OPTUS

Submission in response to ACCC Consultation Paper

Regional Mobile Infrastructure Inquiry

Public Version

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INTRODUCTION

1. Optus appreciates the opportunity to provide a submission to the Regional Mobile Infrastructure Inquiry (the inquiry). The Minister has directed the Australian Competition and Consumer Commission (ACCC) to have regard to a range of matters relating to tower and land access that may be used to provide mobile telecommunications services.

2. Optus considers that improved coverage for non-urban areas comes from increased infrastructure competition. Competition from significant investment and expansion of mobile infrastructure has led to more choice, lower prices and better quality of service for non-urban consumers. In particular, the impact of Optus' investment in its mobile network has been the key competitive force faced by Telstra who otherwise continues to dominate the retail mobile market, particularly in regional areas. Regional infrastructure competition should continue to be a focus to ensure regional Australians receive the same services as metropolitan areas.

3. Communications plays a critical role during times of natural disasters and emergencies and Optus continues to work with Government and relevant agencies to investigate and implement measures designed to address network availability and resilience. Mandated mobile roaming may not necessarily be a 'quick fix' nor a simple implementable solution to address communications issues during natural disasters. There are a number of significant operational and technical concerns related to mandated mobile roaming which would limit its potential as a feasible option.

4. A critical issue for communications services generally to date has been the resilience of power supply, as mains power loss is usually the primary cause of telecommunications outages during natural disasters. As such, Optus has been rolling out measures across all states and territories (partly funded by Government) to provide backup power and ensure service continuity in the immediate hours after power is first lost. An important additional element of resiliency is having multiple infrastructure providers so as to reduce the risk of the whole sector being incapacitated during natural disasters.

5. In addition, other alternative solutions being developed and implemented are targeted at addressing clearly defined communications needs or scenarios, such as emergency warnings, communications for emergency services personnel, network redundancy/resilience and temporary communications options for hubs and evacuation centres. Optus considers this approach is well-balanced and ensures that feasible solutions can be implemented to improve communications during and after natural disasters.

REGIONAL MOBILE ISSUES

6. The Minister has directed the ACCC to have regard to a range of matters relating to tower and land access in regional, rural, remote and peri-urban areas used to supply mobile telecommunications services. Along with other matters, this also includes:

   (a) How matters relevant to access to and provision of towers used to provide mobile telecommunications services affect the provision of greater mobile coverage; and

   (b) The feasibility (technical, business processes and time and costs) of providing temporary mobile roaming services during natural disasters and other such emergencies.[1]

7. As Optus no longer directly deploys towers itself, but instead has long-term commercial arrangements with ATN and Amplitel, Optus proposes to limit its comments to:

   (a) The general issue of greater mobile coverage; and

   (b) The feasibility of providing temporary mobile roaming during natural disasters and emergencies.

Competition underpins greater mobile coverage

8. The ACCC has sought feedback on how access to towers may affect the provision of greater mobile coverage – that is, how costs impact on investment decisions for mobile coverage in regional, rural, remote and peri-urban areas, particularly where mobile carriers have divested their tower businesses.

9. As Optus has long-term commercial arrangements in place with ATN and Amplitel, Optus does not consider that access to towers and related costs represent a barrier to improving and increasing mobile coverage in non-urban areas.

10. Rather, Optus considers that competition has led to significant investment in and expansion of mobile networks with consumers then receiving the benefits of choice, better services, the latest technology and value for money in the supply of mobile services.

11. In particular, underpinning this competition has been the competitive impact of Optus, which has been the key competitive force faced by Telstra based on its consistent large-scale investment in infrastructure.

12. As such, Optus is currently most concerned about the proposed network merger in regional areas between Telstra and TPG and its impact on competition in mobile services, particularly in regional areas. This merger could be a far greater obstacle to greater mobile coverage than any issue related to access to towers.

13. Optus has provided extensive submissions and evidence to the ACCC of the detrimental impact on competition that would result from the Telstra/TPG merger. Further entrenching Telstra's dominant position will mean investment in regional mobile

[1] Ss. 2(f) and 2(h), Telecommunications (ACCC Inquiry into Access to Regional Towers and Associated Infrastructure) Direction 2022.

coverage is no longer commercially viable, regardless of access to towers and related costs.

14. If the proposed Telstra/TPG arrangement is allowed to proceed, it will also lead to:

    (a) Lower investment in regional services and coverage, as TPG will abandon further network investment in regions and is closing down over 700 sites;

    (b) Less choice for regional consumers and slower access to new technology, as the arrangement removes TPG's ability to compete on network features and Telstra will retain a 5G first mover advantage on 5G across all sites; and

    (c) Less resilience for communities in times of emergency when access to alternative networks has historically proven critical.

15. In light of these circumstances, access to towers and related costs are of only minor consideration and will not significantly influence expansion of mobile coverage in non-urban areas.

