

District cooling using Co-generation at a major educational institute in California, USA



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Project Overview

Thermax provided two exhaust fired absorption chillers using tri-generation systems which catered to the air conditioning requirements of a major educational institute in California, USA. The aim was to provide our client comfort cooling using the exhaust gas from a 4.5 MW gas turbine installed at their premise.

Project Description

For this project, Thermax was involved in the construction of a Tri-Generation facility or Combined Cooling, Heat and Power (CCHP) facility for their entire campus. We constructed an energy plant on the southwest corner of the campus to replace the existing facility and create a more efficient and environmentally friendly facility. The new plant will include the installation of 2 x 1,310-ton Thermax Absorbers designed & manufactured to run directly on the Turbine Exhaust gases and/or by Natural Gas firing. One 4.5-megawatt (MW) Caterpillar Mercury combustion turbine generator will generate electricity & provide waste heat for generating the necessary cooling. Site preparation began in January 2008. The Institute's current district energy system was constructed in 1993 and includes 37,000 tons of chilled water capacity. The new system which will meet part of the total requirement will utilize waste heat to produce hot water, chilled water for space cooling and meet the additional electricity requirements for the facilities. Depending on the successful completion of the current project, the institute will move to increase the tri-gen component in their present utility mix. The exhaust fired VAC system is driven by the exhaust gas from the turbine with a supplementary firing of natural gas. Approximately 56% of the cooling load is generated by exhaust gas and 44% by natural gas firing

Industry: Education

Project Snapshot

Location: California, USA

Total Capacity: 2620 TR or 9196 kW

Application: Air Conditioning

Heat Source: Exhaust

Chilled Water: 12. 17.8°C (64°F)/5°C (41°F)

(In/Out)

Hot Water: 60°C (140°F) / 82°C (180°F)

(In/Out)

Highlights

- By installing our chiller, there was no separate heater required hence there was saving in capital cost for the university
- The university also made savings in electricity consumption and carbon emissions

