

Regional and Remote Issues

Introduction

- 4.1 The committee's Third Report canvassed both the opportunities and challenges facing regional and remote communities in accessing and utilising the National Broadband Network (NBN). The Fourth Report will focus on progress to date.
- 4.2 Stage 1 of the large scale fibre rollout has commenced, and will see construction commenced or completed in 1500 communities containing 3.5 million premises, including a significant number of non metropolitan localities, and a number of regional centres. Further, NBN Co Limited (NBN Co) has published its Network Extension Program, describing a process by which communities, businesses or individuals may apply for an extension of the fibre or fixed wireless network to their premises.¹
- 4.3 Finally, the interim satellite service is now in operation, and the rollout of the fixed wireless service has commenced.
- 4.4 As at 30 June 2012, 173 885 premises were passed or covered by the fixed wireless or satellite services, with 9669 premises activated.²
- 4.5 By the 2016 financial year, it is anticipated that fixed wireless and satellite services will be available to 907 000 premises and activated in 145 000 premises.³

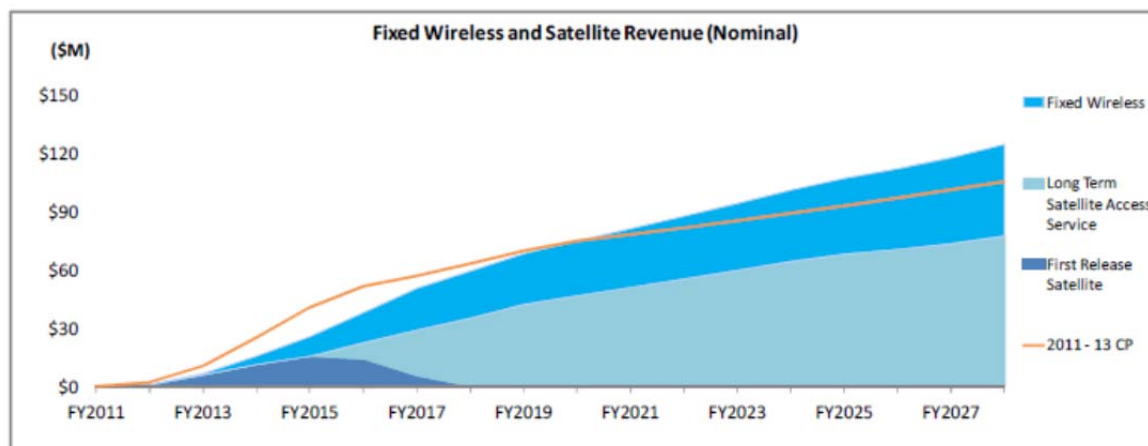
1 Shareholder Ministers, 'Performance Report to 30 June 2012', *Submission 13*, p. 28.

2 Shareholder Ministers, 'Performance Report to 30 June 2012', *Submission 13*, pp 5-6.

3 NBN Co, *Corporate Plan 2012-2015*, p. 36.

- 4.6 NBN Co indicated that the aggregation of data for the wireless and satellite rollout was intended to provide flexibility in service provision to different localities outside the Fibre-to-the-Premise (FTTP) footprint.⁴
- 4.7 Revenue forecasts for the NBN fixed wireless and satellite services are provided in Figure 4.1.

Figure 4.1 Forecast Fixed Wireless and Satellite Revenues (\$ Million)



Source NBN Co Corporate Plan 2012–15, p. 68.

Fibre Network

Rollout Progress

- 4.8 A combination of the three NBN technologies (fibre, fixed wireless and satellite) will be rolled out to rural and regional areas of Australia. While the fibre footprint does include rural and regional areas, the last seven per cent of premises to be included under the NBN fall within the fixed wireless and satellite footprints. Fixed wireless and satellite will be 'used to reach areas of low population density that make it both difficult and expensive to build infrastructure to...premises', which 'are towns located in regional and remote Australia.'⁵ Fibre will account for 70 per cent of the NBN rollout to regional Australia.⁶
- 4.9 While the announcement of Stage 1 of the large scale fibre rollout has clarified the NBN timetable for some regional centres, others await news of when they might be connected to the NBN.⁷

4 Mr Mike Quigley CEO, NBN Co, Transcript of Evidence, Canberra, 30 October 2012, p. 18.

5 Joint Committee on the National Broadband Network, Third Report, p. 79.

6 Joint Committee on the National Broadband Network, Third Report, p. 80.

7 There are currently over 40 retail service providers making their services available across Australia. Shareholder Ministers' Performance Report, *Submission 13*, p. 11.