16. Optus considers that if the concern of policy makers and regulators is to ensure the expansion of more coverage, cheaper services and better quality of service in non-urban areas, then the focus should be on ensuring Telstra does not further entrench its market dominance and that the Telstra/TPG arrangement does not proceed.

Feasibility of mobile roaming during natural disasters and emergencies

17. The ACCC noted in its submission to the RTIRC Inquiry that mobile roaming could play a role in improving regional communications during an emergency.[2] The ACCC notes that there are potentially significant issues to explore regarding the feasibility of such as service, including capacity constraints (such as the types of services that can be offered), the criteria and responsibility for declaring an emergency/natural disaster and operational network congestion.

18. Optus understands and appreciates the critical role that communication services play during and after a natural disaster or emergency. To that end, Optus continues to investigate and implement measures it can take to improve the resilience and availability of its services during and after natural disasters/emergencies.

19. Before discussing the ACCC's specific questions on the feasibility of temporary mobile roaming, Optus has the following general comments.

20. Firstly, that functionality for Triple Zero calls to connect to *any* mobile network already exists and is available at all times, not just in times of natural disaster or emergency. That is, regardless of which mobile network a consumer normally uses, if the consumer needs to contact Triple Zero and they don't have access to their mobile network a call to Triple Zero will automatically connect via another mobile network if they are within that network's coverage.

21. This is not a 'roaming' arrangement, as such, but is more appropriately described as functionality related to mobile handsets and mobile networks. This functionality also ensures that Triple Zero calls can also be made even when a mobile phone handset does not have an active SIM installed, if a consumer does not have credit on their phone or if a mobile handset is locked. The handset just needs to be compatible with the

[2] ACCC, Regional Telecommunications Review 2021 – ACCC Submission, Sept 2021, p. 7.

frequency of the network (for example, once 3G coverage is shut down, a 3G handset will not work, unless the handset also has the technical capability to use a 4G network). This functionality has been in place for years. Therefore, if a person is in a life-threatening situation and needs to contact Triple Zero as long as they are within coverage of one working mobile network, they should be able to contact Triple Zero.

22. However, it is important to note that this functionality is only available when mobile networks are able to continue operating during a natural disaster and the primary reason mobile networks cease operating is because of loss of mains power supply. The risk of power supply issues impacting mobile communications is increased where MNOs are collocated into a single tower, or where there are other sharing arrangements that limit the physical independence of tower infrastructure.

23. The ACMA reported on the impacts of the 2019-20 bushfires on telecommunications facilities and noted that of 322 mobile outages over the December 2019 – January 2020 period, 77% were as a result of mains power outages. Only 3% of outages were caused by fire damage to telecommunications facilities.[3] The impact of power outages on mobile services was also noted by the Royal Commission into National Natural Disaster Arrangements held in response to the bushfires.[4]

24. Therefore, Optus considers it important that in any discussion about availability, resilience or role of mobile services during times of natural disaster or emergency, the resilience of power supply should also be considered. Power is critical to support base stations, transmission links and other equipment and infrastructure that enable mobile networks to function. Without power supply, there is little point in considering whether roaming is a feasible option.

25. We note there continues to be additional measures aimed at improving availability and resilience of communications, including in relation to power supply, during and after natural disasters and emergencies. This includes:

    (a) Improved emergency warning systems. The Government's Cell Broadcast Tender is looking at cell broadcast solutions for emergency warnings which could be transmitted in times of natural disaster or emergency.

    (b) Improving communications for emergency services personnel. There is currently a review on the future of PSMB. Options other than PSMB for emergency services personnel could include dual SIM phone solutions or a special 'access class' service, although the latter involves technical complexities. Satellite sleeves and satellite phones have been used and were provided to emergency services personnel during the 2019-20 bushfires

    (c) Implementing backup power options to improve power resilience for its mobile network. Optus is rolling out additional backup power capabilities (battery extenders and on-site backup generators) to offer backup power at key base stations and transmission hubs. The battery extenders can support up to 12 hours of power and on-site backup generators can support up to 7 days of power for areas that can experience extended power outages (for example,

[3] ACMA, Impacts of the 2019–20 bushfires on the telecommunications network, April 2020, p. 9. https://www.acma.gov.au/publications/2020-04/report/impacts-2019-20-bushfires-telecommunications-network

[4] Royal Commission into National Natural Disaster Arrangements Report, 29 October 2020, pp. 229-230. Available at: https://naturaldisaster.royalcommission.gov.au/publications/royal-commission-national-natural-disaster-arrangements-report

cyclone prone areas). This can ensure service continuity at the critical time a natural disaster strikes to support calls to Triple Zero.

(d) Improved redundancy and resilience for other aspects of our mobile network. Optus is investing in diverse connectivity to our regional transmission hubs to enhance the reliability of transmission to those hub sites.

