

Little's Pharmacy

Cool savings achieved with innovative air conditioning system

Innovative solutions

A new air conditioning system at Little's Pharmacy in Ashfield is not only cooling the premises more efficiently, it's also reducing the peak electrical demand of the system.

Aging equipment and the need for better cooling capacity prompted Little's to investigate a new system.

With funding provided by the Demand Management and Planning Project's (DMPP) Innovative HVAC Program and technical advice and support from Synergy Thermal Technologies, an ice-storage air-conditioning system was installed, rather than a conventional split system, to shift electrical loads from daytime to night-time, when electricity is more plentiful and less expensive.

Ice Thermal Storage reduces the electrical load at peak times by moving the time that the load is used to off-peak times, such as night-time or weekends.

And the results are encouraging.

The ice storage system at Little's has reduced the peak demand from ~ 11kW to ~1kW and reduced overall electrical consumption by almost 20,000kWh annually.

How does the system work?

In a traditional air-conditioning system, more energy is required to run the system during the heat of the day - when it is needed most - as the refrigeration method works not by producing cool, but by removing heat.

The ice storage system shifts the electrical load to off-peak hours to efficiently make and store ice at night when temperatures are lower. The energy stored as ice provides effective cooling during the day as it melts, dramatically reducing peak electrical demand.

The Little's system includes a new condenser that supplies refrigerant gas to a Synergy IceTower located in the storeroom. The condenser is managed by a time clock that prevents it from switching on during peak periods between 10am and 5pm.



What are the benefits?

The growing demand for air-conditioning is one of the largest contributors to NSW's overall electricity consumption as well as its peak power demand. It is a significant driver for the need to build new electricity infrastructure, even though the demand generally only occurs for a relatively short time during very hot days in summer or very cold days in winter.

Employing innovative technologies such as ice storage air-conditioning systems can reduce demand for electrical power during times when the state electrical transmission network is operating at or near its peak capacity, thus helping to maintain its reliability and defer the need for costly expansion.

Generally speaking, shifting the cooling load to off-peak hours when cheaper electricity is available also reduces energy costs, resulting in substantial savings for the consumer.

Lessons Learned

For owners of small businesses, reducing peak demand through the use of an ice storage air-conditioning system means lower electrical bills and more efficient cooling. For the community, reduced energy usage means a healthy environment due to a significant reduction in greenhouse gas emissions.

The manager of Littles Pharmacy, Mr. Van says the new air-conditioning system clearly demonstrates that electricity end users can reduce their electrical bills and total energy consumption without sacrificing cooling comfort.

“With the new air-conditioning system we benefit from ongoing electricity savings and better comfort for staff, plus we’re doing our bit for the environment as well,” he said.