- 4.10 This has caused some concern in the Broken Hill community which, as previously reported, has a high level of interest in receiving the NBN, but which is excluded from Stage 1. Two submissions have been received requesting an accelerated rollout for Broken Hill, especially given its proximity to a main backhaul route.⁸ Another submission has highlighted the NBN needs of the Western Australian town of Esperance.⁹

Fibre and Fixed Wireless Network Extensions

- 4.11 The committee has dealt with the question of network extensions in its previous reports and tracked the evolution of NBN Co's network extension policy. In response to Recommendation 11 of the Committee's Third Report, the Government noted:

The company [NBN Co] conducted a network extension trial process in Tasmania, which informed development of the final policy. The trial's most important finding was the need for effective community consultation activities at the commencement of the rollout process in relevant areas. As such, the company has now published its Network Extension policy, and provides significant information to interested parties at NBN Company Information Sessions which are generally held at the commencement of the rollout in a particular area.¹⁰

- 4.12 The Network Extensions framework allows individuals, businesses or governments to pay the incremental cost of extension of the fibre or fixed wireless network to areas where it would not otherwise be built. Under the Network Extension Programme, premises outside the fibre footprint can apply to have NBN Co extend the fibre optic network (individual premises located in areas adjacent to the fibre footprint or large projects covering towns or groups of premises). Small towns with planned access to satellite services can apply to be connected to the fixed wireless network.¹¹
- 4.13 In regard to network extensions, NBN Co commented that while there had been considerable interest from the community and various levels of government in Network Extensions:¹²

8 Change Agent nb Pty Ltd, *Submission 2*; Regional Development Australia, Far West NSW, *Submission 3*.

9 Hon Wendy Duncan MLC, *Submission 4*.

10 Australian Government, October 2012, *Response to the Joint Committee on the National Broadband Network Third Report of 25 June 2012*, p. 16.

11 NBN Co, *Corporate Plan 2012–2015*, p. 32.

12 NBN Co, *Corporate Plan 2012–2015*, p. 32.

- there had not to date been a large number of applications for network extensions, and
 - that network extensions require NBN infrastructure to be in place in adjacent areas from which the extension can then be made.¹³
- 4.14 In November 2012, NBN Co advised that 68 applications to extend the footprint had been received since the launch of the Network Extension policy on 12 July 2012.¹⁴
- 4.15 Of these applications:
- One quote to extend the fibre footprint has been issued, with seven under development
 - Eleven are being assessed
 - Thirty are in future rollout areas, and therefore not requiring an extension
 - Eight were eligible for a fibre extension, but were outside of the programme's timeframe policy
 - Nine were cases where extending to the applicant's premises is not possible; and
 - Two were withdrawn by the applicants.¹⁵

Fixed Wireless Network

Background

- 4.16 The Fixed Wireless network is designed to provide high capacity broadband services for premises beyond the fibre network. NBN Co has acquired licenses to operate in the 2.3 GHz and 3.4 GHz spectrum bands from AUSTAR, and acquired spectrum in Western Australia, the Northern Territory, South Australia, outback Queensland and far west New South Wales at an auction run by the Australian Communications and Media Authority (ACMA).
- 4.17 On 1 June 2011, NBN Co signed a 10 year fixed wireless equipment supply and managed services contract with Ericsson. The first services over NBN Co's Fixed Wireless network commenced in April 2012. As at 30 June 2012,
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13 Mr Quigley, NBN Co., Transcript of Evidence, Canberra, 30 October 2012, p. 22.

