

Nuclear Energy University Programs FY12 Review





Improvement and Change

The NEUP-IO continues to seek improvement. Several techniques are used including:

- ◆ Lessons Learned. The IO office collects experiences and outcomes for integration as process improvement
- ◆ NEUP IO Exec Committee, NEAC, NEDHO, TRTR, others
- ◆ Interactions with PI's, TPOC's, others
- ◆ Congressional and public advocacy
- ◆ The purpose is to understand satisfaction with NEUP processes in order to make continued improvements



The Big Picture

Average scores for the quantitative questions increased in 2011 to their highest levels thus far, with the exception of the full proposal elements which increased from 2010 but remained slightly lower than 2009 levels

NEUP R&D Survey Results

December 2011





FY11 Survey Results / Lessons Learned

Concerns and Input

- ◆ Those with ties to the INL receive an unfair advantage/too much bias
 - ◆ Proposals teaming with the INL had a success rate of 16%, 7th out of the 10 labs competing as partners
- ◆ “Don’t ask for proposals in areas that won’t be funded”
 - ◆ DOE reserves the right on all funding decisions. If the highest scoring proposal in a category is not funded, none are funded
 - ◆ Workscopes are developed before the appropriations are known

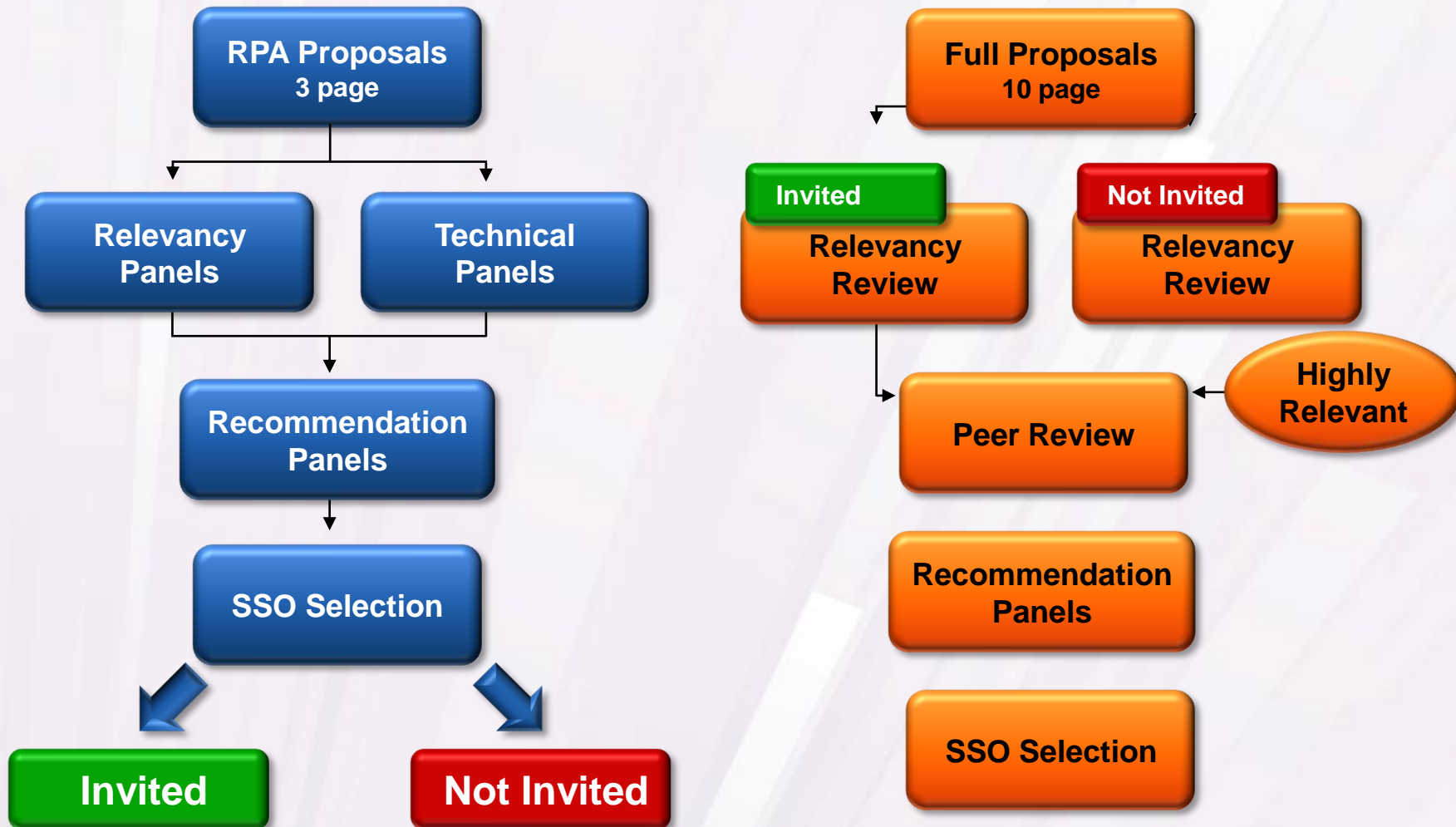


FY11 Survey Results / Lessons Learned

Concerns and Input

- ◆ Irregularities in reviews / Quality of feedback
- ◆ Lead time for preparation of submissions and attendance at workshops
 - The NEUP-IO works a very aggressive schedule to place current year dollars in projects
- ◆ Amount of funding to specific investigators
 - DOE-NE does not limited the funding to any single investigator, but rather runs a competitive solicitation process. As previously detailed, performance metrics will be considered in future reviews.

NEUP Review Process Overview