(e) Making available temporary options to support communications in the days after natural disasters at evacuation hubs, such as Cells on Wheels (COWs), or Sat-CATs (used to provide temporary service restoration around evacuation centres such as during the 2022 floods). This enables people to contact loved ones and other essential services (such as government assistance or insurance companies) in the immediate days after a natural disaster.

26. The above are targeted solutions aimed at addressing specifically identified communications needs and scenarios. While mobile roaming may seem like a simple solution, as the ACCC notes it does not address issues related to coverage gaps.[5] In addition, Optus considers there are a number of operational and technical concerns with this proposal that may limit its potential as a feasible option.

27. The primary operational and technical concern is the impact additional roaming traffic would have on network capacity and congestion, including on consumers attempting to contact Triple Zero in life threatening situations. Optus has approximately 31% retail mobile market share (on a national basis, this is less in regional areas) yet even without mandated mobile roaming already experiences significant voice traffic increases during times of natural disaster. We note, Telstra's market share is significantly larger. If Telstra's consumers were also attempting to use the Optus mobile network during a time of natural disaster there would be an even greater increase in traffic (many multiples). It is likely the network would experience significant congestion affecting quality of service, resulting in dropouts and failures to connect. In addition, any loss of facilities in the network because of the disaster would also increase the load on remaining infrastructure. Existing network capacity is not likely to be sufficient for such a roaming option to be feasible.

28. Network capacity can only be increased by installing additional infrastructure, equipment and software which cannot be deployed quickly. This would need to be a permanent build deployed ahead of time to be available on an ongoing basis when needed. It is likely this would involve significant investment in equipment, infrastructure and software in all states and territories in order to support roaming for all other retail mobile services, even if roaming is only to be used for limited periods of time in an area experiencing a natural disaster or emergency. This would be a substantial cost, likely hundreds of millions of dollars. The ability of Optus to increase its network capacity is also at risk from the proposed regional network merger, which proposes to concentrate regional spectrum assets in the hands of Telstra.

29. Optus will continue to work with Government and relevant agencies in investigating and implementing measures that support availability and resilience of communications services for times of natural disaster but considers that the focus should be on solutions that target a clearly defined communications need or scenario, given the existing limitations of mobile networks.

[5] ACCC, Regional Telecommunications Review 2021 – ACCC Submission, Sept 2021, p. 7.

Additional questions

30. Further detail on these technical and operational concerns is set out in Optus' response to the ACCC's questions below.

24. What are the technical requirements to enable mobile temporary mobile roaming during natural disasters and other emergencies?

31. The technical requirements are no different to the current national roaming setup for inter-network connectivity, additional network capacity build and roaming provision. However, as the potential roaming traffic would be significantly above existing levels (even if only for temporary periods of time), there would need to be significant investment in additional network capacity (most likely in all states and territories) in order to ensure congestion did not adversely impact service quality (dropouts, failures to connect, particularly for calls to Triple Zero). The additional capacity would be above that which would be otherwise commercially justified.

32. It is important to note that a permanent build would be required as capacity is supported by hardware and software that cannot be easily or quickly deployed at short notice and therefore would need to be in place prior to an emergency or natural disaster occurring. This would include investment in hardware, core infrastructure, roaming software and backhaul transmission links to ensure there is sufficient capacity across all aspects of the network. Such a widespread build is likely to represent a significant cost.

33. It is also worth noting that spectrum and handset capabilities would also need to be considered. Each MNO holds certain spectrum bands which are then linked to handset capability. There are some spectrum bands that are common to all three MNOs and some spectrum bands that are only used by two MNOs. Therefore, if those two mobile networks failed (or one network where the other MNO is a wholesale customer), those consumers may not be able to use the third MNO's network because their handset may not have the technical capability (this is specifically relevant to iPhones). Each MNO would need to establish whether or which of their handsets can access other MNO's spectrum bands. This issue does not arise in relation to existing Triple Zero call functionality arrangements.

25. Are there limitations (e.g. capacity) to current technology and business processes that would impact the ability for MNOs to provide mobile roaming during natural disasters and emergencies?

34. There are limitations to existing mobile networks that impact the ability of Optus to provide mobile roaming during a natural disaster. These limitations primarily relate to capacity (of core infrastructure and transmission links), software, technical limitations (related to handsets) and (lack of) business processes for temporary roaming.

35. Optus notes in times of natural disaster it already experiences significant increases in traffic around critical sites which can create capacity issues. For example, in the recent March 2022 floods in Lismore, NSW, voice traffic effectively doubled when major flooding impacted the area (1 March 2022) and continued at elevated levels for some days.

