



National Farmers'
FEDERATION

Submission to the Regional Telecommunications Review

July 2015

NFF Member Organisations



Australian Chicken Growers' Council Ltd



CANEGROWERS



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1. Introduction

The National Farmers' Federation (NFF) was established in 1979 and is the peak national body representing farmers, and more broadly, agriculture across Australia. The NFF's membership comprises all of Australia's major agricultural commodities. Operating under a federated structure, individual farmers join their respective state farm organisation and/or national commodity council. NFF also has a number of associate members who participate in the agricultural supply chain. These organisations form the NFF.

The NFF welcomes the opportunity to respond to the Regional Telecommunications Review (the Review). Regional communities continue to face difficulties in accessing quality, affordable and reliable broadband and telephone services. This is despite improvements to date associated with the rollout of the National Broadband Network (NBN) and continued investment in the Mobile Blackspot Programme. At the same time, agriculture is emerging as a significant growth sector in the Australian economy, and digital infrastructure will play an important role in underpinning that success.

Australian farming underpins domestic food consumption and is a significant export industry. There are 135,000 farm businesses in Australia, and farmers occupy and manage 61% of Australia's landmass.¹ Australian agriculture currently produces 93% all food consumed domestically in Australia and 1% of all food consumed in the world. The total value of farm gate production is expected to reach a record \$53.7 billion in 2015-16. The NFF has a vision to grow the value of farm production to \$100 billion by 2030.

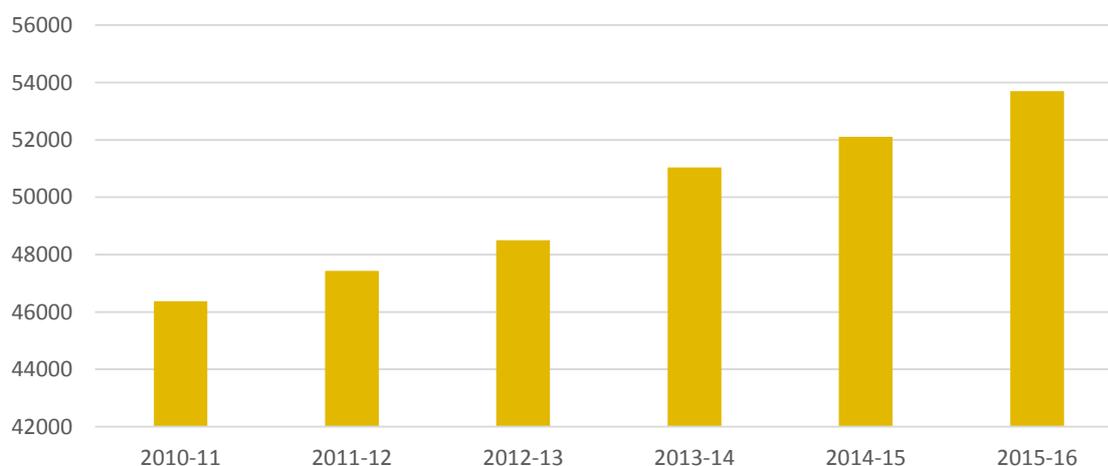


Figure 1 - Gross Value of Farm Production (A\$m), ABARES 2015

Australian agriculture faces enormous opportunities as the Asian region rapidly grows in population and economic prosperity. The global population is expected to reach 9 billion by 2050 and food demand is expected to increase by 77 percent over the same period – with much of this demand stemming from Asia.² A wealthier, hungrier region presents significant opportunities for Australia as a provider of high value produce, as more informed consumers demand specific provenance, sustainability or health attributes from their food.

In order to maximise gains from growing demand, Australian agriculture must overcome a number of challenges. Total factor productivity growth has fallen and flattened from the strong growth phases of the 1970's and 1990's – and is failing to keep pace with major competitors such as the United States

¹ ABS 7121.0, Agricultural Census 2010-11

² Global food production and prices to 2050: Scenario analysis under policy assumptions, Linehan et al, 2013

and Canada. In an intensely competitive global market for soft commodities, historically strong productivity growth has enabled Australian farmers to offset declining terms of trade to maintain overall profitability.

New technologies underpinned by access to communications infrastructure have the capacity to revolutionise agriculture, and turn around flagging productivity growth.

The use of information technology in farming has evolved rapidly; moving from basic GPS applications; to the use of cloud based systems to store enormous quantities of sensor information, and big data techniques to draw insights and inform management decisions.

Outside of uses for precision agriculture, farmers are increasingly reliant on internet access for online banking, weather information, trading crops and livestock, online learning and webinars, maintaining national livestock traceability databases, connecting with friends and family, and entertainment.

Unfortunately, uptake of these technologies continues to be hamstrung because available communications infrastructure suffers from:

- limited coverage;
- poor data speeds;
- inadequate reliability;
- insufficient data allowances; and,
- limited competition – with rural users paying significantly higher fees than urban customers.

The NFF is keen to ensure that deployment of the final NBN technology mix will adequately address these issues. We believe that further work is required to establish that the requirements of the farm sector will be met over the long term.

Access to reliable mobile voice coverage has important safety implications for people on the land. Agriculture is statistically a higher risk industry. Often farmers work alone, a long way from mobile coverage which can limit access to emergency services and lead to preventable fatalities.