Relevancy / Program Priority Review

- ◆ Weighted according to program involvement:
 - Program Directed 50%
 - Program Supporting 35%
 - Mission Supporting 20%

- ◆ Six categories:
 - Unquestionably Relevant : Unquestionable Program Priority
 - Highly Relevant : High Program Priority
 - Relevant : Intermediate Program Priority
 - Moderate Relevance : Moderate Program Priority
 - Low Relevance : Low Program Priority
 - Not Relevant : No Program Priority



Technical Review

- Scoring guidelines and criteria are given for each of 4 areas with collection of comments:
 - Scientific and Technical Merit
 - Research Plan
 - R&D Resources and Capabilities
 - Team Qualifications



NEUP/NSF Benchmarking

NEUP Technical Merit

- How important is the proposed activity to advancing knowledge and understanding within the workscope area and period of performance?
- How well does the activity advance discovery or explore creative, original or potentially transformative concepts?



Intellectual Merit

- How important is the proposed activity to advancing knowledge and understanding within its own field or across different fields?
- To what extent does the proposed activity suggest and explore creative, original, or potentially transformative concepts?



DOE Supports NEUP and NSUF

- ◆ DOE-NE supports university research through the Advanced Test Reactor (ATR) National Scientific User Facility (NSUF)
 - Research awards provide funding to perform specific experiments in a test reactor or make use of other NSUF facilities
 - NSUF awards only cover the cost of the facilities and associated staff support
 - NEUP awards can cover the costs needed to prepare the project and perform the research

- ◆ To address this issue and provide other benefits to the university community while enhancing nuclear research, NEUP and NSUF collaborated to align solicitations as appropriate



