



U.S. DEPARTMENT OF
ENERGY

Nuclear Energy

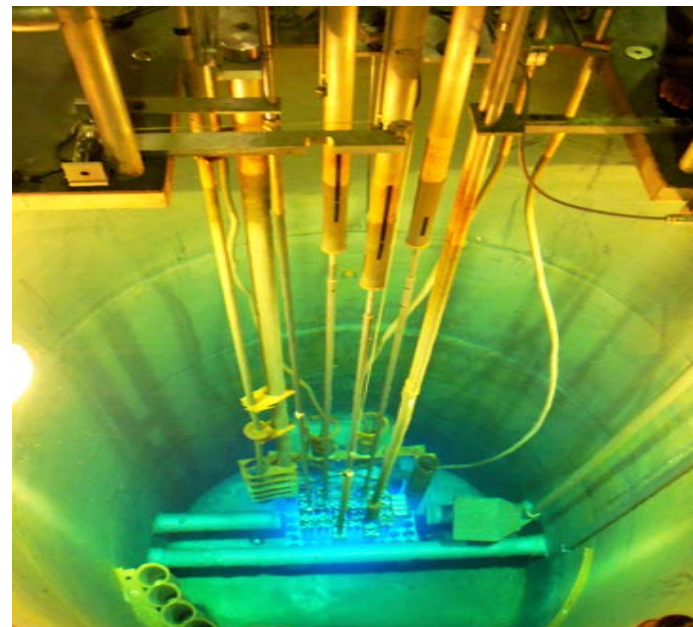
Nuclear Energy University Program Briefing to the Nuclear Energy Advisory Committee

December 18, 2009

Nuclear Energy University Programs: Overview

■ NE University Programs support comprises two components:

- University Research and Education
 - Research and development
 - Infrastructure improvements
 - Human capital development through research participation
- Integrated University Program
 - Basic nuclear science and engineering scholarships and fellowships





Nuclear Energy University Programs: Goals

Support outstanding, cutting-edge, and innovative research at U.S. universities

- Fund creative research ideas that can potentially produce breakthroughs in nuclear reactor technology.
- Attract the brightest students to the nuclear professions and support the Nation's intellectual capital in nuclear engineering and relevant nuclear science, such as Health Physics, Radiochemistry, and Applied Nuclear Physics.
- Integrate research and development (R&D) at universities, national laboratories, and industry to revitalize nuclear education.
- Improve university and college infrastructures for conducting R&D and educating students.
- Facilitate transfer of knowledge from aging nuclear workforce to next generation of workers.





Nuclear Energy University Programs : FY 2009 Accomplishments

■ Solicit Proposals and Award Universities (\$64.7M)

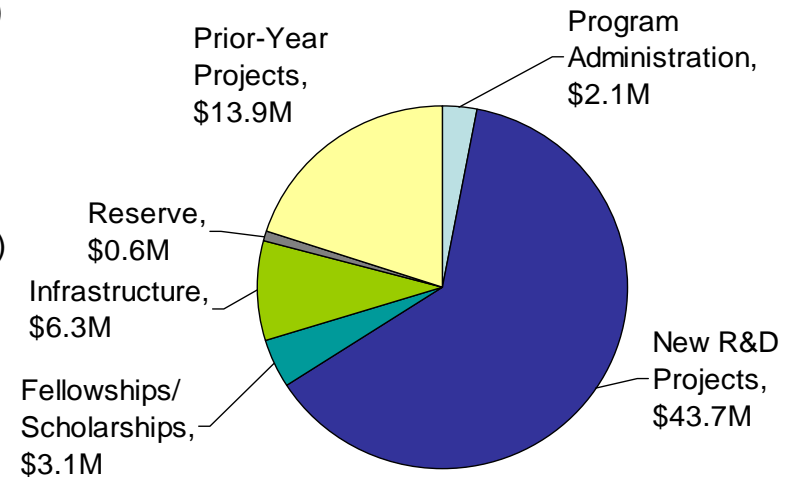
(Encouraged minority-serving institution participation)

- **NE mission-specific nuclear science and engineering R&D projects (80%)**
 - 3 yr. mission-specific R&D projects up to \$900K (62 total)
- **Capabilities (20%)**
 - 1 yr. \$5K scholarships (76 total)
 - 1 yr. \$300K infrastructure grants (30 total)
 - Equipment upgrades

