



Australian Government

Department of Broadband,  
Communications and the Digital Economy

# Australia's National Broadband Network

Background paper - AVICCA Symposium – Paris – 18 October 2010



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## *The need for fast broadband*

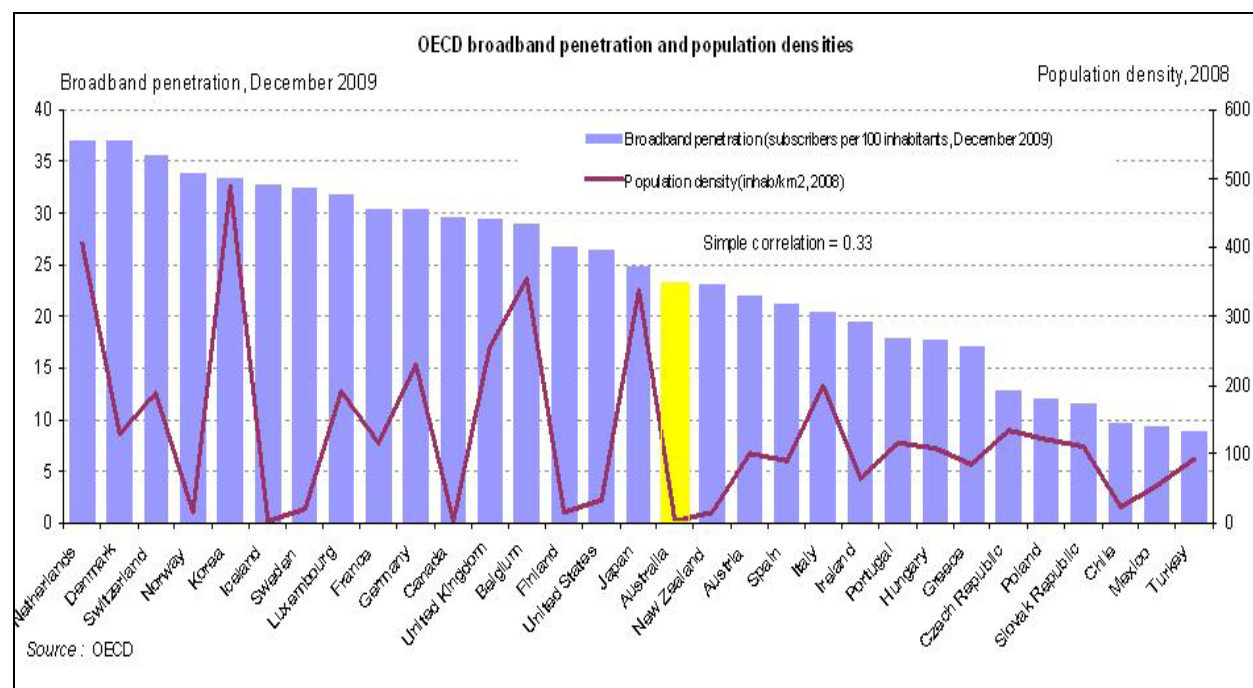
The Australian Government sees fast broadband as a key infrastructure investment for the future. Fast broadband is a priority for Australia alongside investments in education and health.

While first-generation broadband services are widely available across Australia, including by satellite, many Australians lack access to high-speed broadband.

Australia currently relies on an ageing copper telecommunications network to connect most homes to the internet. As a result, our broadband performance is falling behind other major economies.

Currently, only 20 per cent of Australian premises have access to hybrid fibre coaxial (HFC) networks which may be capable of broadband speeds of 30 Mbps in the right conditions. Only a third of Australian premises have access to 12 Mbps or more via ADSL 2+.

Australia's broadband is expensive and take-up is lower compared to other OECD countries. Out of 30 countries, Australia has the third most expensive monthly subscription prices and is ranked seventeenth in broadband penetration.



**Figure 1: Australia's broadband penetration (yellow) versus population density (source: OECD)**

The Government identified a lack of investment in next generation broadband infrastructure and competition in the telecommunications market as key contributors to Australia's poor broadband performance.

These problems are partly due to the market dominance of Telstra. Telstra is the former state-owned incumbent and Australia's largest telecommunications company. It is one of the most integrated telecommunications operators in the world and owns the fixed-line copper network that connects almost every home and workplace in Australia, as well as the largest HFC network. Access to this network is via a negotiate-arbitrate model, which has proved to be slow, cumbersome and open to gaming.