NEUP/NSUF Proposals

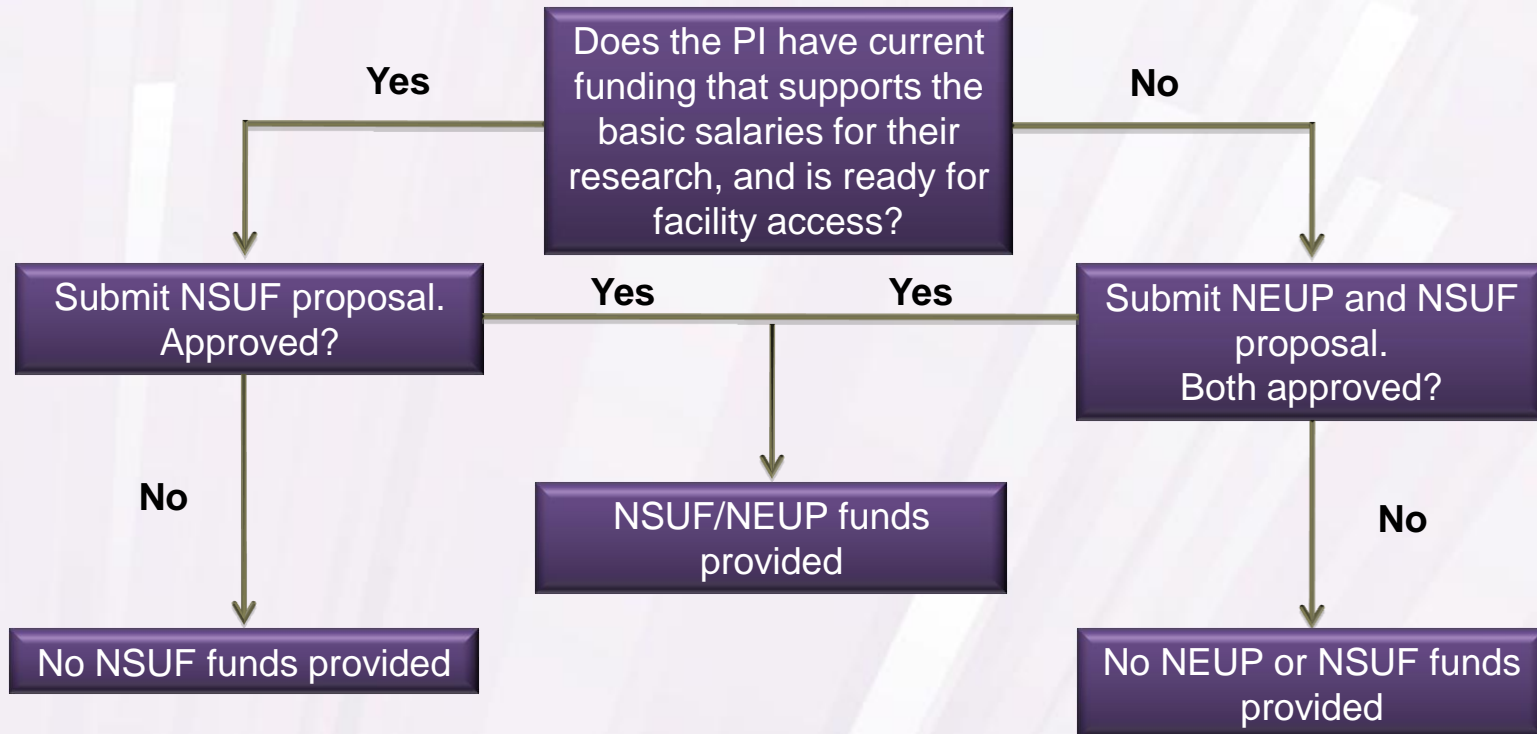
- ◆ In FY12, NEUP/NSUF programs had a joint solicitation process
 - Success was predicated on positive review by both programs
 - Access to NSUF infrastructure need must be immediate
- ◆ 12 applications were received in the NEUP RPA. Of those, 3 were invited to submit a full proposal, and 1 was awarded by NEUP

I am submitting this proposal to: NEUP Only
 ATR-NSUF and NEUP



NEUP - NSUF Linkage

Premise: NSUF does not fund programs, it funds access to capability and needed staff support.

