

Combination power-heat system created

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U.S. grocery stores, schools, hotels and hospitals are likely candidates for a high-efficiency system that provides heating, cooling and electric power.

The PureComfort system -- developed through a partnership between Oak Ridge National Laboratory and United Technologies Research Center -- features a combination of 60-kilowatt microturbines and a new direct exhaust-fired double-effect absorption chiller-heater that recycles exhaust streams.

The system provides simultaneous electric power and cooling. Bob DeVault of the Oak Ridge National Laboratory's Engineering Science and Technology Division said the system could be configured to provide emergency backup power to the customer in case of an electric outage.

Optionally, PureComfort could provide heating, regenerate a desiccant -- for humidity control -- and provide coolant to a supermarket refrigeration system. The combination of multiple simultaneous electric and thermal outputs enables the system to achieve an overall fuel efficiency of more than 80 percent -- compared to the 33 percent typical of a central power plant.

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