



U.S. DEPARTMENT OF
ENERGY

Nuclear Energy

**FY 2013 Consolidated Innovative Nuclear Research
Funding Opportunity Number: DE-FOA-0000799**

*Bradley Williams / Greg Bala
December 13, 2012*

Outline

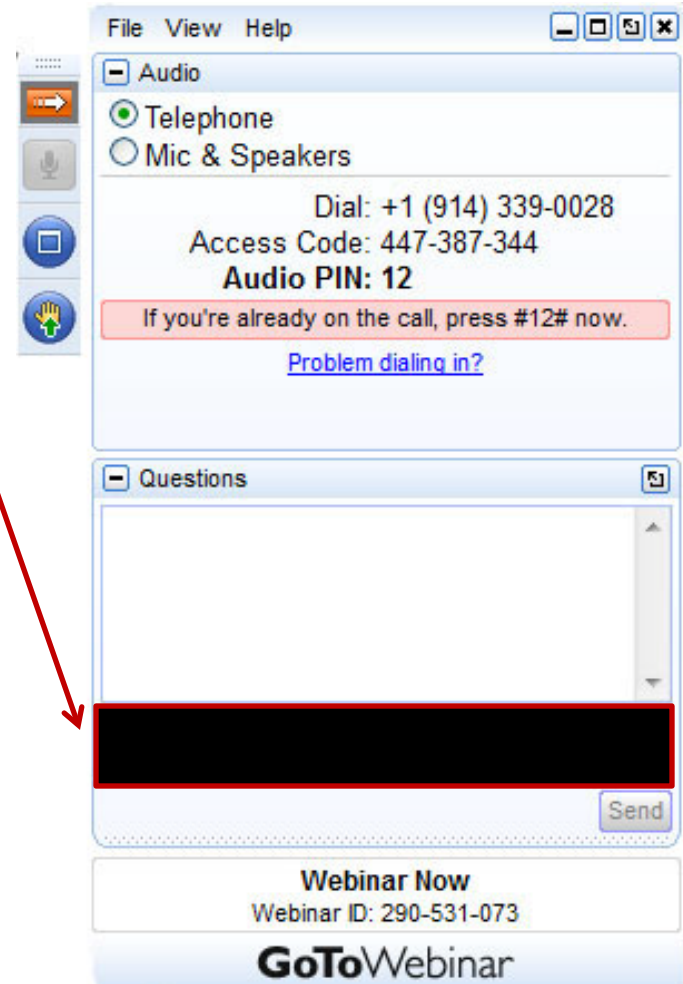
Nuclear Energy

- **FOA Overview**
- **Workscopes**
- **Key Changes in the FY13 FOA**
- **Linking NE R&D with NSUF and GSI Proposals**
- **Review Process, Tools and Submissions**



How to Ask Questions During This Webinar

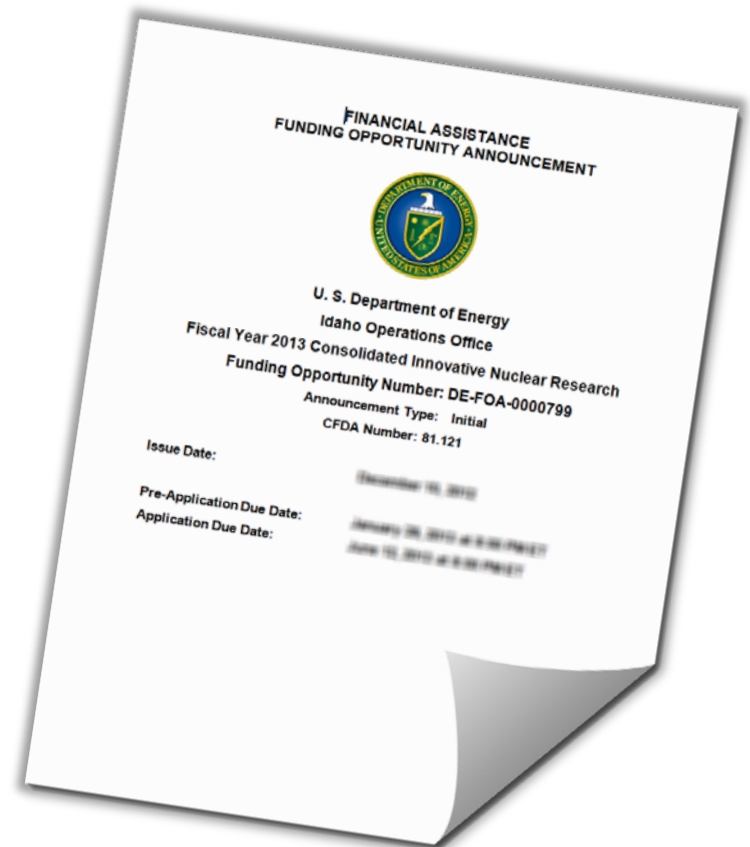
- Submit questions using the GoToWebinar software by typing in the “Question” field.
- If your question does not get answered during the allotted time, questions will be answered later and posted on www.neup.gov.
- Specific questions on individual eligibility or workscope detail should be addressed offline.





Objective: To promote efficiency and the effective use of resources.

- **Presents all anticipated DOE-NE funding opportunities at once**
- **Allows integration of deadlines to enable better planning**
- **Presents opportunities to request funding from multiple program elements to maximize research dollars**





■ Funding mechanism:

- Cooperative Agreements issued out of DOE-ID

■ New eligibility requirements:

- Ensure R&D is delivered in necessary timelines to support programmatic missions.
- Encourage diverse participation.
- Based on past performance.