### ***Request for Proposals process***

In 2008–09 the Australian Government acted to foster investment and competition in next generation broadband. It conducted a Request for Proposals process to select a proponent to build and operate a new national broadband network.

The Government's objective was to establish a fibre-based network—FTTN or FTTP—with minimum speeds of 12 Mbps to 98 per cent of homes and businesses. The remaining two per cent were to have improved broadband through other technologies.

The Australian Government indicated it would offer up to \$4.7 billion to the successful proponent(s) and consider making necessary regulatory and legislative changes to facilitate the roll-out.

After a rigorous analysis and evaluation process, the panel of experts appointed to assess the proposals advised the Government that none of the national proposals offered value for money.

### ***NBN announcement***

In light of this outcome, on 7 April 2009, the Australian Government announced that it would establish a Government owned company—NBN Co Limited (NBN Co)—to invest up to \$43 billion over eight years to deliver faster broadband speeds to all Australians. The Government also announced it would reform the existing telecommunications regime.

NBN Co's objectives include:

- connecting 90 (now 93) per cent of Australian homes, schools and workplaces with optical fibre offering speeds of 100 Mbps;
- connecting all other Australian premises with next generation wireless and satellite technologies offering speeds of 12 Mbps or better.

NBN Co would be limited by legislation to offering wholesale-only services on open and equivalent terms under the oversight of the regulator, the Australian Competition and Consumer Commission. This would enhance competition amongst retailers, resulting in greater choice, more attractive services and lower prices for consumers.

## ***NBN Implementation Study***

An Implementation Study by McKinsey & KPMG provided detailed advice to Government on the NBN's roll-out and policy settings.

The study confirmed that the NBN can be built with affordable prices for consumers within the Government's funding envelope of \$43 billion.

The report was published on 6 May 2010 and is available at [www.dbcde.gov.au/nbn\\_implementation\\_study](http://www.dbcde.gov.au/nbn_implementation_study)

## ***Progress to date***

Good progress has been made implementing the NBN.

NBN Co is up and running. It is headed by Mike Quigley, a former president and chief operating officer of Alcatel-Lucent. As at 1 September 2010, NBN Co had 345 staff. NBN Co is focussing on network planning and design and is making extensive use of contractors.

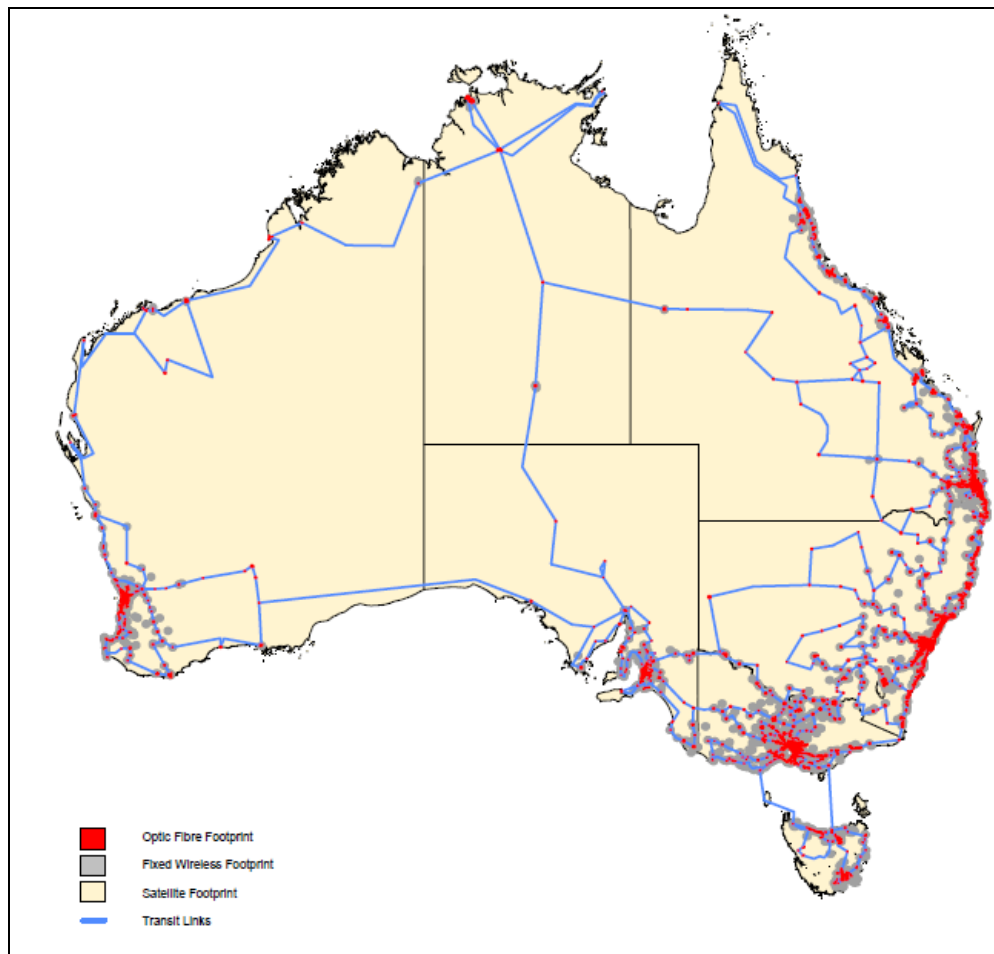
Key supplier contracts have been issued to:

