

HVAC OPTIMISATION






Woolworths is an Australian chain of supermarkets and grocery stores owned by Woolworths Group. Founded in 1924, Woolworths today is Australia's biggest supermarket chain with close to 1,100 stores Australia-wide.

OVERVIEW

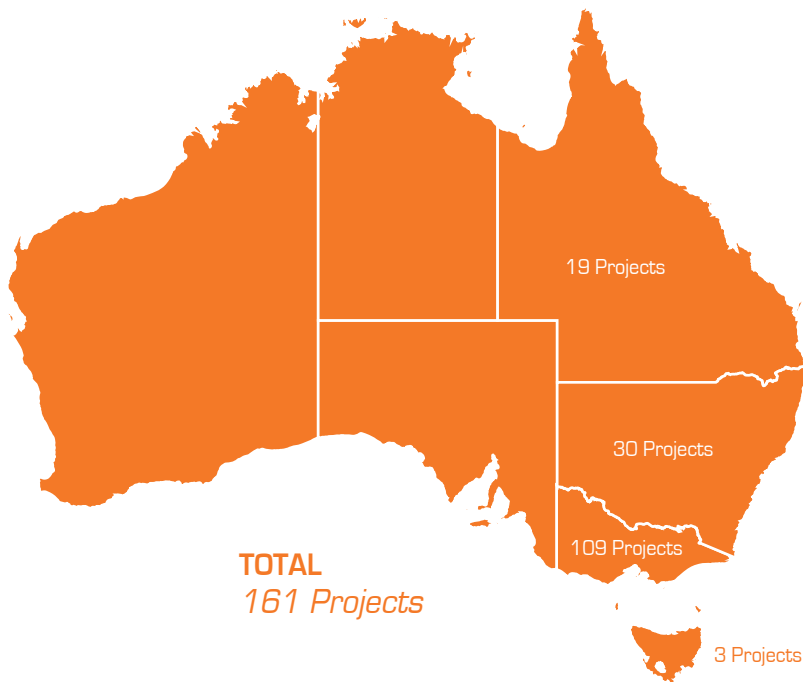
Heating, Ventilation and Air Conditioning (HVAC) plant and equipment on average account for approximately 20% of a typical supermarket's total electrical energy consumption. The control of temperature and humidity within a supermarket is imperative to maintaining an inviting environment for customers, reducing product loss, safeguarding food safety requirements and ensuring the correct design envelope is maintained for the refrigerated fixtures to operate within. In consultation with the Woolworths Energy Management Centre, critical elements of the HVAC plant were identified as high in energy consumption and an engineered solution was developed. Upgrading and optimising the HVAC plant and control systems empowered Woolworths to set the energy baseline and gain connectivity and visibility of HVAC plants across their nationwide fleet of stores. A big fleet of stores needs a large amount of energy to drive it, so capturing every opportunity is crucial.

SOLUTION

- HVAC CONTROLS UPGRADES** Upgraded the HVAC control systems and connected to the Woolworths network for nationwide visibility. Installed and calibrated new sensors for improved system readouts and accurate control, furthermore enhancing analytics capability through Woolworths' Energy Management Centre.
- HVAC PLANT COMMISSIONING** Created site specific control strategies for optimal energy performance, whilst maintaining precise temperature and humidity control. Not just important to customer comfort, but also crucial to protecting product shelf life and refrigerated fixture performance.
- SUPPLY AIR FAN UPGRADES** Using variable speed drive (VSD) or electrically commutated (EC) plug fan technologies, upgraded the main air handling unit supply air fans. By utilising variable capacity control, as opposed to staged control, the fan motors now capitalise on low demand periods and avoid unwanted motor inrush currents.
- FRESH AIR SYSTEM UPGRADES** Upgraded fresh air intake equipment and controls on air-conditioning plant to maintain indoor air quality standards, whilst avoiding unnecessary heat losses.

-  **16,100,000 kWh**
Energy savings per annum
-  **10,568,040 kg**
CO2 reduction per annum
-  **3,489**
Houses powered per annum
-  **52,840**
Trees offset per annum
-  **Circa 2 years**
Return on investment

* Based on projects delivered by SEDAC Energy Management only



BENEFITS

Depending on your electricity tariff (e.g. \$0.15/kWh), a 1,000,000 kWh reduction would equate to as much as \$150,000 saved per annum!

Total annual energy costs to operate a supermarket are usually equivalent to net profit: both are between 1 and 2% of sales. Therefore, a 10% reduction in energy costs can increase net profit by as much as 16%. How much would that be worth to your business?



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