Submission to the Joint Standing Committee on the National Capital and External Territories

Inquiry into the availability and access to enabling communications infrastructure in Australia's external territories

Public Version

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INTRODUCTION

1. Optus welcomes the opportunity to provide a submission in response to the Joint Standing Committee (**Committee**) and its inquiry into the availability and access to enabling communications infrastructure in Australia's external territories (**Inquiry**).

2. Optus has a long-standing and proud history of significant investment in Australia. Since 2001, Optus has invested over $22 billion into network infrastructure – providing vital competition in the Australian telecommunications market and greater choice for consumers. We have been investing heavily into our 5G network and will continue to accelerate this investment.

3. Importantly, Optus is the only operator in Australia to own and operate network infrastructure across fibre, wireless and satellite technologies, providing 100% coverage across Australia and New Zealand. This unique point of differentiation is one which allows Optus to provide holistic solutions for consumer and enterprise customers throughout Australia, including Australia's external territories (Territories).

4. Optus Satellite currently offers corporate access to Federal and State Governments on both Christmas Island and Norfolk Island. We have historically also provided corporate services to the Cocos (Keeling) Islands.

5. Optus also has demonstrated experience in deploying cost-effective 4G small cells in the most remote parts of mainland Australia, which could be expanded to the Territories.

6. We do note that the current consumer telecommunication market in the Territories is limited. The Territories have not witnessed the same level of investment as regional or metropolitan Australia. Given the bespoke circumstances of the Territories – limited population, specific corporate operations – we would encourage any future Government investment to similarly be bespoke in its application.

7. Indeed, Optus believes the Territories could act as a test-bed environment for the Government to satisfy itself as to the performance and reliability of satellite technology. If proven successful, this trial could be expanded to include those geographical areas serviced under the Universal Service Obligation in mainland Australia.

BACKGROUND: OPTUS SATELLITE

8. Optus is the premiere supplier of Australian satellite communication and broadcast services in Australia, providing services for over 30 years. In fact, Optus is the only network provider in Australia to own and operate its own fleet of satellites, with the largest fleet of satellites in Australia and New Zealand. Furthermore, Optus is the only operator in Australia to provide 100% network coverage through our terrestrial mobile network and satellite fleet.

9. Since 1985, Optus has successful launched ten satellites and operated thirteen spacecraft. The current satellite fleet consists of five geostationary satellites providing satellite services across Australia and New Zealand and to McMurdo Sound in the Antarctic.

10. Optus' satellites operate in the Ku band, which provide it with greater stability than that experienced over the NBN Sky Muster service, which utilises the Ka band. Optus has been providing mobile services via satellite since early 2000s; across remote

temporary congestion or emergency services occurrences such as bushfires, cyclones and floods and continues to provide connectivity more generally across Australia for business, government and consumers in terrestrial black spots.

11. Optus has announced it is currently preparing for the construction and the 2023 launch of a new, software-defined very high throughput geo-stationary communications satellite in our fleet: Optus 11. Optus 11 will be deployed at the current Optus D1 orbital location of 160°East and will cover a wider area than our traditional satellites over Australia and New Zealand.

12. We provide a number of major satellite services including: voice and data services; free to air television (VAST); pay television; radio broadcast; broadband IP; video conferencing; and mobile satellite to all of Australia and New Zealand.

13. Optus Satellite provides satellite connectivity solutions to a range of government and enterprise customers, including key companies in the mining and resources sector; television providers such as the ABC, SBS and Foxtel; and State and Commonwealth Government Departments and Agencies including Defence.

14. Our main satellite operations centre is located in Belrose (NSW) with other operations in Lockridge (WA); Hume (ACT); and Regency Park (SA). From these stations we conduct continuous satellite network monitoring, video, voice and data delivery, support and troubleshooting.

Small and Femto Cells

15. Optus pioneered and deployed our Small Cell technology to bring connectivity to locations in very remote areas where other communication infrastructure, such as standard mobile towers, is not suitable.