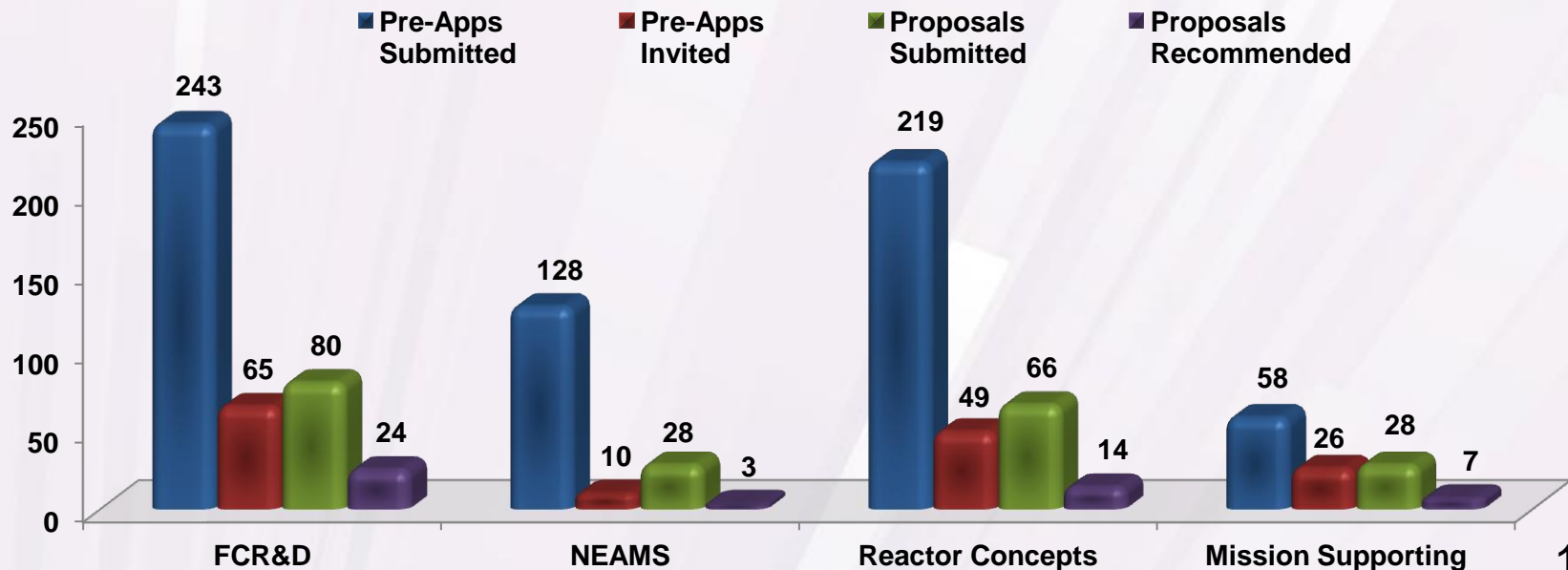


Linking the ATR NSUF and NEUP solicitations streamlines the process for both ATR NSUF and NEUP PIs.



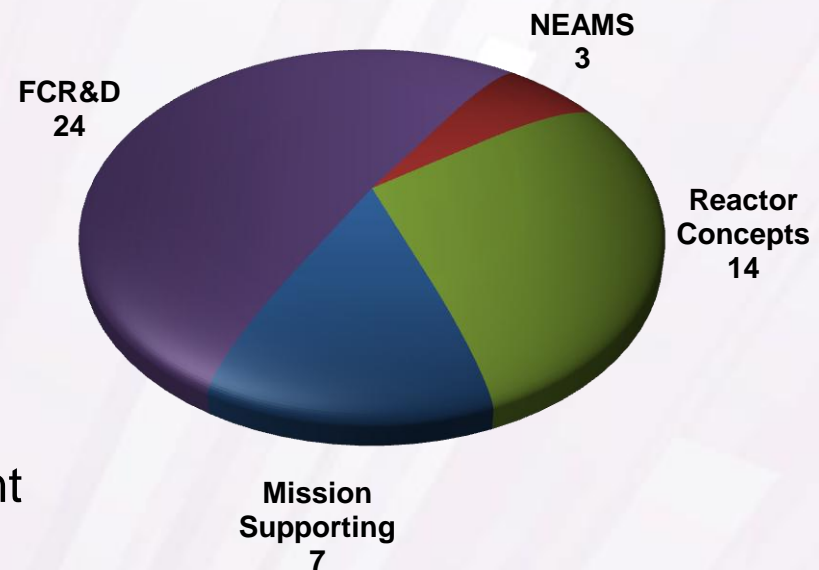
FY12 R&D Solicitation Review

- ◆ 648 received pre-applications
- ◆ 150 invited full proposals
- ◆ 202 received proposals
 - 3 invited were not submitted
 - 55 uninvited proposals submitted
 - 25 were fully peer reviewed
- ◆ 48 selected proposals for \$37.1 M
 - 6 uninvited
 - 1 NEUP/NSUF



