

### **Pivotel Overview**

Pivotel's focus is on providing communications for regional and remote Australia using satellite services and land based 4G networks

- Delivering connectivity solutions to remote Australian customers since 2003
- 90,000+ Connected Mobile Satellite Services more than any other Australian provider
  - Over 50,000 voice and data terminals
  - Over 40,000 IOT terminals incl personal trackers
- Only carrier offering service of Iridium, Inmarsat, Thuraya, Globalstar, nbn<sup>™</sup> and more
- One of only four licenced Australian mobile carriers
- Full Carrier Network Infrastructure including 4G / LTE networks used to deliver targeted connectivity solutions in regional Australia
- 130+ Staff across Australia, New Zealand, USA
- 150+ Dealer Network and over 100 resellers across Australia





### **Supporting the Entire Suite of Remote Communications**



## ecoSphere<sup>®</sup> – Pivotel's 4G Land Networks Serving Regional Australia



#### Professional

Dedicated private networks for mining and other enterprises

Pivotel owns and operates the network and provides communications services to the enterprise e.g. Alcoa mine in WA

Connecting communities.



#### **Regional/Shire**

Public network consisting of multiple base stations covering a substantial area

Pivotel owns and operates the network and markets to individual community members to sign up and use e.g. Wickepin and Mt Barker in WA



#### Spot Coverage

Remote, generally single base station deployments – mobile or fixed deployment

Backhauled over satellite (e.g. deployment for remote farms and communities)



## Pivotel Strategy for Remote / Regional Connectivity

- Focussed purely on remote / regional areas where coverage is poor or nonexistent
- Pivotel's business plan is to complement not overbuild existing coverage
  - LTE for Mobile Coverage
  - Fixed Wireless for high-speed broadband to the home
  - NB-IoT for narrowband connectivity
  - High speed / low latency backhaul using LEO/MEO satellites
- The business case for further regional and remote coverage deployments is dependent on achieving:
  - low cost build and reduced operating expenses (Pivotel's control) and,
  - appropriate funding and spectrum access (Government programs and policy).





# ecoSphere<sup>®</sup> - Digitally connected at home and on the property

- Broadband for the home
- Mobile data and voice service for all staff across the entire property
- High bandwidth connectivity for real time data and connectivity to devices such as security cameras, drones
- Long-range, narrowband connectivity to IoT sensors and controls
- Low latency connections to local servers and the outside world.



 ecoSphere<sup>®</sup> 4G provides an upgrade path to 5G in areas where high bandwidth deployments are required



# ecoSphere<sup>®</sup> – Solar powered regional and remote mobile coverage



## **Areas for RTRIC consideration – Spectrum Access**

- 1. Access to low band (< 1GHz) spectrum is essential to enable new entrants proposing targeted, innovative regional and remote solutions
  - Apparatus licencing most appropriate for regional / remote place based solutions:
    - Some low band spectrum (min 2 \* 10 MHz) should be set aside for Apparatus licences to deliver targeted digital connectivity
  - Low band (< 1GHz) a necessity for broad area coverage:</p>
    - Cost to service regional and remote areas is 3-4 times higher without access to < 1 GHz spectrum due to additional number of base stations required to cover same area (Appendix 1)
    - Current government co-funding programs such as Mobile Blackspot and RCP penalise those without access to low band spectrum due to additional infrastructure required (cost over coverage formula)
    - 850/900MHz spectrum regional / metro zoning goes some way to enabling access to non-incumbents however:
      - Reserve pricing inhibits commercially viable, targeted small cell deployments suits national incumbents
      - Diverts money from critical investment in regional infrastructure development to government for spectrum
- 2. 5G: Access to Mid Band Spectrum (~3.5 GHz) for enhanced Mobile Broadband (eMBB) and mmWave (~26GHz). mmWave spectrum already available under AWL in regional / remote areas. eMBB currently being considered for remote areas
- 3. Alternative bands: Government should consider incentives and access to alternative spectrum bands for new models and alternative use cases e.g. Pivotel proposals for:
  - Band 53 for Connected Vehicle and Field Deployable Networks (Appendix 2))
  - Band 65 for Air to Ground providing high speed broadband to aircraft and Unmanned Aerial Vehicles (Appendix 3)

# Areas for RTRIC consideration – Open Access and Government Programs

- 4. Enhanced requirement for Open Access networks (Appendix 4):
  - Current approach leaving partnership to industry but incumbents need more incentive / policy direction to engage and adopt RAN sharing – Government to play a more pro-active role
  - Limit Government funding to shared (RAN) solutions
  - Nominate areas that qualify for MBSP Shared RAN funding (regions, transport corridors, remote tourist sites, natural disaster prone areas)
- 5. Government programs and incentives with enhanced focus on place and property based connectivity:
  - Incumbent networks provide connectivity to townships and major roads with limited or no coverage at the homestead and across the broader rural property. Do not cover remote communities (Appendix 5)
  - Need to support targeted and place based solutions to provide digital connectivity to entire farm / community / mine for OH&S, eeducation, e-health, improved productivity and workforce capability through adoption of new technologies, IoT adoption (eg smart farming), enhanced connectivity during natural disasters
  - Majority of government funding being funnelled to incumbents (75% MBSP funding to Telstra, 67% of RCP funding issued to Telstra and NBN)
  - Smaller more targeted solutions can reach areas of little interest to incumbents more cost effectively and through better and more focussed association with local stakeholders
  - Large number of projects and program responses very time and resource intensive on smaller providers without access to large teams and resources.
  - Consider smaller grant programs targeted at smaller providers rather than having to compete with well resourced national incumbents with louder voices and bigger budgets

# Areas for RTRIC consideration – Government program collaboration, Regional backhaul and Education

- 6. Potential for greater collaboration between Commonwealth, State and Local Government programs
  - Programs share common objectives but usually operate and provide funding in isolation
  - Joint funding for shared projects e.g. MBSP, RCP, PUMP, 5G Innovation, STAND combined with various State programs (e.g. VIC and NSW Mobile Connectivity Programs)
- 7. Competitive backhaul availability and capitalisation of backhaul costs in all Grant programs
  - All government grant programs should include the capitalisation of backhaul costs. As a major cost driver over the term of supply backhaul costs should be eligible for grant funding.
  - Capitalisation of backhaul costs should be technology agnostic and allow combinations of CAPEX and OPEX across fibre, microwave and satellite, and include recurring costs such lease costs, P2P spectrum fees and transmission fees
- 8. Education and financial support to end users for digital connectivity and IOT solutions
  - Invest in programs to build awareness of connectivity availability and alternatives to incumbent. Most users are only
    aware of existing national offerings that do not offer viable tailored solutions
  - Local education and sponsorship to understand availability and coverage of existing networks as well as suitable alternatives (though dedicated resources in RDC's?)
  - Create an education hub with connectivity information (e.g. <u>Agtech Finder</u>)
  - Improve digital literacy to drive adoption and uptake of new technologies and solutions including precision agriculture and smart farming practices

