



# CASE STUDY

## Telstra Sebastopol



## Telstra increases operational efficiency of exchange with Climate Wizard

TELSTRA IS AUSTRALIA'S LEADING TELECOM PROVIDER. AS PART OF THAT SERVICE THEY HAVE MANY THOUSANDS OF TELEPHONE EXCHANGES THAT REQUIRE COOLING DURING THE SUMMER. WITH THE ADVENT OF FAST COMMUNICATIONS AND DATA TRANSFER FOR COMMERCE AND NATIONAL SECURITY, THESE SYSTEMS ARE REQUIRED TO BE EXCEPTIONALLY RELIABLE AND THIS IS NOW REFLECTED IN THE DESIGN OF THE SUPPORT INFRASTRUCTURE.

Typically, the designs now call for air conditioning equipment that has a high degree of efficiency and redundant capacity to cover any eventuality of breakdown.

Critical exchanges, some of which now carry the National Broadband Network (NBN), have an expectation of 99.995% of time on line. Sebastopol, in the state of Victoria, is one such exchange. Telstra has recently installed Climate Wizard as a key component of the cooling system.

The air conditioning design for this exchange makes use of economiser operation when appropriate in the shoulder seasons and the Climate Wizard provides the first stage of cooling as the summer heat builds. The refrigerated second cooling stage will then come on line as required, while the Climate Wizard continues to provide its full cooling capacity.

Another feature of the air conditioning system design is the use of return air from the conditioned space to maximise the efficiency of the system.

As the exchange has a continuous internal heat load, mechanical cooling is required even in winter, where external temperatures can reach freezing. Under these conditions economiser operation can often meet the heat load and the design allowed for at large intake / mixing plenum, with motorised dampers operated via a PLC, to select most efficient option.



Above and left: The return air / outside air mixing plenum has large capacity air intake bag filters that are housed behind a louvre door, making service easy.

There are also conditions where taking return air from the exchange back to the Climate Wizard can incrementally increase the operational efficiency (COP) of the Climate Wizard and the system as a whole.

Below left: For optimum cooling of the exchange racks, the internal distribution of the cool air and return air is critical. Some flexibility in the supply ducts is also essential due to the requirement that the exchange system be able to cope with changes configuration as growth and technology dictate.



This has been achieved with high performance fabricated rectangular ducting and flexible air tubes that can be directed as needed.

## Benefits

- ✓ ECONOMICAL SOLUTION TO INCREASE EXCHANGE EFFICIENCY
- ✓ HUGE ENERGY SAVING ALL YEAR ROUND
- ✓ LOW MAINTENANCE COSTS AND LONG LIFE EQUIPMENT
- ✓ RETRO-FIT INSTALLATION, SUPPLEMENTARY COOLING TO EXISTING PACS
- ✓ ENHANCED COMMITMENT TO THE ENVIRONMENT

## Project information

Installation	Original	New
System	45kW PAC	CW-H15 + 45kW PAC
Cooling Capacity Max	45kW	12 + 45 = 57kW
Input Power at 45kW	16.1kW	13.5kW
COP (EER)*	2.8 (9.6)	3.3 (11.4)
Power Saving*	-	16.2%

\*At design conditions



**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](mailto:marketing@seeleyinternational.com)  
Web [seeleyinternational.com](http://seeleyinternational.com)