■ Find FOA (DE-FOA-0000799) at <http://www.grants.gov>

■ Apply through <http://www.neup.gov>



Important Dates

Nuclear Energy

- FOA release date: December 10, 2012
- Pre-applications due: January 28, 2013
- Full applications due: June 12, 2013
- Integrated Research Projects due: June 12, 2013



FOA Organization and Sections

- **Section/Appendix A: University-led R&D [funds originate from Nuclear Energy University Programs (NEUP)]**
 - Program Supporting
 - Mission Supporting

- **Section/Appendix B: University-, National Laboratory-, or Industry-led R&D [funds originate from Nuclear Energy Enabling Technologies (NEET) Program]**
 - Program Supporting

- **Section/Appendix C: University-led, Program Directed Integrated Research Projects (funds originate from NEUP)**
 - Program Directed work

Section A Overview

Nuclear Energy

■ Award Size

- Program Supporting: \$800,000 total
- Mission Supporting: \$400,000 total

■ Period of Performance

- Up to three (3) years

■ Eligibility

- Only universities are eligible to lead
- Universities, national laboratories, and industry are eligible to collaborate

■ Estimated Funding Level

- Approximately \$33 million, totaling approximately 40 awards



Section B Overview

Nuclear Energy

■ Award Size (all projects are Program Supporting)

- \$400,000 for a project duration of up to two (2) years (NEET – 1/2)
- \$1,000,000 for a project duration of up to three (3) years (NEET – 3)

■ Eligibility

- Universities, national laboratories, and industry are eligible to lead
- Universities, national laboratories, and industry are eligible to collaborate

■ Estimated Funding Level

- Approximately \$6.5 million total funding available
 - \$1.5M for NEET-1/2
 - \$5M for NEET-3



Nuclear Energy

■ Award Size

- Maximum award is \$5,000,000 total

■ Period of Performance

- Up to three (3) years

■ Eligibility

- Only universities are eligible to lead
- Universities, national laboratories, and industry are eligible to collaborate
- International collaborations are strongly encouraged

■ Estimated Funding Level

- Approximately \$5 million





- **Collaborations with universities, industry, national laboratories, and foreign institutions are strongly encouraged.**

- **Additional consideration is given for collaborations with Minority Serving Institutions (MSIs) and Underrepresented Groups (URGs).**

- **For university-led proposals, no more than 20% of the total budget may go to entities other than universities.**

- **Funding is for U.S. researchers only.**
 - Foreign organizations are encouraged to collaborate as long as they are neither a denied party nor a party that requires an export license.

Workscopes

Section A –Workscope Areas (Fuel Cycle R&D)

■ Program Supporting: Fuel Cycle

- Separations and Waste Forms (FC-1)
- Advanced Fuels (FC-2)
- Nuclear Materials Control and Instrumentation (FC-3)
- Used Nuclear Fuel Disposition (FC-4)
- Fuel Cycle Option Analysis (FC-5)
- Nanonuclear R&D (FC-6)

■ Mission Supporting: Fuel Cycle

- Fuel Resources (MS-FC1)
- Nuclear Data and Measurement Techniques (MS-FC2)





Section A – Workscope Areas (Reactor Concepts RD&D)

■ Program Supporting: Reactor Concepts

- Computational Methods (RC-1)
- Advanced Technologies, Development and Demonstration (RC-2)
- Advanced Structural Materials (RC-3)
- Materials Aging and Degradation: Accelerated Test Techniques and Validation (RC-4)
- Risk-Informed Safety Margin Characterization (RISMC): Advanced Mechanistic 3D Spatial Modeling and Analysis Methods to Accurately Represent Nuclear Facility External Event Scenarios (RC-5)
- Instrumentation, Information, and Control: Monitoring Technologies for Severe Accident Conditions (RC-6)
- Radioisotope Power Systems: Innovative Fuel Form Processing Development of General Purpose Heat Sources for NASA Applications (RC-7)

■ Mission Supporting: Reactor Concepts

- Reactor Concepts RD&D (MS-RC1)
- Radioisotope Power Systems R&D (MS-RC2)

Section A – Workscope Areas (NEET)

■ Program Supporting

- Validating NEAMS Fuel Pin Models (NEAMS – 1)

Section B – Workscope Areas (NEET)

- **Advanced Methods for Manufacturing: NEET-1**
 - Up to a two (2)-year award with \$400,000 total project cost
 - Estimated 2 awards

- **Advanced Sensors and Instrumentation: NEET-2**
 - Up to a two (2)-year award and \$400,000 total project cost
 - Estimated 2 awards

- **Reactor Materials: NEET-3**
 - Up to a three (3)-year award with \$1,000,000 total project cost
 - Estimated 5 awards

Section C – Available Workscope Areas

- **Simulation of Neutron Damage for High Dose Exposure of Advanced Reactor Materials (IRP-RC)**

Key Changes in the FY13 FOA

No-Cost Extensions (NCEs)

- **University PIs with a NCE to an existing NE R&D project will be ineligible for new project awards while any NCE remains in effect.**

- **In order to provide planning for prospective applicants, this policy will be implemented as follows:**
 - Commencing April 1, 2013, university PIs who request and ultimately receive a NCE to any currently-funded NE R&D project will be ineligible as a PI for an award under this FOA if the project completion date is extended beyond September 30, 2013.
 - University PIs with an approved no-cost extension prior to April 1, 2013 will still be eligible to receive an award under this FOA.