14 NBN Co, *Submission 7.6*, Answer to Question on Notice No. 45.

15 NBN Co, *Submission 7.9*, Answer to question on notice No 46.

NBN Co had Construction Commenced or Completed in Wireless Serving Areas (WSAs) containing approximately 15 000 premises.¹⁶

Rollout Progress

- 4.18 The fixed wireless access service has begun to rollout. The Fixed Wireless rollout plan has been developed to take into account the availability of the Transit network, spectrum and likely community consultations for the building of new poles and towers for the Fixed Wireless network.¹⁷
- 4.19 The service was launched in Armidale, New South Wales (NSW), providing a 12 Mbps downstream and 1 Mbps upstream service.¹⁸ The service was initially offered through five Retail Service Providers (RSPs). Since launching, another seven RSPs have become accredited for the fixed wireless product. The 'Initial Release' commenced on 2 April 2012, with the trial ending on 30 September 2012. The fixed wireless network has since expanded to the regions around Armidale, Toowoomba, Tamworth, Geraldton and Ballarat.¹⁹ Design and construction work has commenced at all five sites.²⁰ Sixteen Access Seekers have signed the Fixed Wireless Trial Agreement.²¹
- 4.20 The NBN Co has signed an interim agreement with Telstra for the First Release Sites towers. This provides access for three years. It also allows for a full agreement covering volume rollout to be negotiated. The agreement supplements the other framework agreements already in place for First Release Sites with Optus, Crown Castle, SPAusnet and Prime Media Group.²²
- 4.21 The NBN Co also reported that in the period 1 January 2012 to 30 June 2012, 'an important contract milestone was achieved confirming that the fixed wireless technology meets the technical and operational requirements of NBN Co':

This enabled the first fixed wireless sites to be brought into service in Armidale. Business Readiness Testing (BRT) commenced with the initial installation and activation of Fixed Wireless Services in Armidale with three Access Seekers – APN, iiNet and

16 NBN Co, *Corporate Plan 2012–15*, p. 20.

17 NBN Co, *Corporate Plan 2012–2015*, p. 39.

18 NBN Co, *Corporate Plan 2012–2015*, p. 57.

19 Shareholder Ministers, 'Performance Report to 30 June 2012', *Submission 13*, p. 12.

20 NBN Co, *Corporate Plan 2012–2015*, p. 39.

21 Shareholder Ministers, 'Performance Report to 30 June 2012', *Submission 13*, p. 11.

22 Shareholder Ministers, 'Performance Report to 30 June 2012', *Submission 13*, p. 7.

Skymesh...As at 30 June 2012, the activation of fixed wireless services was initially performed by five Access Seekers. During the period Ericsson and NBN Co have continued with planning and site acquisition activities for the volume rollout.²³

- 4.22 In July 2012, NBN Co announced that planning proposals would be lodged to deliver fixed wireless broadband in local government areas in the Central West and Mid-western regions of New South Wales and the Rockhampton, Townsville and Mackay regions of Queensland. The fixed wireless network will cover up to 54 500 premises across more than 24 local councils, subject to final radio frequency planning and other approvals.²⁴
- 4.23 In September 2012, fixed wireless services became available in Geraldton, Western Australia. Two of six NBN fixed wireless sites are now online, providing 354 homes and businesses in Geraldton with broadband speeds of up to 12 Mbps. Ultimately, around 1300 premises will be covered in Geraldton.²⁵

Satellite Network

Background

- 4.24 The NBN satellite service is designed to provide a standard internet service (12 Mbps download and 1 Mbps upload) to the 3% of Australians living outside the FTTP and wireless footprints, at the same wholesale price as FTTP and wireless services.
- 4.25 The Interim Satellite Service (ISS) is now in place and covers the entire country. Eleven Very Small Aperture Terminal (VSAT) hubs operate from Kalgoorlie, Broken Hill and Belrose.²⁶
- 4.26 The ISS acts as a transition between the Australian Broadband Guarantee (ABG) Scheme (which expired on 1 July 2011) and NBN Co's Long Term Satellite Service (LTSS) (scheduled for commercial service by mid-2015). Satellite capacity is provided by a contract between NBN Co and Optus (May 2011) to provide managed satellite services for an initial 5 year period. Another contract was signed with IPStar for additional satellite capacity.