Farmers continue to provide feedback that service delivery in relation to standard telephone services is falling short of expectations. While the NFF understands that carriers are under increasing pressure to service a broader suite of technologies – this emphasises the importance of maintaining rather than diluting consumer safeguards such as the Customer Service Guarantee.

The NFF is keen to promote solutions that will help maximise the benefit to rural Australians from the investments in communications infrastructure by government and the private sector.

2. Recommendations

Recommendation 1

That the Regional Telecommunications Review note the anticipated increase in demand for broadband internet services resulting from uptake of digitally enabled precision agriculture.

Recommendation 2

That the Regional Telecommunications Independent Review Committee undertake a targeted audit of communications expenditure by regional households, including farms, to benchmark this against average expenses of Australian households. This should include the cost of equipment installation and repair, and quantify the level of service received.

Recommendation 3

That the Regional Telecommunications Review consider the suitability of the proposed NBN technology mix for supporting data-intensive uses, such as video on demand and other emerging entertainment services in rural, regional and remote areas.

Recommendation 4

That the Regional Telecommunications Review recommend that the Bureau of Communications Research model low, medium and high use scenarios for the LTSS to compare expected demand over the medium-term to scheduled capacity.

Recommendation 5

That the Federal Government, with support from the Opposition, commit to fund the Mobile Blackspot Programme on an ongoing basis, with guaranteed funding over the forward estimates period.

Recommendation 6

That the Review consider mechanisms to maximise the level of co-investment in mobile towers by all levels of government and the private sector.

Recommendation 7

That the Review consider and make recommendations on the potential for adoption of small cell mobile base stations on remote farms, and opportunities for deregulation to facilitate uptake.

Recommendation 8

That the Review consider options to encourage more open sharing of NBN Fixed Wireless and network transmission infrastructure with mobile network operators to maximise coverage in regional areas.

Recommendation 9

That mechanisms for the protection of rural customers – including the Network Reliability Framework, Customer Service Guarantee and Universal Service Obligation – be retained in full.

3. The potential for 'Digital Agriculture'

The agriculture industry has a proud history of technological innovation and adoption. Farming was one of the first widespread commercial uses of GPS technology, and today auto steer machinery is common place in broadacre production systems - with adoption rates around 80 percent.³

Australia's agriculture sector is constantly looking for new opportunities to improve productivity through innovation. Tools such as unmanned aerial vehicles (UAVs) are being adopted in increasing numbers to monitor farm operations and detect issues with crop or livestock health without time consuming or invasive manual inspections; and private automatic weather stations are commonly used to measure and record seasonal conditions remotely to save time and improve accuracy.

Agriculture is likely to be impacted in a direct and positive way by the many technological trends currently playing out across the broader economy (see Figure 2).

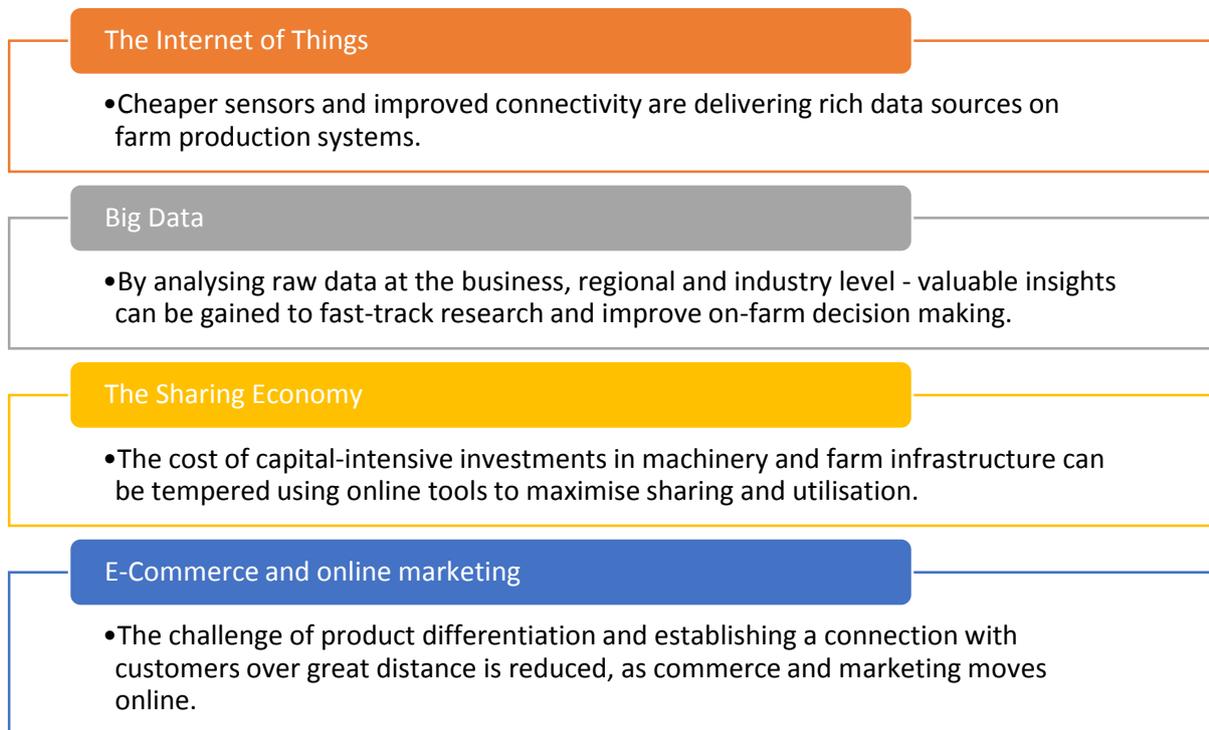


Figure 2 - Technological trends and their relevance to agriculture

The benefits of continued technological advancement on-farm will be significantly impacted by access to fast and reliable internet. Farmers increasingly find themselves in a data-rich environment without the means to easily collect, share and analyse the information being generated by devices stranded without access to communications infrastructure.

