



Mobile Black Spot Program Round 5A

Feedback on Draft Guidelines

November 2020

Response by Pivotel

4 November 2020

1. Pivotel's General Comments and Feedback

1.1. Pivotel welcomes the Department's approach to the MBSP, Round 5A , as proposed in the draft guidelines issued on 21 October 2020 with the objectives:

1.1.1. "To fund solutions that will provide new and improved mobile coverage (Mobile Coverage Solutions), with priority afforded to:

1.1.1.1. High Priority Natural Disaster Prone Areas; and

1.1.1.2. Designated Major Regional and Remote Transport Corridors.

1.1.2. To fund projects that trial/pilot new technologies and delivery models (Trial Solutions) that provide proof of concept for new ways to extend and improve mobile coverage and competition in less populated and traditionally higher-cost regional and remote areas."

1.2. The network economics of enhancing rural, regional and remote mobile coverage in sparsely populated areas are becoming increasingly challenging, which was borne out during the first phase of Round 5 which was undersubscribed.

1.3. Pivotel acknowledges and supports the Department's renewed focus to encourage all MNO's to work together, and be open to exploring ways to further enhance regional and remote mobile network coverage, through an enhanced focus on innovative Trial Solutions *"using a new technology or delivery model that is not, at the time of application, being commercially used in Australia"*.

1.4. As indicated in its response to the MBSP Round 5A Discussion Paper, Pivotel is a proponent and supporter of Open Access / Shared RAN solutions, and encourages the sharing and co-use of regional and remote networks to provide access to all mobile network users irrespective of the network they are subscribed to. This approach is inherently a more cost effective and commercially sustainable manner to provide ubiquitous mobile coverage, and does not penalise end users of networks who are not the beneficiaries of publicly funded network infrastructure as applied under previous MBSP rounds.

1.5. The commercial viability of building macro cell base stations in disaster prone regions and remote transport corridors remains extremely challenging due to the lack of return on investment. Technological developments in RAN sharing, low power, off-grid base stations (Autonomous Cells) and the use of mobile satellite services as a cellular failover connectivity option, are a far more viable option to provide access to all users irrespective of network provider.

- 1.6. With the advent of 5G, incumbent operators network infrastructure investment plans are more targeted in metropolitan areas and large regional towns, with a lack of prioritisation and focus in the areas targeted by the MBSP. Lower cost alternatives that deliver improved coverage and competition in these remote regional areas, are therefore a far more cost effective and efficient approach.
- 1.7. As such, a more concerted effort and focus on Open Access / Shared RAN arrangements, will no doubt deliver improved coverage outcomes in these targeted areas. The Governments objective to test and prove alternative technologies and approaches, with the potential for future investment and deployment, will enhance competition and produce better coverage outcomes for the many homesteads and small townships who have missed out under previous arrangements.
- 1.8. As a licenced Mobile Network Operator involved in the delivery of mobile and satellite services, Pivotal is interested and willing to work collaboratively with other MNO's to improve mobile connectivity in remote and regional Australia, providing new and innovative ways to further enhance mobile network coverage in less populated areas, where the network economics are inherently more challenging.

2. Draft Guidelines – Comments and Questions

2.1. Backhaul Installation and Special Linkage Charges

2.1.1. Pivotal acknowledges the ability to capitalise operational costs relating to leased optical fibre, microwave, or satellite backhaul. Transmission backhaul costs are the largest contributor to ongoing operational costs for regional and remote networks and the ability to capitalise high speed backhaul costs will remove a substantial economic hurdle and improve the ability for operators to deliver broadband connectivity in these hard to reach areas.

2.1.2. In addition, there are numerous instances where substantial civil works are required to connect a new site with high speed backhaul which is usually passed on by the supplier in full. Pivotal would therefore like to confirm large up-front capital costs such as installation and Special Linkage Charges (SLCs) charged by transmission providers can be included as part of the capital costs of a funded Mobile Coverage Solution?

2.2. Cost over Coverage Formula

2.2.1. Pivotal believes the current cost over coverage formula is a deterrent for both existing and new MNOs entering the market as contemplated in the MBSP 5A Draft Guidelines.