23 Shareholder Ministers, 'Performance Report to 30 June 2012', *Submission 13*, p. 14.

24 Shareholder Ministers, 'Performance Report to 30 June 2012', *Submission 13*, pp 27–28.

25 Shareholder Ministers, 'Performance Report to 30 June 2012', *Submission 13*, p. 29.

26 Shareholder Ministers, 'Performance Report to 30 June 2012', *Submission 13*, p. 14.

- 4.27 The ISS was launched on 1 July 2011 and, as at 30 June 2012, had 9578 users.²⁷ Twelve Access Seekers have signed the Interim Satellite Services Agreement.²⁸ In regard to the progress of the interim satellite service and comparisons with the ABG, NBN Co responded that:

As of just recently, we got close to 19 000 active customers on the satellite, so there are a hell of a lot of people who are ordering a service from us in terms of RSPs – satellite providers – who are obviously doing it because they think there is a profitable business there. Is it possible that they are not making as much money as they made on the ABG? That is possible. What I can tell you is the end user is getting a much better service for a competitive price...In moving from the ABG to the Interim Satellite Service it is a very good deal for the end user.²⁹

- 4.28 The NBN Co noted that the Wholesale Broadband Agreement for the interim satellite service provided that a service should be installed and activated in a customer premise 20 business days for Zone 1/2 (urban/rural) and 25 business days for Zone 3 (remote) customers after the service has been ordered from an RSP.³⁰

Rollout Progress

- 4.29 The Government's Performance Report outlines the progress on the development of the Long Term Satellite Service (LTSS). The NBN Co stated that the \$620m Spacecraft and Telemetry, Tracking and Control (TT&C) contract with Space Systems/Loral (SS/L) was executed on 7 February 2012, with delivery of the spacecraft to NBN Co for launch scheduled for the first quarter of 2015. The Spacecraft and TT&C contract progressed well during the period, with the SS/L completing a number of milestones according to plan.
- 4.30 Following the execution of the SS/L contract, ground system requirements were issued to short-listed ground segment suppliers in March for proposed pricing.³¹
- 4.31 The securing of ground station locations for the LTSS was progressed. In July 2012, NBN Co selected Woolooma near Merimbula (New South Wales Far South Coast) as the site of its first satellite ground station.

27 NBN Co, *NBN Co Corporate Plan 2012–2015*, pp 20–1.

28 Shareholder Ministers, 'Performance Report to 30 June 2012', *Submission 13*, p. 11.

29 Mr Quigley, NBN Co., Transcript of Evidence, Canberra, 30 October 2012, p. 19.

30 NBN Co, *Submission 7.5*, Answer to Question on Notice No. 72.

31 Shareholder Ministers, 'Performance Report to 30 June 2012', *Submission 13*, p. 14.

Further locations, the first of 10 such facilities, were identified at Bourke (NSW), Geeveston (Tasmania)³² and Ceduna (SA).³³ In October 2012, NBN Co announced that Western Australia had been selected as the location for three new satellite ground stations, with facilities near Geraldton, Carnarvon and Kalgoorlie.³⁴ Roma, Queensland³⁵ and Broken Hill, NSW have also been selected as sites.³⁶

- 4.32 In July 2012, NBN Co announced that US company ViaSat had been selected to provide LTSS ground systems. ViaSat will also supply the equipment to be installed in end user premises. The initial contract is valued at approximately AU\$280 million.³⁷
- 4.33 As at 30 June 2012 NBN Co had secured all the spectrum required for the LTSS.³⁸
- 4.34 The request for proposal for launch services was released with evaluation of responses expected in the September 2012 quarter. The planned launch date for the two satellites remains unchanged from previous forecasts, at FY2015.³⁹
- 4.35 Frequency coordination associated with the International Telecommunications Union orbital slot confirmation process also continued. NBN Co has continued active dialogue with the ACMA on the availability of further spectrum, and with owners of existing spectrum licences. As at 30 June 2012, there were 11 RSPs selling services over NBN Co's interim satellite network.⁴⁰
- 4.36 The NBN Co confirmed that they are on track in terms of cost and service implementation:

We have contracted for the spacecraft, the ground stations and 50 per cent of the VSATs, and we will, before the end of the year, contract for the launch. So our long-term satellite is coming in right where we hoped it would by the corporate plan.⁴¹

