

**BETTER CONNECTIONS, EVERYWHERE.**



27 January 2021

Joint Standing Committee on the National Capital and External Territories  
PO Box 6021  
Parliament House  
Canberra ACT 2600

Dear Committee ,

Pivotel Group Pty Limited (Pivotel) is pleased to provide a 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.

## **Background**

Pivotel is an Australian owned and operated company which commenced operations in 2003 and today operates a mobile and satellite telecommunications network pursuant to a carrier licence issued by the Australian Communications and Media Authority (ACMA).

Pivotel employs over 130 staff predominantly in Australia, as well as New Zealand, the USA and Indonesia, with its Australian offices located on the Gold Coast, Brisbane, Sydney, Melbourne, Dubbo and Perth.

Pivotel maintains a mobile carrier license and operates ground infrastructure in Australia, making it the fourth mobile carrier in the country. It is the only Australian carrier with direct connection to all four major global mobile satellite networks, Iridium, Inmarsat, Thuraya and Globalstar in addition to re-selling NBN Satellite services.

Pivotel's 4G / LTE mobile network, marketed as ecoSphere® (see Appendix 1), extends its carrier network with the ability to deliver mobile services to rural and remote Australians, including Australia's external territories. Using innovative small cell technology and a unique network architecture, ecoSphere® can cost effectively deliver wide area cellular and IoT coverage to remote areas using satellite backhaul. Pivotel has deployed over 20 small cell sites and will soon launch commercial services in the Mt Barker and Wickopin communities in WA which have been co-funded with the Western Australia Government.

## **Comments on Terms of Reference**

Pivotel understands the Australian external territories of Norfolk Island, Christmas Island and the Coco / Keeling Islands currently have access to various forms of communications technologies provided by a variety of Service Providers. The dominant form of connectivity is satellite for fixed residential and / or business use.

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All three territories have access to 3G/4G mobile services using satellite as the primary backhaul bearer. All territories are also serviced by NBN Sky Muster Satellite since 2017.

Anecdotally, connectivity, availability and service has improved substantially over the past few years with the arrival of NBN Sky Muster Satellite, and the roll out of 4G mobile networks. Due to their remote location, with the exception of Christmas Island which is connected to the Australia Singapore Cable, there are no major fibre paths available to connect these territories, which has the potential to vastly improve the level of service availability with respect to speed, capacity and latency issues that are inherent with legacy satellite solutions to varying degrees.

NBN Sky Muster is a Geostationary satellite network which allows broad coverage across vast areas. With such long distances for the signals to traverse (35,000 kms), NBN satellite communications are impacted by high latency (in the order of 600-800ms) compared to 50ms and less for terrestrial fibre connected networks. While high latency is less of an issue for data-intensive download applications like video streaming (Netflix, YouTube etc) it is more problematic for applications that require low round trip times, such as video conferencing, delivering remote health and education, and gaming. NBN is also limited in terms of the speeds and data allowances it can offer end users due to capacity limitations associated with the current satellite technology.

NBN Sky Muster can also be used as backhaul for mobile networks however it still introduces latency and capacity constraints. Capacity can be somewhat overcome using a higher tier of service such as NBN Business Satellite Service.

There are existing and emerging Medium Earth Orbiting (MEO) and Low Earth Orbiting (LEO) satellite providers which are likely to have a materially positive impact on the provision of communications services to remote areas and territories. These systems have vastly improved latency (similar to terrestrial based transmission @ 50-150ms) and higher throughput capacity. Pending the completion of the satellite launch programs and the commercial launch of the services, these satellite technologies will enable services to be provided at similar service levels to terrestrial services, enabling high speed broadband and mobile connectivity (using MEO or LEO backhaul). Indicative commercial rates suggest the services could eventually be provided at acceptable retail rates with little or no subsidy.

Examples of these providers are SES mPower (MEO), Starlink (LEO), Telesat (LEO) and OneWeb (LEO). Some of these providers, like Starlink, SES mPower and OneWeb, are planning to launch commercial services over the next 12 -24 months. Pivotel is contracted to SES to build and support the mPower MEO ground infrastructure at our Dubbo teleport with completion targeted for 2021.

These new satellite networks are expected to be capable of providing cost effective, high speed backhaul which to date has been a barrier to delivering high speed fixed and mobile services to remote communities and territories. Providers such as Pivotel will be in a position to launch 4G and 5G mobile networks together with high speed

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wireless internet access to the home or premise, using small cells powered by battery backed renewable energy sources like solar and/or wind. Small cells connected over low latency high speed data links opens up the possibility of servicing the most remote locations with affordable, high speed and low latency mobile and broadband connectivity, comparable to what is available in urban areas..

Critical to the success of delivering these solutions is access to suitable spectrum<sup>1</sup>. If the barriers to entry are sufficiently low and there is suitable spectrum available there is a relatively high likelihood that providers like Pivotel can cost effectively provide fixed and mobile services in all remote areas and territories of Australia.

Pivotel would be pleased to meet with the committee and / or provide further information with respect to this submission if required.

Kind Regards



Gary Bhomer  
Government and Industry Liaison

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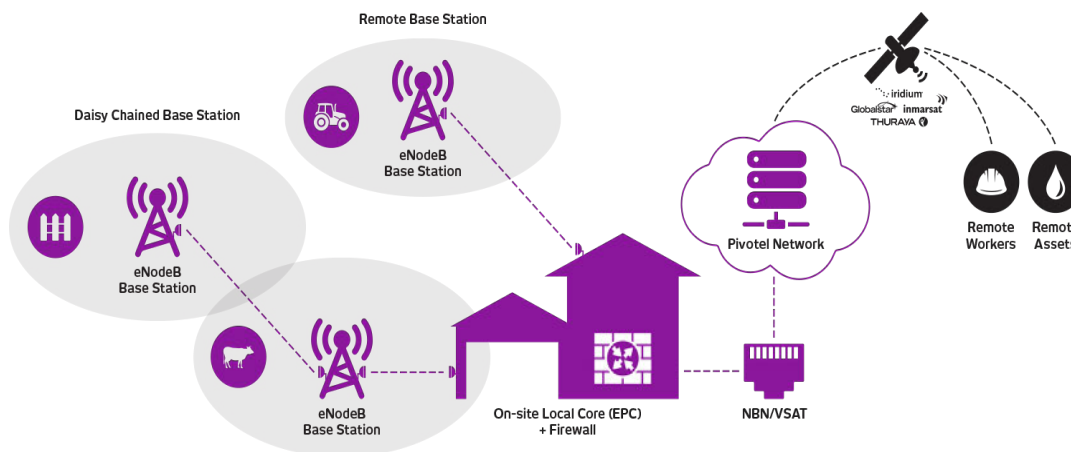
<sup>1</sup> Suitable spectrum typically refers to designated spectrum allocated for mobile networks such as 700MHz, and 850/900MHz which has superior propagation characteristics.

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## Appendix 1

### Pivotel ecoSphere®



### The benefits of ecoSphere®

- **4G** 4G custom-built LTE (4G) mobile network designed to meet the specific requirements of organisations operating in remote areas.
-  Tailored solutions for agriculture, mining, oil, gas and community needs.
-  Support for telephony and data connectivity – voice over LTE and high speed data services.
-  Support for NB-IoT for narrow-band IoT to facilitate long range, low power, long battery life M2M communications and satellite point-to-point terminals for cost effective connectivity to very remote locations.
- **04** 4G voice connectivity utilises a Pivotel SIM card based service with 4G handsets running voice over IP applications with standard Australian “04” mobile numbering.