University PI Submittal Guidelines (Sections A, B, C)

- **University PIs with a currently funded IRP, or three or more R&D projects that will still be active after September 30, 2013, or who have received a no-cost extension (NCE) on any DOE-NE funded project after March 31, 2013, which will still be active beyond September 30, 2013, are ineligible to apply to any Section of this FOA as a PI.**
- **For submissions to all Sections of this FOA, university PIs can be included on no more than six pre-applications total, with no more than three of those submissions as the PI.**
- **For Section B of this FOA, all applying institutions (i.e., university, national laboratory, industry) are limited to three pre-applications per institution per workscope area. If a university PI is designated as the lead, these submissions will count toward the above overall university researcher limitation of being associated with no more than six pre-applications total in response to all sections of this FOA, with no more than three of those associations being as the lead PI.**
- **For Section C of this FOA (IRPs), an applicant is ineligible to submit an application as the PI if (s)he is designated as PI for more than one currently funded DOE-NE project that will still be active beyond September 30, 2013.**
- **A PI may have no more than one IRP or three R&D projects funded at any time, and may therefore not submit more full applications than would be allowed by these restrictions should these applications be selected for funding.**

Institutional Submittal Guidelines (Section B)

- **Restrictions are attributed to the institution, not the individual**

- **Institutions are limited to three pre-applications per workscope area**
 - If a university PI is designated as the lead, these submissions will count toward the overall university PI limitations described for sections A and C

- **Institutions are responsible for not exceeding the submission limit**



- **For proposals led by universities, cost sharing is encouraged, but not required**

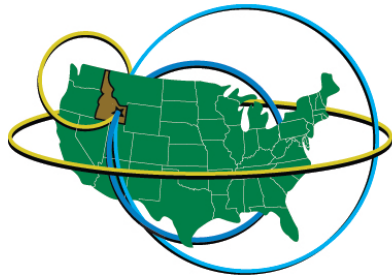
- **Proposals led by industry are required to have a 20% cost (responsibility of lead institution). The cost is based on the total allowable costs (TAC) and must come from non-Federal sources.**
 - The TAC of the project is the sum of the government share, including FFRDC (e.g. National Labs) costs, if applicable, and the recipient share.

Linking NE R&D with NSUF and GSI Proposals



Linking a Proposal Between R&D and NSUF

- **DOE-NE supports university research by providing access to unique facilities and capabilities through the Advanced Test Reactor (ATR) National Scientific User Facility (NSUF)**
 - Research awards under this FOA may provide funding to perform specific experiments in a test reactor or could make use of other NSUF facilities
 - NSUF awards fund access to the facilities and associated staff support



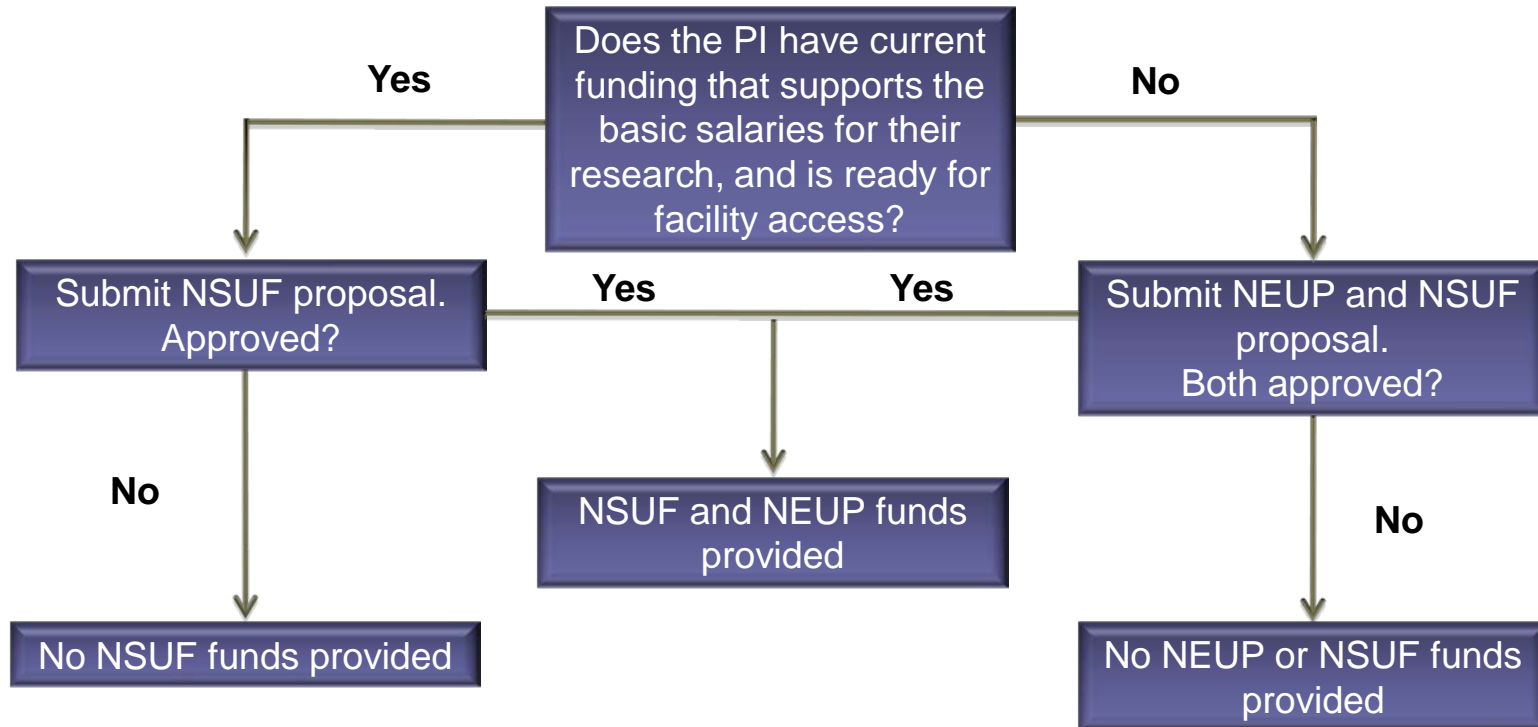
ATR
National Scientific User Facility





NE R&D/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.