36. Optus has, in regional areas, market share much less than Telstra. Therefore, if roaming is required, and the Optus network is required to support Telstra traffic in an emergency event, it is likely the additional traffic would overwhelm the network and cause significant congestion. Such congestion would impact the reliability and quality of service. These capacity limitations affect existing core infrastructure and transmission links. Significant

investment would be required for a permanent build to increase network capacity across all states and territories.

37. As noted, the technical capabilities of handsets would also be a limitation as handsets may not be currently capable of roaming onto the available mobile network's spectrum band.

38. Further, there are no business processes in place for 'temporary' roaming (i.e. that enables roaming to be 'switched on' in a specified area). Existing Triple Zero functionality is built into handsets and always available. It is not 'switched off' or 'switched on'.

39. There are currently no standardised specifications in the 3GPP standard that could detect a service request automatically and discern whether there is an emergency scenario or a normal situation. The function to determine and allow such an emergency service will likely need the 3GPP standard to specify and standardise the requirements from the chipset, terminal and network sides. A manual process may have to be established for the roaming to apply in the relevant affected area.

26. Are there any likely impacts on quality of service if mobile roaming during emergency situations was enabled? What level of service should be enabled? – voice, sms, data?

40. If there is not sufficient capacity for the amount of traffic then all communications activities will be impacted – for example, calls may dropout and/or fail to connect. It is likely the most critical service would be voice and/or sms as these consume relatively smaller capacity than data services.

41. Recent Optus data from the March 2022 floods in Lismore showed that voice traffic effectively doubled at the critical time major flooding impacted the area and data traffic dropped off until about a week after this time.

27. What are the protocols for declaring a natural disaster or emergency? How is this communicated and co-ordinated with mobile network operators?

42. Disaster management is the responsibility of state governments and their respective agencies. There are state government protocols in relation to disasters/emergencies. Under existing arrangements coordination between carriers is undertaken by each state government disaster management authority.

28. What alternative solutions (other than temporary mobile roaming) could be considered to improve network resilience during or after a natural disaster or other emergency?

43. Optus is continuing to work with Government and relevant agencies and investigate ways of improving network resilience and supporting communications during and after times of natural disaster.

44. As noted earlier, the issue of improving mobile network availability and resilience should not be considered alone without considering the resilience of power supply, given that the major reason why services fail to work during natural disasters or emergencies is because of loss of power at the base station or hub.

45. To that end, in considering measures it can undertake to improve network power resilience, Optus is undertaking the following:

    (a) Optus (partly funded by the Government) is rolling out Critical Power eXtenders (CPX) at key base stations and transmission hub sites across all

states and territories. The Li-Ion battery based CPX extends the backup power capability at those key sites up to 12 hours, so provides continuity of connectivity during the critical time of early response.

(b) For our largest hub sites in areas most prone to extended power outages (including areas subject to cyclones) Optus is deploying on site generators again in all states and territories. The generators provide up to 7 days continuity of power. Deployment of permanent generators is, in part, dependent on the availability of space within the site lease area.

46. Similarly, it is important to consider the resilience and continuity of transmission connectivity to the base station or hub site. As such, Optus is investing in diverse connectivity to our regional transmission hubs to enhance the reliability of connection to those hub sites.

47. In relation to the availability of services, Optus has continued to investigate temporary options that can provide communications at evacuation hubs or for emergency services personnel. In particular, Optus considers that solutions using existing satellite technology offer benefits for emergency services personnel. For example, during the 2019/20 bushfires satellite sleeves were used and satellite phones were provided to emergency services personnel.

48. In addition, Optus provides temporary options to support communications at evacuation hubs/centres so that people can contact loved ones or essential services in the days following a natural disaster. This includes solutions such as Cells on Wheels (COWs) and Sat-CATs. Sat-CATs were also used during the 2019-20 bushfires to provide temporary service restoration and enhanced service around evacuation centres and during the 2022 floods. Optus is also working to make sure these options will also be able to be used by non-Optus customers.

49. Optus notes that some of these options (such as COWs or Sat-CATs) need to be transported into the affected area (for example, to an evacuation centre) and therefore depend on transport into the affected area being possible as well as power being available. That said, Optus makes frequent use of mobile generators to support service provision during/after natural disasters and is one of the reasons why Optus submits that resilience of power networks must be considered when considering resilience of telecommunications networks.

29. What are the costs involved in providing temporary mobile roaming during emergencies?

50. As Optus has noted, the existing mobile network would not have sufficient capacity to absorb the traffic of other MNOs, given Optus' retail market share in regional areas is below its national average and traffic already increases significantly during an emergency.

51. Such an increase in traffic would require a build to permanently increase capacity on the network. This would require rolling out infrastructure in relevant areas across all states and territories, including hardware (e.g. base stations), core infrastructure, roaming software and upgrading backhaul transmission links.

52. Optus has not specifically costed such a project, but, it is likely the cost of such a build would be hundreds of millions of dollars – equivalent to a partial new network rollout.