

**BAI Communications**  
Bringing the connection to our world

# Restacking the national spectrum and creating a digital dividend

Case Study

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bai communications



**BROADCAST AUSTRALIA**  
a bai communications company

# A successful combination of innovation, dedication and the highest level of safety

In October 2012, the Department of Communications engaged Broadcast Australia, a BAI Communications company, to manage a project to clear UHF television services from the Digital Dividend band (694-820 MHz) across Australia. As the industry leader, Broadcast Australia was the best choice to lead the project, which required the cooperation of the whole industry including the national and commercial broadcasters, site owners and installation contractors.

### **The project was completed in less than two years, within budget and ahead of schedule.**

- Broadcast Australia set up an independent Program Implementation Manager (PIM) team to manage all contractors and to act as the intermediary with the Government.
- The PIM implemented innovative systems and software tools to manage the project's complexity, such as specialist software that generated a scope of work for each of the 427 sites.
- An automated testing tool, created by Broadcast Australia, simplified site commissioning and provided consistent, instant test results.
- Broadcast Australia's dedication to the highest standards of health and safety resulted in the entire project being completed with zero lost time due to injuries.
- Broadcast Australia's work on the project won the Project of the Year from the Project Management Institute (PMI) Australian Chapters in 2015.

# Paving the way for new technologies & services

The switch-off of analogue TV has provided new spectrum for mobile communications around the world. In Australia, the switchover of digital TV onto a new location on the spectrum band was completed in November 2014. 60MHz of the 700 MHz band was auctioned in May 2013 to Telstra and Optus, with licences coming into effect on 1 January 2015 for 4G mobile broadband services. The remaining 30MHz was sold in 2017 to TPG and VHA for a total of \$1.3 billion.

To free up the spectrum, broadcasting services across Australia had to be restacked into spectrum below 694 MHz. This complex project involved changing channels for 1,476 national and commercial digital services at 427 transmission sites. The Department of Communications engaged Broadcast Australia to manage the project.

Following 346,000 hours of effort and a peak workforce of 200 from four key contractor companies, Broadcast Australia completed the project in less than two years, within budget and ahead of schedule (with zero downtime due to injury).



## Strong governance assured project success

Broadcast Australia is recognised as the industry leader in broadcasting with expertise across system design, network planning and implementation, as well as strong project management, stakeholder management, procurement, legal and financial capabilities. The company also holds Federal Safety Commission (FSC) accreditation, which is the highest level of certification in Australia.

Broadcast Australia was well placed to manage the project's complexities with many stakeholders, including broadcasters, government organisations, infrastructure owners, contractors and equipment suppliers.

Owning and operating most of the sites involved, Broadcast Australia had the experience and national footprint of staff across the country ready to undertake the project. Broadcast Australia was seen by the Government as the best choice for such a high-profile task affecting millions of people.

Crucially, Broadcast Australia had to adhere to dates for switching over TV services to their new location in the spectrum band as promised by the Government in its public communications. Despite having to commit at least eight weeks in advance, Broadcast Australia never missed a date.

## Independent office applied strict governance

Under the guidance of Broadcast Australia, the PIM implemented innovative systems and software tools to manage the project's high complexity. Specialist software drew key information from the Spectrum Restack Database (site details, channel plan, equipment that needed to be changed) and generated a scope of work for each site. Installation contractors were assigned to sites based on price, expertise and availability.

The PIM also managed the purchasing of equipment and free-issued it to contractors. A detailed procurement plan was vital, because much of the equipment was imported from

overseas and coordinated with that which was locally-sourced. Delivery to remote sites could involve trucks, barges and even helicopters.

Broadcast Australia developed a sophisticated algorithm that automatically identified opportunities to improve scheduling and re-prioritise work based on the changing status of all activities. This powerful tool continuously found optimum ways to complete the work and reduce delays. The algorithm made an important contribution to Broadcast Australia's success in completing the project six weeks ahead of schedule.

# Supreme safety achieved

The project was completed with zero lost time due to injuries; no project schedule was affected by any health or safety incident. This achievement was the result of Broadcast Australia's dedication to the highest standards of health and safety, with a very tight safety management approach that exceeds federal requirements.

The company uses Government requirements as its minimum standard and has developed more stringent safety plans for its staff and contractors across the whole group. Including actively managing the number of hours of driving permitted and ensuring that two people must always travel on long trips

and for any potentially high-risk work on a site. All field staff are trained in first aid.

Health and Safety training was conducted for everyone involved with the project. Broadcast Australia also provided safe working method statements and submitted safety plans for each site to assure that all safety aspects were correct and aligned with local requirements. In addition, Broadcast Australia ran an online tool available to all staff to record any incidents. These were reviewed and if necessary escalated to a Health and Safety committee for evaluation and implementation of preventative measures.

# Keeping services running

One of the biggest technical challenges was upgrading and replacing components on sites without causing major disruption to TV services for millions of people. Stringent requirements on the uptime of services had to be met.

A typical transmitter retune would mean outages of about two hours plus testing time. Major work such as antenna replacement would require longer outages staggered over several days. In addition, as the channels are used for emergency information broadcasting, services had to be maintained overnight.

Broadcast Australia created an innovative tool called the Restack Automated Testing System (RATS) that allowed any contractor to simply plug in test equipment and run testing on the site upgrade. Complex testing was simplified by the RATS automated system tests which provided instant results. Avoiding the need for a highly skilled engineer to set up a testing routine at every site, the system enabled less skilled technicians to run the field testing and commissioning consistently and in compliance with the standards. It also enabled the PIM to use its expertise to validate site test results quickly and remotely troubleshoot and fix performance issues without delay.



## An award-winning success

The project's success resulted in Broadcast Australia winning the Project of the Year from the Project Management Institute (PMI) Australian Chapters. The 2015 award recognised Broadcast Australia's superior performance through the application of outstanding project management principles.