2.2.2. Operators with an existing but smaller footprint are at an inherent disadvantage as a result of this formula. MNO's seeking to enhance their network coverage in areas where another carrier already has existing coverage are effectively penalised by a factor of two (as only 50% of the additional coverage is included in the assessment formula). This outcome promotes further build out by the incumbent with the largest network, and places other competing MNO's at a disadvantage when seeking co-contributions under the MBSP. To receive full benefit, a competing MNO must build beyond the incumbent's coverage, in an area that is likely isolated from their own existing coverage footprint, with a consequential poorer return on investment.

2.2.3. Vodafone's (TPG Telecom) submission also highlights this challenge where it states *"However, there is likely to be little value in new shared RAN model coverage if some mobile carriers do not have an economic way to provide in-fill coverage between the new coverage area and their own networks. This requires solutions to the isolated versus contiguous coverage issue. For example, the equal weighting of new unique and overlapping coverage offered by a solution as part of the assessment methodology"*.

2.2.4. The cost over coverage formula therefore provides little to no incentive for operators to build in areas where there is already existing coverage, providing a substantial advantage to the incumbent operator with the largest footprint, which becomes more and more pronounced as additional funding rounds are allocated in this manner.

2.2.5. One possible way to encourage operators with a smaller footprint to invest in regional areas and avoid a patchwork of network coverage from alternative providers, would be to remove the 50% reduction overlapping coverage 'penalty', where there are two or more operators seeking to build a shared RAN solution in areas where there is overlap with another operator. This approach could encourage more investment in regional areas and promote increased competition and choice for regional (and occasional metropolitan) users.

2.2.6. Another possible way to address the inequity as a result of the cost over coverage formula, would be for the Government to specifically identify eligible locations and areas eligible for MBSP funding. MNO's could then apply for locations and work together to focus on nominated areas with no reference to the cost over coverage formula.

2.2.7. Pivotal notes this is consistent with some other respondents' feedback where Optus in its submission states *"To practically implement this approach, Optus recommends that the Government should release a list of all coverage locations it wants in future rounds rather than having an open-ended process as in the current program. Government should also seek an EOI before RFP to potentially align or encourage carriers to collaborate. Alternatively, an EOI where carriers and MNIP/Neutral Host Suppliers nominate areas they would want to invest may also work"*.

2.2.8. Pivotal contends it may therefore be entirely appropriate to provide coverage overlap to enhance competition and provide enhanced coverage and service from more than one incumbent provider.

2.2.9. Additionally, through its discussions with regional stakeholders, Pivotal has been informed of many areas that show demonstrable 4G coverage in an area per a provider's coverage maps, only to be told by local users, the network claims and speeds are unstable and/or inferior to what is being claimed. These areas could therefore be included as eligible areas delivering improved connectivity and economic and social benefits as envisaged under the program.

2.2.10. As a result, Pivotal recommends the removal of the cost over coverage overlapping coverage 'penalty', through either the nomination of MBSP areas by the government or adopting Shared RAN solutions where two or more operators are seeking funding.

2.2.11. This approach supports the views of Vodafone/TPG Telecom and Optus and encourages increased collaboration and competition in regional areas on a more equal basis. This would help avoid the further build out of a patchwork of network coverage by different operators and the continued co-funded expansion of the largest operators network widening the 'coverage moat' between them and the other operators.

2.3. Spectrum

2.3.1. Another significant issue with the cost over coverage formula, is where non-incumbent network operators are penalised for their inability to gain access to low band spectrum. Low band spectrum (i.e. < 1 GHz) has superior propagation characteristics than mid/high band spectrum (i.e. > 1.8 GHz), and this has a material impact on the cost to cover a particular area, as more base stations are required to cover the same area.

2.3.2. For historical reasons, the national licensing approach has resulted in all low band spectrum being held by the incumbent MNOs. This nationwide spectrum allocation applies despite it only being used in around one third of Australia's land mass. The result is that regionally focussed MNOs, such as Pivotal, must resort to using higher band spectrum, with associated additional infrastructure costs, placing them at a material disadvantage when competing for MBSP funding.

