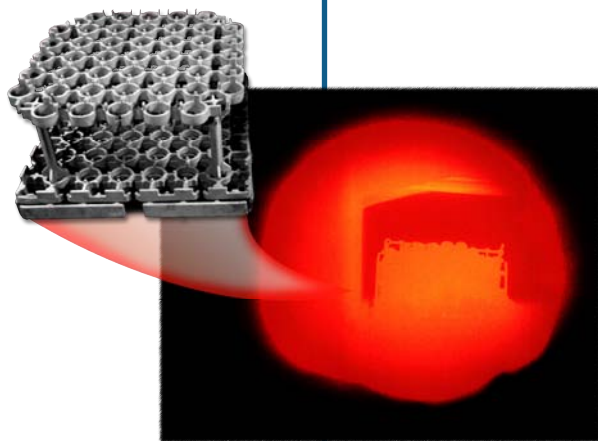


# Energy Efficiency and Renewable Energy Program

**T**he Energy Efficiency and Renewable Energy Program develops sustainable energy technologies to create a cleaner environment, a stronger economy, and a more secure future for our nation. The Program is committed to expanding energy resource options and to improving efficiency in every element of energy production and use



*Engine research at the  
National Transportation Research Center*



*Nickel aluminide furnace  
assemblies withstand  
high heat and corrosion  
better than steel alloys*

## Research Focus Areas

### *Transportation*

Addressing air quality and dependence on foreign oil through innovations in engine control strategies, advanced emissions control and measurement, materials, fuels, power electronics, and electric machines.

### *Industrial technologies*

Improving efficiency by cutting energy use, improving quality, reducing downtime, and reducing waste streams.

### *Buildings, weatherization, and federal energy management*

Improving energy efficiency and indoor environments through advanced space conditioning, refrigeration, thermal distribution, appliances, and building thermal envelopes and materials.

## Renewables

**Hydrogen:** Developing materials and processes for fuel cell systems and for the practical generation, storage, and delivery of hydrogen as an energy carrier.

**Biomass:** Evaluating biomass resource availability and conducting assessments in cooperation with the U.S. Department of Agriculture, other national laboratories, and universities.

**Hydropower:** Improving the environmental performance of hydropower systems.

**Solar:** Pursuing solar and photovoltaic research in the areas of advanced materials, photovoltaic-integrated roofing systems, and solar hybrid lighting.

## National User Facilities

ORNL hosts six user facilities that are sponsored by the U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy. The unique, state-of-the-art experimental equipment found in these facilities and the expert staff are catalysts for scientific discovery and partnerships.

- High Temperature Materials Laboratory
- Buildings Technology Center
- Bioprocessing Research Facility
- Metals-Processing Laboratory Users Facility
- National Transportation Research Center
- Distributed Generation and Cooling, Heating, and Power Integration Laboratory



*Attic module being loaded into the large-scale climate simulator at the Buildings Technology Center to test its thermal performance*



*Infrared processing of materials at the Metals Processing Laboratory User Center*



*Aberration-Corrected Electron Microscope in the High Temperature Materials Laboratory*

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