The industry itself, through the NFF, is currently seeking to develop a platform designed in part to maximise the value of the industry's data to farmers. This will be an industry-owned 'Decision Support Technology Platform' similar to those being used in other industries and indeed in agriculture overseas.

³ GrainGrowers member survey, July 2015

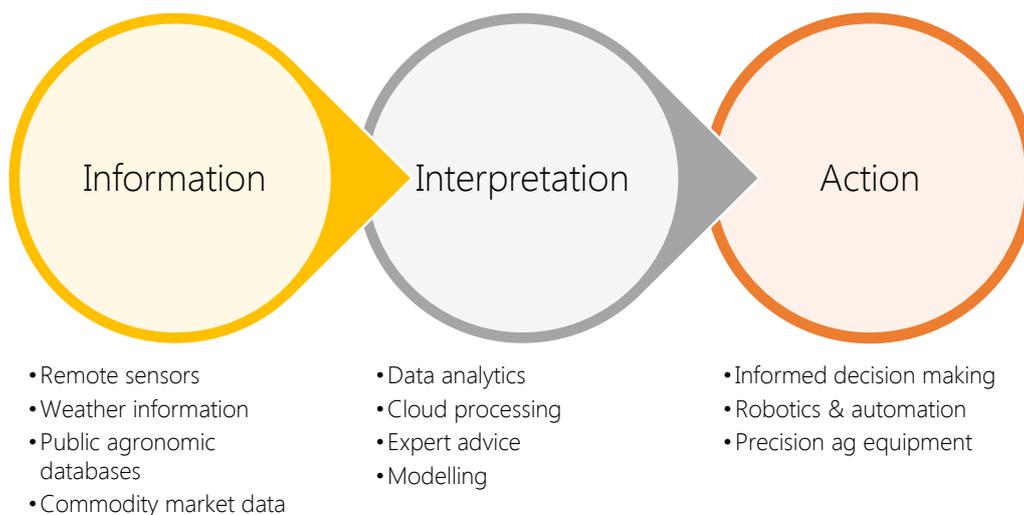


Figure 3 - Decision support using information technology

In the United States, proprietary platforms such as Monsanto's Integrated Farming Systems are attempting to incorporate agronomic information with satellite information, precision agriculture equipment and data analysis techniques to provide operational advice and maximise yields.⁴ In Australia, commodity-specific versions of production platforms have existed for some time – notably the ProductionWise system by GrainGrowers.

The Australian Government is supporting the development of further innovations in this space, with a recent investment of \$1.5 million in digital platforms for soil mapping to CSIRO supplementing their broader research partnerships on smart farming (see Box 1).

With the right tools and connectivity, this data has the potential to add value in two ways: by selling data *with* farm products to establish a price premium; and by driving operational efficiency gains on-farm.

Modelling by Meat & Livestock Australia on the potential benefit of these tools to the livestock industries predicts improvements in total factor productivity of: 13-26 percent for soil fertility improvements; 9-11 percent for feed allocation; 4-9 percent for animal production monitoring and 4-13 percent for animal health monitoring.⁵

Analysis of intensive adoption of decision support tools in precision cropping systems in the United States has found overall profitability improvements to farm businesses in excess of 59 percent, based on minor yield improvements and significant reductions in input costs.⁶

As the complexity and adoption rate of these platforms increases, the following trends will have significance for rural communications demand:

- **uploads/downloads will rapidly increase** – current technology for mapping crop yield uses around 10 megabytes per hectare. Over thousands of hectares this will see terabytes of data uploaded to the cloud and downloaded by agricultural advisers for analysis;

⁴ See <http://www.monsanto.com/sitecollectiondocuments/overview-of-integrated-farming-systems.pdf>

⁵ Potential for information technologies to improve decision making for the southern livestock industries, MLA, 2012

⁶ Accenture analysis, 2015

- **bandwidth will be stretched in peak periods** – times such as harvest will be a peak period for data collection, generating increased pressure on communications infrastructure;
- **latency will be less acceptable** – in applications such as the operation of UAVs or the remote monitoring of intensive livestock systems: jitter, packet loss or significant latency could affect a farmer’s ability to carry on business.

1.1 Box 1 – CSIRO Smart Farming initiatives

The CSIRO’s Sustainable Agriculture Flagship has the goal of increasing agricultural productivity by 50 percent by 2030.

The rollout of the National Broadband Network (NBN) coupled with rapidly decreasing costs for sensors and cloud computing capacity creates an opportunity to deliver sizeable productivity gains to farm businesses.

The CSIRO (through the Australian Centre for Broadband Innovation) has established a series of smart farming initiatives throughout Australia. One example – the Kirby Smart Farm in Armidale, NSW – is a sheep and cattle property developed in partnership with the University of New England.

The Kirby Smart Farm utilises a series of sensors to constantly monitor livestock, soil moisture and temperature. This data is collected via local wireless networks and sent off site (using NBN Fixed Wireless) to a cloud-based computing and analysis service and presented to the farmer in a dashboard-style user interface.

