"Northern Virginia Energy Innovation Forum"

SUPLEMENTAL TAKE-HOME INFO

- Energy Funding Opportunities & Sources
- Federal Energy Information Resources
- CRADA

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Energy Funding Opportunities & Sources

FEDERAL LABORATORY CONSORTIUM MID-ATLANTIC REGION
October 1, 2008

Federal Business Opportunities

www.fbo.gov
Search key word “energy” and see 2440 entry opportunities.

Grants

www.grants.gov
Search key word “energy” and see 384 entry opportunities.

National Sustainable Energy Information Center

http://attra.ncat.org/farm_energy/funding.html
Links provide an introduction to federal and state funding sources, success stories, and other resources.

Catalog of Federal Domestic Assistance

www.cfda.gov

Energy Funding Opportunities

http://www.seco.cpa.state.tx.us/seco_funding.htm

Funding Opportunities: A Directory of Energy Efficiency, Renewable Energy

www.dep.state.pa.us/dep/deputate/pollprev/pdf/**fundingopportunities**.pdf
Information on grants, including new *funding opportunities*, application instructions, forms, state by state

Department of Energy

Much of the work of the Department of Energy's Office of Science (SC) is supported through grants and contractual vehicles. This work is processed through the Office of Science Grants and Contracts Division (GCD) which serves as the principal acquisition, financial assistance (grants and cooperative agreements) and contract/grant management advisor to the Director of Science.

- ***Office of Science Grants***

  The Office of Basic Energy Sciences announces the initiation of Energy Frontier Research Centers (EFRCs) to accelerate the rate of scientific breakthroughs needed to create advanced energy technologies for the 21st century. The EFRCs will pursue the fundamental understanding necessary to meet the global need for abundant, clean, and economical energy.

Objective Long term effort with multiple years funding to encourage breakthroughs resulting in cleaner, more economical or renewable sources of energy.
Deadline 10/1/2008 annually
Awards $25M/Y
FON DE-PS02-08ER15944
URL http://www.grants.gov/

- ***Energy Efficiency and Renewable Energy***[1]

Solar America Initiative The Solar America Initiative (SAI) is part of the President's Advanced Energy Initiative and will accelerate the development of advanced photovoltaic (PV) materials. The SAI's goal is to make PV cost-competitive with other forms of renewable electricity by 2015. The Solar America Initiative provides significant funding opportunities for partners to develop, improve, and deploy solar energy technologies. Initial funding provided $159 million to U.S. Department of Energy partners. Future funding is estimated at $200 million, subject to congressional approval.

1. Solar America Showcases are designed to help facilitate large-scale installations that involve cutting edge solar technologies, novel applications of solar, high visibility sites, and/or high likelihood of replicability. Solar America Showcase is a Notice of Opportunity for Technical Assistance (NOTA) and does not include direct federal funding for any recipient. Instead, showcase projects include technical assistance through teams of DOE-funded solar experts from national laboratories.

Objective To provide technical assistance only from National Laboratories
Deadline 11/4/2008
Awards $200,000 max
FON DE-PS36-08GO98011
URL http://www1.eere.energy.gov/solar/solar_america/open_upcoming_fund_opps.html

2. PV Supply Chain The PV Supply Chain solicitation will address the grid parity goals of SAI by developing subsystem components, materials, or processes that can be supplied across the industry to reduce cost, enhance performance, or extend lifetime over today's technology.
Objective creation of cost reducing solar subcomponent/process uniformity
Deadline TBA
Awards TBA
FON
URL http://www1.eere.energy.gov/solar/solar_america/open_upcoming_fund_opps.htm

3. Market Transformation The Solar Energy Technologies Program is also anticipating releasing a new FOA this year for education, training, and certification, with the details to be released at a later date.
Objective Education, Training, and Certification
Deadline TBA
Awards TBA
FON
URL http://www1.eere.energy.gov/solar/solar_america/open_upcoming_fund_opps.htm

[1] http://www.dsireusa.org/ DSIRE is a comprehensive source of information on state, local, and utility, incentives that promote renewable energy and energy efficiency.

4.Financial Opportunities for Federal Energy Managers As the largest energy consumer in the United States, the federal government has innumerable opportunities to reduce energy use and demonstrate the benefits of renewable energy.
Objective To reduce the Federal Energy Budget and move towards more efficient energy and renewable forms. These programs are meant to provide funds and cut bureaucratic red tape.

- Super Energy Savings Performance Contracts (Super ESPC)
  Deadline On going to 2015
  Awards For facilities improvement there is no upfront cost or congressional appropriation. Energy service companies finance project improvements and recover their costs through the money saved by the use of energy efficiency or renewable energy technologies.
  EO 13423
  URL http://www1.eere.energy.gov/femp/financing/superespcs.html

- Utility Energy Services Contracts (UESCs)
  Objective With a UESC, the utility typically arranges financing to cover the capital costs of the project.
  Deadline On going to 2015
  Awards There is no upfront cost or congressional appropriation. Energy utility companies finance project improvements and recover their costs over the contract term from the cost savings generated by the energy efficiency measures.
  EO 13423
  URL http://www1.eere.energy.gov/femp/financing/uescs.html

•*Office of Fossil Energy*

The FINAL Funding Opportunity Announcement (FOA) for Restructured FutureGen has been posted. Applications are now being accepted through www.Grants.gov. This Funding Opportunity Announcement for Restructured FutureGen solicits cost-shared applications to advance coal-based power generation technologies that capture and store the greenhouse gas carbon dioxide (CO2).

The Restructured FutureGen program is a cost-shared collaboration between the Government and industry to accelerate commercial deployment of very low, or near-zero, emissions Integrated Gasification Combined Cycle (IGCC) or other advanced clean coal-based power generation technology with Carbon Capture and Storage (CCS).

Objective Under the Restructured FutureGen criteria, a demonstration unit must be designed, constructed, and operated, on an annual average basis, with at least 50 percent of the energy output used to produce electricity. A gasification-based project must produce at least 300 megawatts of gross electricity output and at least 250 megawatts of net electricity output, while a non-gasification project must be at a commercially viable size. In addition, the projects must be designed to achieve approximately 90 percent capture of carbon content in the syngas or flue gas and must achieve a minimum capture rate of 81 percent. Projects must also—

- Remove at least 90 percent of mercury emissions based on mercury content of the coal.
- Remove at least 99 percent of sulfur emissions based on sulfur content of the coal.
- Reduce nitrogen oxide and particulate emissions to very low levels.

Deadline 10/08/2008
Awards DOE expects to invest between $100 million and $600 million per project, with $290 million available for incremental funding selected projects through fiscal year 2009 and an additional $1.01 billion available in subsequent years.

FON DE-PS26-08NT00496
URLhttp://e-center.doe.gov/iips/faopor.nsf/3b3cff0a4a1f243485256ec100490e1a/37325dddc3cc2f5b8525744200579f33?OpenDocument

•NETL Funding Opportunities
www.netl.doe.gov/BUSINESS/solicitations/index.html

Coal Gasification

1.PRE-COMBUSTION CARBON CAPTURE TECHNOLOGIES FOR COAL-BASED GASIFICATION PLANTS -- Topic Area 1: High-Temperature, High-Pressure Membranes

Topic Area 1 solicits membrane-based separation devices approaching theoretical separation selectivity and flux compatible with modern gasifier-WGS reactor product throughput rates. The operating conditions of the tests shall be those synergistic with modern commercial coal gasification system-WGS reactor operating conditions. The CO2 may remain as the retentate at high pressure amenable to low-cost capture and/or transport to storage sites. If hydrogen is the retentate, it will contain minor amounts water vapor, and may simulate the feed conditions of a humid air turbine (HAT) cycle. It is not intent of the FOA Topic Area 1 to guide the applicants for choosing one or the other species as the preferred retentate. The announcement is open to applications for separating either CO2 or H2; a non-permeate CO2 stream preferably remaining at high pressure to minimize the compression cost to pipeline pressure (approximately 2,200 psi) and, if hydrogen is the non-permeate stream, it remains at temperature and pressure conditions synergistic with high-efficiency energy production systems. The hydrogen is required at a desired minimum purity, greater than 93%, for advanced hydrogen turbine operations and for achieving the programmatic CO2 capture goal. If the hydrogen stream contains trace amounts of impurities, especially sulfur, then the effect of impurities on turbine operation and remedial measures to overcome the barrier must be addressed in the application.
Objective This grant solicits membrane-based separation devices approaching theoretical separation selectivity and flux compatible with modern gasifier-WGS reactor product throughput rates
Deadline Oct 14, 2008
Awards Not Listed
FON DE-PS26-08NT00699-01
URL
https://e-center.doe.gov/iips/faopor.nsf/UNID/CC590C1196DCD2B4852574A60069B195?OpenDocument

2.PRE-COMBUSTION CARBON CAPTURE TECHNOLOGIES FOR COAL-BASED GASIFICATION PLANTS -- Topic Area 2: High-Efficiency Solvents.

High efficiency solvents, physical, chemical, or hybrid, refer to capturing CO2 at high temperature and high CO2 partial pressures and low energy requirement to restore the solvent, thus reducing capital costs and making the capture of the CO2 more energy efficient and cost-effective. With respect to IGCC, pre-combustion capture is advantageous because of the high partial pressure of CO2 and capture at higher temperatures, as compared to cooler conventional scrubbing temperatures, thus providing a thermal efficiency advantage and potentially resulting in lower parasitic power load.

Objective For Topic Area 2, applications are sought for R&D leading to optimal performance of novel, high-efficiency solvents allowing step-change reduction in energy requirements compared to conventional solvents.
Deadline Oct 14, 2008
Awards Not Listed
FON DE-PS26-08NT00699-02
URL https://e-center.doe.gov/iips/faopor.nsf/UNID/A4C92ED4F20F8E2B852574A6006A6BA3?OpenDocument

3.PRE-COMBUSTION CARBON CAPTURE TECHNOLOGIES FOR COAL-BASED GASIFICATION PLANTS -- Topic Area 3: Solid Sorbents with Commercially Relevant Separation Capacity and Regenerable
Solid particles can be used to capture CO2 from WGS mixtures through physical adsorption or reversible chemical reactions, or a combination of the two effects. Possible configurations for contacting the feed gas with the solid particles include fixed, moving, and fluidized beds. Issues with sorbent based systems for capturing CO2 from WGS mixtures include: (1) large gas volume, (2) shifted syngas gas contaminants, (3) pressure drop through sorbent beds, and (4) high parasitic power demand for operation and sorbent recovery. Solid sorbents for CO2 capture from WGS mixtures must be capable of high CO2 loading capacities at high temperature while being able to maintain particle integrity and performance in the presence of trace amounts of contaminants.
Objective For Topic Area 3, identify the most favorable high temperature and pressure sorbents, adsorber device designs, and preliminary/conceptual integration schemes with commercial IGCC and future IGCC-CCS systems, sorbent recovery, generate results demonstrating meaningful progress along the established development path, and technology validation
Deadline Oct 14, 2008
Awards Not Listed
FON DE-PS26-08NT00699-03
URL https://e-center.doe.gov/iips/faopor.nsf/UNID/61050C1DE39D514B852574A6006B0E59?OpenDocument

4.PRE-COMBUSTION CARBON CAPTURE TECHNOLOGIES--Topic Area 4: Advanced Separation Devices for Separating CO2 or H2 from Shifted Syngas and Novel Approaches for Pre-Combustion Removal and Capture of the Carbon Content of Fuels for Storage
Topic Area 4 solicits novel ideas on advanced separation devices that can separate hydrogen from the water gas shift mixtures; CO2 remaining as the retentate, i.e., on the feed side of the separation device at high pressure, or vice versa, i.e., separation of the CO2 stream and leaving hydrogen as the retentate. The hydrogen must be available for the IGCC-CCS plant's combustion turbine at practical rates and purity.
Objective This grant solicits novel ideas on advanced separation devices that can separate hydrogen from the water gas shift mixtures. Topic Area 4 also encourages applicants to submit novel, path-breaking concepts for pre-combustion carbon capture in support of achieving the DOE's Carbon Sequestration Program goal.
Deadline Oct 14, 2008
Awards Not Listed
FON DE-PS26-08NT00699-04
URL https://e-center.doe.gov/iips/faopor.nsf/UNID/F735FDFF7416DF05852574A6006BB8D9?OpenDocument

5.Clean Coal Power Initiative

This CCPI Round 3 Announcement is seeking advanced coal-based projects that have progressed beyond the research and development stage to a point of readiness for operation at a scale that, once demonstrated, can be readily replicated and deployed into commercial practice within the electric power industry. This CCPI announcement is specifically targeting advanced coal-based systems and subsystems that capture and sequester, or put to beneficial reuse, carbon dioxide emissions. The announcement is also open to any coal-based, advanced carbon capture technologies that result in co-benefits with respect to efficiency, environmental, or economic improvements potentially capable of achieving CCPI coal technology performance levels specified in the EPACT 2005, Title IV, Subtitle A, Section 402. DOE's goals in this Announcement are to demonstrate at commercial scale in a commercial setting technologies that (1) operate at 90% carbon capture efficiency (2) make progress toward capture and sequestration at less than 10% increase in the COE, and (3) make progress toward capture and sequestration of 50% of plant CO2 output at a scale sufficient to evaluate impact of the carbon capture technology on plant operations, economics, and performance.