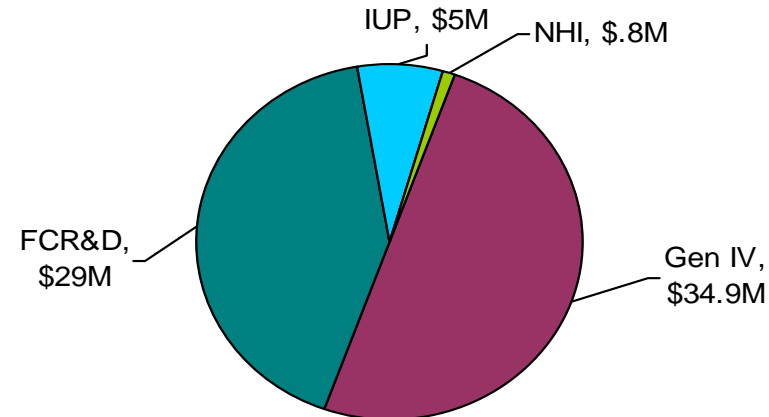
■ Integrated University Program (\$5M)

- **Mission-relevant R&D and Fellowships**
 - 3 yr. mission-relevant R&D projects up to \$600K (9 total)
 - 3-yr. \$150K fellowships (3 total)

\$69.7M by Activity (\$000's)



\$69.7M by Program (\$000's)

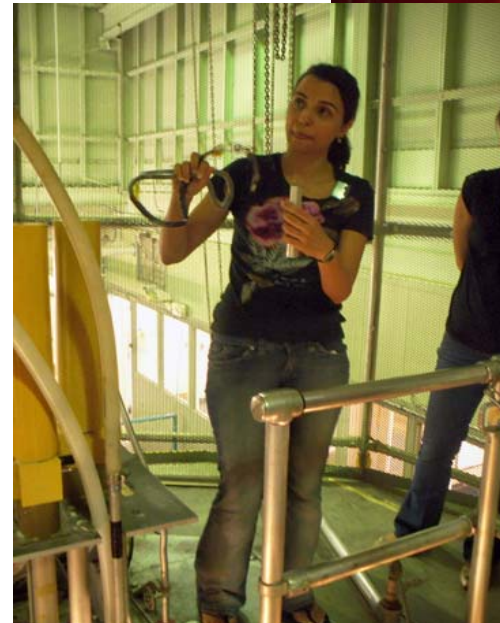




Research & Development Review and Selection Process

■ NEUP followed a 3-step selection process

- Semi-Blind Merit Review
 - Mix of reviewers for each application (lab, university, industry, other)
- Proposal Selection
 - Selections were based on merit review scores and available funding in task
- Balancing Review (if necessary)
 - Participation by minority institutions
 - Geographic distribution
 - Funding limits per proposal (Only an upper bound of \$1.5M/proposal was used)





Research & Development Review and Selection Process

■ Semi-blind merit review process

- Reviewers initially provided project narrative that excluded identifying information
- Team capabilities and budget available after submitting first three responses
- Final two questions based on detailed capabilities and budget files
- Initial evaluation responses could not be modified once detailed information revealed





Nuclear Energy University Programs : FY 2010 Planned Accomplishments

■ Solicit Proposals and Award Universities (\$55.26M)

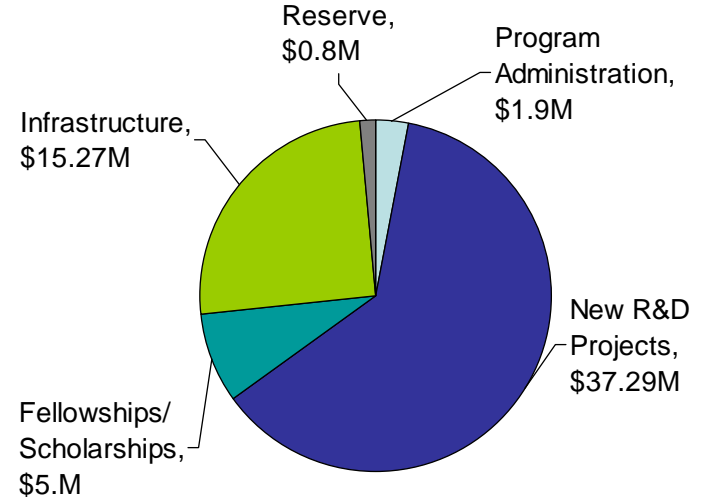
(Encourages minority-serving institution participation)