32 Shareholder Ministers, 'Performance Report to 30 June 2012', *Submission 13*, pp 14–15.

33 Shareholder Ministers, 'Performance Report to 30 June 2012', *Submission 13*, p. 28.

34 Shareholder Ministers, 'Performance Report to 30 June 2012', *Submission 13*, p. 29.

35 NBN Co, *Submission 7.9*, Answer to question on notice 39.

36 NBN Co, 2012, NBN Co Selects Broken Hill as Satellite Centre, media release, 15 November.

37 Shareholder Ministers, 'Performance Report to 30 June 2012', *Submission 13*, p. 28.

38 NBN Co, *Corporate Plan 2012–2015*, p. 33.

39 NBN Co, *Corporate Plan 2012–2015*, p. 39.

40 Shareholder Ministers, 'Performance Report to 30 June 2012', *Submission 13*, pp 14–15.

41 Mr Quigley, NBN Co, Transcript of Evidence, Canberra, 30 October 2012, p. 18.

- 4.37 The NBN Co also indicated that the expected lifespan of equipment related to the satellite service would be about 15 years for the satellites, longer for the dishes, but that people might wish to upgrade modems sooner. The NBN Co stated it was anticipated that within the 30 year life span of the project new satellites might be needed.⁴²
- 4.38 With regard to the reliability of the LTSS, NBN Co stated that the new satellites will be ‘purpose-built to minimise the technology limitations associated with current satellite services’, and that this would ‘deliver a step-change in performance for satellite users in terms of speed and reliability’. The use of two satellites ensures that in the case of satellite failure, ‘service could be maintained through a single NBN Co satellite’. User links will also incorporate the ‘ability to dynamically vary their transmission attributes (uplink power level and waveform characteristics) in order to maximise availability during degraded weather conditions.’ The NBN Co added that:

Other measures include a Disaster Recovery Gateway station which can assume full traffic loads from any of the nine primary Gateway stations, carrier class network architecture and infrastructure at the data processing and network management centres and Customer Premises Equipment that is designed to withstand the wide range of adverse conditions (temperature, dust vermin, corrosion, wind etc.).⁴³

Upgrades to Wireless and Satellite Technology

- 4.39 The 2012–15 Corporate Plan has incorporated additional costs and revenues associated with anticipated technology upgrades for Fixed Wireless and LTSS.⁴⁴ It is anticipated that both networks will continue to be upgraded to match the fibre speed tiers when the technology and costs make this possible.⁴⁵
- 4.40 In addition, NBN Co has indicated that it is working towards offering multicasting over its wireless and satellite services.⁴⁶
- 4.41 The NBN Co has also given consideration to develop mobile backhaul, although no decision has yet been made on the development of such service.⁴⁷ In response to the committee, NBN Co noted that:

42 Mr Quigley, NBN Co., Transcript of Evidence, Canberra, 30 October 2012, p. 18.

43 NBN Co, *Submission 7.8*, Answer to Question on Notice No. 41.

44 NBN Co, *Corporate Plan 2012–2015*, p. 33.

45 NBN Co, *Corporate Plan 2012–2015*, p. 38.

46 NBN Co, *Submission 7.5*, Answer to Question on Notice No. 40.

The recent increases in mobile data usage driven by smart-phones, tablet devices and other forms of wireless internet usage have created network capacity challenges for mobile providers globally. NBN Co has received requests from existing mobile service providers who see the benefit of using the high-capacity NBN fibre network to also carry traffic from mobile base-stations. Mobile providers typically connect individual base-stations to their wider network using fibre technology, and providers have requested that NBN Co also connect to these base-stations as NBN Co are constructing the fibre network in relevant areas.⁴⁸

- 4.42 The NBN Co advised that mobile backhaul would not involve NBN Co in the construction of a mobile network, but rather that the 'proposal would allow the utilisation of NBN Co's fibre infrastructure for connectivity between mobile base stations and an operator's core network'. The NBN Co is 'considering these requests and evaluating whether to develop products suitable for use as mobile backhaul'.⁴⁹