Deadline Jan 15, 2009
Awards Not Listed
FON DE-PS26-08NT43181
URL https://e-center.doe.gov/iips/faopor.nsf/UNID/6DC1DC75533D6357852574BF003F3CDB?OpenDocument

Environmental Protection Agency

•*Office of Environmental Education*

The EPA grant proposals to support environmental education projects that promote environmental stewardship and help develop aware and responsible students, teachers, and citizens. This grant program provides financial support to seed innovative projects that design, demonstrate, or disseminate environmental education practices, methods or techniques.

Objective Increase public awareness and knowledge about environmental issues and provides the skills necessary to make informed decisions and take responsible actions. It is based on objective and scientifically sound information. It does not advocate a particular viewpoint or course of action. It teaches individuals how to weigh various sides of an issue through critical thinking and it enhances their own problem-solving and decision making skills. Since global warming is a major environmental event, education of the populace concerning the use of renewable forms of energy that are currently available or the various behavioral or materialistic changes an individual can make to promote more efficient and smarter ways to conserve energy would qualify.

Deadline Annual in December
Awards regional up to $50K, >$50k EPA headquarters
FON
URL http://www.epa.gov/enviroed/grants.html

United States Department of Agriculture

•***2008 Farm Bill Section 9006***

The §9006 program provides grants (& loan guarantees) to rural small businesses & agricultural producers for up to 25% of the cost to purchase & install renewable energy generation systems. Purchase and installation in a rural location of a renewable energy generating system, is limited to the following:

1.Bioenergy Program for Advanced Biofuels. Eligibility is now limited to producers of advanced biofuels.– Biofuels derived from renewable biomass other than corn-kernel starch (according to the Food, Conservation, and Energy Act of

2008, or 2008 Farm Act), including biofuel derived from cellulose, hemicellulose, lignin, and from sugar and starch other than cornstarch. Also includes ethanol from waste materials (crop residues, vegetative waste, animal waste, food waste, and yard waste); diesel-equivalent fuel derived from renewable biomass, including vegetable oil and animal fat; biogas; butanol; or other alcohols produced through the conversion of organic matter from renewable biomass. Mandates a total of $300 million in CCC funding for FY 2009-12. Authorizes appropriations of $25 million annually.

2.Biomass Crop Assistance Program Establishes a program to support establishment and production of eligible crops for conversion to bioenergy, and to assist agricultural and forest landowners with collection, harvest, storage, and transportation of these crops to conversion facility. Assistance includes:

- payments for up to 75% of cost of establishing an eligible crop
- annual payments to support production
- matching payments of up to $45/ton for 2 years for collection, harvest, storage, and transportation to a biomass conversion facility.

3.Biodiesel Fuel Education Program Established a competitive grant program in consultation with Secretary of Energy to educate government and private entities with vehicle fleets, as well as the public, about benefits of biodiesel fuel use. Mandated CCC funding of $1 million annually for FY 2008-12.

4.Biomass R&D This program directs Secretaries of Agriculture and Energy to coordinate policies promoting biobased industrial products. Funded competitive grants for research, development, and demonstration projects for biofuels and biobased chemicals and products. Provides mandatory CCC funding of $118 million for FY 2009-12. Authorizes additional $35 million annually FY 2009-12.

5.Bio Refineries Authorizes competitive grants to assist development and construction of demonstration-scale biorefineries that convert renewable biomass to advanced biofuel grants may not exceed 30% of project cost. Mandates $75 million in funding for FY 2009 and $245 million in FY 2010.

6.Forest Biomass for Energy Authorizes new competitive research and development program to encourage use of forest biomass for energy. To be administered by USDA's Forest Service, priority project areas include:

- developing technology and techniques to use low-value forest biomass for energy production
- developing processes to integrate energy production from forest biomass into biorefineries
- developing new transportation fuels from forest biomass
- improving growth and yield of trees intended for renewable energy

Authorizes appropriation of $15 million annually for FY 2009-12.

7.Re-powering Assistance Authorizes payments to encourage existing biorefineries to replace fossil fuels used to produce heat or power for operation of the biorefinery. Payments would be made for installation of
new systems that use renewable biomass or for new production of energy from renewable biomass. Mandatory funding of $35 million through CCC for FY 2009, until expended. Authorizes appropriations of $15 million annually FY 2009-12.

8.Rural Energy for America Program Authorizes new program to provide financial assistance to increase energy self-sufficiency of rural communities. Provides grants to conduct energy assessments, formulate plans to reduce energy use from conventional sources, and install integrated renewable energy systems, Integrated renewable energy systems are defined as community-wide systems that reduce conventional energy use and incorporate renewable energy use. Federal-cost share for any grant is limited to 50% of project cost. Authorizes appropriations of $5 million annually for FY 2009-12.

***** http://attra.ncat.org/fe_funding/ National Sustainable Agricultural Information Service. Farm Energy Funding Opportunities from 10/2008 to 2009 by state.

Strong preference is given for technology that is "commercially available" – i.e., that has a proven operating history and has an established design, installation, & service industry. Pre-commercial technologies – i.e., those that have emerged through the R&D process and have commercial potential – may qualify, but require substantially more documentation.

Deadline In FY2008 the deadline was 3/31/08

Awards Maximum is $500k

FON

URL http://www.ers.usda.gov/FarmBill/2008/

District of Columbia

Renewable Energy Demonstration Project

A fifth round of REDP will soon be announced for fiscal year 2009. Due to tremendous demand, there may be additional funds available for the 2008 and 2009 program years for renewable energy installations from DC organizations, entities, businesses and individuals. The Renewable Energy Demonstration Project seeks to provide grant funds that will assist in the installation of a renewable energy generation system. Applicants may apply for funding to implement a replicable project that reliably produces electricity using a renewable source of fuel (i.e., photovoltaic, biomass, wind or hydropower where appropriate). Projects may include but are not limited to the installation of photovoltaic systems on single- and multi-family dwellings, as well as commercial and institutional buildings. Solar thermal and geothermal installations are not funded under this solicitation.

Deadline Not listed

Awards total of $150,000

FON

URL http://ddoe.dc.gov/ddoe/cwp/view,a,1209,q,493006.asp

Department of Transportation

Federal Transit Administration

ENERGY STORAGE DEMONSTRATION FOR RAIL TRANSIT VEHICLE OPERATION

The Federal Transit Administration (FTA) requests proposals that may result in the award of one cooperative agreement to demonstrate regenerative braking and energy storage technologies (on-board or/and wayside) for rail transit propulsion systems. (Unrestricted) A technology area with substantial promise is regenerative braking combined with efficient energy storage. Rail systems have the potential for recovering lost kinetic energy through regenerative braking of rail cars. Recovered energy can be directed to the third rail or catenary to be used by nearby trains, or stored in on-board or wayside energy storage devices. Regenerative braking combined with energy storage technologies could increase the efficiency of rail propulsion systems by substantially reducing energy losses. This RFA seeks applications to demonstrate regenerative braking and energy storage technologies (on-board or/and wayside) for rail transit propulsion systems.

Deadline 10/3/2008

Awards Maximum is $300k

FON D2008-ENR-TRV-TRI

URL http://www.fta.dot.gov/funding/grants_financing_7829.html

Department of Energy

International Cooperative Biodiversity Groups
Closing Date: December 4, 2008
Clean Coal Power Initiative
Closing Date: Continuous

Doing Business with the Department of Energy
http://management.energy.gov/business_DOE.htm
The Department of Energy (DOE) obligates over $20 billion each fiscal year in contracts and financial assistance agreements. The purpose of this page is to provide interested parties with "one-stop shopping" for information on business and financial assistance opportunities, including points of contact at the Department's contracting activities at Headquarters and in the field.
Assistance is provided regarding Federal regulatory and internal Department of Energy's acquisition policies, contact information for each DOE Procurement Director at Headquarters and the field, and possible subcontracting opportunities, as well as information on perspective financial assistance recipients of DOE financial assistance awards.

Energy TechNet
http://www.eere.energy.gov/inventions/energytechnet/news2.html

Jefferson Lab
http://www.jlab.org/div_dept/admin/business/

The Procurement Department's services include: all subcontracts for services, construction, supplies and equipment requirements; technology transfer business mechanisms; the Small Business Program; the Credit Card Program; and the Affirmative Action Procurement Program.
A-Z User's Guide to Procurement
P-Card (Credit Card) Handbook
Commonwealth of Virginia Sales & Use Certificate of Exemption
Emergency Purchasing Procedures
Follow Up on Orders and Reqs
Green Purchasing Program
Hiring Temporary Contract Personnel
Ordering Computers
Procurement Operations Manual
Procurement Related Applications
Procurement Terms & Conditions
Return to Vendor Form
SOTR Guidelines

Office of Energy Efficiency and Renewable Energy (EERE)
http://www1.eere.energy.gov/financing/

The Office of Energy Efficiency and Renewable Energy (EERE) works with business, industry, universities, and others to increase the use of renewable energy and energy efficiency technologies. One way EERE encourages the growth of these technologies is by offering financial assistance opportunities for their development and demonstration. In fiscal year 2007 alone, EERE awarded $574 million in financial assistance.

The EERE Funding and Award Process ▸

Types of EERE Financial Assistance ▸

How to Apply for EERE Financial Assistance ▸

https://www.eere-pmc.energy.gov

This site is a "virtual hub" of project management information and resources for EERE customers, stakeholders, staff and contractors.

The EERE community site is useful for:

- Locating and tracking funding opportunities
- Accessing federal forms, regulations, & circulars
- Uploading and downloading reports and information updates
- Researching EERE projects
- And more

DARPA

www.darpa.mil/baa

Title: A -- BAA08-07, **BioFuels - Cellulosic and Algal Feedstocks**
Announcement#: BAA08-07
FedBizOpps Reference: November 15, 2007
Solicitations 01: November 15, 2007
Response Date: November 14, 2008
Archive Date: November 29, 2008

EPA

Green Buildings Funding Opportunities
www.epa.gov/greenbuilding/tools/funding.htm

Numerous sources of funding for green building are available at the national, state and local levels for homeowners, industry, government organizations and nonprofits. We are providing the links on this page to help you find a variety of funding sources including grants, tax-credits, loans, or others. Please contact us with suggestions to add other green building funding opportunities not listed on this page. EPA does not currently provide funding to support green building projects.

- National Programs
  - General Funding Web sites
  - National Green Building Funding Opportunities
- State & Local Programs
  - Guides to State and Local Green Building Programs
  - Select State Green Building Programs
  - Select Local Green Building Programs

National Programs

Linked below:

- General Funding Web sites
- National Green Building Funding Opportunities

Source	*Description, Intended Audience*
General Funding Web Sites	
General Services Administration Catalog of Federal Domestic Assistance	The online Catalog of Federal Domestic Assistance (CFDA) provides access to a database of all Federal assistance programs. For: Government, Consumers, Industry, Nonprofits.
Numerous Federal Agencies Grants.gov	Grants.gov allows organizations to electronically find and apply for Federal grants. Grants.gov is the single access point for over 1,000 grant programs offered by all Federal grant-making agencies. For: Government, Consumers, Industry, Nonprofits.

Source	*Description, Intended Audience*
National Green Building Funding Opportunities	
Department of Energy Energy Efficiency and Renewable Energy Financial Opportunities	The Office of Energy Efficiency and Renewable Energy (EERE) works to increase the use of renewable energy and energy efficiency technologies. EERE offers financial assistance opportunities for their development and demonstration. For: Government, Consumers, Industry, Nonprofits
Enterprise Green Communities EXIT Disclaimer	Green Communities provides grants, financing, tax-credit equity, and technical assistance to developers who meet the criteria for affordable housing that promotes health, conserves energy and natural resources, and provides easy access to jobs, schools and services. For: Industry, Nonprofits
Federal Government Federal Tax Credits for Energy Efficiency	The Energy Policy Act of 2005 includes tax credits to consumers for energy efficiency home improvements, specific automobiles, and installation of solar energy systems and fuel cells. Tax credits are also available for home builders and appliance manufacturers, and tax deductions are available for commercial buildings that meet specific efficiency standards.