- Alcatel-Lucent for GPON and Ethernet aggregation equipment
- Oracle for NBN Co's software platform and enterprise resource planning
- IBM for infrastructure hosting.

NBN Co has announced requests for capability and proposals for:

- the design and provision of satellite services
- operational and business support systems
- the design and construction of the fibre access network
- the passive network hardware.

NBN Co has also conducted network modelling to determine the fibre, wireless and satellite components of the NBN. An indicative representation of the proposed mix of technologies making up the NBN is shown at Figure 2.



**Figure 2: An indicative representation of the mix of technologies making up the NBN (source: NBN Co)**

NBN Co has released descriptions of its proposed fibre, wireless and satellite products. In particular, NBN Co has indicated that it will offer a Layer 2 Ethernet service with speeds up to 1 Gbps for residential end-users of its fibre product. This service will be delivered via a network termination unit housing four ports, each capable of receiving up to 1 Gbps.

The Australian Government has awarded a \$250 million contract to Nextgen Networks under the Regional Backbone Blackspots Program (RBBP) to roll-out 6000 km of fibre backbone links to six priority locations around Australia (Figure 3). This will benefit around 400 000 people in 100 regional locations and provide more than 1000 jobs. To date, around 2400 km of optical fibre has been laid.



Figure 3: Regional Backbone Blackspots Program routes

NBN Co has announced its first and second release sites on mainland Australia which it will use to test network design and construction techniques under different conditions. Construction on these first sites is underway. These sites, along with the Government targeted RBBP sites, are marked at Figure 4.

## First and Second Release Sites

- > Construction to begin on first release sites in second half of 2010, and in the second quarter of 2011 on the second release sites.

### RBBP priority location

WA: Geraldton

NT: Darwin

SA: Victor Harbor

QLD: Emerald,  
Longreach

NSW/ACT: Broken Hill

VIC: Sale, Wonthaggi

### Second release sites

ACT: Gungahlin

NSW: Riverstone, Coffs Harbour

NT: Casuarina

QLD: Brisbane, Springfield Lakes, Toowoomba

SA: Modbury, Prospect

VIC: Bacchus Marsh, South Morang

WA: Geraldton, Mandurah, Victoria Park (Perth)

### First release sites

SA: Willunga

QLD: Townsville

NSW: Armidale, Kiam Downs

VIC: Brunswick



Figure 4: NBN Co's first and second release sites and RBBP routes

In August 2010, the first NBN services were launched in the island state of Tasmania, the state with the lowest broadband take-up in Australia. Live services are now available and the focus is on stages 2 and 3.

In support of the NBN, the Government has also:

- introduced legislation into Parliament to improve competition and consumer safeguards in the telecommunications sector
- developed legislation to provide a framework for the installation of fibre and fibre-ready infrastructure in new real estate developments
- released exposure drafts of legislation to ensure the operation of NBN Co is on a wholesale-only basis offering access on open and equivalent terms.

### ***Financial Heads of Agreement between NBN Co and Telstra***

On 20 June 2010 NBN Co and Telstra entered into a Financial Heads of Agreement that allowed NBN Co to use some of Telstra's infrastructure and to progressively migrate Telstra's customers to NBN Co's fibre network.

This agreement, worth an expected \$9 billion, means that Telstra will become a participant in the roll-out of the NBN. It will also deliver structural separation of the telecommunications industry to promote genuine competition.

NBN Co and Telstra are now negotiating the detailed Definitive Agreements.

