

Case Study - Victoria University Solar Hot Water System

Applied Energy Saving Solutions (AESS) was engaged by Victoria University to conduct energy audit Level 2 to the Footscray Nicholson Campus. The purpose of this energy audit was to identify opportunities to reduce energy consumption as part of the university energy saving initiative.

One of AESS findings during the energy audit is that the domestic hot water system in one of the campus buildings is provided by a calorifier, which is connected to the space heating boiler. This big gas boiler and its two big circulating pumps (primary & secondary) must run during summer to meet only the small load of the domestic hot water in the building by heating the water inside the calorifier.



Old Calorifier



Gas Boiler and Its Primary Pump

This is not an efficient design and because also for the low efficiency of the old calorifier, AESS came up with a solution for the university to solve this issue by separating the domestic hot water circuit from the space heating boiler circuit and install solar hot water system with gas boosters, which replace the old calorifier to supply domestic hot water to the building.

AESS estimated that by implementing this recommendation, an annual 87,390 MJ saving in gas consumption and 8,240 kWh saving in electricity consumption are achievable. This leads to around 13.4 Tonnes CO₂ emissions avoidance.

Victoria University decided to implement this recommendation and AESS helped them by preparing the specifications and tender document for this project so they can issue a tender for the prospect contractors and then select the qualified contractor for this job. AESS specified for this project evacuated tubes solar collectors for its high efficiency compared to flat plate collectors.

The mechanical contractor who was selected by the Victoria University carried out the detailed design for this project and completed the installation in March 2020.

Refer to the photo below that shows the solar hot water system installation after it has been completed.



New Solar Hot Water System with Gas Boosters