Source	*Description, Intended Audience*
	As of December 31, 2007, most of the tax credits expired. You have until April 15, 2008 to report these credits on your 2007 taxes. For: Consumers, Industry
The Funders' Network Funders' Network for Smart Growth and Livable Communities EXIT Disclaimer	The Funders' Network for Smart Growth and Livable Communities is a non-partisan, not-for-profit organization that exists to inspire, strengthen and expand philanthropic leadership and funders' abilities to support organizations working to improve communities through better development decisions and growth policies. For: Government, Industry, Nonprofits
The Home Depot Foundation Building Healthy Communities EXIT Disclaimer	The Home Depot Foundation provides grants to eligible nonprofits, three times a year, under two different programs: the Affordable Housing Built Responsibly Program and the Healthy Community Trees Program. For: Nonprofits
Kresge Foundation Green Building Initiative EXIT Disclaimer	The Foundation's Green Building Initiative is intended to increase the awareness of sustainable or green building practices among nonprofits and encourage them to consider building green. The Initiative offers educational resources and special grants to help nonprofits. For: Government, Nonprofits.
Smart Communities Network Funding Opportunities EXIT Disclaimer	List of public and private sources for grants and other funding opportunities for research and building projects in sustainable design and development, municipal energy financing and other partnership opportunities. For: Government, Consumers, Industry, Nonprofits
Tax Incentive Assistance Project EXIT Disclaimer	The Tax Incentive Assistance Project (TIAP) provides information for consumers and businesses to make use of the federal income tax incentives for energy efficient products and technologies (specified in the Energy Policy Act of 2005). As of December 31, 2007, most of the tax credits

Source	*Description, Intended Audience*
	expired. You have until April 15, 2008 to report these credits on your 2007 taxes. For: Consumers, Industry, Nonprofits

State and Local Programs

Linked below:

- Guides to State and Local Green Building Programs
- Select State Green Building Programs
- Select Local Green Building Programs

Source	*Description, Intended Audience*
Guides to State and Local Green Building Programs	
Interstate Renewable Energy Council Database of State Incentives for Renewable Energy EXIT Disclaimer	The Database of State Incentives for Renewable Energy (DSIRE) is a comprehensive source of information on state, local, utility, and selected federal incentives that promote renewable energy. For: Government, Consumers, Industry, Nonprofits
National Association of State Energy Officials Funding Opportunities and Resources EXIT Disclaimer	The National Association of State Energy Officials (NASEO) provides links to current funding opportunities for energy efficiency, renewable energy, sustainable development and related environmental projects For: Consumers, Government, Industry, Nonprofits

Source	*Description, Intended Audience*
Select State Green Building Programs	
The Local Government Commission Financing and Project Assistance for Energy Efficiency in Buildings EXIT Disclaimer NOTE: Primarily resources for California-based projects	The Local Government Commission (LGC) is a nonprofit, nonpartisan, membership organization that provides inspiration, technical assistance, and networking to community leaders who are working to create healthy, walkable, and resource-efficient communities. For: Government, Consumers, Industry, Nonprofits
California Energy Commission	The Emerging Renewables Program provides rebates to consumers who install qualifying renewable energy systems.

Source	*Description, Intended Audience*
California's Emerging Renewables Rebate Program EXIT Disclaimer	Through this program, the Energy Commission provides funding to offset the cost of purchasing and installing new renewable energy systems using emerging renewable technologies. For: Consumers, Industry, Nonprofits.
California Energy Commission Energy Efficiency Financing Program EXIT Disclaimer	The Energy Efficiency Financing Program provides financing for schools, hospitals and local governments through low-interest loans for feasibility studies and the installation of energy-saving measures. For: Government, Industry, Nonprofits.
Maryland Energy Administration Green Building Tax Credit EXIT Disclaimer	Maryland provides a tax credit for the construction of green building. The credit is worth up to 8 percent of the total cost of the building. Buildings must be located in a priority funding area and be at least 20,000 square feet. For: Industry, Nonprofits
Massachusetts Technology Collaborative Renewable Energy Trust EXIT Disclaimer	The Renewable Energy Trust provides financial assistance to individuals, businesses, public entities and communities in Massachusetts, for green building and renewable and clean energy projects. For: Consumers, Industry, Nonprofits
Minnesota Pollution Control Agency List of Financing and Incentive Programs EXIT Disclaimer	The Minnesota Pollution Control Agency (MPCA) provides a list of financial incentives available in Minnesota to support the use of renewable energy and improvements in energy efficiency for commercial, institutional and residential buildings. For: Consumers, Industry, Nonprofits
New Jersey Department of Community Affairs' Office of Smart Growth Smart Future Planning Grant Program EXIT Disclaimer	The Smart Future Planning Grant program provides grants to municipalities, counties and non-profit agencies to help plan for the future. The program focuses on seven key categories, including green building. For: Government, Nonprofits
New Resource Bank Solar Home Equity Financing EXIT Disclaimer (California only)	New Resource Bank offers California homeowners Solar Home Equity Loans or Line of Credits to finance solar power projects. For: Consumers
New York State	The Department manages and administers the Green

Source	*Description, Intended Audience*
Department of Environmental Conservation Green Building Tax Credit EXIT Disclaimer	Building Tax Credit program that provides tax credits to owners and tenants of green buildings which increase energy efficiency, improve indoor air quality, and reduce the environmental impacts of large commercial and residential buildings in New York. For: Consumers, Industry, Nonprofits

Source	*Description, Intended Audience*
Select Local Green Building Programs	
Arlington , VA : Department of Environmental Services Green Building Incentive Program EXIT Disclaimer	The Green Building Incentive program allows developers to request a slightly larger building than would normally be allowed by County Code if the project receives official LEED certification from the USGBC at one of the four LEED award levels. For: Industry.
Austin , TX Energy's Green Building Program EXIT Disclaimer	List of hyperlinks to City rebate programs and loan information for residential, commercial and multi family green buildings. For: Consumers, Industry, Nonprofits
King County, WA Green Building Incentives and Grants EXIT Disclaimer	King County's Green Building Grants provide funding to projects built in King County that meet stringent criteria for resource conservation. In addition, King County provides incentives for residential projects that are seeking BuiltGreen™ certification. For: Government, Industry, Nonprofits
Portland, OR Green Investment Fund (GIF) EXIT Disclaimer	The Green Investment Fund, a yearly grant which is supported by the City of Portland and Energy Trust of Oregon, invests in innovative approaches to waste reduction, water conservation, on-site stormwater management and reuse, energy conservation and on-site renewable energy generation. The total fund and maximum amount available for any one project in the current round is $425,000. Industrial, multi-family residential, commercial, and mixed-use projects within Portland city limits are eligible and public and private organizations may apply. For: Government, Consumers, Industry, Nonprofits
Seattle, WA City Light's Energy	Seattle City Light's Energy Smart Services offers financial incentives to help organizations reduce electricity use and save

Source	*Description, Intended Audience*
Smart Services EXIT Disclaimer	money. Incentive amounts can range as high as 70 percent of the installation cost, and are based on energy savings. For: Government, Industry, Nonprofits

http://www1.eere.energy.gov/office_eere/vc.html

Commercialization Initiatives and Opportunities

The Office of Energy Efficiency and Renewable Energy (EERE) provides a variety of opportunities for venture capital investment. This page includes information about the Entrepreneur in Residence Program, in which venture capital funded entrepreneurs work with the Department of Energy's (DOE) national laboratories to find market-ready technologies, and the DOE Venture Capital Technology Showcase Presentations.

Companies and individuals who are interested in entering into agreements with DOE's national laboratories to license technologies are encouraged to look at the draft of the Exclusive Commercial Patent License Agreement (MS Word 112 KB).

The Entrepreneur in Residence Program

The Entrepreneur in Residence Program (EIR) brings venture capital sponsored entrepreneurs into the DOE's national labs to identify technologies for commercialization. On February 27, 2008, three companies were chosen to work with the National Renewable Energy Laboratory, Sandia National Laboratory, and Oak Ridge National Laboratory.

Working directly with laboratory personnel, the entrepreneurs will conduct technology assessments, evaluate market opportunities, formulate preliminary business cases, and propose business structures in order to bring these technologies to the marketplace. For more information about the companies chosen to work and the terms of the Funding Opportunity Announcement, see the DOE press release on the Department of Energy's Web site.

DOE Venture Capital Technology Showcase Presentations

The following presentations were made at the DOE Venture Capital Technology Showcase on August 21-22, 2007 in Washington DC. Each technology Program Manager gave a brief overview of their area of emphasis and then introduced the venture capitalists to several specific technology opportunities developed by the U.S. Department of Energy. Each presented technology was screened for market potential and other factors most relevant the venture capital community.

Some information in the presentations was provided by the companies represented.

Presentations from DOE Offices

The following documents are available as Adobe Acrobat PDFs. Download Adobe Reader.

Office of Energy Efficiency and Renewable Energy

- Biomass (PDF 2.5 MB)
- Buildings (PDF 1.3 MB)
- Geothermal (PDF 1.2 MB)
- Hydrogen (PDF 1.6 MB)
- Industry (PDF 903 KB)
- Solar (PDF 8.8 MB)
- Vehicles (PDF 994 KB)
- Wind (PDF 2.2 MB)

Office of Science

- Basic Sciences (PDF 4.4 MB)

Small Business Innovation Research

- (PDF 573 KB)

Learn More About the Research Programs

Biomass
Buildings
Geothermal
Hydrogen
Industry
Solar
Vehicles
Wind

Contact

Michael Bruce, 202-586-3003

Printable Version

NSF

Energy for Sustainability

www.nsf.gov/funding/pgm_summ.jsp?pims_id=501026

CONTACTS

Name	Email	Phone	Room
Trung Nguyen	tnguyen@nsf.gov	(703) 292-8320	565 S

PROGRAM GUIDELINES

Apply to PD 08-7644 as follows:

For full proposals submitted via FastLane: standard Grant Proposal Guidelines apply. *For full proposals submitted via Grants.gov:* NSF Grants.gov Application Guide; A Guide for the Preparation and Submission of NSF Applications via Grants.gov Guidelines apply (Note: The NSF Grants.gov Application Guide is available on the Grants.gov website and on the NSF website at: http://www.nsf.gov/bfa/dias/policy/docs/grantsgovguide.pdf)

SYNOPSIS

The Energy for Sustainability program supports fundamental research and education in energy production, conversion, and storage and is focused on energy sources that are environmentally friendly and renewable. Most world energy needs are currently met through the combustion of fossil fuels. With projected increases in global energy needs, more sustainable methods for energy production will need to be developed, and production of greenhouse gases will need to be reduced.

Sources of sustainable energy include:

- Sunlight
- Wind
- Biomass

Hydrogen and alcohols are potential energy carriers that can be derived from renewable sources. Research that generates enabling science and technologies for more efficient hydrogen generation and storage is supported by the program. Potential sources of hydrogen include conversion from biomass and from electrolysis, photolysis or thermolysis of water. Biomass is available from agricultural crops and residues, forest products, aquatic plants, and municipal wastes. In addition to hydrogen, biomass can be a source of liquid, solid, and gaseous fuels including biofuels such as ethanol. Fuel cells have the potential to convert fuels such as hydrogen and alcohols to electricity at high efficiencies and should play an increasing role in energy conversion. Critical components of low temperature fuel cells requiring additional research include catalysts and electrolytes. Development of these components also requires fundamental research on the reaction and transport mechanisms at the catalyst and membrane electrolyte interface.

Advances in these areas are needed to address key challenges in efficiency, durability, power density, and environmental impacts. The engineering aspects of fuel-cell design and operation also require further study in areas such as water and thermal management. Wind power is a growing source of electrical energy. Increased efficiency requires a fundamental knowledge of the interaction of wind

with the blade structure. Understanding the fluid flow, and optimizing blade design are important aspects in developing more efficient wind generators. Photovoltaic devices have the potential to supply a significant fraction of electrical energy to the power grid. Although silicon-based materials have been most widely used, other semiconducting materials and titanium dioxide also have potential. New materials and novel fabrication techniques for solar energy conversion are supported by the program.