Linking a Proposal Between R&D and GSI

- **DOE-NE supports the purchase of General Scientific Infrastructure (GSI) as part of a separate FOA (DE-FOA-0000814)**
 - The GSI FOA seeks applications from U.S. universities and colleges for equipment and instrumentation infrastructure
- **Linkage facilitates:**
 - Enabling and maintaining DOE mission focus on the purchase of equipment with GSI funds
 - The ability of researchers to coordinate and enhance their research proposals with scientific equipment/capability purchase requests made in response to the GSI FOA

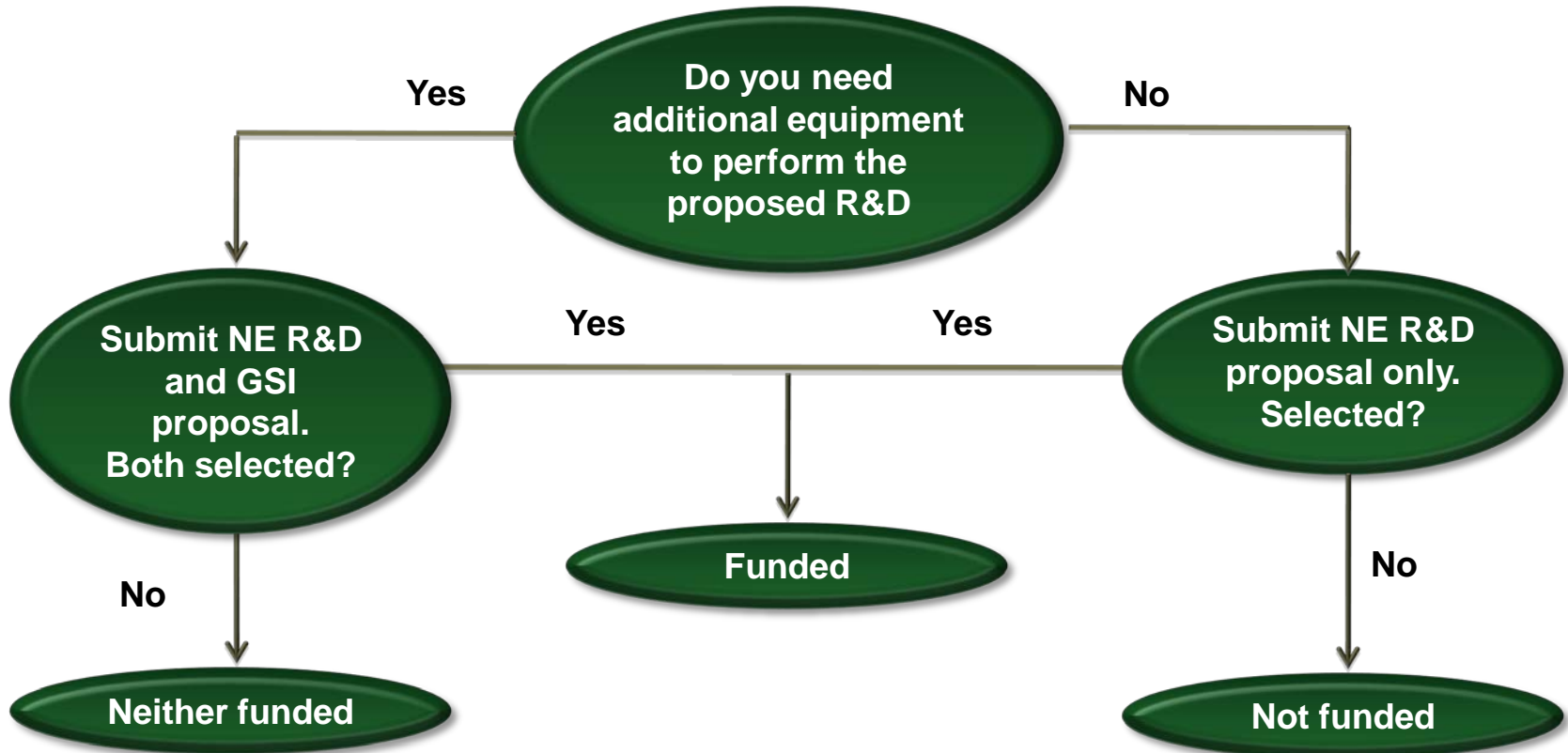




NE R&D/GSI Linkage

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Premise: Equipment purchased as a result of the GSI FOA will be better tied to NE mission. Additionally, this will allow a maximization of NE R&D expenditures in non-equipment purchase.