Sensor data is collated to provide an overview of livestock movements to better understand grazing patterns and pasture utilisation. Feedback on temperature and wind speed are also used to provide a comprehensive climate index and heat load index across the farm.

The Kirby Smart Farm complements other investments, including:

- **Sense-T**: a Tasmanian project looking at how to federate local sensor networks into a state-wide system which can aggregate spatial and sensor data to provide valuable services;
- **Digital Homestead**: a project based in Townsville, QLD looking at how to synthesise multiple sources of farm information into a useable decision support tool for northern beef enterprises.

It is likely that this work will form the basis or inspiration for commercial products as the agricultural supply chain seeks to realise the benefits of improved communications infrastructure and precision agriculture techniques.

It is important, in considering the communications infrastructure needs of regional Australia to consider the impact these trends will have on demand and the potential economic benefit to be gained via technological innovation in the agriculture sector.

Outside of economic gains, there are important social considerations in the move to digitally-enabled agriculture. Increased reliance on technology can increase formal female participation in the agricultural workforce. James Cook University is currently looking at this trend, and how women will play an increasing role in production-focussed aspects of farm businesses such as operating remote sensors, packaging data for review by external consultants, overseeing spatial mapping and

maintaining IT equipment. ⁷ Increasing the ease with which all members of farming families can manage farm operations through the use of technology will have a positive impact on the overall competitiveness of the agriculture industry.

Recommendation

That the Regional Telecommunications Review note the anticipated increase in demand for broadband internet services resulting from uptake of digitally enabled precision agriculture.

⁷ See http://www.jcu.edu.au/grs/JCU_148670.html

4. Meeting the broadband needs of regional Australia

Servicing a dispersed customer base in rural, regional and remote (regional) Australia presents significant challenges for policymakers and governments. As Australia moves away from reliance on the copper network to the NBN technology mix of satellite, fixed wireless and fibre to the node (FTTN), it is important that the needs of regional customers be thoroughly considered to ensure equitable service levels to all Australians.

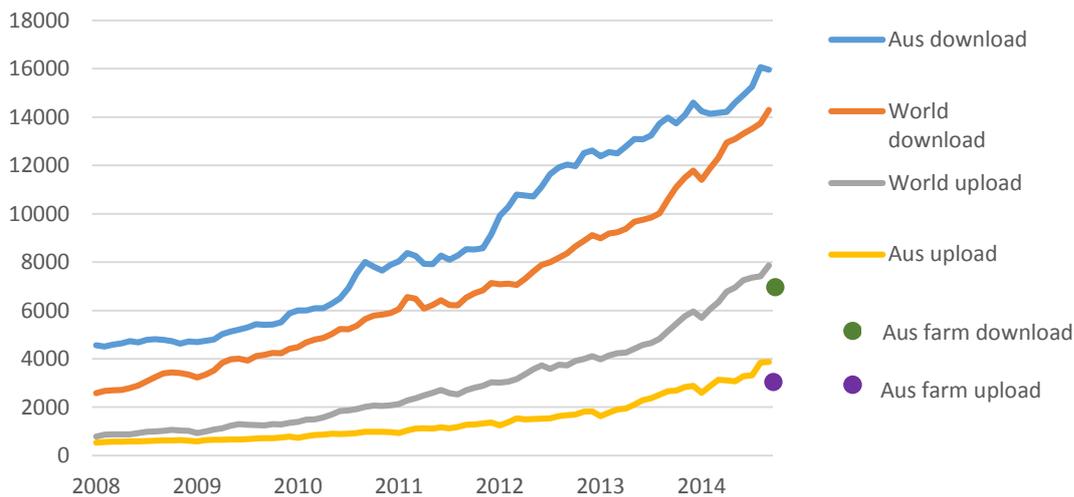


Figure 4 - Average internet speeds: Australia, worldwide, Australian farms (source Ookla NetMetrics, NFF member surveys (AgForce QLD, Victorian Farmers' Federation, 2015))

Currently, services to regional customers fall far short of expectations and fail to meet levels required for fundamental uses like browsing content-rich websites and sending and receiving larger e-mails.

Surveys by NFF members looking at the average speed of internet available on Australian farms has identified an average download speed of 7.4 megabytes per second (mbps), and an average upload speed of 3.5mbps.⁸ This compares poorly to the Australia-wide figures of 17.9/7.3mbps according to NetIndex.⁹

In addition to the issues with speed of internet access in regional areas, other aspects of current services appear to be falling short. Common complaints include:

- black or grey areas of mobile phone reception;
- poor reliability of phone and internet connections;
- long delays in reconnecting faulty services;
- insufficient data allowances for internet packages; and,
- limited competition leading to more expensive services.

Regional customers understand that it is unrealistic to expect communications infrastructure to rival that of dense urban areas. However, in order to take part in the digital economy and ensure the safety of farmers and remote workers it is critical that improvements be made.