Mobile Networks

- 4.43 The NBN Co has repeatedly emphasised that it is not building a mobile telephone network and that the extension of such a service is not part of its remit.⁵⁰ Nonetheless, NBN Co has undertaken to develop a Facilities Access Policy for towers, duct and depot space, which would allow access seekers to obtain terms, prices and ordering and provisioning processes for accessing NBN Co facilities. This would allow for the co-location of mobile network equipment on NBN wireless sites.⁵¹ The NBN Co has already reached reciprocal agreements with Telstra and Optus for access to each others' facilities, including NBN Co built and owned wireless towers.⁵²
- 4.44 The costs facing mobile carriers for access to NBN Co facilities include application and project management fees, annual rental and the cost of any works required to make the facilities mobile ready. Pricing is based on market rates and reflects an annualised replacement cost.⁵³

47 NBN Co, *Corporate Plan 2012–2015*, p. 68.

48 NBN Co, *Submission 7.6*, Answer to Question on Notice No. 47.

49 NBN Co, *Submission 7.6*, Answer to Question on Notice No. 48.

50 Mr Quigley, NBN Co, Transcript of Evidence, Canberra, 30 October 2012, pp 20 and 22.

51 NBN Co, *Submission 7.5*, Answer to Question on Notice No. 67.

52 NBN Co, *Submission 7.5*, Answer to Question on Notice No. 66.

53 NBN Co, *Submission 7.5*, Answer to Question on Notice No. 68.

Concluding Comments

Fibre Network

4.45 The committee is pleased that the first stage of the large-scale fibre rollout has commenced and in the process given certainty to some regional communities as to when they will get access to the fibre network. On the other hand, many regional communities still await news as to when the fibre network will be available to them. For these communities, the cost of making themselves NBN ready is compounded by the uncertainty of the timing of the rollout. The committee believes that an indicative schedule for completion of the network, with estimates of when the network would reach any given community, should be made publicly available to assist communities in their preparations for the NBN.

Network Extensions

4.46 The committee is also pleased to see that a framework for network extensions is now in place. The committee looks forward to future discussions with NBN Co regarding the operation, costs and achievements of this framework, especially for communities in regional and remote Australia.

Fixed Wireless Network

4.47 The committee notes the commencement of the rollout of the fixed wireless network. The committee looks forward to receiving information on the progress of the rollout, particularly with regard to network access and coverage by access seekers and RSPs.

Satellite Network

4.48 The committee has expressed concern in the past about the risks associated with satellite deployment, particularly in obtaining orbital slots. The committee will seek future evidence upon the progress of the LTSS, risk management surrounding launch and progress in obtaining orbital slots for the LTSS satellites.

Upgrades

4.49 The committee is interested in the potential for upgrades to wireless and satellite technology to improve the broadband service for regional and remote Australia. The committee looks forward to obtaining more detail from NBN Co about the potential of technology upgrades to improve the speed and capacity of access for wireless and satellite service users. The

committee is also interested in the future development of mobile backhaul, with its potential to create a higher level of integration of Australia's telecommunications systems.

Mobile Networks

- 4.50 The committee acknowledges early efforts to facilitate expansion and improvement to mobile telephony in regional and remote Australia through the co-location of mobile facilities with NBN Co infrastructure. The synergies are obvious and their promotion a step forward. The committee is of the view, however, that the opportunity to facilitate the expansion of mobile telephony, particularly in regional and remote areas, needs to continue to be explored to further capitalise on progress already made in this area.
- 4.51 In this vein, the committee has recommended that the Australian Government expand the scope of NBN Co responsibilities to continue to explore the synergies between fixed and mobile telecommunications networks with a view to using the NBN to improve mobile telecommunications as well as providing broadband services. Allowing private providers to 'piggyback' off of NBN Co infrastructure to provide mobile telephone services would be a timely and efficient use of telecommunications resources in regional and remote Australia.

Recommendation 4

- 4.52 **The committee recommends that the Government support the NBN Co to continue to:**
- **explore the synergies between fixed and mobile telecommunications networks with a view to using the National Broadband Network to improve mobile telecommunications; and**
 - **facilitate private providers use of NBN Co infrastructure to provide and improve mobile telephone services and coverage across Australia, particularly in regional and remote areas.**