Australian Government
Department of Agriculture

SECRETARY

Ref: EC19-000934

[redacted]
Inquiry Secretary
Standing Committee on Communications and the Arts
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Dear [redacted]

Thank you for your letter of 24 September 2019, inviting the Department of Agriculture (the department) to provide a submission to assist your inquiry into the deployment, adoption and application of 5G in Australia.

Where deployed into rural and regional areas, 5G mobile technology will provide significant opportunities for agricultural businesses to fully embrace digital agriculture. Mobile networks are important to agriculture and are the main means of connection to the internet. However, mobile network coverage is limited, with 43 per cent of farmers reporting they have little or no coverage in a 2017 survey, and improving this would remain the key focus for agriculture.

Potential benefits of 5G mobile technology

The deployment of 5G and its capacity to facilitate digital agriculture has the potential to transform the sector with precision agriculture optimising production practices and driving productivity gains. Digital agriculture has been identified as a contributor to achieving the productivity gains required to develop Australian agriculture to a $100 billion sector by 2030.

With sufficient coverage, 5G coverage could enable farmers to adopt Internet of Things devices such as remote sensors and autonomous vehicles (such as robots, drones, tractors). Existing autonomous vehicles and sensors designed for use with no or limited internet connectivity could become 5G-enabled to allow real-time capture and analysis of data. Eventually, artificial intelligence enabled autonomous vehicles could undertake farming operations 24 hours per day seven days a week, using machine to machine learning, passing data and insights between each other. Operations could be remotely monitored by farmers from the homestead.

5G could also enable the collection and analysis of data from multiple sources on-farm and in the cloud, to enable real-time decision-making by farmers. Producers could also access business and farm services, as well as remote upskilling, through face-to-face video conferencing by linking in-field visuals with other digital data available from sensors, autonomous vehicles; farm management software and the internet.

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The scope to realise economic benefits and productivity gains through 5G varies across agricultural sectors and along the value chain. For example, economic modelling of the use of technologies to achieve automation and labour saving shows potentially greater productivity improvements for the forestry industry than for the chicken meat and egg sectors. Businesses further up the value chain from producers have greater potential to realise the gains from 5G through the implementation of value chain technologies and processes that inform prices and strengthen market signals.

Connectivity

A lack of access to mobile and internet telecommunications is a major impediment to the adoption of digital agricultural systems in agriculture. Agricultural businesses, like any business, need access to reliable, affordable, quality connectivity to remain competitive, increase productivity and grow their business.

Agricultural businesses are usually located in regional or rural areas. The more remote the area, the less likely a farm has good mobile coverage. While most regional, rural and remote Australians now have access to some level of broadband service, some regional communities are negatively impacted by Sky Muster data limits, congestion on parts of NBN Co's fixed wireless network, and poor or no mobile coverage. In addition, services generally connect to the farmhouse and do not cover the entire property, limiting the ability of primary producers to deploy digital agriculture and agricultural technologies.

A more immediate need for farm businesses, is to evaluate the various connectivity options and match them to the farm business' data requirements (for example, in terms of data volume, data speed, distance to be covered and terrain) to help them make decisions about which option to adopt.

The department is unsure how much 5G coverage will reach regional and rural Australia. We expect the focus will be on metropolitan areas given the capital investment required for rollout and the initial frequency of 3.6 gigahertz, which we understand travels limited distances without repeaters.

The expansion of 3G, 4G or 5G mobile coverage beyond their current reach will be crucial in providing the connection required to drive farm business productivity, as many of the on-farm tools and processes currently being developed require constant, or at least regular connection to the internet.

The department appreciates being given the opportunity to present this submission. If the Committee feels further information from the department is required, please contact Alison McMorrow, Assistant Secretary, Levies and Crops Branch, [redacted]

Yours sincerely

[redacted]

Daryl Quinlivan [redacted]

29 October 2019