

TECOCHILL®



- Gas engine-driven chiller
- 330 refrigeration tons
- 120,000 sq. ft. public aquarium
- Camden, New Jersey



Aquarium's cooling system provides creature comfort while saving energy to protect sea life and the state operating budget.

Gurgling tanks in the New Jersey State Aquarium replicate natural underwater ecosystems. Driving the aquarium's man-made environment is a gas cooling system designed to operate as efficiently as Mother Nature herself.

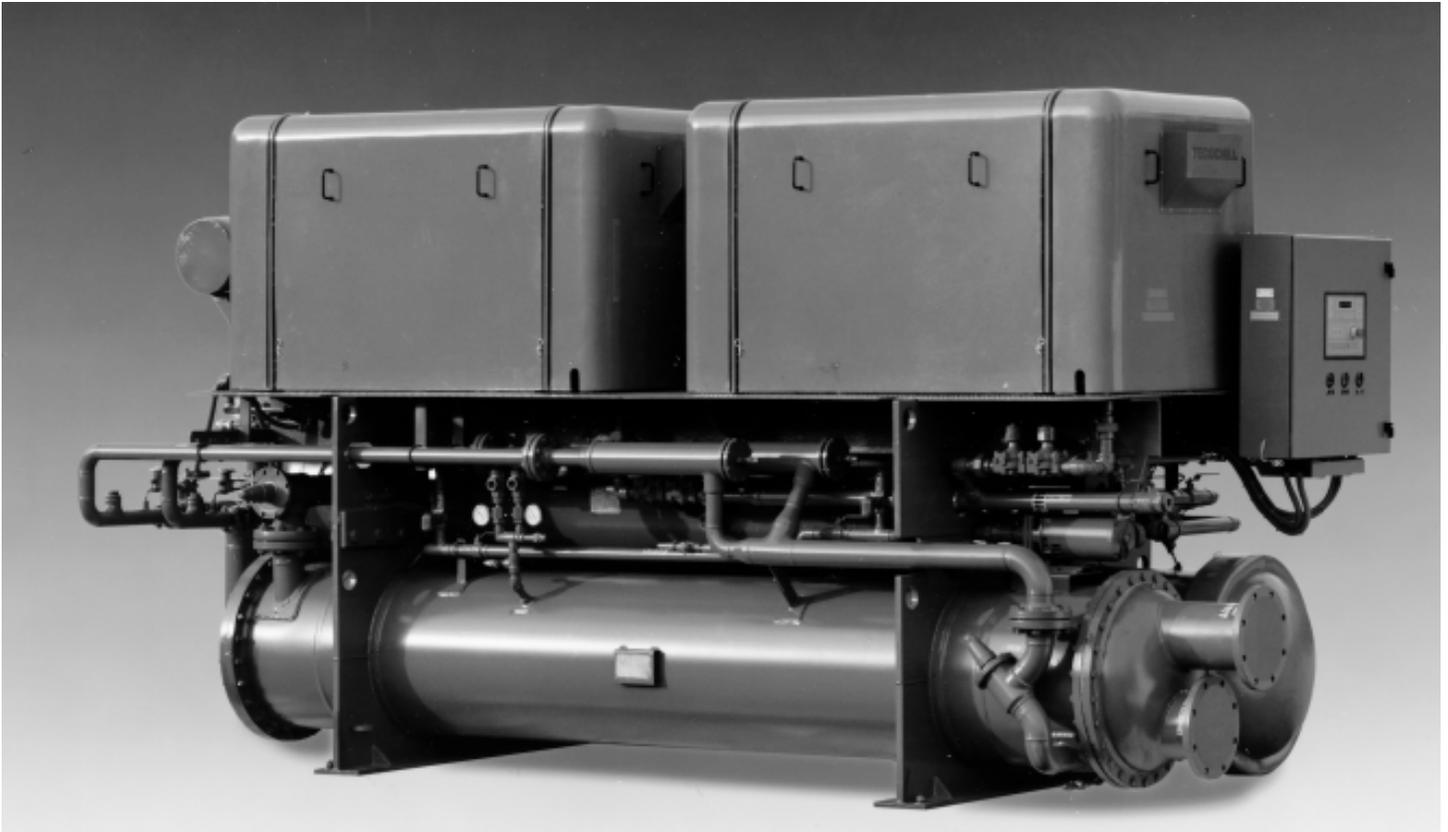
After five years of operating electric-powered cooling, it became clear that monthly energy bills and electric demand charges could be reduced. SYCOM Enterprises, an energy services company (ESCO) based in Somerset, N.J., conducted an energy audit that convinced the aquarium to participate in a demand-side management (DSM) program offered by Public Service Electric & Gas Co. (PSE&G), the local utility.

A 330-ton TECOCHILL® engine-

driven chiller was installed by Stone & Webster Energy Services, Cherry Hill, N.J., to replace one of the aquarium's two existing electric chillers. The remaining electric chiller was retrofitted to back up the TECOCHILL®. The retrofit was complete and fully operational June 1, 1997.

The TECOCHILL® provides chilled water for space-cooling and for process application in 35 marine exhibits. Chilled water passes through heat exchangers to maintain temperatures in animal exhibits, the largest of which is a 750,000-gallon ocean tank housing sharks and 50 other species of fish. Seals and creatures in smaller exhibits also depend on the TECOCHILL® for "life support," according to Project





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Manager Joe Ventre of Stone & Webster Energy Services. He extols the gas-driven TECOCHILL's economy, noting, "It saves on electric bills as well as helps PSE&G manage their loads."

Chief Operating Officer Brian Duvall agrees. "The energy conversion program is a win/win situation," he says. "It lowers our operating expenses and satisfies PSE&G's objective to provide demand-side management." The energy retrofit was financed through a tax-exempt lease made available by the Camden County Improvement Authority. Instead of a lump sum rebate from PSE&G, monthly payments are issued to the aquarium. The payments exceed the sum of the bond's debt service and

create a surplus used for maintenance and replacement parts.

"Our scheduled debt will be paid off in 10 years," says Duvall, noting that payments from the utility will continue for 5 years beyond the debt. "By lowering our monthly utilities and electric demand, we improved the aquarium's cash-flow."

"The engine-driven chiller represents the majority load reduction of the 517 kW saved through the energy retrofit," clarifies SYCOM Project Development Manager Brandon Sutcliffe. "The aquarium receives a positive net benefit every year of the project," he emphasizes. "Energy savings over the life of the bond total \$8.8 million."