FY12 Selected R&D Proposals

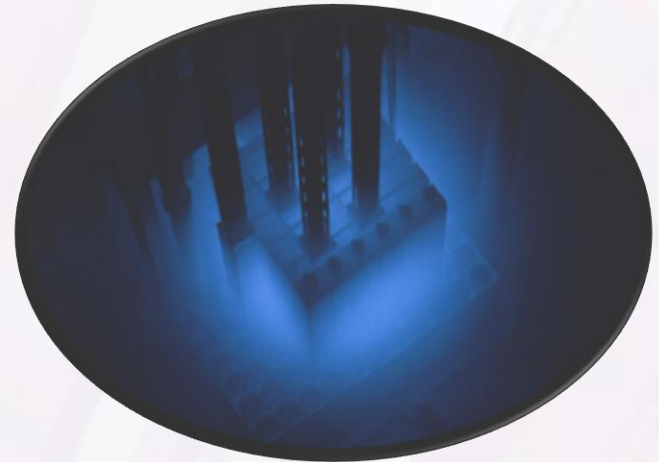
- ◆ 48 recommended proposals are comprised of 32 lead universities
- ◆ 23 additional organizations are collaborating
 - 8 universities
 - 8 national laboratories
 - 6 industrial partners
 - 1 other, including foreign institutions
- ◆ All participating organizations represent
 - 25 U.S. states and the District of Columbia
 - 1 foreign country (France)
 - 3 projects from 2 minority institutions
 - University of Houston (2 as lead) and Virginia State University, (1 as collaborator)



Reactor Upgrades (Infrastructure)

Major Reactor

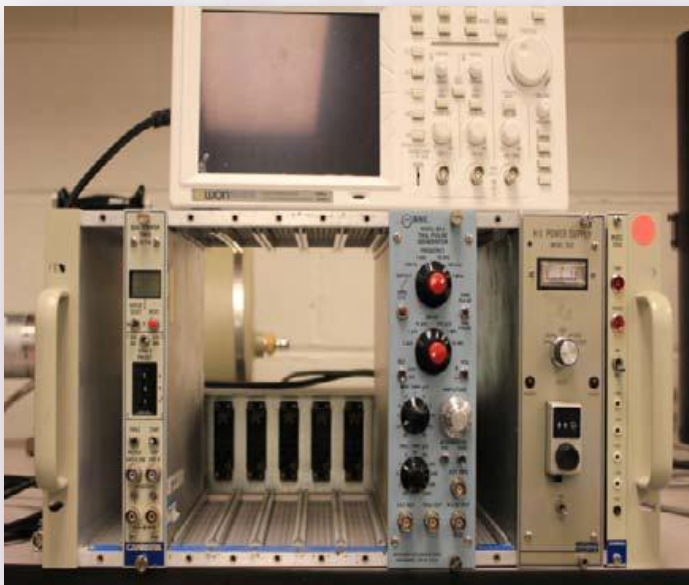
- ◆ 7 proposals received from universities in 6 states requesting \$7,823,156
- ◆ 2 proposals recommended by panel (\$1,709,894)



Minor Reactor Upgrade

- ◆ 20 proposals received from universities in 17 requesting \$2,889,023 (\$299,663 in cost match)
- ◆ 12 proposals recommended by panel (\$1,506,529 DOE funding with \$107,540 cost match)

General Scientific Infrastructure (GSI)



- ◆ 57 proposals received from universities in 31 states requesting \$13,164,406
- ◆ 12 proposals recommended by panel (\$2,822,232 DOE funding with \$290,402 in cost match)

FY12 Scholarships & Fellowships

Scholarships

- ◆ 82 submitted applications
- ◆ 39 recommended for award, representing 17 states
- ◆ 3.85 average undergraduate GPA

Fellowships

- ◆ 154 submitted applications
- ◆ 31 recommended for award, representing 15 states
- ◆ 3.86 average cumulative GPA
- ◆ 164 - average quantitative GRE





