

# Oak Ridge-Huntsville Partnership Office

## Energy Huntsville Program

### 20 September 2012

#### Huntsville/Madison County Chamber of Commerce

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# Oak Ridge-Huntsville Partnership Office



- ORNL – DOE’s largest science and energy national laboratory
  - [WWW.ORNL.GOV](http://WWW.ORNL.GOV)
- Y12 - a key National Nuclear Security Agency production facility
  - [WWW.Y12.DOE.GOV](http://WWW.Y12.DOE.GOV)
- ORAU - a consortium of 105 major PHD granting academic institutions
  - [WWW.ORAU.ORG](http://WWW.ORAU.ORG)
- UAHuntsville – a major interdisciplinary academic and research center
  - [WWW.UAH.EDU](http://WWW.UAH.EDU)

**ORHPO facilitates collaboration and partnerships between Industry, Government, and Academia to solve complex challenges through science and innovation**

5000 Technology Drive, Technology Hall, Suite S101  
(Located in Olin B. King Technology Hall on UAHuntsville’s campus)  
256-722-5576

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# ORHPO Mission and Vision



- **MISSION:** Promote the world class scientific and technical core capabilities and user facilities of the ORHPO Partners to meet national, regional and local Government, Industrial and Academic mission needs by:
  - Identifying Science & Technology gaps and shortfalls of Federal and Local Governments, Military Agencies, Private Sector companies and Academia, and
  - Developing short and long-term collaborative strategies to match needs with existing/evolving Partner core competencies.
- **VISION:** Facilitate teaming to solve challenges through Innovation and Scientific Discovery.

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# Core Competencies



**High Performance Computing**

**Safeguards and Security (Physical & Cyber)**

**Clean Energy Solutions**

**Materials Science Research and Evaluation**

**Forensics**

**Environmental Analysis and Health**

**Independent Technical Review and Evaluation**

**Technical Training and Science Workforce Development**

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# ORNL



## Oak Ridge National Laboratory: Science and technology for the energy challenge

U.S. DEPARTMENT OF ENERGY Energy Efficiency & Renewable Energy FEDERAL ENERGY MANAGEMENT PROGRAM

### Technical Assistance Guide: Working with DOE National Laboratories

The Federal Energy Management Program (FEMP) facilitates the Federal Government's implementation of sound, cost-effective energy management and investment practices to enhance the nation's energy security and environmental stewardship. To advance that mission, FEMP fosters collaboration between Federal agencies and U.S. Department of Energy (DOE) national laboratories.

This guide outlines technical assistance capabilities and expertise at DOE national laboratories. Any laboratory assistance must be in accordance with Federal Acquisition Regulation (FAR) Subpart 35.017 requirements and the laboratory's designation as Federal Funded Research and Development Center (FFRDC) facilities.

Contacts and core expertise for each DOE national laboratory are listed in the last section of this guide.

**FEMP Assistance**  
FEMP technical assistance helps Federal agencies evaluate and deploy renewable energy and energy efficiency projects across a variety of program and technology areas. These areas are outlined on the FEMP website at [www.femp.energy.gov](http://www.femp.energy.gov).

FEMP funds DOE national laboratories to support Federal agencies through calls for technical assistance projects. FEMP funds typically are not sufficient to cover the full scope of agency demand. The program's intention is to provide the

The DOE laboratories are designated as "national laboratories" in 10 U.S.C. 1206 (Energy Policy Act of 2001), Section 2 (Definition of "Federal Funded Research and Development Center") (FFRDC) facilities established in accordance with the Federal Acquisition Regulation Subpart 35.017 and as "national laboratories" as indicated in 10 U.S.C. 3176 (a) (2).



technical expertise of DOE national laboratories to leverage Federal agencies' own funding to implement energy efficiency and renewable energy projects through a work for others (WFO) agreement.

Current FEMP calls for technical assistance projects are listed at [www.femp.energy.gov/services/pa\\_callsforprojects.html](http://www.femp.energy.gov/services/pa_callsforprojects.html).

#### FEMP Technical Assistance through National Laboratories

DOE authorizes laboratory funding through the Field Work Proposal. With DOE approval, national laboratories can use these funds to support other agencies, as in the case of FEMP technical assistance projects.

