations, a problem that we still see in Australia, in Canada, and across every continent and country to this day. While the digital economy grows, and the reliance on Internet and mobile-based services increases exponentially, this leaves billions of people in underserved areas around the world behind, deepening existing economic and social inequalities and creating new gaps in regional economic development.

23 LEO satellite technology, and particularly the Telesat Lightspeed network, will truly transform the connectivity landscape in Australia and offer opportunities that could not exist with prior technologies. Through its community-based partnership model, Telesat Lightspeed will overcome the longstanding connectivity and affordability barrier, by providing an unprecedented, enterprise-grade backhaul service to local ISPs and community operators, ensuring that every household, business, school, hospital and community is connected across Australia to affordable, high-speed Internet. By partnering with MNOs, Telesat Lightspeed will also bring high-speed backhaul connectivity to 5G towers, greatly extending 5G coverage at the edge of the network. In addition to connecting communities and businesses, Telesat Lightspeed will directly enable high-speed backhaul connectivity to enterprises and industries with private connectivity networks, significantly improving their access to affordable broadband and 5G capacity and helping to drive innovation, productivity and scalability as a result.

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

24 Australia has been at the forefront of broadband connectivity and a pioneer in recognizing the intrinsic role that Government plays in universal connectivity. While having inaugurated the National Broadband Program (NBN) and several departmental subsidies and incentive programs for broadband, Australia is at an important cross-point where regional connectivity needs to be urgently resolved and the tools required to do so are becoming available. With the advent of Telesat Lightspeed, the Australian Government can focus its national broadband policy on securing dedicated Lightspeed backhaul capacity to every corner of Australia, leveraging the US$ 5 billion investment that Telesat is making in its next generation, transformational LEO network and bridging the digital divide on an accelerated basis. Through a potential partnership with Telesat, the Government of Australia has the opportunity to leverage a future-proof technology solution that meets next generation performance requirements and public policy objectives including low latency, high capacity, resiliency and redundancy, that will holistically address the lack of backhaul connectivity in communities, enterprises and industries in Australia, as well as the limitation of 5G networks across the country. Whether or not consolidated with a national broadband backhaul program, the rollout of 5G should also be a priority for the Government of

Australia as it will drive industrial growth across economic sectors and is a bedrock for the economy of tomorrow. A holistic, future-ready national broadband network would include a mix of backhaul technologies with last-mile networks and extensive 5G networks that can support the development of both community and enterprise connectivity, enabling growth for every economic actor from consumers and businesses to industries, telecom and mobile operators, and government and defence partners.

Maximizing outcomes

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

25 As the primary telecommunications industry body in Australia, Communications Alliance (CA) is liaising with both the Department of Infrastructure, Transport, Regional Development and Communications and the Australian Communications and Media Authority (ACMA), while providing unified replies to several public consultations. As a member of the CA and with a keen interest to provide satellite services in Australia, several views of Telesat have been also reflected in the collective reply from CA. For issues that are more pertinent to Telesat Lightspeed deployment, Telesat has submitted several direct responses directly to public consultation published by the ACMA and is participating in the domestic preparatory processes on relevant agenda items for the World Radiocommunications Conference led by the Department of Infrastructure, Transport, Regional Development and Communications. Telesat is of the view that there is a good level of coordination and communication between the telecommunication industry and different levels of the Government, with an open and transparent process.

26 Furthermore, Telesat wishes here to reiterate the importance of a nationally coordinated funding program which focuses public investment specifically on extending backhaul connectivity to underserved regions,. Enterprise-grade LEO satellites offer a new opportunity to bring backhaul connectivity, affordably, to rural and remote regions, where the business case for fibre backhaul and other technologies is unjustifiable or impossible.

27 Today, the policy landscape in Australia is very similar to Canada, where multiple branches of Government offer different funding programs to industry and communities to help them get connected. For example, Australia administers multiple regional telecommunications programs including the Universal Service Obligation (USO), the Regional Broadband Scheme (RBS), the Mobile Black Spot Program (MBSP), and the Regional Connectivity Program (RCP), among others. However, this creates the potential for inefficiencies and challenges to funding meaningful projects that could fundamentally reshape rural connectivity and offer a far better service at a much lower cost. This is where the pivotal impact of LEO technology on rural connectivity, specifically Telesat Lightspeed, can really support national broadband funding programs to consolidate funding focused on backhaul, in order to truly address the telecommunications gaps that exist today. Telesat Lightspeed provides the opportunity of a new backhaul solution that is more effective, efficient, and holistic than any other technology and that should be driven by a nationally coordinated backhaul funding program to revolutionize regional connectivity. Just like the Government of Canada, the Australian Government should consider applying this policy approach by leveraging innovations and investments from the private sector, championing winning technologies and large-scale broadband programs such as Telesat Lightspeed.