16. Optus has funded these solutions independently, as well as in partnership with the Government's Mobile Black Spot Programme:

    (a) Optus Satellite were awarded 49 sites under Round 2 of the MBSP; 24 sites under Round 4 and 20 sites under Round 5.

    (b) As part of this program, Optus was the first telecommunications company to provide connectivity to national parks in the Northern Territory - Wangi Falls & Florence Falls.

    (c) The Mobile Black Spot program provides 3G up to 3km from the small cell and 4G up to 7km, depending on the terrain of the area.

17. This technology provides coverage for several square kilometres around the cell itself. The cost of a small cell is a fraction of the cost of a macro cell (in the order of tens of thousands of dollars rather than hundreds of thousands) and can be deployed over a few days assuming local planning approvals are in place. Optus observes that these solutions are a cost-effective way of providing coverage to remote locations and strongly submits that future Government programs should examine how this capability can be maximised.

18. It should also be noted that Optus Satellite has also developed satellite connected femto cells, which are the smallest types of small cells used to expand network connectivity within a targeted geographic area such as homesteads or regional businesses, and are increasingly cost effective in such scenarios.

VAST

19. The Broadcasting Services Act 1992 ensures that television viewers who do not have adequate reception of terrestrial digital commercial television broadcasting services can access Viewer Access Satellite Television (VAST) services. Funded by the Australian Government, VAST gives access to a suite of metropolitan-equivalent broadcasting services to viewers in remote areas and in terrestrial digital television 'black spots'.

20. Optus is responsible for delivering the VAST service to approximately 250,000 devices via the Aurora Digital platform via its satellite fleet. Optus has proudly and continuously hosted the remote area broadcast service since 1985.

21. It is important to note that VAST services are available to the population in the Territories, such as ABC and SBS., if they chose to setup VAST receiver equipment.

New Optus 11 Satellite

22. With the launch of Optus 11, Optus will be the first operator in the Asia Pacific to launch a software-defined satellite that can provide both flexible concurrent broadcast and broadband services via a very high-throughput satellite (VHTS) design.

23. The satellite will be fully configurable in space, meaning its location, coverage, bandwidth and capacity can be changed in orbit as customer demands evolve — as opposed to traditional satellites which are limited by on-ground configurations that cannot be altered after launch. Optus 11 will also extend coverage by utilising next-generation technology, including multibeam and wide-beam capacity.

24. This technology will provide capacity, speed and flexibility, and marks a paradigm shift in how satellite communication will be delivered across Australia and New Zealand (bandwidth of up to 170Gbps in full HTS mode – more than twice the NBN SkyMuster satellites combined). It will provide an enriched end-user experience, delivering greater speeds and more diverse functionality. It will also have the ability to provide tracking spot beam coverage for aircraft and vessels within the satellite's footprint. Service performance will also increase, thus providing improved mobility services for those travelling (land, sea or air) or for emergency services or first responders (for example, during bushfire seasons or other emergency situations).

25. These new versions of satellites are also able to carry a satellite-based augmentation system (SBAS) payload. SBAS promises to boost the accuracy and precision of GPS and other positioning systems across the region, enabling the pinpointing of locations to within 10 centimetres, or 3cm with mobile coverage. SBAS is also of significant benefit to the Aviation industry improving the accurate and safe landing of aircraft at much smaller airports across the region.

26. Optus 11's coverage area will reach from Christmas and Cocos Islands in the west, Manus Island to the north, across to Fiji in the east, encompassing Norfolk and Lord Howe islands, and New Zealand, down to Antarctic bases McMurdo, Scott Base and Casey Station in the south.

27. The launch of Optus 11 will take the number of Optus satellites in orbit to six, which will be the largest in the company's and Australia's history.

Mobile Satellite Connectivity & Comms-On-The-Move

28. For mobility purposes, Optus also offers satellite sleeves which turn a standard smart phone into a satellite phone with 100 per cent coverage of the Australian landmass.