⁸ NFF amalgamation of surveys by AgForce QLD and the Victorian Farmers' Federation, 2015

⁹ *Household Download Index*, Ookla Net Index, accessed 9 July 2015

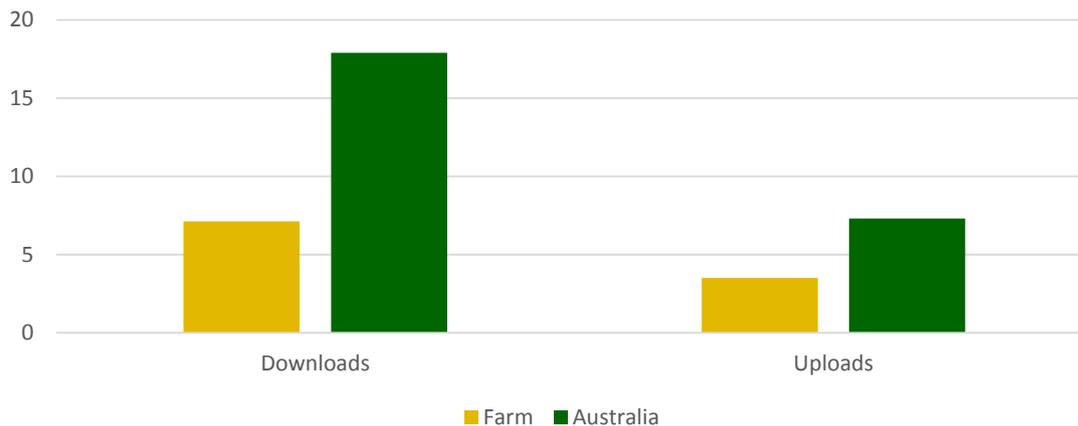


Figure 5 - Average upload/download speeds, June 2015 (Source: NFF member surveys, NetIndex)

4.1 Competition and pricing issues

As the only carrier obliged to provide telephone services under the universal service obligation, Telstra continues to be by far the primary provider of standard phone services in regional Australia, but this is also true of mobile phone and internet services.

Limited competitive tension is likely to be the cause of higher prices imposed on regional customers, which has been identified by NFF members and third party organisations such as the Australian Communications Consumers Action Network (ACCAN).

Member surveys have found that a significant number of farmers are paying in excess of \$400 per month for a bundled internet, landline and mobile service – with 19 percent of Victorian respondents falling in this category, and 36 percent of those in QLD.¹⁰ This compares to the average monthly communications spend for Australian households in the highest disposable income quintile of \$234.¹¹ This basic measure of value does not take into account the value of services (volume of data, included calls etc.), which we understand to be lower in regional areas.

ACCAN has highlighted that under current NBN offerings, those within the fixed wireless footprint will pay more for the option of maintaining a fixed line landline, including those customers who choose to retain a landline to ensure compatibility with medical or security alarm products.

ACCAN notes that, using the example of iiNet, a basic 25/5 broadband plan with 250Gb of data is \$74.90 on both FTTN and fixed wireless. Those on fibre can add a 'fibre phone' which includes local, national and mobile calls for \$29.95 – making the broadband plus phone service \$105/month.

Those in fixed wireless areas will need to pay \$49.95 for a legacy copper network phone including local, national and mobile calls – making their total package \$125/month. This means those in the fixed wireless area will pay almost 20 percent more for an equivalent service.

Additional costs will also be imposed on satellite customers for the connection, relocation and repair of NBN equipment, and the disconnection of old satellite equipment – which will effectively mean the NBN is passing through the costs of providing an equivalent service to fixed wireless.

¹⁰ Surveys by the Victorian Farmers' Federation and AgForce QLD, 2015

¹¹ ABS Household Expenditure Survey (6530.0), 2009-10

Recommendation

That the Regional Telecommunications Independent Review Committee undertake a targeted audit of communications expenditure by regional households, including farms, to benchmark this against average expenses of Australian households. This should include the cost of equipment installation and repair, and quantify the level of service received.

4.2 Impact on liveability of regional communities

High speed internet and mobile phone coverage are important contributors to modern standards of living. This is particularly the case in regional areas where voice services, video calling and social media platforms are an important source of social connectivity for those on the land.

Australians are rapidly embracing the trend of video-on-demand services for entertainment and business use. It is important that these services are available in all parts of Australia to ensure an equitable standard of living.

Allowing urban Australia to adopt new entertainment services while leaving the bush behind will have tangible economic implications. The agriculture industry – and regional areas more broadly – struggle to attract young, skilled workers. To meet increasing labour shortfalls we need to ensure our farms and regional communities are desirable places to live and work. For a new generation of workers, a widening gap in the entertainment and media options supported by communications infrastructure in urban centres compared to those of remote Australia will place the agriculture industry at a distinct disadvantage over time.

The heavy reliance on satellite technology to service the farming community is likely to impact on the availability of these services, with issues such as packet loss more prevalent on satellite systems. The NFF would welcome the opportunity to work with NBN Co during the testing phase for the new LTSS to understand how the system will perform in meeting demands related to education, health, precision agriculture and entertainment.

Recommendation

That the Regional Telecommunications Review consider the suitability of the proposed NBN technology mix for supporting data-intensive uses, such as video on demand and other emerging entertainment services in rural, regional and remote areas.

Box 2 – Access to Education and Health Services

Effective telecommunications connectivity is vital to ensuring people living in regional and remote areas have access to education and health services at a level comparable to those in metropolitan areas. With regards to education, the 'School of the Air' service conducted around Australia provides a clear example of the importance of effective telecommunications in educating regional and remote children. For many regional families distance education of this type is the only genuine option for educating their children. This is even more pertinent if both parents wish to continue working, which is often a necessity for farming families.

