

# Natural Gas Absorption Chiller



## Background

Construction of South Jersey Healthcare's flagship hospital, The Regional Medical Center, prompted a review of refrigerant technologies available for building air conditioning systems. Three key factors that needed to be addressed in cooling the 405,000 sq. ft. facility were energy efficiency, reliability and fluctuations in regional fuel prices.

**S**outh Jersey Healthcare, Bridgeton, NJ. South Jersey Healthcare System comprises three hospitals, a satellite emergency department, a cancer center, women's centers, home health agencies and numerous clinics. Based in Cumberland and Salem Counties, SJH is the only nonprofit health system in the tri-county area, serving a population of 470,000 residents throughout Cumberland, Salem, and southern Gloucester counties. Its existing facilities mostly use traditional HVAC equipment to heat and cool their respective buildings. Recognizing the increasing impact of fluctuating energy prices on operating expenses, SJH actively seeks alternative approaches to controlling fuel costs.

## Profile

## Application

**S**JH collaborated with Dallas-based engineers, CCRD Partners, to evaluate cooling options. With energy efficiency, conservation and more stable operating costs during peak usage periods as high priorities, CCRD recommended installation of a hybrid chiller system. This approach allows SJH to take advantage of favorable off-peak rates for both natural gas and electric energy and helps guarantee redundancy to insure continuous operation in the wake of power outages. SJH's combination includes two electric centrifugal chillers and a natural gas indirect-fired absorption chiller. The 850-ton steam-driven absorber uses a low-grade heat source to produce chilled water, thereby, requiring less electrical demand than traditional cooling applications. Its use of water as a refrigerant helps eliminate concerns about refrigerant management and availability. The unit itself has fewer moving parts resulting in reduced maintenance, less noise and less vibration. Used in hospitals, office buildings, universities and high-rise buildings, absorption chillers are a viable alternative in markets affected by continual changes in energy pricing.

**T**he installation and use of a hybrid system results in more reliable, more stable operating expenses for SJH's Regional Medical Center. This alternative technology affords SJH more fuel flexibility and insulates the Center from pricing fluctuations. The initial purchase price of the unit was offset by a \$157,000 rebate by the New Jersey Clean Energy Program.

## Results



South Jersey Gas