29. Finally, Optus Satellite has delivered “Comms-On-The-Move” solutions to Governments, pioneering a mobile satellite femto cell within a vehicle that provides a “moving cell of coverage”. We partnered with the NSW State Emergency Service and NSW Fire and Rescue to attach a special satellite antenna to a 4WD vehicle, delivering “always on” first responder data and mobile connectivity while on the move. We have also provided this flat panel satellite antenna “in a suitcase” to the SES that can be deployed in minutes from the back of a truck to deliver “front of fire” connectivity and expanding the Government Radio Network. It is important to note that these solutions are available to all Government Agencies and State and Territories on existing satellites today.

OPTUS IN THE TERRITORIES

30. In researching the availability of, and access to, communications infrastructure in the Territories, the Committee would be pleased to know that Optus currently provides telecommunications service to the Territories, utilising our satellite network to provide:

    (a) Mobile coverage to both Christmas Island and Norfolk Island (accessible via use of a satellite sleeve.

    (b) Data services to the Department of Home Affairs on both Christmas and Norfolk Islands;

31. We have historically also provided corporate mobile and data services to the Cocos (Keeling) Islands and the Australian Federal Police in the Territories.

32. Optus also currently provides data services to the NSW Department of Education on Norfolk Island to support the learning outcomes for up to 300 school children. This provision of satellite services forms part of our decade-long partnership with the NSW Government to supply network connectivity to regional schools and School of the Air families to ensure regional students are not disadvantaged compared to their counterparts in urban areas. The partnership demonstrates Optus’ provision of a high quality, high availability, flexible, dynamic and secure access which is utilised by the NSW Government as well as students and staff.

33. Optus Satellite has demonstrated experience as a known and trusted entity, with a number of current contractual arrangements with the Australian Government in the Territories. This relationship could be deepened and apply across a number of additional agencies as deemed appropriate.

FUTURE INFRASTRUCTURE OPPORTUNITIES AND BARRIERS

34. We understand that the Committee will be considering future opportunities in enabling communications technologies and infrastructure in each of the external territories including telecommunications services, submarine cables, and satellite capabilities.

35. Optus commends the Committee for its consideration of these issues and recommends that any future infrastructure investment in the Territories should rely on satellite technology as the principle avenue for addressing serviceability and scale. Indeed, satellite connectivity would offer the greatest value for Government whilst providing the broadest and most reliable form of network coverage to consumers and would serve as an effective alternative to subsea cables or other access technologies.

36. From a consumer perspective, Optus believes that the deployment of small cell technology would be an ideal and bespoke solution to the coverage demands within each of the Territories. It would be more cost effective than the deployment of multiple competing networks, and more sensitive to environmental and heritage considerations.

37. As has been proposed to Government previously, Optus is not averse to site colocation and sharing arrangements to the increased benefit of the consumer.

38. Given the cost effectiveness of satellite technology deployment, matched with the targeted delivery of such deployments where it is uncommercial for mobile carriers to extensively deploy services, Optus submits that any discussion around coverage in the Territories should consider satellite-based mobile technologies to maximise the efficiency and social return of the Government's investment.

39. Furthermore, Optus believes the Territories could be an ideal testbed for the Government to trial satellite technology as an alternative voice service. Once demonstrated, Optus believes this trial could be expanded into other regional or remote areas in mainland Australia, thus removing the need for the outdated universal service obligation and for the suitability of satellite services to be clearly demonstrated.

5G in the Territories

40. Australia is at the forefront of the transition to 5G with mobile operators, such as Optus, already delivering advanced services over 5G networks. Optus welcomes the leadership shown by the Australian Government in this space, and looks forward to the transformative effects of this "Year of 5G" being realised.

41. However, whilst 5G networks are already being deployed, we should not assume that the benefits of the technology are assured. Many of the truly transformative services will depend on the deployment of a radically different network architecture. The network infrastructure, systems and technology are required when future revenue streams are unclear. In addition, end user handset take-up typically lags and are costly for consumers.

42. Given this uncertainty and cost, it would be advisable for the Committee to focus its attention to 4G mobile and data services in the Territories as part of this Inquiry process, with scope to move to 5G over time

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