However with the shift from the traditional radio transmission model to an internet delivery pathway, poor telecommunications connectivity is hampering the effectiveness of this service. In a recent survey of farming families living in the Northern Territory, many respondents highlighted that a lack of internet connectivity was likely to impact on their children's ability to access distance education.

Beyond the schooling of regional children, poor connectivity is also limiting the ability of regional people to upskill themselves via distance tertiary education. With attending a 'bricks and mortar' university an unrealistic option, online institutions such as 'Open Universities' provide a real means by which regional people can upskill themselves and gain further qualifications. Being able to access such services will often have significant flow on benefits for the businesses that they operate and will help drive productivity gains in regional industries.

In the NFF's view, improving connectivity in regional areas provides a significant opportunity to facilitate the education of both today's and tomorrow's regional leaders and ensure sectors such as agriculture have the skilled workforce needed realise its growth potential.

In addition to the provision of education services, improving telecommunications provides a number of opportunities to advance the access of regional and remote people to health services. These opportunities extend along the entire spectrum of health services from the provision of basic first aid, to the access and administration of life saving and long-term treatments.

In many instances, the remote operating environment of farm businesses necessitates that many basic health services are provided on site by those working and living in the businesses. Improved and timely access to information will help ensure the right health services are administered at this stage and minor ailments do not develop into more major concerns. An example of such a scenario is the correct treatment of a snake bite, which must be done in a timely manner and often by those onsite, and may require quick access to information in order to be treated appropriately.

Beyond basic first aid, improved telecommunications will facilitate the administration of health services for more serious and long term health issues. Often those living in regional areas must travel long distances to receive face-to-face treatment. Improving telecommunications may provide opportunities to reduce the number of visits patients have to undertake, by allowing some interaction between individuals and health professionals to occur remotely.

It is important to note however that while improvements in telecommunications offer opportunities to improve the delivery of health services, NFF recognises that personal interaction with health professionals will remain the key element in the delivery of a number critical health services. With this in mind, improving telecommunications should be utilised as a means by which to complement and improve existing services, and not been seen as a means to wind back existing health services in regional areas.

4.3 Rollout of the National Broadband Network

The NFF is aware of widespread criticism relating to the performance of the Interim Satellite Solution (ISS), and these concerns have been made clear to the Government, NBN Co and relevant telecommunications providers.

The bandwidth purchased to implement the ISS has been highly inadequate, even following the purchase of additional capacity and the implementation of the Fair Use Policy to limit downloads by larger users.

"The ISS is too slow to support our accounting software, we therefore have to drive to a hotel in Sturt Plains to do our books."

Users of the ISS have reported being unable to send or receive basic e-mail, and having to drive significant distances to carry out basic business activities (see Figure 6).

"We recently tried to send 6 photos of cattle for sale to our livestock agent. This basic task took 40 minutes."

Figure 6 - Quotes from members of the Northern Territory Cattleman's Association using the ISS

The repercussions for exceeding data allowances under the Fair Use Policy are exceedingly harsh – with access throttled back to what is effectively a suspension of the service. The NFF understands the new download cap has impacted some households where children access schooling online (see Box 2).

While there is a growing understanding that the Long-Term Satellite Solution will have additional capacity to resolve the current issues, the long wait for the commercial availability of the LTSS product is a source of significant frustration.

The NFF is determined to ensure that the LTSS is not plagued by similar concerns once all users migrate to that offering (discussed further at 4.4).

Feedback from those who have joined the Fixed Wireless service has been significantly more positive. The NFF's primary concern with this offering is the poor take-up relative to the number of premises which fall within the Fixed Wireless footprint.

The pilot to increase the speed of the Fixed Wireless network to 50/20mbps has been welcome news to existing users of the technology and the NFF will be hoping to see this announced as a permanent performance baseline if possible.

The NFF is actively partnering with NBN Co to highlight the opportunities presented by the NBN rollout for agriculture, with the aim of increasing relevance and uptake of the Fixed Wireless network, and increasing awareness of the upcoming LTSS.

4.4 Estimating data demand in the bush

As a generational investment in Australia's communications infrastructure, it is critical that the NBN is future-proofed to ensure no Australian businesses and households are left behind.

While the Fixed Wireless and FTTN services offer accessible upgrade pathways to address future capacity issues, the significant capital costs associated with satellite technology make it critical that the LTSS is designed with the future in mind.

Crude analysis would indicate that satellite-dependent users may quickly exhaust the available bandwidth under the LTSS if demand continues to increase.

The LTSS has been designed to deliver capacity of 126 Gbps. This compares to 4 Gbps on the ISS – a multiple of roughly 31.

The ISS is falling significantly short of meeting the demand within its existing user base of 48,000.

The LTSS is expected to service the needs of 400,000 users once fully utilised, which will be 8 times the 48,000 currently serviced by the ISS.

If we assume that demand for data in regional areas will grow at 10 percent (less than one third of current growth rates in the broader economy), then overall capacity demand may sit at 212 Gbps by 2030 – significantly more than the amount planned for launch under the current NBN Business Plan (see Figure 7).