NE R&D and NSUF/GSI Proposals

- **This year, NE R&D program has a joint solicitation and review process with the NSUF and GSI program elements**
 - As before, success will be predicated on positive review by both programs
 - Access to NSUF infrastructure need must be immediate
 - Need for GSI funded equipment must be immediate

I am submitting this proposal to:

- NE R&D Only
- NE R&D and ATR-NSUF
- NE R&D and GSI

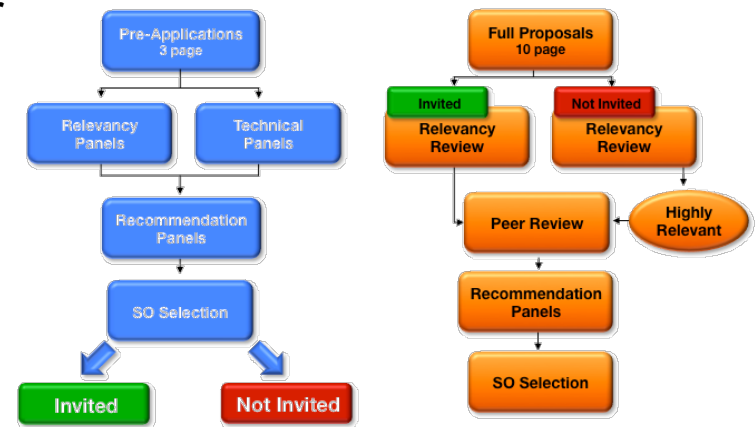
Review Process, Tools and Submissions



Review Processes and Criteria

■ Review criteria and processes used for PS, MS, and PD evaluation is consistent with traditional peer review

- PS and MS proposals are reviewed in a semi-blind process that includes pre-applications
 - Pre-applications: 2 relevancy, 1 peer.
 - Results in “Invited” and “Not Invited” status.
 - Full applications: 2 relevancy, 3 peer
- PD proposals are reviewed individually by a common set of reviewers who are then convened into a panel for final scoring
 - No fewer than 2 relevancy and 3 peer.





- **Technical merit and relevancy are weighted according to program involvement:**
 - Mission Supporting (Section A) 80:20
 - Program Supporting (Sections A/B) 65:35
 - Program Directed (Section C) 50:50

- **Full criteria for all sections and proposal types are detailed in the FOA**

- **Additional relevancy consideration is given for effective partnerships including MSI and URG**



Tools for Understanding the FOA

- FOA Toolbox
- Provides PI with basic Section eligibility and delivers catered online resources for each type of lead or collaborator

| | | Lead | | | Collaborator | | |
|-------|------------|------------|---------------------|----------|--------------|---------------------|----------|
| | | University | National Laboratory | Industry | University | National Laboratory | Industry |
| PS/MS | Appendix A | Yes | No | No | Yes | Yes | Yes |
| | Appendix B | | Yes | Yes* | | | |
| PD | Appendix C | | No | No | | | |

*Industry leads are required to cost share 20% of project costs.



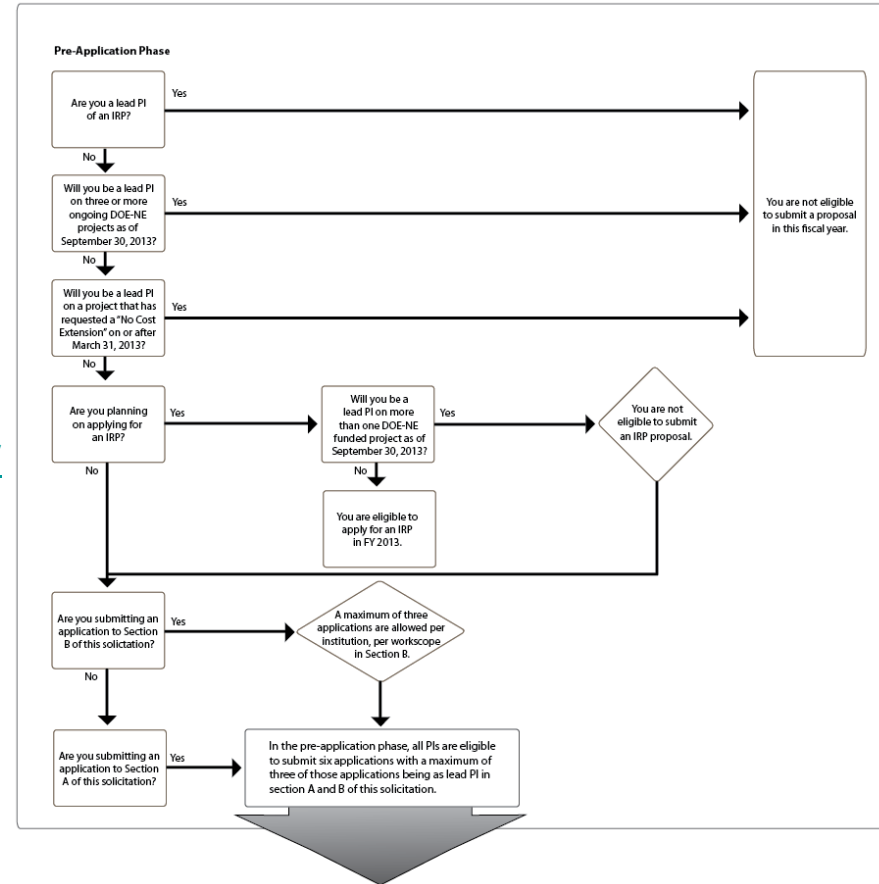
Tools for Understanding the FOA

Eligibility Workflow

- When a PI answers the questions on this workflow they can find out detailed eligibility restrictions.

