

Case study: Broadcast

How BAI helped the ABC deliver Australia's first capital city AM-to-FM radio conversion

Improving signal quality, coverage, and resilience for Perth listeners

BAI Communications partnered with the ABC to replace ageing AM infrastructure with a fully consolidated, resilient FM broadcasting system — delivering clearer audio, improved energy efficiency, and net-zero capable operations across five radio services in the Perth region.



5 radio services consolidated



Up to 100 kW ERP per channel



20 kW transmitters installed



Net-zero carbon capable

The client

The Australian Broadcasting Corporation (ABC) has been at the heart of Australian culture since 1932. As the nation's most trusted media organisation, the ABC is committed to a digital-first content and operational model while continuing to serve communities across the country.

The challenge

Many of the ABC's Local Radio services broadcast on the AM band, which is susceptible to electrical interference. In Perth, the main north-south train line runs along the centre of the primary freeway, generating significant electrical interference and radio noise that affected reception for drivers. The problem was compounded by sandy soil across parts of Western Australia, which reduces ground conductivity, scatters radio signals, and further degrades signal strength.

To address these issues and advance its long-term infrastructure modernisation plans, the ABC needed a trusted partner to carry out its first-ever capital city conversion from AM to FM.

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“Thanks to the greater bandwidth available with FM, as well as decreased susceptibility to powerline interference, the audio quality of the ABC's broadcasts in the Perth area is expected to improve significantly.”



bai communications

The solution

BAI Communications structured the project across three dedicated workgroups — external structure and antenna; transmitters and program input; and electrical upgrades — ensuring coordinated scheduling and on-time delivery across all workstreams.

A new panel array antenna system with power splitting capability was installed, along with a side-mount standby antenna as backup. New 20 kW transmitters were deployed for each of the ABC's five radio services (Local Radio, triple j, Radio National, Classic and NewsRadio), with fully redundant standby transmitters for Local Radio and triple j. A single redundant transmitter with automatic switching covers Radio National, Classic and NewsRadio.

Program input resilience was strengthened through a point-to-point microwave link, fibre input, and satellite backup. A new generator and bulk fuel system, uninterruptible power supply (supporting full load for up to 30 minutes), and upgraded electrical distribution with automatic switching ensure the consolidated site can withstand outages and extreme weather events.

BAI also worked closely with commercial and community broadcasters in Perth to manage the frequency and power changes required for the FM transition, and engaged TX Australia to support changes to services managed on behalf of other broadcasters.

The results

- Significantly improved audio quality across the Perth region, with reduced powerline and electrical interference
- Five ABC radio services consolidated onto a single, highly resilient site
- Effective radiated power of up to 100 kW per channel across both main and standby antennas
- Improved energy efficiency and net-zero carbon capability across all five services
- Enhanced power resilience benefiting multiple broadcast and telecommunications clients at the site
- Ongoing asset management program in place to minimise service impacts and respond proactively to unplanned events

Lessons learned

- Structured project workgroups with shared scheduling enabled cross-team coordination and on-time delivery
- Close collaboration with the ABC on transmission pattern design maximised coverage from both main and standby antennas
- Early engagement with commercial and community broadcasters smoothed the frequency transition process
- Consolidating multiple services onto a single resilient site improves long-term operational and environmental performance



Is your organisation experiencing?

- AM reception issues driven by electrical interference or environmental factors
- Aging broadcast infrastructure in need of modernisation
- Coverage gaps or signal quality complaints in key areas
- Challenges meeting sustainability or net-zero commitments
- The need to consolidate multiple services onto a single resilient site

Why BAI Communications

- Decades of broadcast infrastructure expertise across Australia
- End-to-end project management from planning through to ongoing maintenance
- Established relationships with regulators, carriers, and co-located
- Forward-thinking asset management to maximise equipment life and minimise disruptions clients

Contact us

To find out more about how BAI can support your next communications infrastructure upgrade, visit our website and explore the broadcast showcase on [BAI360](#), our virtual tour platform.

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