

# NUCLEAR ENERGY UNIVERSITY PROGRAMS

*The U.S. Department of Energy's Office of Nuclear Energy*

*DOE is committed to strengthening the Nation's nuclear education infrastructure.*

**T**he Office of Nuclear Energy (NE) leads the Department of Energy (DOE) investment in the development of advanced nuclear science and technology through its Nuclear Energy University Programs (NEUP). NEUP funds nuclear energy research and equipment upgrades at U.S. colleges and universities, and provides scholarships and fellowships to nuclear science and engineering students. NEUP's goals and objectives are to:

- Assist in addressing technical nuclear energy research and development challenges
- Maintain the Nation's leading position in nuclear energy research and development,
  - Advance the state of U.S. nuclear technology, and
  - Improve the Nation's nuclear science and engineering infrastructure.

To accomplish these goals in FY 2009, NE will allocate 20 percent of its programmatic research and development funding to support NEUP in the following areas:

- Research and development,
- Scholarships and fellowships, and
- Infrastructure and equipment upgrades.

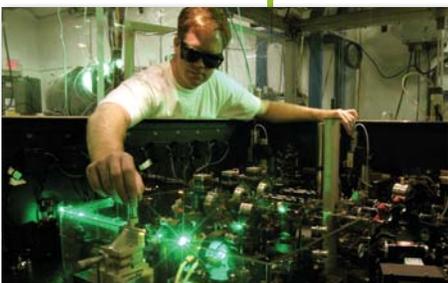
NE's commitment to strengthening the Nation's nuclear education infrastructure directly addresses the needs for increased support of the America Competes Act of 2007, which specifically highlighted the need for increased support of the U.S. nuclear science and engineering education enterprise.

## RESEARCH AND DEVELOPMENT (R&D)

NEUP seeks to align the nuclear energy research conducted at U.S. colleges and universities with DOE's mission and goals. The program supports R&D projects focused on the research needs and priorities of the NE Fuel Cycle R&D and Generation IV Nuclear Energy Systems (Gen IV) programs.

In FY 2009, the Nuclear Energy Research Initiative (NERI) was incorporated into the new Nuclear Energy University Programs (NEUP). The NERI program, established in FY 1999, sponsored innovative scientific and engineering research and development (R&D) to address the key issues affecting the future use of nuclear

energy. In FY 2004, NERI's mission was refocused on the participation of U.S. universities in DOE's mainline nuclear energy R&D programs.





*Auburn University*

## **SCHOLARSHIPS AND FELLOWSHIPS**

Increasing the number of students entering the nuclear science and engineering fields is a key goal for DOE's Office of Nuclear Energy. Demand for engineers and scientists in these areas is growing, while about half of the nuclear industry's workforce will be eligible to retire in the next 10 years, according to the Nuclear Energy Institute. If the United States is to stay competitive, it must keep the pipeline of key personnel filled. NEUP expects to award approximately 100 scholarships and 15 fellowships during FY 2009. The average undergraduate scholarship will be \$5,000 for one year, and graduate awards can be as high as \$150,000 over three years.

## **INFRASTRUCTURE AND EQUIPMENT**

DOE's Office of Nuclear Energy recognizes that in order for U.S. universities to conduct cutting-edge research and educate the next generation of nuclear science and engineering students, they need to be properly equipped. Infrastructure grants will be available for equipment and instrumentation for research reactors, other specialized facilities, classrooms and laboratories, and non-reactor nuclear science and engineering research. The maximum amount for infrastructure awards is \$300,000 for one year.

## **AWARD PROCESS**

In FY 2009, through its Nuclear Energy Research Initiative process, NE will designate 20 percent of funds appropriated to its R&D programs for work to be performed at university and research institutions. These funds will support:

- Mission-specific applied R&D activities
- Investigator-initiated basic research
- Human capital development activities, such as fellowship and scholarships awards
- Infrastructure and equipment upgrades for university-based research reactors and laboratories

## **PLANNED PROGRAM ACCOMPLISHMENTS**

### **FY 2009**

- Award NEUP R&D projects in support of Fuel Cycle R&D (formerly, Advanced Fuel Cycle Initiative), Generation IV Nuclear Energy Systems, including Next Generation Nuclear Plant (NGNP) and Light Water Reactor Sustainability (LWRS) projects.
- Award grants to U.S. universities and colleges for infrastructure and equipment support relevant to the R&D needs.
- Award approximately 100 scholarships and 15 fellowships in nuclear engineering and science areas to students attending U.S. universities and colleges.
- Conduct workforce and infrastructure assessments to baseline program.
- Complete research on 25 NERI projects initiated in FY 2006 in the Gen IV, NGNP and Fuel Cycle R&D areas.

- Continue research on 33 NERI projects initiated in FY 2007 in the Gen IV, NGNP and Fuel Cycle R&D areas. Conduct a program review on FY 2007 NERI projects to evaluate research progress and approve continuation of the final year of the projects.

**FY 2010**

- Solicit and award new mission specific NEUP R&D projects.
- Solicit and award university infrastructure and equipment support relevant to the R&D needs.
- Solicit and award scholarships and fellowships in nuclear engineering and science areas to students attending U.S. universities and colleges.
- Complete research on the 33 NERI projects initiated in FY 2007.



*Fuel rods for the test reactor located at Pennsylvania State University*