#### FEMP-Funded National Laboratory Services

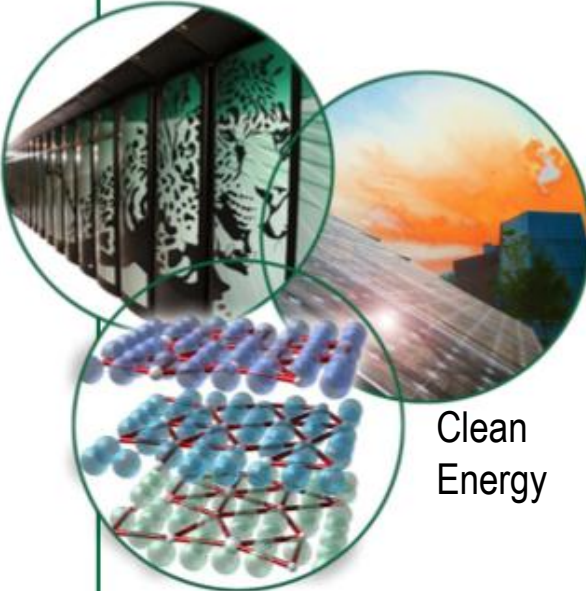
National laboratories are uniquely qualified to provide objective and unbiased assistance to Federal agencies across a wide variety of expertise. Examples of national laboratory services funded by FEMP include:

- Project prioritization
- Initial screenings or assessments of facility needs and feasibility of particular technologies
- Strategic energy planning and benchmarking
- Technical reviews of designs and proposals
- Energy audit training

- High-performance, sustainable building technical support
  - Federal vehicle fleet technical support
  - Operations and maintenance
  - Detail of key lab staff to work within agencies for a limited duration (typically not more than 24 months).
- Requesting Technical Assistance**  
To obtain DOE national laboratory support for energy-efficiency and renewable energy projects, contact the FEMP main office at 202-586-5772.
- FEMP requires the following information to process your request for technical assistance:
- Contact information
  - Project description, scope, duration, and cost estimate
  - Anticipated impact of energy saved
  - Type of assistance needed
  - Required start and stop dates for assistance
  - Special considerations
  - Preference for a specific lab
  - Ranking of priority among other submissions from your agency
  - Indication of willingness to assume costs at some future point.

FEMP reviews requests and makes decisions whether support is warranted. If so, the program will initiate a dialogue with you and appropriate laboratories to develop time and cost parameters. If funds are available, the

## High Performance Computing



## Materials Science

**OAK RIDGE NATIONAL LABORATORY**  
MANAGED BY UT-BATTELLE FOR THE DEPARTMENT OF ENERGY

## ORNL has a large energy efficiency and renewable energy research portfolio

- Over \$100M: Largest national lab effort in transportation and industrial technologies
- Significant growth in solar materials, electrical energy storage, biomass, and grid visualization/modeling
  - Includes \$62M Tennessee Solar Institute at UT/ORNL
- Major facilities include National Transportation Research Center, Manufacturing Demonstration Facility, Carbon Fiber Technology Facility, and Buildings Technologies Center



Lightweight carbon fiber materials from lignin



"Zero-energy" homes



Triaxial superconducting cable installed at AEP Bixby

19 Managed by UT-Battelle for the U.S. Department of Energy

## Innovation in biofuels: Transforming the new biology into bioenergy

- Developing bio-based solutions for energy, the environment, and carbon sequestration
- Managing the \$135M DOE BioEnergy Science Center to advance cellulosic ethanol research
- Partnered with UT in the \$73M Tennessee Biofuels Initiative
  - Joint venture with DuPont
  - Includes bioenergy research, a 50,000 gal/year pilot plant, and agricultural incentives for switchgrass
  - Additional focus on bioproducts (lignin-based carbon fiber)



**BESC** BioEnergy Science Center  
**UTBI** Biofuels Initiative

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# Standardization



## Example Standards Groups

- ISO
- ASME
- ASTM International
- IEEE
- SAE
- ANSI

National Institute  
 For Standards & Technology  
 Alternative Energy  
 Electric Power Metrology  
 Energy Conservation  
 Energy Conversion, Storage  
 and Transportation  
 Fossil Fuels  
 Sustainability  
[www.nist.gov](http://www.nist.gov)

## Energy Systems and Technology Validation Lab (EVal) FY13 JCTD Proposal

**Pilot Project**

- Energy Systems Technology Validation Lab – Develop and Test Initial Systems

**Layering/Leveraging**

- Energy storage & collection – ubiquitous batteries, solar collectors, parasitic scavenging,
- Soldier Power Management
- Power supply for autonomous & interoperable systems – fuel cells, batteries, solar, chemical, alternate fuel
- Hybrid propulsion systems & alternative fuels for Army Aviation
- Deployable fuel characterization system
- Remote charging stations, bi-directional power converters, secure controllers
- High efficiency generators and secure controllers for grid interface
- High efficiency environmental control units
- Micro Grids - Expeditionary, FOB, TOC