FY13 Workscope Descriptions

FY 2013 Research and Development

- ◆ 31 Workscopes are available (neup.gov)
 - Review content carefully, as it changes from year to year as the needs of DOE-NE change
 - Workscopes will be finalized prior to the R&D solicitation
 - Most workscopes have been sub-divided this year for clarity

- ◆ Questions on workscopes are best answered by the POC's and Federal Program Managers identified for each workscope



FY12 IRP Proposals Under Review

- ◆ **\$13.9M for Integrated Research Projects**
 - Advanced Nuclear Cladding and Fuel Materials with Enhanced Accident Tolerance for Current Generation & GEN III+ Light Water Reactors (\$3.5M)
 - Degradation of Used Nuclear Fuel in Storage (\$4.4M)
 - Inherently Safe Light Water Reactors (\$6.0M)



Award announcement expected September 2012.

Concluding Remarks



◆ On the web at www.neup.gov

◆  Find us on Facebook (NEUP.DOE)

- ◆ \$48.1 Million in awards for FY 2012
 - \$37.1M in R&D
 - \$5M in student investment
 - \$6M in infrastructure support
- ◆ Up to \$13.9 Million available to be awarded for FY12 IRPs
- ◆ \$219 Million awarded since 2009



Background Information



Relevancy Review (MS 20%, PS 35%)

Aligned with directly relevant to NE's overall mission /technical objectives of the program element; advances the state of the knowledge within NE's overall mission/program element; does not duplicate earlier Nuclear Energy Research Initiative (NERI) and NEUP awards, or contemporary projects.

- **Unquestionably Relevant/Unquestionable Program Priority:** The proposal is fully supportive of, and has significant, easily recognized and demonstrable ties to, the relevant program element(s) or mission.
- **Highly Relevant/High Program Priority:** The proposal is supportive of, and has significant and demonstrable ties to, the relevant program element(s) or mission.
- **Relevant/Intermediate Program Priority:** The proposal is supportive of, and has tangible ties to, the relevant program element(s) or mission.
- **Moderate Relevance/Moderate Program Priority:** The proposal is partially supportive of, and has some ties to, the relevant program element(s) or mission.
- **Low Relevance/Low Program Priority:** The proposal is minimally supportive of, and difficult to tie to, the relevant program element(s) or mission.
- **Not Relevant/No Program Priority:** The proposal is not supportive of the relevant program element(s) or mission – OR – sufficient work is already being performed.



Scientific and Technical Merit

How important is the proposed activity to advancing knowledge and understanding within the workscope area and period of performance? How well does the activity advance discovery or explore creative, original or potentially transformative concepts?

- Review Considerations:
 - Advances the state of scientific knowledge and understanding.
 - Addresses gaps in nuclear science and engineering research.

9-10 Outstanding scientific merit; clearly addresses gaps in scientific/engineering knowledge and understanding

6-8 Reasonable contribution; likely to contribute to scientific knowledge and understanding

3-5 Questionable scientific merit; not likely to result in meaningful advances to scientific knowledge and understanding

1-2 Little or no scientific merit; does not advance knowledge and understanding



Scholarships & Fellowships

Award Amounts

- ◆ Scholarship, \$5,000 one year award
- ◆ Fellowship, \$155,000 over three years
 - New in FY12 - includes \$5,000 internship

RFA General Requirements

- ◆ U.S. citizen or legal permanent resident
- ◆ Beyond first year in college (scholarships only)
- ◆ Enrolled in a NEUP-approved college or university, determined by the Funding Opportunity Announcement (FOA) application
- ◆ Field of study of interest to NE
- ◆ New this year - entering first or second year of graduate study (fellowships only)

FY12 R&D Proposals Received

- ◆ 202 proposals were submitted by 64 lead universities
- ◆ 49 additional organizations collaborated
 - 21 universities
 - 10 national laboratories
 - 11 industry
 - 7 other, including foreign institutions
- ◆ These organizations represent
 - 32 U.S. states and the District of Columbia
 - 9 minority institutions
 - 3 foreign countries
 - 1 U.S. territory

