

# FAWKNER LEISURE CENTRE

MORELAND LEADING THE WAY IN ENERGY EFFICIENCY

“Fawkner Leisure Centre has almost 900 active members, receives 850,000 visits per year and is one of Council’s biggest users of energy and water.”

## KEY ACTIONS

- Installation of a 75kW cogeneration system
- Reconfiguration of heating and ventilation systems, including variable speed drive fans, direct digital control mechanisms, full economy cycles, heat recovery and humidity control
- Internal lighting system upgrade including daylight sensing.
- Installation of solar tube daylight system over indoor pool
- Perimeter security lighting system upgrade using LED & induction fluorescent technology
- Installation of commercial hot water system – 120 evacuated tube controller array, 1900lt storage capacity. High efficiency condensing flu boilers.
- Installation of thermal pool blankets
- Introduction of speed control filtration pumps with night set back function
- Pool hall roofing replacement using insulating blanket and ‘coolmax’ heat reflecting colorbond
- Draught sealing of all doors and windows
- Low flow showers and urinals and push button time delays
- Installation of 2 x 2,400L rainwater tanks for toilet flushing & irrigation
- Upgraded outdoor pool boiler and pool heating systems
- Electric vehicle charge point

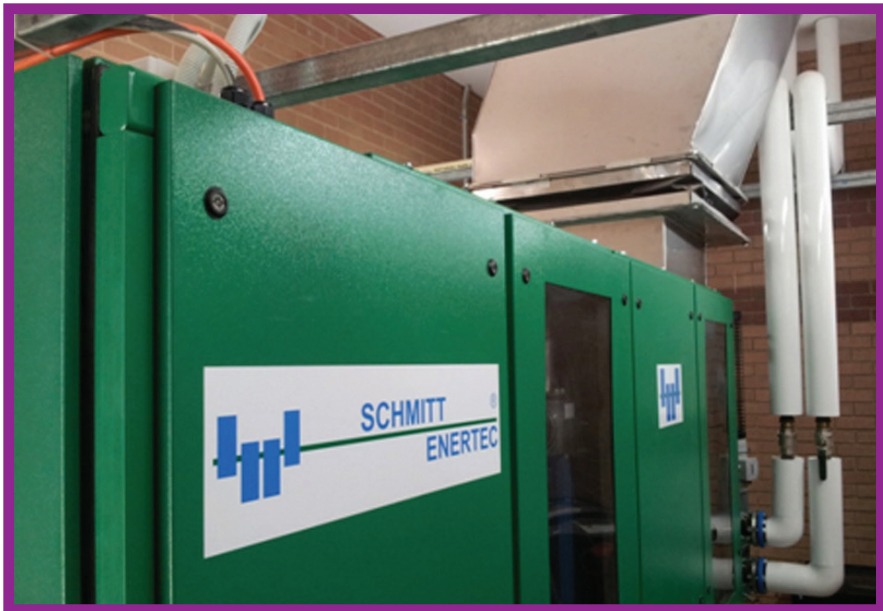


Fawkner Leisure Centre was built in the 1960s and is part of the Fawkner Civic and Community hub. Fawkner Leisure Centre has set the standard for cost-effective carbon reduction across Moreland City Council’s facilities and has been recognised as a leader in sustainability, winning the Sustainability Award at the 2013 Victorian Aquatic and Recreation Awards.

## COGENERATION SYSTEM

The cogeneration system provides almost all the heat required for the Leisure Centre’s pool and spa, plus 80-90% of the electricity required by the Civic and Community hub. This includes the Leisure Centre plus the Library, Senior Citizens’ Centre, Maternal & Child Health Centre and Neighbourhood House. Council estimates that the cogeneration system will save \$38,000 in energy costs and over 500 tonnes of greenhouse gases each year.

IMPROVEMENTS AT THIS FACILITY ALONE ARE ESTIMATED TO SAVE 825 TONNES OF GREENHOUSE GAS EMISSIONS (CO2E) EACH YEAR, REPRESENTING A REDUCTION IN ENERGY COSTS OF \$120,000. THESE SAVINGS CAN NOW BE REINVESTED TO DELIVER FURTHER SAVINGS IN OTHER COUNCIL FACILITIES.



A COGENERATION SYSTEM USES A NATURAL GAS ENGINE TO PRODUCE ELECTRICITY ON-SITE. WASTE HEAT IS CAPTURED AND USED, IN THIS CASE TO HEAT THE POOL WATER. THIS PRODUCES EFFICIENCIES OF UP TO 90% COMPARED TO THE TYPICAL 27% EFFICIENCIES USING GRID ELECTRICITY.

## LIGHTING RETROFIT AND CONTROLS SYSTEM

Lights were retrofitted with energy efficient T5 and induction fluorescent technology. Sixteen solartube skylights were also installed on the pool deck, which eliminate the need for artificial lighting during the day. The lighting control system is linked to the security alarm so that lights are isolated and shut down when the centre is closed.