The duration of unsolicited awards is generally one to three years. The average annual award size for the program is $100,000. Please check the NSF Chemical, Bioengineering, Environmental and Transport Systems Division (CBET) Home Page *for the two annual submission windows for unsolicited proposals. Small equipment proposals up to $100,000 will also be considered and may be submitted during these windows. Any proposal received outside the announced dates will be returned without review.*

The duration of CAREER awards is five years. The submission deadline for Engineering CAREER proposals is in July every year. Please see the following URL for more information: http://www.nsf.gov/pubs/2005/nsf05027/nsf05027.jsp

Proposals for Small Grants for Exploratory Research (SGER), Conferences, Workshops, and Supplements may be submitted at any time, but must be discussed with the program director before submission.

Please refer to the Grant Proposal Guide (GPG), January 2008, (NSF 08-1) when you prepare your proposal. Chapter II, especially, will assist you. The GPG is available for download at: http://www.nsf.gov/publications/pub_summ.jsp?ods_key=gpg

CHE-DMR-DMS Solar Energy Initiative (SOLAR)

www.nsf.gov/funding/pgm_summ.jsp?pims_id=503298

CONTACTS

Name	Email	Phone	Room
Carol A. Bessel	cbessel@nsf.gov	(703) 292-4945	
Hans Kaper	hkaper@nsf.gov	(703) 292-4859	
Andrew J. Lovinger	alovinge@nsf.gov	(703) 292-4933	
Charles D. Pibel	cpibel@nsf.gov	(703) 292-4971	
Henry A. Warchall	hwarchal@nsf.gov	(703) 292-4861	
Z. C. Ying	cying@nsf.gov	(703) 292-8428	

PROGRAM GUIDELINES

Solicitation 08-598

DUE DATES

Preliminary Proposal Deadline Date : December 16, 2008
Full Proposal Deadline Date : March 9, 2009

SYNOPSIS

The purpose of the CHE-DMR-DMS Solar Energy Initiative is to support interdisciplinary efforts by groups of researchers to address the scientific challenges of highly efficient harvesting, conversion, and storage of solar energy. Groups must include three or more co-Principal Investigators; one must have demonstrated high expertise in chemistry, a second in materials research, and a third in mathematical sciences. The goal here is to create a new modality of linking the mathematical with the chemical and materials sciences to develop transformative paradigms in an area of much activity but largely incremental advances. Successful proposals will offer potentially transformative projects and new concepts based on the integrated expertise and synergy from the three disciplinary communities.

Cooperative Activity with Department of Energy Programs for Education and Human Resource Development (Request for Supplement)

www.nsf.gov/funding/pgm_summ.jsp?pims_id=5632

CONTACTS

Name	Dir/Div	Name	Dir/Div
Marilyn Suiter		Toni Edquist	

PROGRAM GUIDELINES

Apply to PD 07-1594 as follows:

For full proposals submitted via FastLane: standard Grant Proposal Guidelines apply. *For full proposals submitted via Grants.gov:* NSF Grants.gov Application Guide; A Guide for the Preparation and Submission of NSF Applications via Grants.gov Guidelines apply (Note: The NSF Grants.gov Application Guide is available on the Grants.gov website and on the NSF website at: http://www.nsf.gov/bfa/dias/policy/docs/grantsgovguide.pdf)

DUE DATES

Supplement Deadline Date : March 9, 2009
Second Monday in March, Annually Thereafter
The requests should be submitted as soon as notification of application acceptance

by DoE is received, but must be submitted by 5 pm (submitter's local time), April 20, 2007 (March 10, 2008 and March 9, 2009).

SYNOPSIS

This is a cooperative effort between NSF and the Department of Energy (DoE) Office of Science. To support the continued leadership of the United States in science, technology, engineering, and mathematics (STEM) and the continued development of a competitive, diverse STEM workforce, NSF and DoE are implementing collaboration between the agencies' programs for the development of human resources in STEM. NSF and DoE will support students and faculty from eligible NSF projects (based on competitive Merit Review and availability of funds) who are accepted as participants in one of four DoE initiatives that provide hands-on research opportunities in DoE national laboratories during the summer: Science Undergraduate Research Internships (SULI), Faculty and Student Teams (FaST), Community College Institute of Science and Technology (CCI), and Pre-Service Teacher (PST) Internships. Faculty from eligible NSF projects may submit supplement requests (see related NSF document below for details).

RELATED PUBLICATIONS

Cooperative Activity with Department of Energy Programs for Education and Human Resource Development -- "Dear Colleague Letter" (NSF07-133)

Energy TechNet
www1.eere.energy.gov/inventions/energytechnet/funding/public_sector.html

Public-Sector Funding
This page provides useful information for locating and obtaining federal and state funding.

EPA
Funding Opportunities
www.epa.gov/greenbuilding/tools/funding.htm
Numerous sources of funding for green building are available at the national, state and local levels for homeowners, industry, government organizations and nonprofits. We are providing the links on this page to help you find a variety of funding sources including grants, tax-credits, loans, or others. Please contact us with suggestions to add other green building funding opportunities not listed on this page. EPA does not currently provide funding to support green building projects.
National Programs
General Funding Web sites
National Green Building Funding Opportunities

State & Local Programs
Guides to State and Local Green Building Programs
Select State Green Building Programs
Select Local Green Building Programs
Virginia Division of Energy
www.dmme.virginia.gov/divisionenergy.shtml

The primary goal of the Division of Energy is to advance sustainable energy practices and behaviors. To achieve this goal, the Division of Energy works to:

- increase the use of proven energy conservation practices in Virginia;
- foster growth of emerging and sustainable energy industries and infrastructure;
- identify applications of new and innovative energy technologies in Virginia;
- advance partnerships that will enable energy efficiency and economic development opportunities;
- improve the energy efficiency of commercial, institutional, and residential buildings in Virginia; and

- provide energy education and outreach to Virginians to increase their ability to make informed energy choices.

Programs / Services

Energy Programs for State Agencies
Programs and services of energy management planning in Virginia state government.

Alternative Fuels & Renewable Energy
A resource of information on the various programs and projects that support the deployment of renewable and alternative energy technologies in the Commonwealth.

Energy Related Programs and Partnerships
A resource of information on the various programs and projects that the Division of Energy supports.

ENERGY STAR
Information

Virginia Energy Plan (VEP)
A ten-year comprehensive Energy Plan to implement the Commonwealth's energy policy.

Governor's Energy Policy Advisory Council

Consumer Information on Energy Efficiency and Conservation
Your source for additional energy-related information on how you can implement energy efficiency and conservation measures.

New! Virginia Energy Patterns and Trends

Tips to Lower Your Electric Bill Today

Financial Incentives

Energy Operational Review
The Commonwealth of Virginia conducted and completed an Operational Review of energy use within state government. The overall intent of the review was to develop recommendations for driving higher levels of state government performance and cost-effectiveness in its service to the citizens of Virginia. The review assessed Energy Best Practices being used among Virginia agencies and outlines further recommendations that should be implemented in the Commonwealth. Select the link to review the complete report.

Maryland Energy Administration
http://energy.maryland.gov/about/mission/index.asp

The *mission* of the Maryland Energy Administration (MEA) is to maximize energy efficiency while promoting economic development, reducing reliance on foreign energy supplies, and improving the environment.

MEA advises the Governor on directions, policies and changes in the various segments of the energy market. As demand/supply competition, technological innovations, and policy changes by the federal government cause major changes in market sensitive energy sectors (e.g., petroleum markets, gas deregulation, and emerging competition in the electric utilities sector), State government must be in position to respond to new opportunities, as well as adjust to any potential dangers.

MEA prepares State government to respond to the changing dynamics of the energy industry. The strategic goals of the Maryland Energy Administration are:

Renewable Energy

The following information provides background for renewable energy information for the state of Maryland:

- Net-Metering
- Solar
- Biomass
- Wind
- Geothermal
- Municipal Solid Waste

District of Columbia Department of the Environment & Energy
http://ddoe.dc.gov/ddoe/site/default.asp

DDOE serves as an agency within the Executive Branch of the DC government to consolidate the administration and oversight of environmental and energy programs, services, laws, and regulations. Under the authority of DC Law 16-51, the new DDOE was formed through a merger of the DC Government's Environmental Health Administration, the DC Energy Office, policy functions of the Tree Management Administration and policy functions of the Office of Recycling.

The new DDOE is a one-stop-shop for programs and services that protect human health and the environment and address energy efficiency issues for all sectors of the city. DDOE programs are designed to facilitate cleaner air and water, green our neighborhoods and building space, and assist with the management of hazardous and toxic waste disposal. Additionally, DDOE conducts community and educational outreach to increase public awareness of environmental and energy related issues.

- Conservation
- Energy Assistance
- Regulatory/Legislative
- Sustainable Solutions
- Reliable Energy Trust Fund Programs

Federal Energy Information Resources

FEDERAL LABORATORY CONSORTIUM MID-ATLANTIC REGION

October 1, 2008

As the Nation ramps up its R&D in the energy field, many of the existing Federal Labs, not just the Department of Energy, will be seen to have related and extensive, existing programs and resources. In the Mid-Atlantic Region, following provides a window on some of these capabilities.

U.S. Army

Aberdeen Test Center
www.atc.army.mil/pages/aboutATC/aboutus.html

The ATC conducts testing for federal, state and local governments, academia, private industry, and foreign governments.

- Evaluation of fuels and fuel efficiency
- Shock and vibration evaluation of equipment
- Electromagnetic evaluation of equipment - The EMITF delivers high degrees and ranges of attenuation to test military systems and subsystems against controlled electromagnetic, military standards.
- Environmentally safe enclosed facility for testing weapons and targets that have component made from depleted uranium (DU)
- Electro-magnetic (EM) gun and electro-thermal-chemical (ETC) gun testing facility complete with pulsed power supply.
- Industrial X-Ray facility - X-ray units which span the range of 20KeV to 11 MeV
- Infrared Thermal Imaging - state-of-the art infrared camera system operating in the 3- to 5-um spectral range

Army Research Laboratory
www.arl.army.mil/www/default.cfm?Action=6

The ARL provide scientific and technological innovation in a variety of technical disciplines, through direct in-house laboratory efforts and joint programs with government, industry, and academia.

- Novel Energetic Research Facility (NERF)
- Aerosol Laser Facility
- Environmental Sensing and Optical Spectroscopy Research Facility
- Directed Energy Anechoic Chamber
- Microwave/Multimeter-Wave Anechoic Chamber
- Microwave/Multimeter-Wave Anechoic Chamber
- Electrochemical Facility
- Ultra Wideband (UWB) Synthetic-Aperture Radar (SAR) Testbed
- JP-8 Fuel Reformation

ARL Power & Energy
www.arl.army.mil/www/default.cfm?Action=18&Page=145

Power Components for Hybrid Electric Vehicles and Pulse Power
Provide compact, high density power component technologies for Future and Current Force Hybrid Electric Vehicle Propulsion, Pulse Power (survivability/lethality), and related applications. Investigate and mature technologies to provide high-temperature, high-frequency power converters and generators; high-power batteries operating over a large temperature range; high-temperature, high energy density fast/medium current rise time storage capacitors; and Micro-Electronic Mechanical Systems (MEMS) for improved efficiency and reliability (miniature portable generators, miniature engines, and fuel cells).

Power Sources for Soldier Power and Auxiliary Power
Provide materials, technology, subcomponents, and components for soldier power, smart munitions, and Future/Current Force vehicles. Explore high energy electrode materials and high stability electrolytes. Develop primary batteries, alternate chemistries, and battery designs for smart munitions and materials/technology for strategic fuel (JP-8) reformation, fuel cells, and high density fast-rise capacitors.

Directed Energy (DE)
Develop advanced DE technology for lethal and non-lethal applications to enhance survivability and lethality. Investigate radio frequency (RF) energy effects on electro-optic/infrared sensors. Develop and exploit effects data for target sets of interest. Provide RF Energy Assessment Model (DREAM) results to customers and support Department of Defense (DoD) Vehicle Stopper initiatives.

Night Vision & Electronic Sensors Directorate
www.nvl.army.mil
The research labs of this directorate deal with various forms of electro-magnetic energy and how to utilize it for such purposes as:

- night vision
- thermal imagining

Institute for Water Resources
www.iwr.usace.army.mil

The U.S. Army Corps of Engineers is the largest operator of hydroelectric power plants in the United States and one of the largest in the world. Corps hydropower plants provide 100 billion kilowatt-hours annually, enough power to serve more than 10 million households.

