

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.¹

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.

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



Photo by Pat Corkery, NREL/PIX 16560

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_callforprojects.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

¹ The DOE laboratories are designated as "national laboratories" as indicated in 42 U.S.C. 15801 (Energy Policy Act of 2005), Section 2 Definitions; as "Federal Funded Research and Development Center" (FFRDC) facilities established in accordance with the Federal Acquisition Regulation Subpart 35.017; and as "Federal laboratories" as indicated in 15 U.S.C. 3170a (d) (2).

laboratory may use funds from FEMP to start your project while you establish a WFO agreement for continuing work, if required.

FEMP uses the following criteria to select agency technical assistance projects:

- Compatibility with lab expertise and ability of such expertise to add value to the agency's efforts
- Resource availability to meet agency needs
- Value of anticipated project outcomes
- Balancing allotments to agencies, commensurate with energy investments

DOE national laboratories offer technical assistance to other Federal agencies only in accordance with the previously footnoted governing FAR clauses and U.S. codes.

WFO Agreements

Federal agencies should use WFO agreements to engage support from DOE national laboratories for any long-term effort beyond FEMP-funded initial support. The objectives of WFO are to provide assistance and aggregate resources to accomplish goals of national concern, which may otherwise be unattainable, and to provide access to highly specialized or unique facilities, services, or technical expertise.

WFO Authorization

DOE's WFO program furnishes reimbursable support to Federal agencies as part of the services rendered to and for U.S. Federal Government activities under various laws and regulations, principally the Economy Act and the Atomic Energy Act of 1954. The Economy Act (31 U.S.C.

1535) authorizes a Federal agency to place orders with any other agency for supplies or services if it is determined by the requesting agency that it is in the Federal Government's interest to do so (FAR Section 17.502 General). WFO agreements allow DOE to provide research and technical assistance to Federal agencies, commercial companies, local and state governments, and foreign governments. WFO is fully funded by the non-DOE entity.

WFO parameters include:

- WFO may be either research and development (R&D) or non-R&D services to the requesting organization
- Work must be consistent with the mission and core competency of the DOE national laboratory
- Work must not affect the achievement of DOE work requirements
- Work must not directly compete with the domestic U.S. private sector.

Laboratory Contacts and Competencies

Created to support the DOE mission, national laboratories have diverse backgrounds with different capabilities focused on energy, national security, science, and related environmental activities. Listed here are national laboratory contacts and core competencies. Each lab contact can guide you through the WFO process.

Argonne National Laboratory

www.anl.gov

Contacts

- Guenter Conzelman, 630-252-7173, guenter@anl.gov
- Dane Skow, 630-252-8724, skow@anl.gov

Core Competencies

- Strategic energy planning and analysis
 - Comprehensive energy supply/demand analysis and projections (site, city, state, region, nation)
 - Company-/agency-wide energy investment analysis
 - Economic/financial project evaluation

- Investment/risk analysis
- Electric power systems analysis
 - Detailed operational and dispatch analysis
 - Reliability of supply
 - Electricity demand analysis and projections
 - Power system investment and expansion analysis
 - Electricity price forecasting (hourly, location, price distributions)
- Energy security and supply disruption analysis for oil, natural gas, and electricity for specific locations, regions, states
- Logistical planning, supply chain analysis, process analysis
- Transportation analysis
 - Alternative fuel vehicles (AFVs)
 - Electric and plug-in hybrid vehicle testing
 - Well-to-wheel of vehicles and fuel systems
 - Batteries, fuel cells, and engine research
- Environmental assessments and policy analysis
- Energy design and site planning and analysis
 - Optimization of building performance
 - Distributed heating and cooling systems
- Design, procurement, construction, and operation of Leadership in Energy and Environmental Design (LEED) certified facilities and high-performance sustainable buildings
- Development, implementation, and support of energy savings performance contract (ESPC) projects
- Materials simulation and modeling
- Materials design and development
- Advanced, high-efficiency, ice-slurry cooling systems
- Distributed control systems
- Photovoltaic systems
- Energy storage and distribution.

Idaho National Laboratory

www.inl.gov

Contacts

- Chris Ischay, 208-526-4382, christopher.ischay@inl.gov



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- Ernest Fossum, 208-526-2513, ernest.fossum@inl.gov

Core Competencies

- Wind power research and application
- AFV testing with particular expertise on battery power
- Natural gas liquefaction with an emphasis on vehicle fueling
- Vehicle fleet transformation and migration to U.S. General Services Administration ownership
- Implementation of fleet management and information systems
 - Development and maintenance of the Federal Automotive Statistical Tool.
- Development of ESPC and utility energy service contract (UESC) projects, including analyses for practicality and measurement and verification activities
- Sustainable design, including LEED certification for new construction and existing buildings.

Lawrence Berkeley National Laboratory

www.lbl.gov

Contacts

- Charles Williams, 510-495-2892, chwilliams@lbl.gov
- Marcy Beck, 510-486-6156, mwbeck@lbl.gov

Core Competencies

- Energy management project development, implementation, and financing; measurement and verification of savings
- Utility incentives/public benefits programs, state/utility program information and implementation assistance
- Demand response program participation and technology assistance
- Renewable-energy procurement, power purchase agreements (PPAs)
- Advanced/emerging product procurement, procuring energy-efficient equipment
 - FEMP Emerging Technology Matrix
- New construction design assistance, smart buildings (system optimization and integration), sustainable design and operations

- Lighting controls, task/ambient lighting, advanced light sources
- High-technology buildings; efficient design and operations of laboratories, data centers, clean rooms, hospitals
- Energy-efficient appliances, standby power/power supply waste
- Cool roofs/cool communities (high-albedo roofing/surfaces)
- Building energy benchmarking for standard and high-technology buildings
- Energy information systems, diagnostics (model-based commissioning, fault detection) and dashboards (actionable user interface for energy and sustainability information)
- High-performance buildings
- Residential windows, envelope, insulation, appliances
- Commercial windows and daylighting, electrochromic windows
- Thermal distribution systems and duct sealing (commercial and residential).

