



CASE STUDY

Broadcast Australia



Broadcast Australia chooses Climate Wizard to save energy in transmitter facilities

THE MT LOFTY TRANSMITTER HALL THAT HOUSES ALL THE NATIONAL BROADCASTER'S RADIO AND TV TRANSMITTERS FOR GREATER METROPOLITAN ADELAIDE, SOUTH AUSTRALIA, HAS BEEN OPERATING ON THIS SITE SINCE THE COMMENCEMENT OF TELEVISION TRANSMISSION IN THE MID 1950S.

It is operated by Broadcast Australia (BA) on behalf of the Federal Government. The transmitters operate 24/7 and the building has the characteristics of a large data centre, where there is a continuous internal heat load that must be countered by mechanical cooling to ensure a very high degree of reliability.

BA contracted Seeley International to install Climate Wizard as supplementary cooling, designed to reduce the air conditioning energy consumption. The concept was for

Climate Wizard to carry the base load of the transmitter heat gain and the solar load, while the refrigerated systems would be retained to provide extreme heat event cooling capacity and as a backup system for safety.

In summary, this is what the design entailed:

- Increasing the refrigerated system's thermostat setting by 2-3°C and leaving the system in fully automatic operational mode;
- The AHU fans were retained and active to circulate the air within the building as it delivered the right quantities to the right places;
- Six CW-H15 were installed around the perimeter of the building with cooled air being introduced by short ducts through existing windows that were modified;
- The Climate Wizard room temperature sensors were set at the temperature that the previously refrigerated system's set point of 23 Cdb (73°F);

- Automatic barometric relief dampers with bush fire screens were installed to promote warm air exit in the best places to allow air flow in the key areas;
- A commercially available PLC was configured to manage the Climate Wizards and interface with the existing control system;
- Data logging and remote access for data retrieval installed as part of the initial installation.

The installation was commissioned in January 2011 and has operated very successfully through three hot summers, with no significant breakdown or time off line.

The logic of the system was to provide high Coefficient of Performance (COP) cooling during the whole year and have the refrigerated systems in place for extreme heat events and as a back up in the event of Climate Wizard failure, for whatever reason.

Since its commission, the installation has been monitored and the results demonstrate that the performance of the system has exceeded expectations in relation to reliability and energy saving compared to the old refrigerated system.

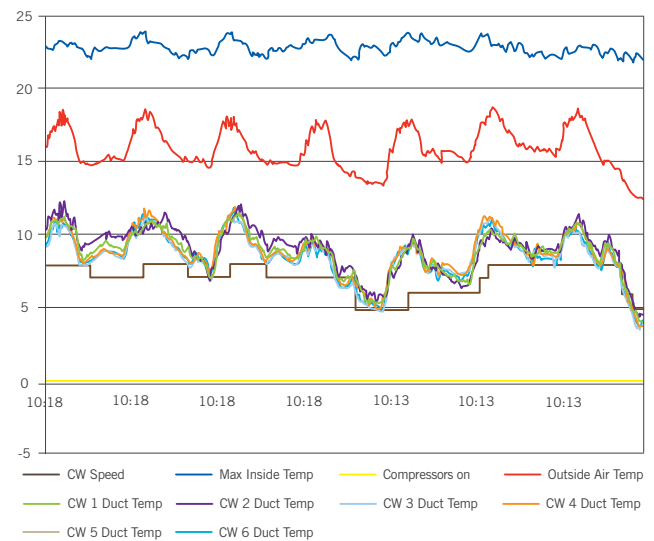
BA was particularly impressed with the Mt Lofty installation and as a result, Seeley International has since completed a Climate Wizard installation in Western Australia, with another planned for central South Australia. In both cases Climate Wizard will play the leading role in air conditioning the transmitters, in temperatures that can regularly rise as high as 45°C (113°F).



Above: The existing indoor air supply ducts and fans were retained and kept operating on low speed to recirculate the air and deliver it to spaces within the transmitter hall that needed cool air to address local heat loads from specific transmitters.

The graph compares the outside temperature with the internal temperature (maintained at 22-24°C) and shows the operational speed of the Climate Wizards. The plot also shows that during the month the compressors did not operate.

BROADCAST AUSTRALIA, MT. LOFTY MAY 2012



Project information

Installation	Original	New
System	2 x 60kW PAC	6 x CW-H15 + 2 x 60kW as standby
Cooling Capacity Max	120kW max	90kW (CW only)
Input Power at 90kW	34.6kW	10.8kW
COP (EER)*	2.6 (8.9)	8.3 (28.5)
Power Saving*	-	69%

*At design conditions

Benefits

- ✓ EXCEPTIONALLY LOW COST OF OPERATION , WITH AN EER OF 54 (COP 15.8)
- ✓ LOW MAINTENANCE COSTS AND LONG LIFE EQUIPMENT
- ✓ RETRO-FIT INSTALLATION, SUITABLE FOR ALL RTUs
- ✓ ENHANCED COMMITMENT TO THE ENVIRONMENT



SEELEY
INTERNATIONAL

Seeley International Europe (Italy)

Via Rigutino est, 194
52100 Rigutino (AR)
Italy

Phone +39 (0) 575 97189
Fax +39 (0) 575 1949971

Email marketing@seeleyinternational.com
Web seeleyinternational.com