Department of Commerce

National Institute of Standards and Technology (NIST)
www.nist.gov/

NIST's mission is to promote U.S. innovation and industrial competitiveness by advancing measurement science, standards, and technology in ways that enhance economic security and improve our quality of life. Research revolves around the measurement process. Some example energy-related research that has come out of this process is revealed in several patents:

- High Spectral Purity Microwave Oscillator Design Using Air-Dielectric Cavity
- Optical Waveguides On Glass Substrates And Lasers Formed Therefrom
- Fluidic Temperature Gradient Focusing.
- Rare-Earth Doped Phosphate-Glass Lasers And Associated Methods
- Mode-Locked Pulsed Laser System and Method

Manufacturing Extension Partnership
www.mep.nist.gov/
The Hollings Manufacturing Extension Partnership is a nationwide network of resources that help manufacturers to compete globally, supporting greater supply chain integration, and providing access to technology for improved productivity. One of the areas of focus is the reduction of the energy footprint associated with manufacturing.

Defense Advanced Research Projects Agency
www.darpa.mil

DARPA manages and directs selected basic and applied research and development projects for DOD, and pursues research and technology where risk and payoff are both very high. Research areas include improving energy (fuel) efficiency of basic military components such as the gas turbine engine, high energy capacitors, devices with a high energy density footprint along with many other long-term energy-related, future requirements.

Defense Technical Information Center
www.dtic.mil

The center provides a comprehensive source for energy-related topics within the DOD.

Department of Energy

U.S. Department of Energy
www.pi.energy.gov/orgsummaries.html

The DOE has oversight responsibilities for the multi-agency Clean Energy Initiative. The Clean Energy Initiative seeks to provide millions of people in the developing world with access to affordable, reliable, clean, healthy, and efficient energy services. These goals will be accomplished through programs that will emphasize:

- Efficient Energy for Sustainable Development Partnership to improve the productivity and efficiency of current operating systems, while reducing waste, saving money, improving reliability, and delaying the need for expensive new generating capacity.

- The Global Village Energy Partnership will increase access to modern and affordable energy services in areas either not served or under-served by current energy delivery systems.
- Healthy Homes and Communities Partnership will promote clean transportation fuels (e.g. unleaded gasoline, low sulfur fuels), and healthier indoor cooking and heating practices to reduce the estimated 3 million annual and readily preventable deaths associated with air pollution and unhealthy patterns of energy use.

Research areas include:

Bio-energy	Coal	Electric Power
Fossil Fuels	Fusion	Geothermal
Hydrogen	Hydropower	Natural Gas
Nuclear	Oil	Solar
Wind	Renewables	Biological Sciences
Chemical Sciences	High Energy Physics	Life Sciences
Material Sciences	Building Design	Transportation
Weatherization		

National Energy Technology Laboratory
www.netl.doe.gov/business/index.html

NETL implements research, development, and demonstration programs to resolve the environmental, supply, and reliability constraints of producing and using fossil resources. Major energy initiatives are centered around:

- Secure and reliable energy supplies
- Clean power generations
- Move towards a hydrogen economy
- Energy options to combat climate change
- Energy efficiency and renewable energy
- Security of energy infrastructure

Research focus areas to achieve the above goals involve:

- Computational and basic science
- Energy system dynamics
- Geological and environmental systems
- Material science

The lab's research portfolio includes more than 1,800 projects, with a total award value of over $9 billion and private sector cost-sharing of over $5 billion. NETL has sites in Morgantown, West Virginia; Pittsburgh, Pennsylvania; Tulsa, Oklahoma; Albany, Oregon; and Fairbanks, Alaska. In total, these sites include 81 buildings and 14 major research facilities on nearly 200 acres. More than 1,100 employees work at NETL's five sites; roughly half are Federal employees and half are site support contractors.

Thomas Jefferson National Accelerator Facility
www.jlab.org

As a center for both basic and applied research, The Thomas Jefferson Lab is funded by the Office of Science, U.S. Department of Energy. It conducts experiments for its partners and contractors in basic theoretical nuclear physics which may have long term energy implications.

Environmental Protection Agency

http://es.epa.gov/ncer
The EPA employs 17,000 people across the country, including the headquarters offices in Washington, DC, 10 regional offices, and more than a dozen labs. The agency acts as an information source for environmental impact resulting from the energy industry, provides information on alternative energy sources and supports research for both new types and cleaner forms of energy. The following link provides areas of interest/concern that EPA is studying and supporting.

Department of Interior

US Geological Survey
www.usgs.gov/tech-transfer

The USGS has an Energy Resources Program. This program addresses the challenge of increasing demand for affordable energy from environmentally acceptable energy sources by conducting basic and applied research on geologic energy resources and on the environmental, economic, and human health impacts of their production and use. The program provides reliable and impartial scientific information on geologically based energy resources, including: oil, natural gas, coal, coalbed methane (CBM), gas hydrates, geothermal resources, uranium, oil shale, and bitumen and heavy oil.

USDA

Agricultural Research Service
www.ars.usda.gov/partnering

The petrochemical industry deals with a product that required millions of years to form. The USDA takes the precursors of this product and seeks to extract the intrinsic energy trapped inside without the wait. Some of the current identified areas of research are as follows:

- Biofuel
- Biobased process modifications to exploit different energy forms/levels
- Biodiesel process modifications for intact oils & fats
- Production of chemical feedstocks and fuels with more renewable and more environmentally acceptable methods
- Development of new microorganisms and biocatalysts that can be employed in the fermentative conversion of renewable agricultural materials to fuels and other value-added products

- Development of cost-effective pretreatment, enzymatic saccharification, fermentation and downstream processing technologies, and their integration for production of biofuels from lignocellulosic biomass
- Genetic modification of ethanologenic yeast for improved ethanol production from lignocellulosic material
- Identification and evaluation of existing catalysts for production of biofuels (mixed alcohols and hydrocarbons) from animal-wastes
- Replacement of petrochemical-based metal cutting fluids with biobased alternatives
- Replacement of petrochemical based lubricant additives with biobased alternatives

ARS Research in Biobased Products & BioEnergy
www.ars.usda.gov/research/themes/biopande.htm

As the principal in-house research agency of the U.S. Department of Agriculture (USDA), the Agricultural Research Service (ARS) has been conducting research to find new uses for agricultural commodities and byproducts for over 60 years. Research related to biobased products focuses on developing technologies leading to new and improved non-food products- including fuels- that expand markets for farm products, replace imports and petroleum-based products, and offer opportunity to meet environmental needs. Research also addresses the development of appropriate feedstocks for biobased products and bioenergy.

ARS Research in Bioenergy is conducted primarily within the Bioenergy and Energy Alternatives National Program.

ARS Research in Biobased Products is conducted primarily within the Quality and Utilization of Agricultural Products National Program.
Related ARS Research Projects can also be browsed by the following keywords:

- Biobased Products
- BioFuels
- Energy Crops

ARS Biobased technologies are available through our technology transfer and partnering programs.

MAR State Initiatives

Each state in the MAR has its own energy programs and new initiatives. For example:

Virginia Coastal Energy Research Consortium
http://www.vcerc.org

In August 2006 an Act of the Virginia General Assembly passed the landmark "Virginia Energy Plan" which establishes a foundation for the research and development of future renewable energy resources.

The Virginia Coastal Energy Research Consortium (VCERC) was established in Chapter 6 of the Virginia Energy Plan. The VCERC was created to *"serve as an interdisciplinary study, research, and information resource for the Commonwealth on coastal energy issues"* with an initial focus on offshore winds, waves, and marine biomass.

Energy Gateways

Energy and Energy Conservation
www.science.gov/browse/w_121.htm
Search by alphabetical topic and/or by keyword

Key Resources from the DOE Office of Scientific and Technical Information
www.scienceacceleration.gov
Includes R&D results, project descriptions, accomplishments and more

Energy and Fuel
www.usa.gov/citizen/topics/environment_agriculture/energy.shtml
Official information and services from the U.S. Government

Energy Efficiency and Renewable Energy
www.eere.energy.gov

ENERGY REFERENCES

Energy & Energy Conservation
http://www.science.gov/browse/w_121.htm

A B C D E F G I L M N O P R S T U

A:
Advanced Batteries Research, Engineering, and Evaluation Facility (ABREE) - Expertise in the development, design, production, and evaluation of battery and other energy storage technologies [Department of Energy (DOE), Sandia National Laboratories (SNL)]

Alternative Fuels and Advanced Vehicles Data Center - A comprehensive clearinghouse of data, publications, tools, and information related to advanced transportation technologies. [Department of Energy (DOE)]

Annual Energy Review (AER) - Provides historical annual statistics and data unit conversion tables on total energy production and consumption [Department of Energy (DOE), Energy Information Administration (EIA)]

Argonne Library's Resources on the Internet - Provides access to Argonne's subject specific resources [Department of Energy (DOE), Argonne National Laboratory (ANL)]

Argonne National Laboratory Frontiers - A searchable annual compendium and archive of ANL research highlights [Department of Energy (DOE), Argonne National Laboratory (ANL)]

B:
Bibliographies & Research Guides Listed by Subject - Bibliographies, guides, finding aids, produced by the Science Reference Section of the Library of Congress, and arranged by subject. [Library of Congress]

Bradbury Science Museum - Provides links to information about high-tech interactive Museum exhibits that explain the Los Alamos National Laboratory's defense, technology, and basic research projects, as well as the history of the Manhattan Project [Department of Energy (DOE), Los Alamos National Laboratory (LANL)]

Brookhaven National Laboratory Fact Sheets - Provides links to scientific and technical information fact sheets [Department of Energy (DOE), Brookhaven National Laboratory (BNL)]

Brookhaven National Laboratory Research Centers and Databases - Provides access to research centers at Brookhaven National Laboratory with links to associated highlights and documents [Department of Energy (DOE), Brookhaven National Laboratory (BNL)]

Building America - A private/public partnership that conducts research to find energy-efficient solutions for new and existing housing that can be implemented on a production basis [Department of Energy (DOE), Energy Efficiency and Renewable Energy (EERE)]

Building toolbox - Locate software for sustainable design, improving energy efficiency, or incorporating renewable energy concepts in buildings [Department of Energy (DOE), Energy Efficiency and Renewable Energy (EERE)]

C:
Clean Fleet Guide - Offers a starting point for fleets that want to purchase green vehicles and save money by reducing fuel consumption [Department of Energy (DOE)]

D:
DOE Digital Photo Archive (guest account) - A centralized, searchable resource for thousands of Department of Energy (DOE) photographs that depict the Department's various programs, made available for the purposes of enhancing communication and education. [Department of Energy (DOE)]

DOE Office of Fusion Energy Sciences (FES) - Advances plasma science, fusion science, and fusion technology − the knowledge base needed for an economically and environmentally attractive fusion energy source. [Department of Energy (DOE), Office of Science (SC)]

DOE Patents Database - A Department of Energy searchable database of patent information

resulting from DOE-sponsored research and development (R&D). [Department of Energy (DOE), Office of Science (SC)]

DOE R&D Accomplishments - Provides a searchable database about the outcomes of past DOE research and development which have had significant economic impact, have improved people's lives, or have been widely recognized as remarkable advances in science [Department of Energy (DOE), Office of Scientific and Technical Information (OSTI)]

DOE R&D Highlights - Provides non-technical summary information about selected research conducted or sponsored by DOE and its National Laboratory infrastructure [Department of Energy (DOE)]

DOE R&D Project Summaries - Access summaries of ongoing or recently completed science and technology projects funded by the Department of Energy [Department of Energy (DOE), Office of Scientific and Technical Information (OSTI)]

DOE Technical Standards Program - Provides a searchable interface to Department of Energy directives, regulations and standards [Department of Energy (DOE)]

Department of Energy R&D 100 Awards - Information on hundreds of R&D 100 awards received by the Department of Energy (DOE) and its National Laboratories since 1992 [Department of Energy (DOE)]

Department of Energy Students and Kids - Provides access to online energy and science education resources [Department of Energy (DOE)]

E:
E-PRINT Network: Research Communication for Scientists and Engineers - A searchable gateway to over 19,650 Web sites and databases worldwide, containing e-prints in basic and applied sciences, primarily in physics and subjects of interest to DOE [Department of Energy (DOE), Office of Scientific and Technical Information (OSTI)]

Earth Day Portal - Portal for U.S. Government Events and Information related to preserving the earth and reducing energy use [Multiple agencies involved]

Electronics and Electrical Engineering Laboratory (EEEL) - Focuses on measurement capability needed by the electronics industry, the electrical-equipment industry, and the electric-power industry [Department of Commerce (DOC), National Institutes of Standards and Technology (NIST)]