Federal/Technical Points of Contact

- https://inlportal.inl.gov/portal/server_pt/community/neup_home/600/fy13_r_d_federal_technical_points_of_contact





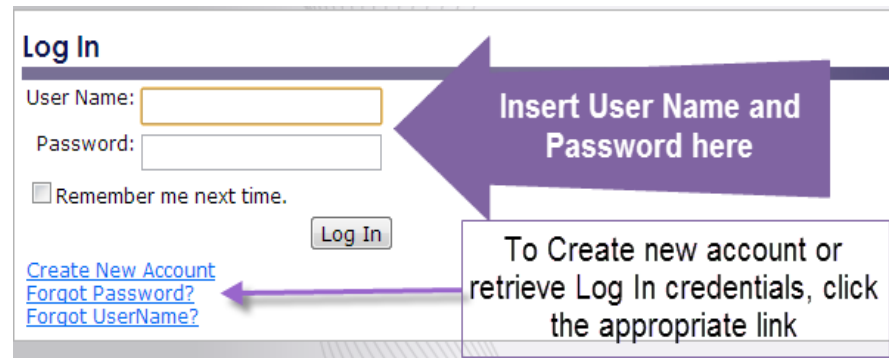
How to Submit a Proposal

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Visit www.neup.gov and click “Log In.”



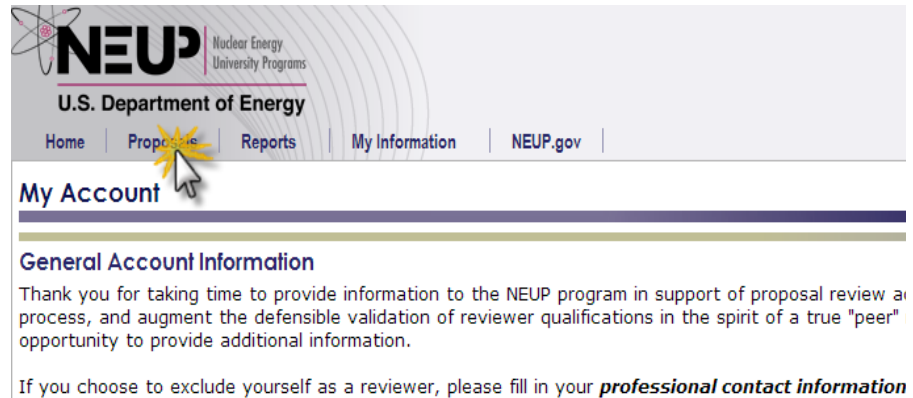
Log in using your User Name and Password. If you haven't submitted or reviewed for NE before you will need to Create a New Account





How to Submit a Proposal (Continued)

To create your proposal, click on the “Proposals” tab as shown below.



This page is where past proposals are still visible, and any new calls will be available. FY 2013 solicitation options are Found here. Simply click on the appropriate “Create New Proposal” link to begin the application process.





- **Federal/Technical Points of Contact – Technical Questions**
 - List of TPOCs found at www.neup.gov

- **DOE-ID – Procurement Questions**
 - Aaron Gravelle
 - (208) 526-0208
 - gravelap@id.doe.gov

- **NE Integration Office – General Application Submittal Questions**
 - (208) 526-1507
 - neup@inl.gov



Additional Slides

NE Review Process Overview for Sections A/B

PS/MS Review Processes

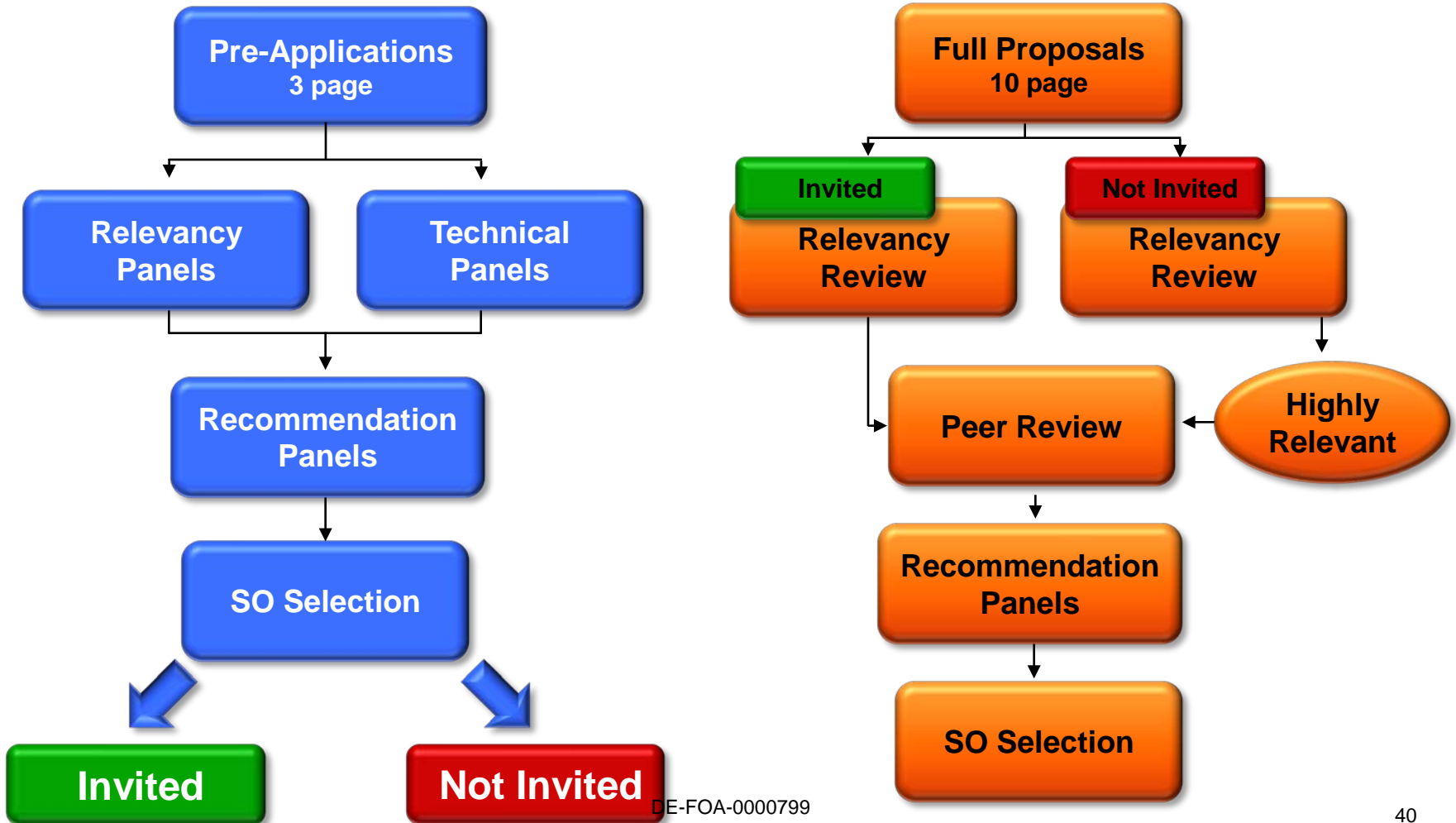
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- **PS and MS pre- and full applications are reviewed by individual reviewers**
 - Two relevancy (Federal Program Manager/Technical Integration Office representative)
 - One technical peer for pre-
 - Three technical peers for full
- **Inconsistent reviews are reconciled**
- **Federal balancing panels review results and select a list of proposals for SO consideration**
- **Individual scores are collected and ranked**