National Renewable Energy Laboratory

www.nrel.gov

Contact

- Bob Westby, 303-384-7534, robert.westby@nrel.gov

Core Competencies

- Energy strategic planning/road mapping (agency-wide to site-specific)
- Building energy strategies and applications
 - Energy efficiency and built environment renewable energy assessment/prioritization/screening, technical assistance, audit training
- Alternative financing facilitation (ESPCs, UESCs, PPAs)
- Renewable-energy project assistance
 - All technologies, distributed/utility scale, agency-wide and site project screening/prioritization, technical assistance
- Net-zero/integrated energy/sustainability strategies and assistance (campuses, military bases, whole buildings, energy security solutions)



Photo by Dennis Schroeder, NREL/PIX 21116

- Greenhouse gas emission inventory assessments and mitigation planning
- Transportation solutions
 - Agency/site strategic planning assessments, electric and plug-in hybrid electric vehicles/alternative fuels and vehicles/fuels, fuel efficiency strategies.

Oak Ridge National Laboratory

www.ornl.gov

Contacts

- Julia Kelley, 865-574-1013, kelleyjs@ornl.gov
- John Shonder, 865-574-2015, shonderja@ornl.gov

Core Competencies

- Facilities
 - Optimizing building energy performance
 - Building energy systems, including, heating, ventilation, air-conditioning, and water heating
 - Facility energy resource assessments
 - Technology performance evaluations
 - Market transformation of technologies
 - Sensors and controls
 - Technical support for ESPC/UESC projects, including quality assurance and energy benchmarking
 - Geothermal heat pumps
 - Combined cooling, heating, and power and other distributed energy systems
 - Building envelopes
 - Moisture control in buildings
 - Solar systems integration
 - Energy efficiency in industrial processes, steam systems, pumping systems, motor-driven equipment



Photo by Pat Corkery, NREL/PIX 17375

- Hybrid vehicle technology and electric traction drive systems
- Electricity infrastructure operations
 - Grid system dynamics
 - Energy system optimization
 - Demand-response building energy systems
 - Grid integration of renewable energy
 - Grid visualization and control
- Fleets/transportation, operations/mobility management
 - Fuels, including biofuels and other alternative fuels
 - Engines
 - Emissions (regulated and unregulated)
 - Systematic approach for efficient transportation operations, including eco-driving
 - Non-engine vehicular technologies (new generation-wide-based single tires)
 - Logistics and supply-chain management
 - Mission-critical fleet composition (vehicle types/sizes)
 - Locational analysis
 - Data-driven investment decision making
 - Smart routing
 - Mobility demand management
 - Field operational tests

Pacific Northwest National Laboratory

www.pnnl.gov

Contacts

- Doug Dixon, 509-372-4253, doug.dixon@pnnl.gov
- Kim Fowler, 509-372-4233, kim.fowler@pnnl.gov

Core Competencies

- Building energy codes
- Appliance/equipment standards
- Carbon management, greenhouse gas analysis/modeling
- Building energy simulation modeling
- Building diagnostics and controls
- Building/installation operation and maintenance strategies
- Building/installation resource assessments (energy, water, renewable technologies)
- Technology performance evaluations and demonstrations
- High-performance, sustainable design for buildings and installations
- Solid-state lighting and energy-efficient lighting solutions
- Innovative technology procurement strategies
- Real-time collection/processing/analysis of end-use data
- Training material development and presentation
- Electricity infrastructure operations
 - Grid system dynamics
 - Energy system optimization
 - Grid integration of renewable energy
 - Grid visualization and control
- Plug-in hybrid vehicle analysis
- Institutional/behavior change for energy efficiency
- Facilitation of third party financed projects (ESPCs, UESCs, PPAs)

Sandia National Laboratory

www.sandia.gov

Contacts

- Rush Robinett, 505-845-9015, rdrubin@sandia.gov
- Juan Torres, 505-844-0809, jtorres@sandia.gov

Core Competencies

- Material and engineering sciences, including combustion, catalysis, material processing, and separations R&D for energy applications
- Energy infrastructure (both electric power and energy pipeline and refineries) security and reliability risk assessments of physical and cyber threats/challenges
- Energy infrastructure interdependencies modeling and analysis at regional and national scales for both local and national events or disruptions
- Renewable, fossil, and nuclear electric power generation technology R&D
- Energy storage R&D, and testing ranging from small-mobile to grid-scale applications
- Evaluation, testing, and installation of renewable and other distributed energy technology integration and control for both small-and large-scale grid-tied and islanded applications
- Research and development of non-traditional future transportation fuels, including sources from algal and carbon dioxide feedstocks
- Facility and infrastructure systems and controls optimization to support energy and water efficiency, including modeling, auditing, and retro-commissioning
- Implementation of sustainable design, including LEED certification for new construction and existing buildings.

U.S. DEPARTMENT OF
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Energy Efficiency &
Renewable Energy

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femp.energy.gov

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