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?

28 No response.

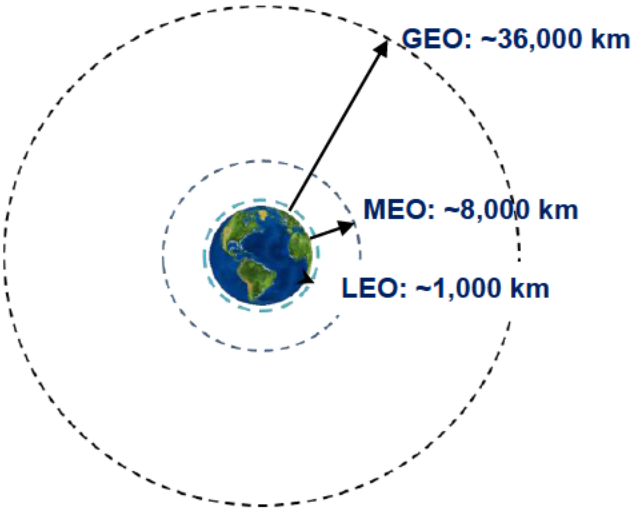
Public information

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?

29 No response.

16. What other matters should the Committee consider in its review and why are they important?

30 As previously mentioned, latency is the time it takes for a data packet to travel across a network from one point on the network to another[3]. Low latency, specifically at or below 100 milliseconds round-trip time[4], is essential to support interactive services such as phone calls over the Internet, video chat and video conferencing, or online multiplayer games. However low latency is also very important for enterprise and industrial use, which increasingly relies more heavily on broadband networks in daily operations. That is why LEO technology, and specifically Telesat Lightspeed, is a key component to deliver the low-latency, high-speed connectivity needed for the networks of tomorrow. It is also important to note that the different LEO constellations currently designed serve different markets, with Telesat Lightspeed being the only LEO constellation that truly delivers an enterprise-grade, low-latency and comprehensive solution to meet the needs of the enterprise, consumer, and industrial markets globally, in addition to government, defence, and other customers. The Australian Government is encouraged to pursue connectivity solutions that are as broad as possible in nature and capability and that address a wide range of markets, such as Telesat Lightspeed.



[3] https://www.fcc.gov/reports-research/reports/measuring-broadband-america/measuring-fixed-broadband-eighth-report

[4] https://www.usac.org/high-cost/annual-requirements/performance-measures-testing/

III. CONCLUSION

31 As the world emerges from the global COVID-19 pandemic, and following recurring natural disasters facing Australia and the world, now more than ever, communities, industry, and governments need to come together to stimulate the economy, create jobs, and deliver essential services to their citizens. The importance of reliable high-speed broadband has never been more important and with the inevitable growth of teleworking, 5G, and the Internet of Everything, Australia needs an advanced, highly capable, all-encompassing and scalable connectivity solution that can meet the growing digital needs of Australians today and tomorrow. Telesat Lightspeed is the single most affordable, fastest and most comprehensive solution to connect every Australian to affordable high-speed broadband and LTE/5G on an accelerated basis, while leveraging a highly robust and reliable network that can perform under the direst of circumstances including in the instance of natural disasters. Telesat Lightspeed will also enable the Australian government, enterprises, schools, health providers and communities to develop innovative and advanced digital use cases and services in addition to having access to an end-to-end 5G network and Gbps of dedicated data capacity, that support the scaling of Industry 4.0 technologies and advanced applications in every economic sector, boosting economic growth, innovation, Intellectual Property, and job creation.

32 Replicating the partnership model with the Government of Canada, a partnership between Telesat and the Australian government leveraging Telesat Lightspeed to bridge Australia's digital divide is what is needed for every Australian citizen to be connected to affordable high-speed Internet and 5G as soon as possible. Telesat has successfully entered into similar partnership models with other jurisdictions embracing new, innovative and disruptive projects to deliver benefits – both near term and long term – for their citizens. In light of the economic wreckage brought by COVID-19, the urgency of upgrading Australia's telecom infrastructure to keep up with our times is a top priority. Telesat would welcome a collaboration with the Australian Government in a similar fashion and is available to discuss this important opportunity at your earliest convenience.