PS/MS Review Processes (Continued)



Pre-applications: Relevancy/Program Priority

■ Six categories ranging from:

- 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, and has substantive contribution by an industrial, international, underrepresented group, or minority serving institution (MSI) collaboration.
- 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.

Pre-applications: Technical Merit

■ Four categories (High, Moderate, Low, No):

- High Merit: The proposal unquestionably advances the technical state of knowledge and understanding of the NE mission or program element, and is creative and based largely on original concepts. The scope is within the technical expertise of the proposed team, and can be executed fully in the facilities available within the proposed budget.
- No Merit: The proposal does not advance or recognize the technical state of knowledge and understanding of the NE mission or program element, and is not creative or original. The scope is beyond the technical expertise of the proposed team, and cannot be executed fully in the facilities available within the proposed budget.

Full Application Review

- **Weightings between relevancy and technical merit are the same**

- **Relevancy review criteria are the same**

- **Scoring guidelines and criteria are given for each of four areas with a collection of comments:**
 - Scientific and Technical Merit – 35%
 - Research Plan – 35%
 - R&D Resources and Capabilities – 15%
 - Team Qualifications – 15%



MSI, URG, and Partnerships: Criteria and Contribution

- **The degree to which MSIs, international and/or industry partners, and/or Underrepresented Group (URG), if any, contribute to the proposal's ability to support the relevant program element or overall NE mission**
 - The presence of a MSI is attributed at the institution level and valued by a listing maintained by the Department of Education
 - A URG is attributed at the individual level and based on a voluntary self-identification