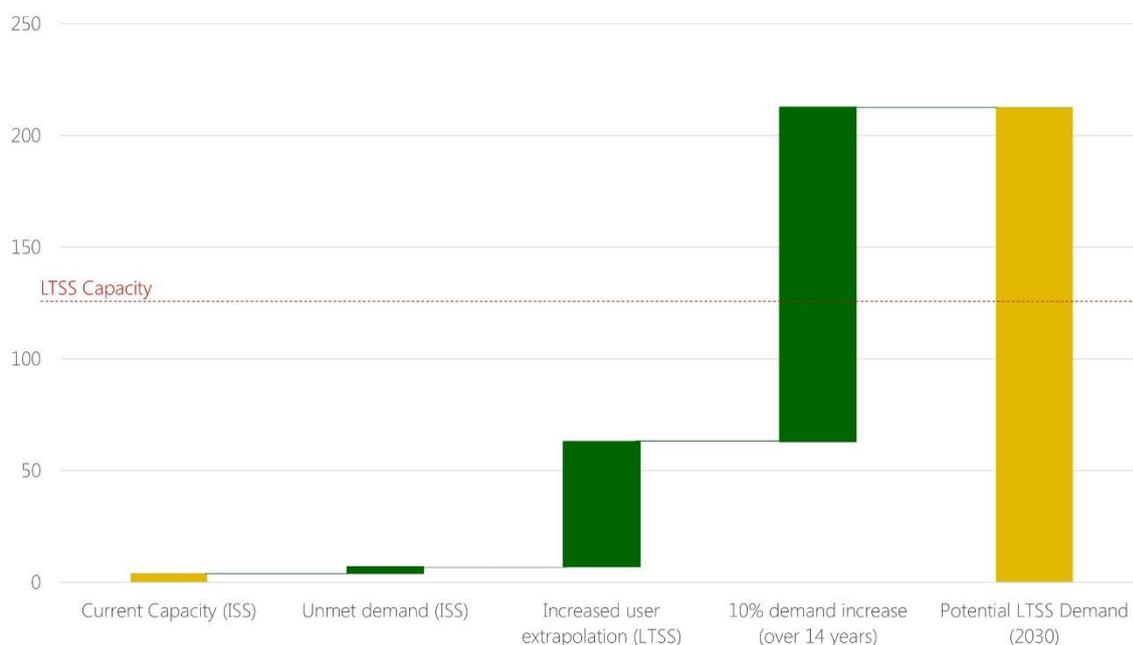


Figure 7 – capacity demand projections for LTSS (Gbps), NFF analysis

These are conservative figures when considering:

- the extent to which usage has been capped under the ISS and the picture this paints about latent demand; and,
- the possible increases in demand given remote users are starting from a low comparative base and receiving access to broadband for the first time.

It also doesn't factor in the potential for significant demand to be generated by the farm sector in regional areas on the back of precision agriculture adoption.

The NFF would be vocal in its disappointment if the failings of the ISS were replicated in a more permanent way under the LTSS. It is important that stakeholders have clear and accurate expectations of what to expect under the LTSS, so that businesses can plan and telecommunications retailers can accurately market products to potential customers.

The NFF is by no means an authority on capacity planning and it would be prudent to engage the services of an expert group such as the Bureau of Communications Research to examine the extent to which the LTSS will meet the needs of regional Australians.

Having a clear picture of expected demand alongside expected capacity will help inform a policy discussion about how best to meet the long term needs of satellite users through a change to the technology mix or addition of capacity over time.

Recommendation

That the Regional Telecommunications Review recommend that the Bureau of Communications Research model low, medium and high use scenarios for the LTSS to compare expected demand over the medium-term to scheduled capacity.

5. Expanding the cellular mobile footprint

Mobile access to internet and voice services is a basic expectation of most Australians, including those in regional areas.

Like any business owner, farmers need to be informed, accessible and responsive to effectively manage their business. As they typically spend a majority of their time in the paddock – the ability to do business over the phone and web while on the go saves valuable time and contributes directly to their bottom line.

As technology is further embedded in farm business, widespread access to wireless technology will also reduce the cost of collecting data from sensors, and monitoring and controlling farm operations remotely.

Effective and reliable mobile coverage also has important safety implications for farmers and farm workers. Being able to contact help in an emergency situation can be the difference between life and death in remote locations.

It is critical that the Federal Government continue to prioritise the provision of cellular mobile coverage in regional Australia.

5.1 Building on the success of the Mobile Blackspot Programme

The Federal Government's commitment to funding the Mobile Blackspot Programme has been warmly welcomed in regional Australia.

The success of the first round is clear justification for continued investment in the programme, with:

- significant co-investment by state governments;
- \$185 million injected by Telstra and Vodafone;
- 499 new base stations; and,
- 68,600 square kilometres of new coverage.

The Federal Government has rightly committed a further \$60 million for a subsequent round of Mobile Blackspot funding which will continue the work of addressing the 6,000 blackspots initially identified.

The NFF believes this programme is such a significant investment in the development of regional Australia that it warrants increased certainty – with bipartisan support and funding locked in across the forward estimates. We would welcome support from the Review on this front.

Recommendation

That the Federal Government, with support from the Opposition, commit to fund the Mobile Blackspot Programme on an ongoing basis, with guaranteed funding over the forward estimates period.

5.2 Enabling co-investment models

It is obvious that despite best efforts, there will continue to be remote areas which cannot feasibly be given access to mobile coverage by commercial operators with Federal Government assistance alone.

While some progress has been made in encouraging co-investment by state and local governments, more can be done – and the NFF recognises that there may be a larger role for local businesses to play in co-funding investments.

One option would be to insert a stage in the assessment process for mobile blackspot bids, whereby locations of telco bids could be posted online and interested parties could be given a period of time to confidentially commit resources to supplement Federal Government investment. This additional investment could come from local governments, farmers, or other local businesses which believe the potential productivity benefits warrant an upfront contribution.

