

## Miami District Cooling Project

Hospitals in the Civic Center Hospital Complex in Miami, Florida, sought to link their primary, chilled-water plants through a common underground distribution system. This concept offered the energy savings associated with district cooling systems without the high capital costs of installing new, centralized equipment.

With a grant from DOE, a feasibility study for the Hospital Chilled-Water Loop Assessment—Miami District Cooling Project was conducted jointly by the Burns and Roe Company and the Joseph Technology Corporation. When a comparison was made between total electric consumption under the current operating conditions and the district cooling alternative, the integrated loop realized a savings of about 15%.

The capital cost of new piping and mechanical room retrofits will be about \$3.5 million. However, this cost will be recovered in only six years through energy savings and reduced operation and maintenance costs.

## Federal Methanol Fleet

DOE sponsored a variety of alternative-fuel research initiatives designed to reduce dependency on imported petroleum and simultaneously offer environmental benefits. The Federal Methanol Fleet was established in 1985 to demonstrate the technological feasibility of methanol-fueled vehicles. The program is designed to compare the performance of these vehicles with gasoline-fueled vehicles in areas such as fuel economy, emissions, vehicle safety, and operation and maintenance costs.

The Federal Methanol Fleet of 39 vehicles (20 methanol- and 19 gasoline-fueled vehicles) is now being tested at the Lawrence Berkeley Laboratory, the Argonne National Laboratory, and Oak Ridge National Laboratory. All the methanol vehicles are gasoline vehicles retrofitted to operate on fuel methanol (a mixture of 85% methanol and 15% unleaded gasoline). During three years of successful program operation, fleet vehicles have logged more than 700,000 miles. Performance of the vehicles has been virtually trouble-free, although energy consumption by the methanol-fueled cars was slightly higher than that of the gasoline-fueled vehicles because of different driving cycles. Ratings by drivers have been very similar for the two types of fuel, and maintenance statistics also compare well.



*The Federal Methanol Fleet project manager refuels one of the vehicles at the Oak Ridge fleet site, one of three sites in the project.*

The project is viewed as highly successful in increasing prospects for the transfer of methanol-fueled vehicles into the civilian fleet and in demonstrating methanol as a viable substitute for imported petroleum products.

## 1989 Methanol Marathon

DOE, in cooperation with the Society of Automotive Engineers and other industry sponsors, has an ongoing program that sponsors student competitions to engineer and race methanol-fueled vehicles. The 1989 Methanol Marathon was held to foster student interest in the use of alternative fuels. Student teams from 15 competing engineering schools converted new Chevrolet Corsicas, donated by General Motors, to run on a blend of 85% methanol and 15% gasoline. The competition included static tests and a 1100-mile road rally from Detroit, Michigan, to Washington, D.C. Students from the University of Tennessee won the competition. The winner's trophy and \$6,000 in prize money were awarded during a ceremony at the U.S. Capitol. The winning car averaged 36.7 miles per gallon (gasoline equivalent), representing a substantial improvement over the fuel economy normally achieved by gasoline-fueled cars.

As a result of the competition, more than 200 engineering students became more knowledgeable about an alternative transportation fuel, and national attention was focused on the potential of alternative fuels to reduce U.S. dependence on imported petroleum.