Energy - Provides information about energy publications available for sale from the U.S. Government Bookstore [Government Printing Office]

Energy Citations Database - Search bibliographic records for energy and energy-related scientific and technical information from the Department of Energy (DOE) and its predecessor agencies from 1948 forward [Department of Energy (DOE), Office of Scientific and Technical Information (OSTI)]

Energy Definitions Glossaries - Provides definitions for many of the terms that are used in different energy fields [Department of Energy (DOE), Energy Information Administration (EIA)]

Energy Information Administration (EIA) - Provides policy-independent data, forecasts, and analyses regarding energy and its interaction with the economy and the environment [Department of Energy (DOE)]

Energy Information Administration (EIA) Publications - Provides links to DOE Energy Information

Administration S&T publications by technology area [Department of Energy (DOE)]

Energy Kid's Page - Energy-related kid's resources including fun and games, riddles, field trips, and classroom activities from the Department of Energy's Energy Information Administration [Department of Energy (DOE), Energy Information Administration (EIA)]

Energy Science and Technology Software Center (ESTSC) - Provides access to an online catalog of scientific and technical software developed under Department of Energy sponsorship and made available for resale through the Center [Department of Energy (DOE), Office of Scientific and Technical Information (OSTI)]

Energy Technology Data Exchange (ETDE) Thesaurus - Provides links to the International Energy: Subject Thesaurus, ETDE/PUB--2(Rev.1) and International Energy: Subject Categories and Scope, ETDE/PUB--1 [Department of Energy (DOE)]

Energy Technology Data Exchange World Energy Base (ETDEWEB) - Provides the largest collection of energy research and technology literature in the world contributed by Energy Technology Data Exchange (ETDE) member countries and international partners [Department of Energy (DOE), Office of Scientific and Technical Information (OSTI)]

Energy and Environmental Policy Analysis - Provides analysis of energy and environmental issues of local, regional, national, and global importance [Department of Energy (DOE), Oak Ridge National Laboratory (ORNL)]

Energy-Related Laboratory Equipment (ERLE) - Grants equipment to institutions of higher education for energy-related research [Department of Energy (DOE), Office of Science (SC)]

Energy Files: The Virtual Library of Energy Science and Technology - Provides over 500 databases and Web sites containing information and resources pertaining to science and technology of interest to the Department of Energy (DOE), with an emphasis on the physical sciences [Department of Energy (DOE), Office of Scientific and Technical Information (OSTI)]

Energy Smart Schools - Information on how plan, finance, design, build, and operate an energy smart school. [Department of Energy (DOE), Office of Energy Efficiency and Renewable Energy (EERE)]

Energysavers.gov - Resources across government agencies that will help you save energy in your home, business, vehicle, or industrial plant. [Department of Energy (DOE); Environmental Protection Agency (EPA); multiple agencies involved]

Environmental Energy Technologies Division (EETD) - Develops technology that uses, converts and stores energy more efficiently and with less environmental impact, and studies the link between energy use and the environment [Department of Energy (DOE), Lawrence Berkeley National Laboratory (LBNL)]

F:
Federal R&D Project Summaries - Locate current research projects from a number of federal agencies [Department of Energy (DOE)]

G:
Green Vehicle Guide - Use this guide to choose the cleanest and most fuel-efficient vehicle that meets your needs. [Environmental Protection Agency (EPA)]

I:
Industrial Technologies Program (ITP) - Works with U.S. industry to improve industrial energy

efficiency and environmental performance. [Department of Energy (DOE), Office of Energy Efficiency and Renewable Energy (EERE)]

Information Bridge - Search full-text of Department of Energy sponsored research and development reports [Department of Energy (DOE), Office of Scientific and Technical Information (OSTI)]

Institutional Publications - Lawrence Livermore Program - Provides links to published reports, abstracts, periodicals, brochures, and newsletters sorted by technology area [Department of Energy (DOE), Lawrence Livermore National Laboratory (LLNL)]

International Metrology - Provides access to results of comparisons of National Metrology Institute (NMI) measurements and standards [Department of Commerce (DOC), National Institutes of Standards and Technology (NIST)]

Invention Licensing Program - Provides information on the Department of Energy's invention licensing program and access to a searchable database of DOE-owned patents [Department of Energy (DOE)]

Inventions & Innovation: Energy TechNet - Toolbox for Energy Technology Developers [Department of Energy (DOE)]

L:
Los Alamos Laboratory e-Research Library - Provides links to news, journals, information by subject, multiple data collections, and a multi-database search tool [Department of Energy (DOE), Los Alamos National Laboratory (LANL)]

M:
MicroWorlds - Exploring the world of Materials Science for grades 9 to 12. [Department of Energy (DOE), Lawrence Berkeley National Laboratory (LBNL)]

N:
Natural Resources and Environment - Information on sustainable soil and water conservation and management practices, whole farm environmentally-friendly farming, and providing a gateway to information on invasive plants, animals, and microbes. [Department of Agriculture (USDA), Agriculture Research Service (ARS), National Agricultural Library]

Nevada Site Office Library - A central location for fact sheets, current and historical films, a news release archive, historical photos, environmental publications and reports, and historical publications. [Department of Energy (DOE), National Nuclear Security Administration (NNSA)]

O:
ORNL Research Library - Provides links to ORNL Research Library holdings [Department of Energy (DOE), Oak Ridge National Laboratory (ORNL)]

Oak Ridge National Laboratory (ORNL) - ORNL is a multiprogram science and technology laboratory managed for the U.S. Department of Energy by UT-Battelle, LLC [Department of Energy (DOE), Oak Ridge National Laboratory (ORNL)]

Oak Ridge National Laboratory Publications - Provides links to ORNL's S&T publications, catalogs, magazines, newsletters, and reports [Department of Energy (DOE), Oak Ridge National Laboratory (ORNL)]

Office of Energy Efficiency and Renewable Energy - DOE offices and programs dedicated to

clean, abundant, reliable, and affordable energy [Department of Energy (DOE), Office of Energy Efficiency and Renewable Energy (EERE)]

P:
Pacific Northwest National Laboratory Publications - Provides access to citations and references of publicly-announced Pacific Northwest National Laboratory publications since 1999 with links to the documents [Department of Energy (DOE), Pacific Northwest National Laboratory (PNNL)]

Pacific Northwest National Laboratory Science and Technology - Provides links to information about Pacific Northwest National Laboratory's Science and Technology Program [Department of Energy (DOE), Pacific Northwest National Laboratory (PNNL)]

Power Systems Engineering Research Center (PSERC) - Investigates development of feasible and innovative high-performance electric power systems to meet emerging needs [National Science Foundation (NSF), Industry/University Cooperative Research Centers (IUCRC)]

R:
Reports Catalog - Contains citations of Lawrence Berkeley National Laboratory-authored scientific and technical documents published since July 1989 [Department of Energy (DOE), Lawrence Berkeley National Laboratory (LBNL)]

Risk Assessment Information System - The RAIS contains Risk Assessment Tools and Information. The Risk Assessment Tools include: Risk-Based Preliminary Remediation Goal (PRG) calculations, a Toxicity data base, Risk Calculations, and Ecological Benchmarks. [Department of Energy (DOE), Oak Ridge National Laboratory (ORNL)]

S:
Science Accelerator - A portal to the Department of Energy's important collections of scientific and technical information searchable with just one query. [Department of Energy (DOE), Office of Science (SC)]

Science News - A daily compilation of Department of Energy Laboratory and facility press releases and news features about the latest basic research. Also included are publication resources, image galleries, a news-release and features archive, and library links. [Department of Energy (DOE)]

Science Reference Service - Web site for Science Reference at the Library of Congress [Library of Congress]

Science Tracer Bullets - research guides that help you locate information on science and technology subjects. With brief introductions to the topics, lists of resources and strategies for finding more, they help you to stay on target. [Library of Congress]

Science and Technology at Lawrence Livermore National Laboratory - Provides links to information about research in advanced defense technologies, energy, environment, biosciences, and basic sciences [Department of Energy (DOE), Lawrence Livermore National Laboratory (LLNL)]

Selected Internet Resources: African Americans in Science and Technology - Selected Internet Resources on African Americans in Science and Technology - Science Reference Services - Library of Congress [Library of Congress]

State Energy Program - Provides grants to every State to design and carry out their own renewable energy and energy efficiency programs. [Department of Energy (DOE), Office of Energy Efficiency and Renewable Energy (EERE)]

Students Corner - Provides information, links and teaching resources for students of all ages on how the Federal Energy Regulatory Commission (FERC) regulates energy throughout the United States [Department of Energy (DOE), Federal Energy Regulatory Commission (FERC)]

T:
Technology Transfer - Facilitates the transfer of new technologies [Department of Energy (DOE), Lawrence Berkeley National Laboratory (LBNL)]

Transportation Technology R&D Center - Develops technologies that will help make advanced vehicles a reality [Department of Energy (DOE), Argonne National Laboratory (ANL)]

U:
U.S. Department of Energy's Decades of Discovery - Provides links to the most important advances at the forefront of scientific discovery supported by the U.S. Department of Energy Office of Science, with links grouped by discipline [Department of Energy (DOE), Office of Science (SC)]

RETECH 2009 - All Renewables
February 25-27, 2009, Las Vegas, NV
www.RETECH2009.com
RETECH. The largest trade gathering of the all-renewable energy industry in the United States. RETECH is an unparalleled opportunity to network with industry leaders and forward-thinking, focused organizations with a global view.

United States Geological Survey

www.usgs.gov

The USGS, a bureau in the U.S. Department of the Interior (DOI), focus is on onshore (and state offshore) U.S. energy resources (pre-development) and the geologic controls of resource abundance, quality, and location. It produces objective scientific information to inform decision makers and directly support the DOI's Mission of protecting and responsibly managing the Nation's natural resources. Collectively, this information advances the scientific understanding of energy resources, contributes to plans for a balanced and secure energy future, and facilitates the strategic use and evaluation of resources.

About the Energy Resources Program
http://energy.usgs.gov
Brenda Pierce, Program Coordinator
Email: bpierce@usgs.gov
Program Phone: 703-648-6470
Direct Phone: 703-648-6421
12201 Sunrise Valley Drive
915-A National Center
Reston, VA 20192
Telefax #: 703-648-5464

The USGS **Energy Resources Program** addresses the challenge of increasing demand for affordable energy from environmentally acceptable energy sources by conducting basic and applied research on geologic energy resources and on the environmental, economic, and human health impacts of their production and use. The Program provides reliable and impartial scientific information on geologically based energy resources, including: oil, natural gas, coal, coalbed methane (CBM), gas hydrates, geothermal resources, uranium, oil shale, and bitumen and heavy oil. The results of USGS research and USGS data are used to shape policies regarding domestic

and foreign energy resources and to manage energy resources on Federal lands. Major consumers of our products are the land and resource management bureaus of the Department of the Interior, federal environmental and national security agencies, State geological surveys, the energy industry, and the environmental community.

Minerals Management Service (MMS)

www.mms.gov

The Minerals Management Service (MMS), a bureau in the U.S. Department of the Interior, is the Federal agency that manages the nation's natural gas, oil and other mineral resources on the outer continental shelf (OCS). The agency also collects, accounts for and disburses more than $8 billion per year in revenues from Federal offshore mineral leases and from onshore mineral leases on Federal and Indian lands.

Bureau of Land Management (BLM)

www.blm.gov/wo/st/en.html

The BLM is responsible for managing energy and mineral resources on federal onshore areas. Fluid Minerals: The BLM is responsible for the leasing of Federal oil and gas and geothermal minerals; also responsible for supervising the exploration, development and production operations of these resources on both Federal and Indian lands; and manages helium operations on Federal lands. Solid Minerals: The BLM is responsible for maintaining viable national policies and processes for solid minerals resources under Federal jurisdiction. Solid minerals include coal and non-energy leasable minerals, hardrock minerals on acquired lands, locatable minerals, and salable minerals.

Department of Agriculture's Forest Service

www.fs.fed.us

The USDA Forest Service like BLM is also responsible for managing energy and mineral resources on federal onshore areas. Forest Service activities include the protection and management of natural resources on National Forest System lands. Under the Forest Service mission to achieve quality land management under the sustainable multiple-use management concept to meet the diverse needs of people. It includes: providing international technical assistance and scientific exchanges to sustain and enhance global resources and to encourage quality land management.