- **NE mission-specific and mission-relevant nuclear science and engineering R&D projects (70%)**
 - 3-4 yr. projects
 - Mission-specific R&D up to \$900K (34 total)
 - Mission-relevant R&D up to \$600K (9 total)
- **Infrastructure grants (30%)**
 - 1-yr. awards
 - Equipment upgrades up to \$300K (26 total)
 - Curriculum development up to \$120K (26 total)
 - Reactor upgrade award up to \$1.5M (2 total)
 - Reactor Infrastructure up to \$200K (7 total)

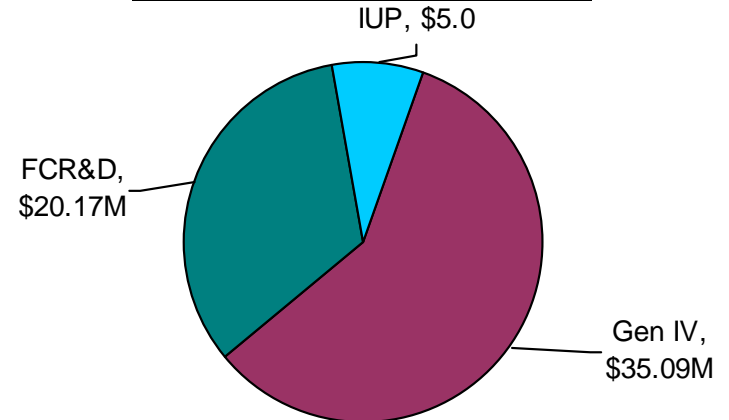
■ Integrated University Program (\$5M)

- **Scholarship and fellowships grants**
 - 1-yr. \$5K scholarships (85 total)
 - 1-yr. \$25K scholarships for outstanding students (3 total)
 - 3-yr. \$150K fellowships (30 total)

\$60.26M by Activity (\$000's)



\$60.26M by Program (\$000's)



Nuclear Energy University Programs - FY 2010 Planned Solicitations Schedule

■ Research and Development

- Oct. 9, 2009 – Publish Request for Pre-applications
- Nov. 10, 2009 – Pre-applications due
- Dec. 2009 – Publish Request for Full Proposals
- Jan. 2010 – Full proposals due
- Apr. 2010 – R&D selections announced
- Jul./Aug. 2010 - NEUP Workshop

■ Scholarships and Fellowships

- Dec. 2009 – Publish Request for Applications (*for students to apply for a scholarship or fellowship*)
- Jan. 2010 – Publish Funding Opportunity Announcement (FOA) (*for universities and colleges to administer NEUP scholarships and fellowships*)
- Feb. 2010 – Student applications due
- Apr. 2010 – Scholarship and fellowship selections announced

■ Infrastructure

- Jan. 2010 – Publish FOA for Infrastructure
- Mar. 2010 – Infrastructure applications due
- Apr. 2010 – Complete review process
- May 2010 – Infrastructure selections announced



Nuclear Energy University Programs: Objectives for FY 2011

- **Continue to support university R&D activities through competitive awards**
- **Up to 20% of NE R&D funding set aside for:**
 - NE mission-specific and mission-relevant R&D activities
 - Support development of advanced energy technologies
 - Fuel Cycle Research and Development (FCR&D)
 - Generation IV (GEN IV)
 - Light Water Reactor Sustainability
 - Infrastructure improvements
 - Modernize classrooms and laboratories and curriculum development
 - Integrated University Program (\$5M)
 - Human capital development
 - Distinguished scholarships and fellowships



Nuclear Energy University Programs: Summary

- NEUP supports mission-related R&D that emphasizes integration between universities and the National Laboratories
- NEUP continues to support university scholarship, fellowship, and infrastructure needs
- NEUP will continue to collaborate with NRC and NNSA to promote basic nuclear science and engineering education and R&D for the Nation's needs

Universities will play a greater role in supporting NE program goals