2.3.3. Ultimately, access to low band spectrum that is not being utilised in regional and remote locations, would produce a better coverage outcome and generate a more level playing

field. Whilst this issue is a greater spectrum policy issue, this may be addressed in the MBSP by adjusting the cost over coverage formula in order to level the playing field for operators forced to utilise mid/high band spectrum bands.

2.4. Trial Solutions industry cooperation

2.4.1. The ability to demonstrate the effectiveness and viability of a Trial Solution is highly dependent on the cooperation of incumbent MNO's. MNO's views on this topic vary and are summarised below.

2.4.2. Vodafone (TPG Telecom) is supportive of RAN sharing but highlights the challenge of in-fill coverage between new and existing coverage:

2.4.3. *“RAN sharing models have the potential to help overcome the significant challenge of the economics of mobile network expansion in regional and remote areas of Australia. This proven model reduces duplicative costs and can deliver greater choice of service provider for end-users”.*

2.4.4. *“There is likely to be little value in new shared RAN model coverage if some mobile carriers do not have an economic way to provide in-fill coverage between the new coverage area and their own networks. Telstra's regional mobile monopoly coverage footprint means there are invariably gaps of potentially hundreds of kilometres between new unique coverage areas and the other operators' own networks. Well-intentioned initiatives to provide new unique coverage under shared RAN models are likely to be substantially undermined unless solutions to the isolated versus contiguous coverage issue are in place”.*

2.4.5. Optus has also indicated it is open to RAN sharing but with a preference for passive infrastructure sharing:

2.4.6. *“Given the likely economic challenges associated with the funding of new sites, we strongly recommend that Government funding is prioritised for shared builds”.*

2.4.7. *“Optus notes that some 70 per cent of site costs relate to passive infrastructure, so sharing of passive infrastructure remains a priority. However we believe there is also benefit in shared Radio Access Network models”.*

2.4.8. Pivotal would contend the rollout of Autonomous Cells (smaller, low power sites, with shared RAN capabilities) is far more cost effective and commercially sustainable compared to large macro sites designed to accommodate one or more MNO's. Shared RAN Autonomous Cells also lend themselves to shared backhaul and the significant cost benefits that flow from that.

2.4.9. Optus goes on to say *“The MBSP may be more effective if it allows for the entry of a neutral host to own infrastructure and equipment. The three carriers would have the opportunity of connecting to sites owned and run by the neutral host supplier independently”.*

2.4.10. Telstra on the other hand outright rejects the principle of RAN sharing:

2.4.11. *“We do not support mandated active RAN sharing. First, active RAN sharing would require all operators to agree to a common network design — adding unnecessary*

complexity that could halt or delay a site build or lead to a lower level of service quality for rural and regional customers when compared to urban customers. Telstra builds its network to provide industry leading reliability, speed and performance for our customers and we could not deliver this where other operators must agree to equipment specifications and network design. Second, customers connecting to sites with active RAN sharing would also suffer upgrade delays as all operators would be required to agree and fund upgrades. And finally, active RAN sharing also has additional upfront costs offsetting any savings, and savings made from active RAN sharing are minimal in remote and rural areas where the majority of cost is passive infrastructure”.

2.4.12. The basis for Telstra’s assertions is limited and appears to be centred on previous arguments based on 2G and 3G technologies. The 3GPP standards body has introduced protocols designed to ensure that the RAN remains as transparent as possible to the services provided by each MNO. It is disappointing that Telstra appears unwilling to commit to even trialling the latest technology given that it has been successfully adopted in many other countries and jurisdictions. Telstra’s arguments also ignore the significant ongoing operational cost savings from shared RAN Autonomous Cells using shared backhaul.

2.4.13. In order to reap the full benefit of RAN sharing, it will be necessary for all operators to work collaboratively and support this initiative for the greater benefit of people living in regional and remote parts Australia. It may therefore be necessary for the Government to take a more pro-active role in encouraging all operators to contribute and cooperate.