NIST

NIST Helps Industry Improve Energy Use and Conservation
http://www.nist.gov/public_affairs/energy.htm

NIST helps U.S. industry produce, distribute, and use energy in a reliable, fair, and efficient manner. It does so by providing standards, measurement methods, technologies, and other support for a wide range of energy generation, transmission, and distribution systems, ranging from large power-generating plants and grids to small solar arrays. In addition to its longtime relationships with the basic utility industries, NIST provides energy-related services that benefit other sectors of the economy, including building and construction and consumer electronics. Read on to learn more.

Electricity

NIST helps the electric power and electric equipment industries use new cost-saving measurement technologies related to the transmission, distribution, and use of electric power.

NIST products and services help firms cope with market trends, such as deregulation, which creates a demand for new diagnostic technologies to ensure the reliability of the complex infrastructure; and economic and environmental pressures that encourage greater efficiency in electrical devices. NIST also helps individual companies reduce their own electricity use and develop new technologies to improve the efficiency of electrical devices.

Quantum Electrical Metrology Division -- supports industrial needs in the areas of energy efficiency, power quality measurements, and reliability. The division develops improved measurement methods, supporting measurement reference standards, and calibration services to support revenue metering, equipment evaluation, and power quality. Program areas include national electrical standards; low-frequency electrical and electronic products; electric power systems; flat panel technologies; electronic data exchange; quantum effects, including superconductivity; low temperatures to reduce thermal noise; semiconductors, including state-of-the-art lithography. Contact: James Olthoff, (301) 975-2400.

Calibration services -- the accuracy of every watt-hour meter in the country ultimately is traceable to NIST. State public utility commissions own and maintain standard watt-hour meters with which they certify the accuracy of mass-manufactured meters. Standard meters go through periodic calibrations at NIST in which the amount of electricity going through a meter can be more accurately and confidently measured than anywhere else in the country.

The economic impact of NIST's electric meter calibration services was evaluated in 1995; the study can be obtained from Gregory Tassey, (301) 975-2663.

The changing measurements and standards needs of the U.S. electric power industry were evaluated recently in an economic study sponsored by NIST. The aggregate annual economic impact estimated by the report is between $3.1 billion and $6.5 billion. This is a prospective annual cost estimate of not having adequate measurement and standards in place to capture the full economic benefits of deregulation. Contact: Gregory Tassey, (301) 975-2663. Read the study in PDF format.

NIST Guide to the European Union's Low-Voltage Directive may be helpful to companies that sell products in Europe. The directive is intended to prevent harm by electrical equipment. The risks may be mechanical or chemical or risks to health caused by noise, vibrations, or ergonomic factors.

Energy Conservation -- small companies can receive assistance from NIST's Manufacturing Extension Partnership. Local extension centers helped yarn manufacturer Cookson Fibers, Inc., of Ansonville, N.C., reduce energy costs and aerospace contractor Klune Industries in Spanish Fork, Utah, reduce electricity use and emissions for example.

Technological Innovation -- NIST's Advanced Technology Program provided co-funding to help American Superconductor Corporation, Westborough, Mass., design, fabricate, and test high-temperature superconductor coils for a superconducting electric motor. The ATP also helped E.I. duPont de Nemours & Co. of Wilmington, Del., to develop thin-film fabrication techniques for a new high-temperature superconductor and demonstrate superconducting electronic devices.

Oil, Gas and Coal

NIST's measurement expertise helps to ensure that the many different elements of fossil fuel production systems fit together well, while national standards help to promote product quality. NIST also helps industry develop and apply technologies for oil and gas production and provides valuable data for research purposes.

Standard Reference Materials -- are the definitive physical sources of measurement traceability in the United States. NIST provides more than 1,200 different SRMs that are certified for specific

chemical or physical properties. SRMs are used to help develop accurate methods of analysis, calibrate measurement systems, and assure the long-term adequacy and integrity of measurement quality assurance programs. Among SRMs relevant to fossil fuel industries are those for gasoline, fuel oil, and coal.

Measurement standards for fossil fuels saved $113 for every dollar spent, while also enhancing environmental quality, according to a recent study sponsored by NIST. Fossil fuel producers and users rely on NIST sulfur measurement standards to verify the accuracy of their measurements of sulfur in petroleum products and coal. The study also credits NIST for developing the highly accurate sulfur measurement method that made the standards possible. The full report is available in PDF format here. Contact: Gregory Tassey, (301) 975-2663.

Technological Innovation -- The Advanced Technology Program co-funds projects that benefit fossil fuel industries. For instance, a joint venture led by Hydril Co. of Houston, Tex., used ATP co-funding to develop long, continuous lengths of composite tubing to replace steel-based pipe. Atmospheric Chemistry Group -- advances, applies, and disseminates chemical and isotopic metrology, standards, and data. A primary focus is on the sources of hydrocarbon precursors to urban and regional ozone episodes, and to specific chemical contaminants such as benzene and other volatile organic compounds. Contact: R. Michael Verkouteren, (301) 975-3933.

Standard Reference Data Program -- supports research on and use of various forms of energy, including fossil fuels. For example, SUPERTRAPP is an interactive computer database for the prediction of thermodynamic and transport properties of fluid mixtures with hydrocarbon components.The Quantitative Infrared Database contains spectra of volatile organic compounds. Contact: Joan Sauerwein, (301) 975-2208.

Office of Standards Services -- facilitates U.S. trade opportunities by coordinating standards assistance to countries seeking to improve their national standards, testing, and/or certification systems. Proposed draft standards are submitted through NIST for review and comment by U.S. technical experts. Contact: Mike Squires, (301) 975-4039.

Nuclear Power

NIST standards and measurements help to assure the safety of nuclear power.
Ionizing Radiation Division -- develops national measurement standards for ionizing radiation (X-rays, gamma rays, electrons, neutrons, energetic charged particles) and radioactivity, dosimetry methods, measurement services, and basic data for application of ionizing radiation to nuclear electric power, radiation protection of workers and the general public, and other activities. Contact: Lisa Karam, 301-975-5561.

A measurement assurance program was established at NIST by the Nuclear Energy Institute to provide sponsoring nuclear utilities, commercial suppliers of radioactive sources, and service laboratories with independent verifications, traceable to NIST, of their capability to make accurate measurements of radioactivity. Contact: Daniel B. Golas, 301-975-5540

Home Energy Use and Conservation

NIST has been working on a variety of home energy use and conservation projects for many years. See summaries of past efforts to improve energy conservation in buildings and establish standards and tests for the energy efficiency of home appliances.

Building and Fire Research Laboratory -- conducts a variety of activities related to energy use and conservation in buildings. For example, the lab is working with industry, building professionals, trade organizations, university researchers, and other government agencies to develop and demonstrate a Cybernetic Building System, which integrates services such as energy management, fire and security, transportation, fault detection and diagnostics, optimal

control, real-time purchase of electricity, and aggregation of building stock. Contact: George Kelly, (301) 975-5851. A study of the economic benefits of these systems can be found here. Another project is exploring the energy savings from "smart appliances" **(.pdf)** are capable of processing internal operation information and the factors that can influence appliance efficiency such as load and weather data, and utility pricing information.

Building Environment Division -- develops data, measurement methods and modeling techniques for the performance of the building envelope, its insulation systems, building air leakage, and the release, movement and absorption of indoor air pollutants. Contact: George Kelly, (301) 975-5851.

Heat Transfer and Alternative Energy Systems Group -- develops basic data and simulation models for heat, air, and moisture transfer through building envelope components; heat pump and water heater test procedures; thermal insulation SRMs; and other energy-related technologies. This group has also developed a test facility to measure the performance of residential fuel cell systems. Contact: Hunter Fanney, (301) 975-5864.

Software is available for a variety of energy use and conservation applications. For example, EMISS is a computer program for estimating air pollution emissions associated with energy use in buildings and reductions in those emissions attributable to energy conservation measures. Download the user's guide.

Standard Reference Data Program -- supports energy conservation efforts. For example, the NIST Database on NIST Heat Transmission Properties of Insulating and Building Materials provides a valuable reference for building designers, material manufacturers, and researchers in the thermal design of building components and equipment. Contact: Robert Zarr, (301) 975-6436. Technological Innovation -- The Department of Commerce awarded grants for six industry projects that promise new or improved energy-saving and homebuilding technologies. For more information, see Partnership for Advanced Technology in Housing.

SAGE Electrochromics of Faribault, Minn., and 3M Co. of St. Paul, Minn., used co-funding from the Advanced Technology Program to develop processing techniques for making large-area electrochromic devices suitable for energy-conserving "smart windows."

Alternative Power: Solar Energy and Fuel Cells

NIST support for technological innovation extends to alternative energy systems.
Solar Energy -- NIST is developing computer simulation tools to predict the performance of photovoltaics that have been integrated into building systems. NIST also is working with four solar energy equipment manufacturers to develop and validate computer tools that can be used to predict the electrical performance of building materials used to collect solar radiation. Contact: Hunter Fanney, (301) 975-5864

Fuel Cells --NIST has developed a test facility to measure the performance of residential fuel cell systems. The test facility will be used to create a test procedure and rating methodology that will determine the annual performance of these systems on a seasonal basis. Contact: Hunter Fanney, (301) 975-5864.

Fuel Cells --Certain NIST facilities are available to qualified industrial researchers for energy-related projects. For instance, the NIST Center for Neutron Research is being used in a study of operational characteristics of a working fuel cell. Contact: David Jacobson, (301) 975-6207.
Physical Chemical and Properties Division -- develops measurements, data, and models for the thermophysical and thermochemical properties of gases, liquids, and solids. In research applicable to fuel cell and hydrogen systems, the division is developing data to provide industry with high-quality thermophysical properties for mixtures of hydrogen and methane over broad ranges of temperature, pressure, and composition. Contact: Daniel Friend, (303) 497-5424

Other Resources

NIST outreach programs work directly with business and industry to boost U.S. economic competitiveness. Many energy suppliers and users have benefited by taking advantage of these programs.

Technological innovation in the private sector is promoted by the Advanced Technology Program, which co-funds high-risk industrial research with the potential for high payoff in the national economy. For example, the ATP is co-funding a variety of projects aimed at developing premium power sources such as long-lived rechargeable batteries and lower-cost fuel cells. Contact: Gerald Ceasar, 301-975-5069.

Smaller manufacturers face many challenges in the technology-driven economy. To help meet these challenges, NIST started its Manufacturing Extension Partnership, which provides assistance to smaller manufacturers through a nationwide network of extension centers and offices. This nationwide network of centers, now in all 50 states, has assisted more than 100,000 U.S. firms, including electric equipment makers.

Department of Energy (DOE)

www.energy.gov

The mission is to advance the national, economic, and energy security of the United States; to promote scientific and technological innovation in support of that mission; and to ensure the environmental cleanup of the national nuclear weapons complex.

Energy Information Administration (EIA)
www.eia.doe.gov
The Energy Information Administration (EIA), created by Congress in 1977, is a statistical agency of the U.S. Department of Energy. We provide policy-independent data, forecasts, and analyses to promote sound policy making, efficient markets, and public understanding regarding energy and its interaction with the economy and the environment.

National Energy Technology Laboratory (NETL)
The newest of DOE's national laboratories, NETL has been at the forefront of research to advance fossil energy exploration, supply, and end-use technologies.

National Petroleum Technology Office
DOE office responsible for carrying out the National Petroleum Technology Program (NPTP). The Mission of the NPTP is to move our Nation toward a reliable, economic oil supply, enhance U.S. technological leadership and protect the environment.

Coal

Clean Coal & Natural Gas Power Systems
Part of the Department of Energy's *Office of Fossil Energy*. Ensuring that we can continue to rely on clean, affordable energy from our traditional fuel resources is the primary mission of DOE's Office of Fossil Energy. The program includes the Clean Coal Power Initiative.

Energy Information Administration's (EIA) access energy information - Coal
Official Energy Statistics from the US Government that includes data, charts, tables, and subject areas.

National Energy Technology Laboratory's (NETL) Office of Coal and Environmental Systems

Office that implement a portion of the U.S. Department of Energy's fossil energy programs, by playing a key role in ensuring that coal is sustained as a clean, affordable, and environmentally acceptable resource for our nation's electric energy needs.

The Center for Energy and Economic Development (CEED)
A non-profit group dedicated to protecting the viability of coal-based electricity.

The National Coal Council Charter
The NCC provides advice and guidance on a continuing basis as requested by the Secretary of Energy on the general policy matters relating to coal.

Coal Technology Association (CTA)
Dedicated solely to the advancement of the interests of its members as they relate to coal technologies. The Association serves as both a catalyst and a focus for the exchange of information among all parties interested in coal technologies.