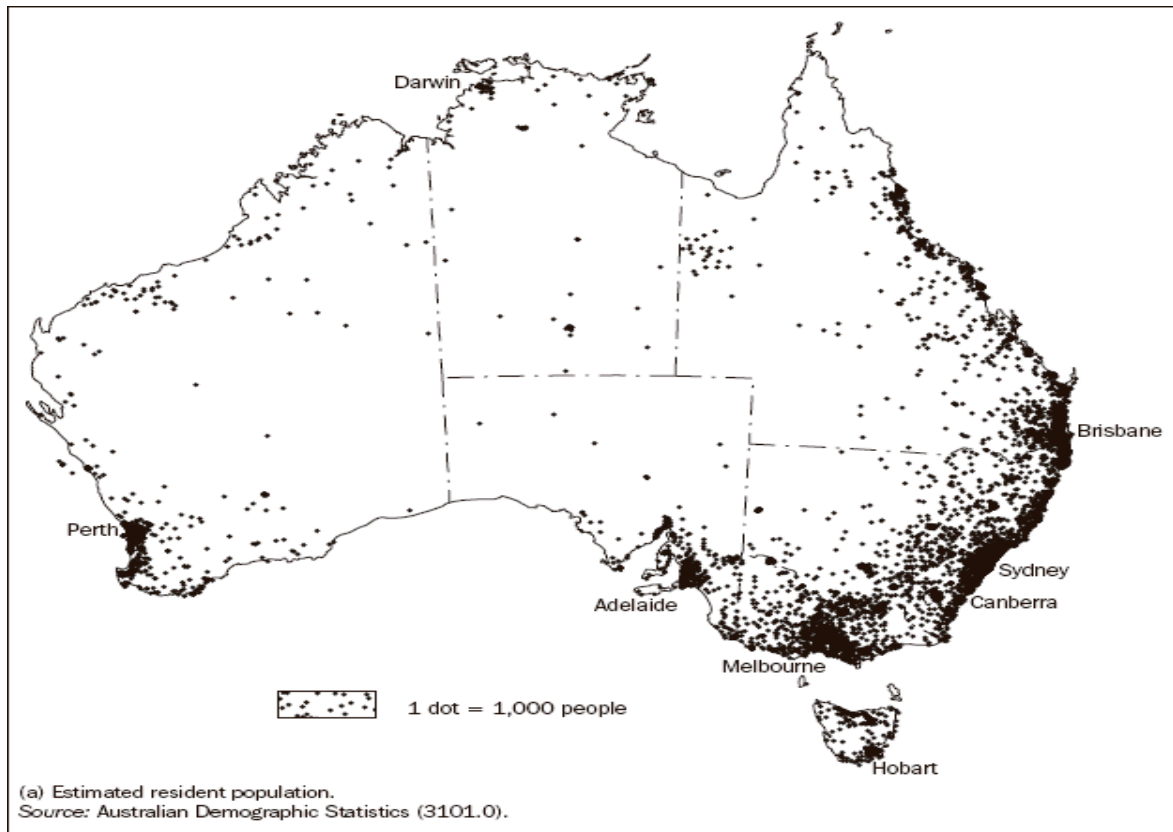
In support of this agreement the Government announced it will implement policy and regulatory changes for the more efficient and transparent delivery of Australia's Universal Service Obligation (USO). The USO is designed to ensure all Australians have access to basic telecommunications services.

### ***Agreement with Australia's regional independents***

The Australian election in August 2010 highlighted the importance of fast broadband for Australia's economic and social development. Regional independent candidates holding the balance of power indicated that the NBN was a key factor in determining which side to support in the formation of a new Government.

Delivering broadband to regional Australia is a considerable challenge given Australia's land mass (more than 7.5 million square km) and that just 2.3 per cent of Australia's 21 million people live in remote or very remote areas. A map showing Australia's population density can be found at Figure 5.





**Figure 5: Population density in Australia (source: Australian Bureau of Statistics, 2006)**

Improved access to fast broadband for regional, rural and remote communities will alleviate much of the need to travel long distances to access essential health care and education services.

### ***Further information***

Further information on Australia's NBN is available from the following websites:

- NBN Co Limited—[www.nbnco.com.au](http://www.nbnco.com.au)
- Australian Government—[www.nbn.gov.au](http://www.nbn.gov.au)
- NBN Tasmania—[www.nbntasmania.com.au](http://www.nbntasmania.com.au)
- Department of Broadband, Communications and the Digital Economy—[www.dbcde.gov.au](http://www.dbcde.gov.au)