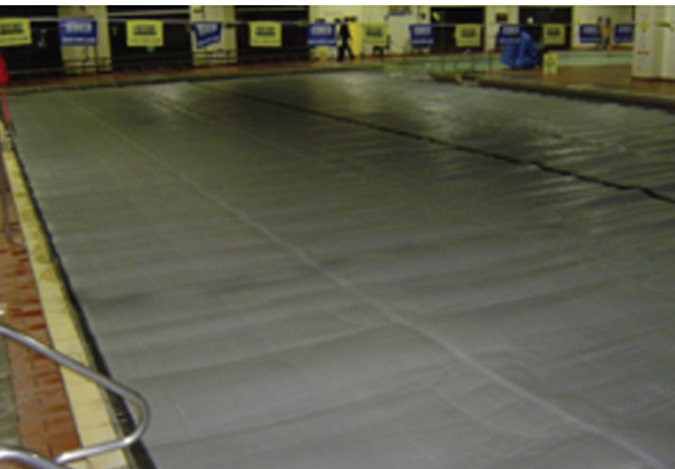




CASE STUDY

POOL BLANKETS

To reduce heat loss overnight pool blankets were installed for both the indoor pool and spa pool and these are stored below seating to save space. The blankets have a basic insulation layer that traps heat in the water after hours when the pool isn't being used.



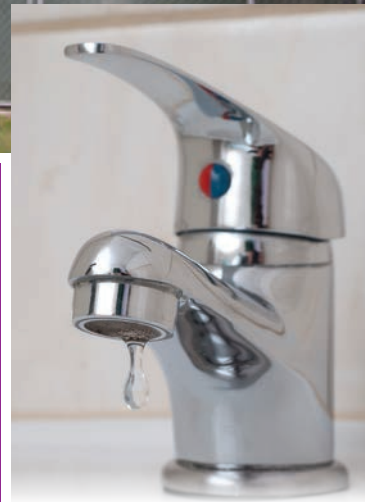
POOL BLANKETS IN USE AT FAWKNER LEISURE, AND STORED UNDER BENCH SEATING. STAFF TRAINING HAS BEEN A KEY TO ENSURE THE POOL BLANKETS ARE USED APPROPRIATELY.



Push button time delay valves were fitted to all showers and basins and solar hot water collectors have been installed. Rainwater tanks (4,800 kL capacity) were also installed to provide water for toilet flushing.



THE HVAC CONTROL SYSTEM USES SET POINTS FOR THE FILTRATION PUMPS SO THAT THEY OPERATE AT REDUCED RATES DURING OFF PEAK TIMES.



DOUBLE GLAZING

A common issue with indoor pool halls is condensation and associated heat loss through the windows. Due to high temperature within the heated pool hall and the large size of the windows, the heat loss from Fawkner Leisure Centre was very large prior to the retrofit project. This was confirmed through an energy audit.

Fawkner Leisure Centre before double glazing showing build-up of condensation (above), ► And after double glazing (below) ►



COUNCIL ESTIMATES THAT THE DOUBLE GLAZING WILL REDUCE THE HEATING BILLS BY \$3,000 PER YEAR.

LESSONS LEARNT

As with any project that results in changes to service delivery, e.g. reduced water pressure in showers, there will always be some negative feedback received from members and customers. Leisure Centre staff must be well informed of the changes as they are the first point of contact for a disgruntled patron. Council's ESD Unit worked closely with the Leisure Centre Staff and a key partnership has formed. Climate Change Technical Officer Stuart Nesbitt has been willing to assist the Leisure Centre Staff at all times

and keep them up to date with relevant information such as ongoing energy and water savings. A close project working group meant that everyone was clear on timelines and issues such as impact on patrons. The objective was to limit downtime and minimize work during peak periods as much as practical. The indoor pool hall was closed for three months while the roof was replaced, so significant planning and coordination allowed many of the energy efficiency upgrades to happen during this period.



ELECTRIC VEHICLE CHARGE POINT

An electric vehicle (EV) charge point has been installed at the entrance to the Fawkner Civic and Community hub. This is one of a number of public EV charge points in the Moreland network.

REACHING CARBON-NEUTRALITY ISN'T A FINAL DESTINATION. WE WILL CONTINUE TO IMPROVE THE ENERGY EFFICIENCY OF OUR LEISURE CENTRES, LIBRARIES AND BRUNSWICK TOWN HALL, WHICH WILL HELP US REDUCE THE COST BURDEN OF OPERATIONS FOR OUR RATEPAYERS. – MAYOR OSCAR YILDIZ



Australian Government



Moreland City Council

The views expressed herein are not necessarily the views of the Commonwealth of Australia, and the Commonwealth does not accept responsibility for any information or advice contained herein.