This silent auction approach would deliver two benefits:

- the Federal Government's resources would stretch further; and,
- local contributions would deliver a rough measure of which towers will deliver the greatest productivity uplift.

This approach would require careful consideration and be subject to limitations on what information telco bidders would release at the public bid stage.

Recommendation

That the Review consider mechanisms to maximise the level of co-investment in mobile towers by all levels of government and the private sector.

5.3 Facilitating adoption of small-cell technology

There is significant opportunity for small-cell technologies (femtocells, picocells and microcells) to supplement traditional public carrier networks in order to provide coverage in areas and facilities that have been traditional mobile blackspots.

Small cells use internet backhaul (typically fixed line, through Fixed Wireless and satellite are possible) to act as low powered radio access nodes – enabling data and voice access on mobile devices without a public mobile network.

Some femtocell devices are commercially available in Australia – notably the Optus Homezone. The Homezone product is suitable to provide a 3G signal over around 30m – creating a hotspot in a house or workshop. To work, the Homezone uses around 1Gb of data per month (unmetered with Optus) and needs a connection speed of only 1mb/256kb per second.

Limited interest by carriers in marketing femtocell products, notably Telstra in the regional context, has dampened their uptake on farms which could benefit greatly from this technology.

Larger cells are also available which could deliver hotspots to significant areas of remote farms, but potential adopters are hamstrung by licencing regulations.

ACMA took steps to partially deregulate the use of femtocells cells in 2012, which was resisted by telecommunications carriers on the basis that installation of cells may impact on their ability to roll out public towers in those areas in future.

The NFF believes small cell technologies warrants further investigation to determine whether deregulation of microcell technologies would be suitable provided use is limited to locations a certain distance from public network coverage. To be of greatest benefit to farmers, deregulation would have to ensure licencing requirements were not placed on end users. This would enable industry to work with carriers on deployment of suitable technologies for adoption on NBN-enabled farms.

Recommendation

That the Review consider and make recommendations on the potential for adoption of small cell mobile base stations on remote farms, and opportunities for deregulation to facilitate uptake.

5.4 Maximising use of available infrastructure

The rollout of the NBN opens up a range of opportunities for collaboration with mobile phone carriers to maximise the use of NBN infrastructure.

Improved collaboration between NBN Co and mobile carriers could take the form of:

- co-location of mobile carrier infrastructure at NBN sites;
- sharing NBN LTE wireless capacity to improve mobile coverage; and,
- using the NBN network to provide backhaul for mobile services.

The NFF understands that these types of initiatives have been recommended by carriers in the past but appear not to have progressed.¹²

Using the NBN's Fixed Wireless infrastructure to address shortfalls in regional mobile coverage would amplify the work of the Mobile Blackspot Programme, by leveraging the 2,000 sites scheduled for development by NBN Co.

NBN's own review of the potential for partnerships of this nature determined that establishing a pathway for such partnerships would be uneconomical and deliver NBN Co 'incremental value at best'.¹³ The NFF notes that this analysis was undertaken based on a GIS model of the NBN Fixed Wireless footprint compared to mobile coverage. This is not as significant as gauging the interest of the mobile network operators themselves, as they better understand the quality of coverage and potential gains from enhanced backhaul or additional towers.

The fact that carriers themselves are now asking for a pathway of this nature is evidence of a potential commercial opportunity for NBN Co, and presents a chance to improve mobile services in regional areas. The NFF believes this warrants further consideration by this Review.

Recommendation

That the Review consider options to encourage more open sharing of NBN Fixed Wireless and network transmission infrastructure with mobile network operators to maximise coverage in regional areas.

¹² https://www.communications.gov.au/sites/g/files/net301/f/webform/hys/doc/Vodafone_Hutchison_Australia_1.pdf, accessed 16 July 2015

¹³ Fixed Wireless and Satellite Review, NBN Co, May 2014

6. Maintaining and strengthening safeguards for rural customers

The existing standard telephone service, along with the copper networks which support its delivery, continue to be an important service for farmers and regional Australians.

Despite rollout of the fibre to underpin the NBN in urban areas and regional centres, it is critical that the copper network be maintained to provide the option of a fixed line telephone to those who will otherwise use a Fixed Wireless or Satellite internet connection.

The nature of living remotely demands reliable telecommunications services which cannot always be delivered wirelessly (for instance in foggy or overcast conditions). It is essential to this reliability that telecommunications carriers are responsive to the needs of people in the bush.

Farmers often outline concerns with service delivery by carriers, and face challenges accessing assistance via urban-oriented call centres.

For these reasons it is essential that mechanisms such as the Network Reliability Framework and Customer Service Guarantee be maintained.

The NFF is aware of debate surrounding the ongoing role of Telstra as the sole nominee under the Universal Service Obligation. While the NFF supports competition and would welcome the benefits other providers might bring, this would require careful consideration and ongoing regulation to ensure service levels do not deteriorate in a multiple carrier environment.

The NFF notes that since the last Regional Telecommunications Review, the Universal Service Management Agency (USMA) has been established and abolished. Given the relevance of that agency to this Review it would be suitable for the Review to consider how oversight of the Universal Service Obligation within the Department compares to that of the USMA.

Recommendation

That mechanisms for the protection of rural customers – including the Network Reliability Framework, Customer Service Guarantee and Universal Service Obligation – be retained in full.