**SBA/DOD Cluster Collaborations**

Pilot Integrates Assets of Key SBA Clusters with Key DoD Labs

- San Diego Advanced Defense Cluster (Autonomy and Cyber)
- Defense Alliance of Minnesota (Energy Systems/Storage)
- CT Center for Advanced Technology (Hydrogen-Fuel Cells)
- Upper MI Green Aviation Coalition
- Huntsville Advanced Defense Technology Cluster

**Other Markets**

- Public Transportation
- Fleet Vehicles/Freightliner trucks
- Homes and Buildings
- Electronics
- Distributed Power
- Border Security
- First Responders

Reduce Logistics Requirements and Fully Burdened Cost Associated With Petroleum Supply

More Fight with Less Fuel

**Biomass Energy Data Book**

Download the Biomass Energy Data Book (BEB) in PDF format

**Feedback**

Other DOE Data Books:

- Buildings Energy Data Book
- High-Power Energy Data Book
- Power Technology Data Book
- Transportation Energy Data Book

<http://cta.ornl.gov/bedb>

**Transportation Energy Data Book**

Edition 20 Released June 25, 2011

About the Transportation Energy Data Book

See the Edition 20

Edition 20 in PDF

Request a free hard copy

Other DOE Data Books:

- Biomass Energy Data Book
- Buildings Energy Data Book
- Hydrogen Data Book
- Power Technology Data Book

<http://cta.ornl.gov/data>



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# ORHPO One Pager Description



Oak Ridge National Laboratory (ORNL) is the Department of Energy's largest science and energy laboratory. ORNL is managed by a partnership of the University of Tennessee and Battelle Memorial Institute, and it is an international leader in a range of scientific areas with six major mission roles: neutron science, energy, high-performance computing, systems biology, materials science at the nanoscale, and national security.

[www.ornl.gov](http://www.ornl.gov)



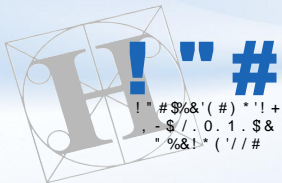
Y-12 National Security Complex (Y-12) is a National Nuclear Security Administration production site managed by a partnership of B&W and Bechtel Corp. One of Y-12's primary missions is to apply its manufacturing, technical, and scientific expertise to provide solutions to emerging national security challenges.

[www.Y12.doe.gov](http://www.Y12.doe.gov)



Oak Ridge Associated Universities (ORAU) focuses on advancing scientific research and education, while creating partnerships to help achieve an America that is safer, more secure, and better able to compete in the global environment. With a consortium of 100 member academic institutions and a strategic partnership with the Oak Ridge National Laboratory, ORAU cultivates collaborative partnerships that enhance the scientific research and education enterprise of our nation.

[www.orau.org](http://www.orau.org)



The University of Alabama in Huntsville (UAHuntsville) is a doctoral-granting, research-intensive university with more than 7,700 students. The university serves as the anchor tenant for Cummings Research Park, the second largest research park in America. Half of the university's graduates earn a degree in engineering or science, making UAHuntsville a leading producer of engineers and physical scientists in Alabama.

[www.uah.edu](http://www.uah.edu)

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# Working with ORHPO Partners



## ORNL Partnership Mechanisms:

- Sponsored Research
  - User Agreement
  - Work for Others
  - CRADA
  - Agreement to Commercialize Technology (ACT)
- Licensing
  - Material Transfers
  - Beta Test Agreement
- NDA & TA

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# Upcoming ORHPO/TVC Events



- October
  - 15 – Cumming Research Center 50<sup>th</sup> Anniversary
  - 15-18 – 5<sup>th</sup> von Braun Memorial Space Symposium
  - 16 – HSV Chamber “2012 Technology Summit”
  - 17 – NSC-HSV von Braun Memorial Dinner & Awards
- November
  - 7 – US Army Army Advanced Planning Briefing for Industry
  - 12-13 – Tech 20/20 “Entrepreneurial Imperative”, Oak Ridge, TN
  - TBD – ORHPO Colloquy on High Performance Computing
- December
  - 9-10 – TVC Fall Event, Kingsport, TN
  - TBD: UPF Industry Day for Huntsville (John Eschenberg)

**Tennessee Valley Corridor – [tennvalleycorridor.org](http://tennvalleycorridor.org)**

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