

# TECOCHILL®

## CH-400x—DTx SERIES CHILLER

# Case Study

**SITE: JAMAICA HOSPITAL MEDICAL CENTER QUEENS, NEW YORK**



Located on the VanWyck Expressway within sight of New York's JFK Airport, the Jamaica Hospital Medical Center (JHMC) serves patients from Queens and Eastern Brooklyn and has been called one of the 50 fastest-growing hospitals in the U.S. But the 387-bed community teaching hospital found a downside to all the growth – rising energy costs that were difficult to manage, thanks to the unpredictable electric rates in the region.

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In 1998, the hospital needed to replace two aging central plant chillers. "We had to choose between electric and gas-fired technologies," says Hans Waldvogel, director of engineering for Jamaica Hospital. "We wanted to improve the reliability of our systems and save the hospital money over the long term."

JHMC called upon Jonathan Harkness of EBM Consulting Services to evaluate and develop a unified chilled water system for the entire campus. EBM then partnered with Custom Energy, a nationally accredited energy service company, to construct the project.

"JHMC evaluated several different options on a lifecycle cost basis. The Tecogen units were very attractive, when factored in all of the capital and operating costs of the equipment," recalled Jonathan. "The hospital wanted a technology that would be flexible enough to accommodate the hospital's eventual expansion without the addition of more chilling

capacity. By utilizing variable flow pumping and the gas-fired

Tecogen units in the main building, JHMC is now able to supply

chilled water to an addition and adjacent buildings. This increased the redundancy of the entire campus and allowed the hospital to run only the Tecogen units on partial load days, thus eliminating the prior need for every building to have one chiller running."

The recommended two TECOCHILL<sup>o</sup> DTx 400-ton units allowed the hospital to recover their investment in less than three years. JHMC was already familiar with Tecogen's products, having purchased five of Tecogen's 50-ton air-cooled chillers two years earlier.

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## TECOCHILL DT<sub>x</sub> SERIES CHILLER CASE STUDY: JAMAICA HOSPITAL MEDICAL CENTER

Powered by natural gas instead of electricity, Tecogen's units can provide cooling at a significantly lower cost than conventional electric chillers. Customers like Jamaica Hospital can realize additional cost savings by using the waste heat generated by the units to produce "free" hot water for use throughout the hospital.

In addition to delivering the promised payback and significant cost savings in each of the last six years, the TECOCHILL systems have met the hospital's demand for flexibility. To date, the hospital has been able to build two additions without having to increase the cooling capacity of the baseload chillers. "Thanks to Tecogen's variable volume pumping system and two-ended design, it's like having four machines instead of two," says Hans.

During the widespread New York blackouts in the summer of 2003, engineers at Jamaica Hospital Medical Center discovered another compelling advantage of their TECOCHILL systems. Unlike electric chillers, which require large amounts of power too taxing for most backup generators, Tecogen's systems continue to run on natural gas, so they can provide much needed chilling during a power outage, without jeopardizing other essential operations.

Engineers at the hospital initially had some concerns regarding maintenance of the 400-ton units. "There's no one out there who can service the Tecogen units except for Tecogen," explains Hans. But with Tecogen's long-term service and maintenance contract, those concerns were unfounded. "They've always responded quickly to make the necessary repairs," says Hans. "So it hasn't been a problem." Based on the performance of these units, and the responsiveness of Tecogen's service group,

EBM has purchased more Tecogen units for installation in NYC.

"Hospital staff concerns about noise and vibration were addressed through sound level analysis and the installation of Tecogen's sound attenuation packages. To the surprise of those that still thought the engines would be noisy, the machines could not be heard over the background din of the boiler plant when they were first started. After the new chillers were at full output, the plant actually grew quieter. The electric chiller stopped whining and shut down, while the hot water boilers fell silent as the TECOCHILL's sup- planted the hot water they were previously producing," recalled Jonathan.

Over the past six years, the two TECOCHILL units have logged more than 16,000 hours of cooling for the medical center without incident. Plans are underway to add two more units next year, to accommodate even more expansion and Hans knows the hospital will stick with gas-powered cooling. "Gas was, and still is, a better utility for us," he says.

Tecogen is the industry leader in natural-gas powered chillers with more units installed and serviced than all other brands combined. These chillers are suitable for a variety of applications, including schools, universities, hospitals, office and apartment buildings, ice rinks, nursing homes, hotels, retailers, industrial facilities, and many others.

These fully packaged systems are available for quick delivery; their standardized design enables faster site engineering — which leads to low-cost installation and start-up, as well as more effective and efficient maintenance.

For more information on **TECOGEN's Energy Solutions**, please contact: **TECOGEN**  
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