

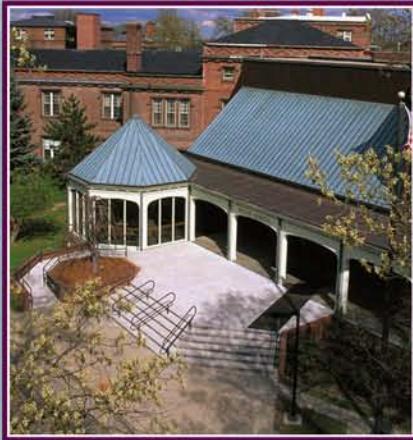
Hospitals Are Good Candidates for Combined Cooling, Heating, and Power Systems

To promote alternative energy sources, the U.S. Department of Energy, through Oak Ridge National Laboratory, awarded subcontracts to four hospitals in the United States. The hospitals will be testing the feasibility of using packaged cooling, heating, and power systems to generate energy that they consume.

Benefits of an Integrated Energy System (IES)

- The utility grid is a backup power supplier.
- Utilities can use the power generated by the IES.
- Pre-engineered systems cut system costs.
- Installation time can be reduced by as much as two-thirds.
- System designs are applicable to facilities around the country.
- Operators can manage the system to respond optimally to peak and lull periods.
- Waste-heat reuse eliminates the need for separate steam or hot water equipment.

Butler Hospital, Providence, Rhode Island



- Butler Hospital is the owner-operator.
- United Technologies Corporation (UTC) PureComfort™ System
 - The system conditions more than 380,000 square feet of space.
 - Four Capstone microturbines generate 240 kW of electricity.
 - A Carrier exhaust-fired absorption chiller produces 110 tons of chilled water or 900,000 Btu of hot water.
- Project performance
 - Utility costs reduced by \$92,000/year.
 - Use of No. 6 fuel oil has been eliminated.
 - Hot water has replaced steam heat.
 - Electricity and space conditioning used 24/7.



The Dell Children's Hospital, Austin, Texas

The Dell Children's Hospital uses two high-efficiency gas turbines to produce electricity and waste heat from the turbines to generate steam and chilled water for space conditioning with no additional emissions.



- Austin Energy, a municipal utility, is the owner-operator.
- Burns and McDonnell designed and developed the system.
- The system features two advanced 4.3-MW Solar Turbines Mercury 50 industrial turbines.
- Overall predicted efficiency ~ 85%
 - Emissions are in the single digits (< 5 ppm).
 - Reliability and durability are uncompromised.



Groundbreaking ceremony for Dell Children's Hospital, April 18, 2005

Pictured (left to right in front row), Ron Fiskim (DOE), David Yeaman (B&M), Cliff Braddock (AE), Jan Berry (ORNL), and Bob Moroz (Seton)



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