2.5. Trial Solutions Funding

2.5.1. Pivotal seeks clarity on the funding approach with respect to Trial Solutions. The draft guidelines state “All Grantees will be required to make a substantial financial (cash) co-contribution to the capital costs of building or installing each Funded Solution” where the definition of Funded Solution includes Mobile Coverage Solution or Trial Solution.

2.5.2. Any form of RAN sharing will require a level of integration, testing and investment by the parties taking part in the solution. For example, if Pivotal was to submit an application for a RAN sharing, neutral host solution, and had one or more operators willing to participate, costs would be incurred by all operators to perform the necessary work to implement and test the solution.

2.5.3. The existing MBSP funding model, where one operator receives all the funding necessary to build mobile infrastructure to enhance its own network, therefore does not translate to Trial Solutions funding requirements, where there are multiple parties involved including additional operators that are part of the solution.

2.5.4. A more aligned approach therefore would be for the Government to fully fund any approved trial solutions, without which, it is likely to be challenging to get other operators to contribute and cooperate. This funding approach is similar to what is being proposed in the Governments Alternative Voice Services Trials, where it is funding the capital and ongoing operating costs in full to test and trial any potential solutions.

2.5.5. Pivotal believes this change will not require any additional funding to be allocated to Trial Solutions and the indicative level of funding of \$8m is still appropriate to test a number of

alternatives under this full funding scenario. Unless this change is made there is unlikely to be more widespread industry support, resulting in a lost opportunity to identify and learn about alternative approaches, which in the long run will help deliver better mobile coverage outcomes for regional and remote communications.

3. Closing remarks

Pivotel appreciates the opportunity to provide input to the Department's MBSP and looks forward to participation in the program when finalised and playing an active role in improving mobile digital connectivity for regional, rural and remote Australia.

For any questions in relation to this submission please contact:

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Yours sincerely

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4. About Pivotel

- 4.1. Pivotel is well placed to participate in the MBSP through its experience and focus on the provision of tailored voice, messaging and data solutions to rural and remote communities in Australia through its strategic Satellite holdings and LTE (4G) / NB-IOT Mobile Network.
- 4.2. Pivotel operates a mobile and satellite telecommunications network pursuant to a carrier licence issued by the Australian Communications and Media Authority in accordance with the Telecommunications Act 1997 (Cth) (Telco Act) and operates ground infrastructure in Australia, making it the fourth public mobile carrier in the country. It is the only Australian carrier with direct connection to all four major mobile satellite networks: Iridium, Inmarsat, Thuraya and Globalstar and is a reseller of the NBN Sky Muster and BSS satellite services
- 4.3. Pivotel's 4G LTE mobile network, ecoSphere®, extends its carrier network to deliver complementary terrestrial wireless services to rural and remote Australians. Using our innovative off-grid ecoCell™ base station technology and network architecture, ecoSphere® can cost effectively delivery wide area cellular and IoT coverage to remote communities, transport corridors, mining, agriculture and pastoral properties using satellite or terrestrial backhaul complemented by satellite point to point IOT and high-speed data services.
- 4.4. Pivotel's has pioneered the use of compact, power efficient, base stations (ecoCell™) specifically designed for rural and remote area coverage. ecoCell™ base stations can be independently powered from solar and/or wind generators, with battery backup systems capable of powering the base stations for 3-5 days in poor weather conditions, making them highly resilient even when used with grid power or backup generators.
- 4.5. Our 4G LTE ecoCell™ architecture, delivers the same services as macro cells in terms of calls, SMS, IOT and data services, and can be very cost effectively deployed in the areas MBSP 5A is targeting. Our ecoSphere® networks support RAN sharing using MOCN (Multi-Operator Core Network) technology, enabling access to the mobile subscribers of all carriers who choose to enter into a commercial access arrangement.
- 4.6. Pivotel commenced operations in 2003 with a dedicated focus on servicing remote, regional and rural Australians. Pivotel has over 130 staff and has Australian offices located on the Gold Coast, Sydney, Dubbo and Perth in addition to a number of overseas locations. In regional Australia, Pivotel supports over 160 dealers and 50 value added resellers.