

## 2,000-TON THERMOCHARGER

Annapolis, Maryland - In conjunction with a consortium of industrial partners, Energy Concepts Company has commissioned a 2,000-ton ammonia absorption refrigeration unit that chills inlet air to a gas turbine.

The Thermocharger™ is powered by hot exhaust gas from an aeroderivative gas turbine. The ammonia refrigerant chills the inlet air to 48°F. On a typical summer day (100°F dry bulb, 78°F wet bulb), the gas turbine power is increased from 40 MW to 50 MW. After allowing for the 230 kW electric parasitic load of the Thermocharger, the resulting net power is 2 MW more than the output of a comparable mechanically chilled gas turbine. As a result, the heat rate is improved relative to no chilling, whereas the mechanically chilled case has a degraded heat rate.

Additional benefits of the Thermocharger:

- Cools exhaust by 150°F, leaving it at ideal temperature for SCR catalyst
- Heats the inlet air in cold weather for anti-icing
- No need for 4160 volt switchgear
- Recovers 25 gallons per minute of distilled condensate from the air

The Thermocharger has achieved a new record for net power and heat rate from this model of aeroderivative gas turbine in hot weather. It provides reliable and dispatchable hot day power at less than half the cost of new plant. Gas turbines in combined cycle and cogeneration configurations (both frame and aeroderivative) are projected to benefit even more from the Thermocharger.



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