

Central Arizona College

Coolidge, Arizona

Energy Management & Conservation Performance Contract

APS Energy Services completed an Investment Grade Audit for Central Arizona College in Coolidge, Arizona. The audit consisted of four Campus locations and included various school facilities such as office space, gymnasiums, swimming pools, laboratories and classrooms. APS Energy Services implemented the following Energy Conservation Measures:

❖ Comprehensive Lighting System Retrofit

A total of 7,270 fixtures were replaced with energy efficient components that reduce electric consumption and improve lumen output at acceptable light levels for each area/room.

❖ Occupancy Lighting Sensors

A total of 119 rooms were identified as candidates for the installation of occupancy sensors.

❖ Direct Digital Controls (DDC)

Installation of a new DDC system with night and weekend set back and consistent temperature set points for the zones. The system also standardizes operation and maintenance procedures, and reduces training and maintenance costs.

❖ CO₂ Based Demand Controlled Ventilation

Installation of CO₂ sensors in the return ducts. Implementation of a control strategy to provide the minimum amount of outside air needed for proper ventilation based on readings from the CO₂ sensors.

❖ Occupancy - Based Room Controls

Installation of occupancy based room controls in the dormitory rooms on Campus.

❖ Chiller Replacement

Replacement of the existing York Chiller with a new 400-ton variable speed chiller.

❖ Cooling Tower Replacement and Optimization

Replacement of the existing cooling towers with three new 500-ton cooling towers equipped with variable speed fan motors.

❖ Multi-zone Units to VAV Conversion

Conversion of each of the multi-zone air handlers to variable air volume systems (VAV). Heating will be provided at the zone level via electric reheat coils in the VAV terminal boxes.

❖ Swimming Pool Solar Thermal Heating

Installation of a solar collector system, necessary piping, and associated pumping and controls to offset 16,500 therms of annual natural gas usage. The system interfaces with the existing pumping and heating system to ensure an adequate source of heat when the solar system cannot provide for full heating load.

To date, the total annual energy savings for the Central Arizona College project is:

- ❖ 4,183,245 kWh
- ❖ 115,596 therms

These savings translate to the following environmental benefits:



656

Passenger cars not driven for one year



406,610

Gallons of gasoline saved in one year



25

Acres of forest preserved from deforestation in one year