

ORNL's Energy Efficiency and Renewable Energy Program

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www.ornl.gov/eere

Education and Research Consortium of the Western Carolinas

December 10, 2003

Enhance national security

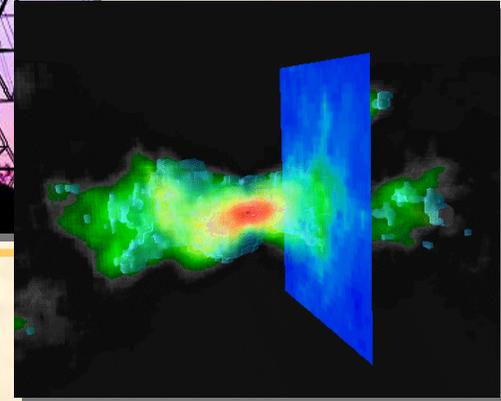


DOE has four important national missions and ORNL contributes to all of them

Provide energy security



Advance fundamental science



Clean up Cold War legacy



**OAK RIDGE NATIONAL LABORATORY
U. S. DEPARTMENT OF ENERGY**



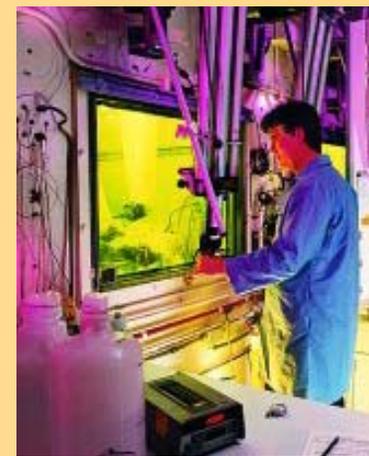
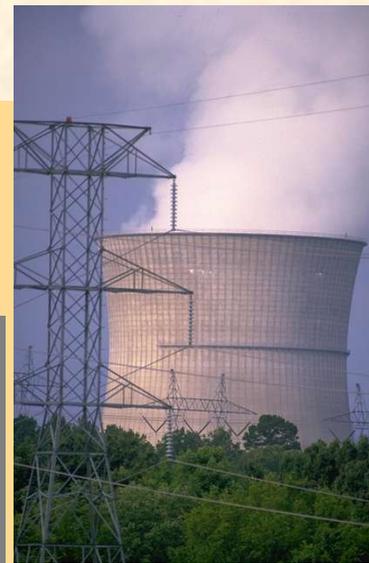
Oak Ridge National Laboratory



- **DOE's largest multipurpose science laboratory**
- **Nation's largest concentration of unclassified materials research**
- **Nation's largest energy R&D laboratory**
- **\$896 million budget; 90% from Department of Energy**
- **Sixteen research divisions – 1500 R&D staff**
- **3000 guest scientists and engineers annually**
- **17 user facilities**

ORNL is DOE's premier energy laboratory

- Energy-efficient technologies
- Hydrogen and fuel cells
- Nuclear technology and safety
- Fusion energy prototypes
- Fossil and alternative fuels
- Distributed generation
- Biomass
- Carbon sequestration
- Environmental consequences of energy production
- Energy infrastructure assurance



ORNL Energy Efficiency and Renewable Energy Program

Mission

Collaborative research, development, and analysis of energy-efficient and renewable energy technologies to strengthen America's energy security, environmental quality, and economic vitality

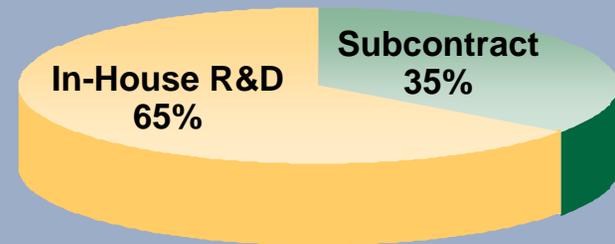
Sponsor, Customers, and Approach

- DOE is the sponsor
- Industry and the public are our customers
- States and universities are key partners

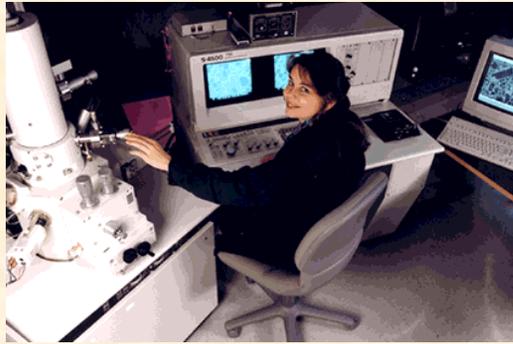


Scope

- All energy use sectors
- FY2003: ~\$125M,
~250 R&D FTEs (~400 FTEs total)



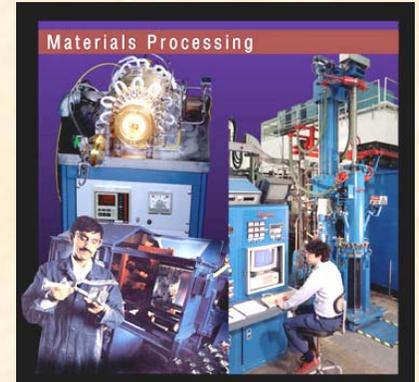
Six EERE National User Centers offer Unique Equipment and Capabilities



High Temperature Materials Laboratory (HTML)



Cooling, Heating and Power Integration Laboratory



Metals Processing Laboratory User Center (MPLUS)



Bioprocessing R&D Center (BRDC)



Buildings Technology Center (BTC)



National Transportation Research Center (NTRC)

OAK RIDGE NATIONAL LABORATORY
U. S. DEPARTMENT OF ENERGY



ORNL's EERE User Facilities are a Catalyst for Scientific Discovery and Partnerships

- **FY 2002 User Statistics for ORNL's EERE User Facilities:**
 - **Organizations: 374**
 - **Experimenters: 3,524**
 - **User Days: 7,551**
- **In addition, ORNL hosts 10,000+ visitors each year.**

ORNL Research Staff: World-Class and Award-Winning

R&D 100 Winners



One of the Ten Outstanding Young Americans for 2000 - **Patricia Garland**



- CF8C-Plus Stainless Steel
- Graphite foam with high thermal conductivity
- Heat pump water heater



Fellow, American Ceramic Society - **Arvid Pasto**



IEEE Industry Applications Society Outstanding Young Member - **Leon Tolbert**



Since 1963 ORNL has been named on 115 R&D 100 Awards

ORNL's EERE Program is Sponsor-Oriented and Results-Driven

- Working with our partners, ORNL has produced numerous R&D breakthroughs and commercial successes
 - Highly conductive graphite foam
 - High performance carbon graphite bipolar plate
 - Low temperature, low emission diesel combustion regime
 - High-efficiency refrigerator
 - Insulation ratings corrected for convective loops
 - Nickel aluminide furnace fixtures and rolls
 - New kraft recovery boiler floor tubes
 - Suite of industrial assessment tools
 - Infrared curing process adopted by Ford
 - Wear resistant ceramic cutting tools
 - Improved materials for industrial gas turbines
 - World's first use of HTS cable in industry

