Recuperator Materials for Advanced Microturbines

To meet the goals of the US DOE Advanced Microturbines Program to achieve greater than 40% efficiency at a cost of less than $500 per kilowatt, higher-temperature recuperator materials are being developed, screened, and evaluated to demonstrate durability beyond 10,000 hours at temperatures between 750°C and 1000°C.

A Group of More Heat- and Corrosion-Resistant Advanced Austenitics show better creep strength than 347-SS

ORNL Test Facility for Evaluation of Materials for Advanced Microturbine Recuperators

60kW natural gas-fired Capstone microturbine modified to operate at higher turbine rotor inlet temperatures.

Recuperator materials will be evaluated after test campaigns to:
- characterize the microstructure of the base alloy and corrosion products.
- determine the evolution of their physical and mechanical properties.

Recuperator cells fabricated with candidate alloys.

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