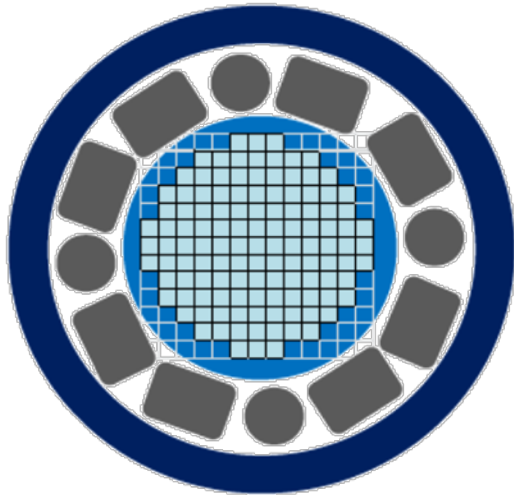
- **Evaluated as part of relevancy**

- **Not required to achieve the highest relevancy score**

NE Review Process Overview for Section C



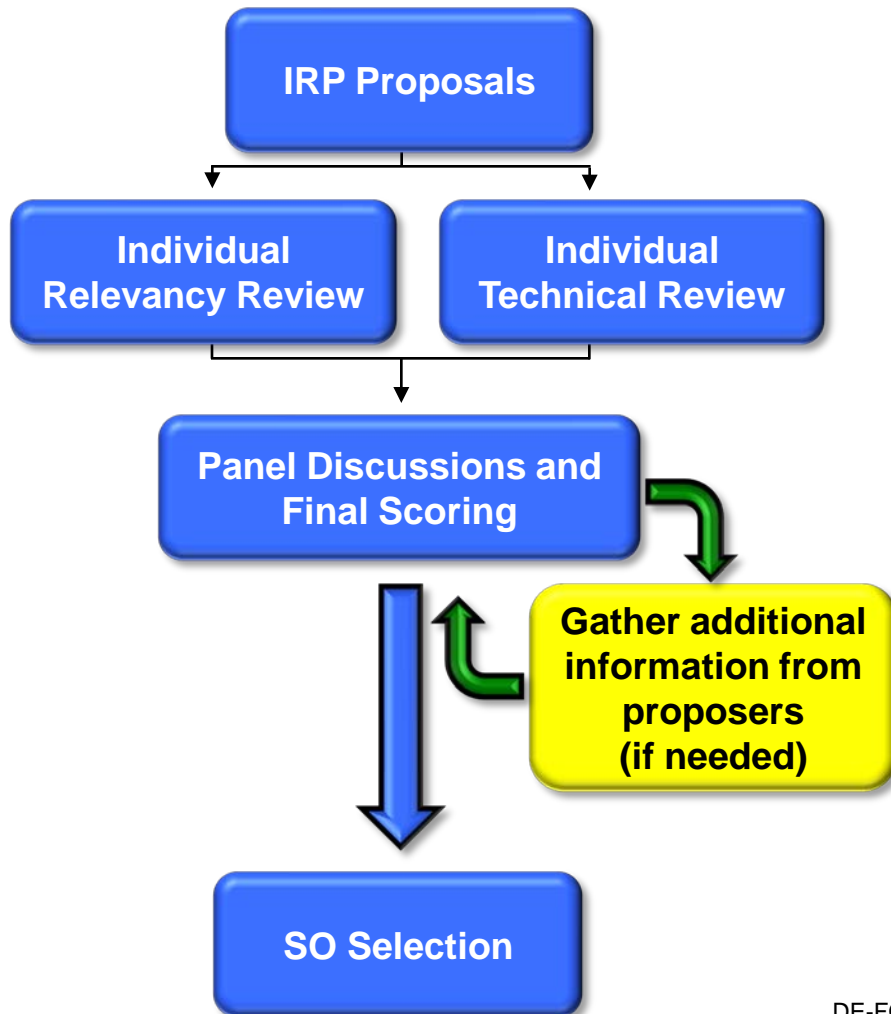
Program Directed Review Process



- **PD Integrated Research Projects (IRPs) are reviewed by a panel for relevancy and technical merit**
- **The panel is comprised of at least 5 people:**
 - Two individuals for relevancy (Federal Program Manager, Technical Integration Office representative)
 - Three technical peers
- **Individual scores are collected prior to convening the panel**
- **Proposals and review scores are discussed by the panel for final review compilation**



NE Review Process Overview: PD Proposals



IRP Proposals: Submission of 50-page proposals by university/industry/lab consortiums.

Relevancy Reviewers: Federal Program Manager and a National Laboratory programmatic expert.

Technical Reviewer: Mix of university, national lab, and at least one industry expert.

Scoring: Individual scores collected prior to the panel discussions and then considered and discussed as a panel to provide balancing. Individual scores may change based on discussions.

Recommended Range: The proposals are placed into a recommended range generally ranked from highest to lowest score based on available funding. This range is presented to the SO for final project selection after consideration of additional subjective factors.

SO Selection: Presentation of recommendations by NEUP to the SO.



Section C – Program Directed Review

| Relevancy Review (50%) | Technical Review (50%) |
|--|--|
| <ul style="list-style-type: none">• Program Factors (20%)• Cost Factors (20%)• Collaboration Factors (10%) | <ul style="list-style-type: none">• Scientific/Technical Merit (12.5%)• Method or Approach (12.5%)• Personnel and resources (12.5%)• Budget (12.5%) |

- Full criteria and guidance are provided in the FOA.



PD (IRP) Review Criteria

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- **Scientific and/or technical merit of the project (12.5%)**
- **Appropriateness of the proposed method or approach (12.5%)**
- **Competency of the applicant's personnel and adequacy of the proposed resources (12.5%)**
- **Reasonableness and appropriateness of the proposed budget (12.5%)**



- **Program factors (20%)**
- **Cost factors (20%)**
- **Collaboration factors (10%)**
 - Focused on industry, international, URGs, and MSI
 - MSI (up to 3 additional points not to exceed the maximum allowable collaboration score)



■ Mission Supporting / Program Supporting

- Fuel Cycle Research and Development
- Reactor Concepts Research, Development and Demonstration
- Nuclear Energy Advanced Modeling and Simulation
- Portions of the NEET Crosscutting Technology Development Program (Program Supporting only)

**MS: Creative,
Innovative, and
Transforming**

**PS: Focused more
directly on
Programmatic
Needs**

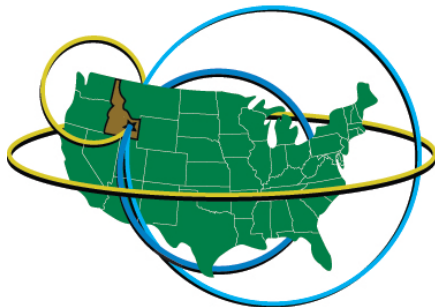
■ Program Directed

- Reactor Concepts Research, Development and Demonstration

**PD: Solutions to
Near-Term
Significant Needs**



- **Until last year, no formal relationship existed between NEUP and NSUF – PIs proposed to both programs as needed**
 - PIs risked not completing work if not selected by both programs
 - Review process similar, reviewers from same pool
- **DOE-NE requested ATR NSUF and NEUP to consider a joint proposal process in FY 2012**
- **Last year, 12 applications were received in the NEUP RPA; 3 were invited to submit a full proposal; 1 was funded**



ATR
National Scientific User Facility

DE-FOA-0000799