EERE Site Name Index
http://www1.eere.energy.gov/site_administration/site_name_index.html

Use the index below to find EERE web sites by site name. To locate EERE information by subject, browse the subject index. If you don't find what you're looking for in the indexes, use the EERE search engine.
A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z
A
Advanced Vehicle Testing Activity
Alternative Fuels and Advanced Vehicles Data Center
Aluminum Industry of the Future
Appliances and Commercial Equipment Standards
B
BestPractices
Biomass Program
Builders Challenge
Building America
Building Energy Codes Program
Building Energy Software Tools Directory
Building Technologies Program
Building Technologies Program Publications
Buildings Database
Business Administration
C
Chemicals Industry of the Future
Clean Cities Coordinator Toolbox
Clean Cities Now
Clean Cities Program
Combustion
Commercial Buildings
Communication Standards and Guidelines
Conservation Update
Consumer's Guide to Energy Efficiency and Renewable Energy
D
Distributed Energy Program
Distributed Energy Resources/Combined Heat and Power
E
E85 Fleet Toolkit
EERE Information Center
EERE Office

Energy Calculators and Software
Energy Education
Energy Efficiency and Renewable Energy Office
Energy-Efficient Products (FEMP)
Energy Expo
Energy Intensive Processes
Energy Matters
Energy Policy Act
Energy Savers (Tips)
Energy Savers (www.energysavers.gov)
Energy TechNet
EnergyPlus Energy Simulation Software
EnergySmart Schools
Ethanol
F
Federal Energy Management Program
Federal Wind Siting Information Center
Financial Opportunities
Forest Products Industries of the Future
Fuel and Feedstock Flexibility
Fuel Cells
Fuel Economy
G
GeoPowering the West
Geothermal Technologies Program
Glass Industry of the Future
Golden Field Office
Green Power Network
Guide to Tribal Energy Development
H
High Performance Commercial Buildings
High Performance Federal Buildings
Hydrogen Delivery
Hydrogen Education
Hydrogen, Fuel Cells, and Infrastructure Technologies Program
Hydrogen Production
Hydrogen Safety, Codes, and Standards
Hydrogen Storage
Hydrogen Systems Analysis
Hydrogen Technology Validation
I
Industrial Distributed Energy
Industrial Energy Systems
Industrial Facilities
Industrial Materials for the Future
Industrial Technologies Program
Industry Plant Managers and Engineers
Information Center
International Activities
Inventions and Innovation
K
K-12 Energy Lesson Plans and Activities
Kids
L
Laboratories for the 21st Century
M

Metal Casting Industry of the Future
Mining Industry of the Future
N
Nanomanufacturing
New Technologies
News
O
Office of Energy Efficiency and Renewable Energy
Operations and Maintenance
P
Petroleum Refining Industry of the Future
Planning, Budget, and Analysis
Program Evaluation
Project Management Center
R
Residential Buildings
Renewable Energy (FEMP)
Renewable Energy Production Incentive
Retailer Energy Alliance
Roofus' Solar and Efficient Home
S
Save Energy Now
Sensors and Automation
Solar America Initiative
Solar Decathlon
Solar Energy Technologies Program
State Activities and Partnerships
State Assessment for Biomass Resources
State Energy Alternatives
State Energy Program
Steel Industry of the Future
Sustainable Design and Operations
T
Transformational Energy Action Management Initiative
Tribal Energy Program
U
Utility Solar Water Heating Initiative
V
Vehicle Technologies Program
W
Water Efficiency
Weatherization and Intergovernmental Program
Weatherization Assistance Program
Wind and Hydropower Technologies Program
Wind Powering America

PATENTS AVAILABLE FOR LICENSING FROM THE US DEPARTMENT OF ENERGY
About the DOE Invention Licensing Program
http://www.osti.gov/dublincore/gencncl

The U.S Government as represented by the Department of Energy (DOE) owns title to approximately 1500 unexpired U.S. patented inventions and, in some cases, foreign counterparts. Generally, these patents are available for license to applicants with satisfactory plans for commercial use of the invention. Licenses are generally for royalties and other fees, and may be nonexclusive or exclusive, with or without field-of-use restriction. Exclusive licenses require a determination, after public notice and opportunity for comment, that the invention is not likely to

be commercialized on a nonexclusive basis. Technical assistance from the laboratory where the invention arose may be available.

In addition, a significant number of inventions made at DOE laboratories are owned and licensed directly by the various laboratories. Many of these inventions are included in the DOE patent database. For further information on possible licensing of these inventions, you may contact the appropriate business contact at the particular DOE laboratory.

For more information on licensing of DOE-owned inventions contact:

Robert J. Marchick
GC-62
1000 Independence Avenue, SW
Washington, DC 20585
Voice: (202) 586-4792
FAX: (202) 586-2805
E-mail: robert.marchick@hq.doe.gov

Comprehensive coverage of DOE patent information

http://www.osti.gov/doepatents/index.jsp

DOe*patents* is the U.S. Department of Energy's central collection of patent information, where research and development intersect with innovation and invention. This collection demonstrates the Department's considerable contribution to scientific progress from the 1940s to today.

About DO*epatents*

DOe*patents*, developed by the U.S. Department of Energy (DOE) Office of Scientific and Technical Information (OSTI), is a searchable database of patent information resulting from DOE-sponsored research and development (R&D). Included here are patents that DOE sponsored through a variety of funding mechanisms, including grants, contracts, or cooperative agreements. Comprehensive coverage of DOE patent information is one way to demonstrate the Department's contribution to scientific progress in the physical sciences and other disciplines. Publicly available patent information from DOE R&D, historic and current, is presented here, excluding patent applications. **DOe*patents*** consists of bibliographic records, with full text where available, either via a PDF file or an HTML link to the record at the United States Patent and Trademark Office (USPTO).

PATENTS AVAILABLE FOR LICENSING FROM THE NATIONAL ENERGY TECHNOLOGY LABORATORY, Morgantown, WV

http://www.netl.doe.gov/business/patents/active_patents.html

Solicitations & Business Opportunities
Patents and Licenses

The following NETL inventions are available for licensing:

Active Patents
- Exclusive [PDF-66KB]
- Nonexclusive [PDF-70K]

PATENTS AVAILABLE FOR LICENSING FROM THE THOMAS JEFFERSON NATIONAL LABORATORY, Newport News, Virginia

http://www.jlab.org/exp_prog/techtransfer/patent.html

This site presents inventions that are patented and are available for licensing by the private sector.

Commercialization Initiatives and Opportunities
http://www1.eere.energy.gov/office_eere/vc.html

The Office of Energy Efficiency and Renewable Energy (EERE) provides a variety of opportunities for venture capital investment. This page includes information about the Entrepreneur in Residence Program, in which venture capital funded entrepreneurs work with the Department of Energy's (DOE) national laboratories to find market-ready technologies, and the

DOE Venture Capital Technology Showcase Presentations.
Companies and individuals who are interested in entering into agreements with DOE's national laboratories to license technologies are encouraged to look at the draft of the Exclusive Commercial Patent License Agreement (MS Word 112 KB).

The Entrepreneur in Residence Program
The Entrepreneur in Residence Program (EIR) brings venture capital sponsored entrepreneurs into the DOE's national labs to identify technologies for commercialization. On February 27, 2008, three companies were chosen to work with the National Renewable Energy Laboratory, Sandia National Laboratory, and Oak Ridge National Laboratory.

Working directly with laboratory personnel, the entrepreneurs will conduct technology assessments, evaluate market opportunities, formulate preliminary business cases, and propose business structures in order to bring these technologies to the marketplace. For more information about the companies chosen to work and the terms of the Funding Opportunity Announcement, see the DOE press release on the Department of Energy's Web site.

DOE Venture Capital Technology Showcase Presentations

The following presentations were made at the DOE Venture Capital Technology Showcase on August 21-22, 2007 in Washington DC. Each technology Program Manager gave a brief overview of their area of emphasis and then introduced the venture capitalists to several specific technology opportunities developed by the U.S. Department of Energy. Each presented technology was screened for market potential and other factors most relevant the venture capital community. See http://www1.eere.energy.gov/office_eere/vc.html for the presentations.

CRADA

COOPERATIVE RESEARCH AND DEVELOPMENT AGREEMENT (CRADA)

While the details of a CRADA can vary from agency to agency, there are also many similarities. The following information from the NIST web site, while specific to NIST, is also fairly representative of what you are likely to encounter with other labs as well:

Purpose

The CRADA is a partnering tool that allows federal laboratories to work with US industries, academia and other organizations on cooperative R&D projects. The CRADA provides flexibility in structuring project contributions, intellectual property rights, and in protecting proprietary information and CRADA research results.

Procedure

CRADAs originate with the specific NIST scientist(s) that would be involved in the collaboration. If the NIST scientist(s) agrees that collaboration would be in the best interests of both parties, a NIST Principal Investigator is designated to work with you in developing a Statement of Work. The NIST Principal Investigator then prepares an Approval memo, attaching the Statement of Work, and routes it through the laboratory management chain for review and approval. If approved, the memo is forwarded to Office of Technology Partnerships. The CRADA Officer assigned to the particular laboratory you are working with will then contact your company to discuss the CRADA. After agreement is reached on the terms of the CRADA, the responsible CRADA Officer prepares and routes signature copies to your organization and within NIST.

Examples of Use

A company is working on a technology similar to a NIST intramural effort. The company views NIST research favorably and wishes to work jointly with NIST on furthering the technology. NIST is working on a technology useful to many within the industry. NIST publicly announces its desire to form a consortium to develop the technology mutually with interested firms.

Q: Who can enter into a CRADA with NIST?
A: Virtually any organization may enter into a CRADA with NIST. According to statute (15 USC 3710a), "units of State or local government; industrial organizations, (including, but not limited to corporations, partnerships, consortia, limited partnerships, and industrial development organizations); or persons" may enter into CRADAs with NIST.

Q: Are there specific clauses in the CRADA regarding U.S. manufacture?
A: Yes, any products embodying CRADA inventions, for sale or use in the U.S., must be, manufactured substantially in the U.S. Also, the CRADA partner must agree to conduct its share of CRADA joint research substantially in the U.S. during the term of the CRADA.

Q: Does a CRADA protect an organization's proprietary information?
A: NIST must protect proprietary information it accepts in a CRADA.

Q: How does NIST treat the research results of a CRADA?
A: NIST believes that US industry needs open access to NIST's technical information and emphasizes publication of its research results. Yet, NIST also recognizes that its research partner may desire and need time to gain competitive advantage from its investment in joint R&D efforts with NIST. Thus, NIST provides some flexibility in its arrangements with its research partners. NIST may provide up to one year protection of CRADA research results if NIST's principal investigator feels that it would be appropriate to do so. In extraordinary cases, with the Laboratory Director's approval, NIST may withhold publication of its CRADA research for up to five years if NIST determines that to do so would be in the public interest.

Q: Can a CRADA partner's researcher work at the NIST site?
A: Yes, and likewise, a NIST researcher that is designated to work on the CRADA may, with the CRADA partner's acceptance, work at the partner's site.

CRADA INFORMATION RESOURCES

Federal Technology Transfer Legislation and Policy
www.federallabs.org/store
(The "Green Book")
Federal Laboratory Consortium
This publication, available for $5.00, provides the definitions and legislation authority language describing the purpose, opportunities and limits of CRADAs as well as other types of agreements.

Federal Laboratory Mechanisms Matrix
www.federallabs.org/store
This free publication provides links to model ("boilerplate") CRADA agreements for NASA, EPA, VA, DOT, DOI, NIH, DOE (GoCo), DOE (GoGo), NIST, USDA, Army, Navy, AF, USJFCOM. See copy on-line.

CRADA On-Line Course and Handbook
www.onr.navy.mil/sci_tech/3t/transition/training

FDA CRADA Policies and Points to Consider
www.fda.gov/oc/ofacs/partnership/techtran/policyst.htm

CRADAs at NIH
www.ott.nih.gov/CRADAs

Course on CRADAs by Robert Charles
www.federallabs.org/pdf/CRADA_Workshop_Bob_Charles.pdf
101 Power Point Slides

CRADA Resources Assembled by the Veterans Administration

www.research.va.gov/programs/tech_transfer/crada/resources.cfm

CRADAs at the National Energy Technology Laboratory
www.netl.doe.gov/business/crada/crada.html

CRADAs at the National Renewable Energy Laboratory
www.nrel.gov/technologytransfer/cradas.html