

Charles Sturt University NSW, Australia

Energy Performance Contract 2

Charles Sturt University re-engages Conservia to undertake Stage 2 energy performance contract.

Charles Sturt University (CSU) commissioned Conservia for a Stage 2 energy performance contract (EPC) to continue the energy efficiency practices introduced across campuses, this time for Truskett Library in the Bathurst Campus.

Conservia designed and implemented the installation of a high efficiency centralised chilled water system (CHW) and heating hot water system (HHW), replacing the existing inefficient systems. The existing water cooled chiller with reciprocating compressors and phased out refrigerant R22 was replaced by an efficient air cooled chiller with two semi hermetic screw compressors with variable speed drives (VSD's) and R134a. The existing end of life boiler was replaced with a new efficient boiler.

All existing air handling unit (AHU) fans and new chilled water/hot water pumps were installed with VSD's. The building management system (BMS) was upgraded with energy savings options such as optimum start/stop, chilled/hot water temperature resets, demand ventilation with CO2 sensors. Light emitting diode (LED) panel lighting was installed in the level 3 offices and level 5 bookshelves area, replacing T8 fluorescent with magnetic ballast troffers.

Key energy & water conservation measures identified from the measurement & verification (M&V) process:

- Replacement of the existing water cooled chiller with R22 and existing cooling tower with a new high efficiency air cooled chiller with high part load efficiency including new chilled water circulating pumps with high efficiency motors & VSD's.

Cost Savings **\$26,554/yr**

Cost Savings Above Target **\$8,074**

GHG Savings **211 tonnes/yr**

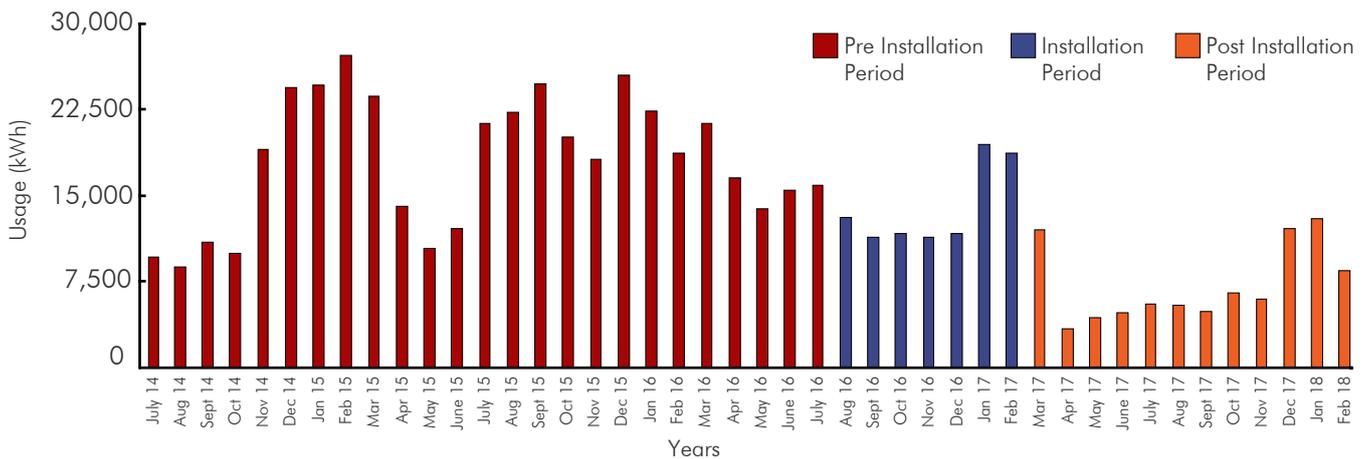
Financing **From Savings Only**



- Replacement of the existing hot water heater with a new high efficiency forced draft hot water heater including new circulating pumps with high efficiency motors and VSD.
- Replacement of the existing central air handling system with new AHU's with VSD's and high efficiency motors.
- Installation of high efficiency motors and VSD's on other air handling units.
- Installation of high efficiency motors and VSD's on chilled water and hot water pumps.
- The BMS was upgraded with energy savings options such as optimum start/stop, chilled/hot water temperature resets, demand ventilation with CO2 sensors.
- Installation of LED panel lighting in the level 3 offices and level 5 bookshelves area.

Conservia achieved cost savings of \$26,554 representing \$8,074 (or 43%) above target as per definition in the EPC Stage 2.

CSU Bathurst Building 1412 Truskett Library - Main HVAC plant Electricity Consumption



Savings



Electricity Savings = 183,300 kWh/yr

(Proposed - 111,570k Wh/yr)

Achieved - 71,730 kWh/yr excess)



Natural Gas Savings = 480 GJ/yr

(Proposed - 461 GJ/yr)

Achieved - 19 GJ/yr excess)



GHG Savings = 211 tonnes/yr

(Proposed - 148 tonnes/yr)

Achieved - 63 tonnes/yr excess)

About Conservia

Conservia takes a holistic approach to improving building and facility energy efficiency. We work to understand our client's energy efficiency objectives, whether it's a simple optimisation of the existing systems or detailed upgrade path to achieve a higher NABERS energy rating.