THE Ames Laboratory

Creating Materials & Energy Solutions

LDRD GUIDELINES AND POLICY OVERVIEW

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17 July 2011

1st LDRD Lab-wide Presentation 29 October 2012

Ames Laboratory is a national laboratory of the U.S. Department of Energy, operated by Iowa State University.

Objective

Everyone attains a thorough understanding of LDRD guidelines

FY13 Components Ames Lab's LDRD

- *Strategic Initiatives – identified in AMES' Lab Plan, and include:*

  Center for Rare-earth and Energy-Critical Materials (CREEM); Catalyzing a Greener Future; Computational and Experimental Materials Discovery, Design, Synthesis and Processing; National Center for Solid-state NMR Science; Advanced Bit-manipulation, Algorithm and Code Development for the U.S. (ABACUS).

- *Novel Projects –* a balance of basic, applied, single-investigator, and multidisciplinary projects in new areas or directions, not necessarily in direct support of our strategic initiatives.

- *Exceptional Opportunities* – a pursuit of capabilities in a strategic area that enhances human and physical resources to support that area.
  - mid-year opportunities, special LDRD collaborations.
  - strategic hires for LDRD projects, including *Spedding Distinguished Post-Doctoral Fellowships*.
  - Pre-commercial development to enable future use by private sector or other agencies' programs.

The balance of LDRD funded activities will be provided to DOE for approval in the LDRD Annual Plan.

LDRD Program – DOE Order 413.2B

Objectives

- Maintain the scientific and technical vitality of the laboratories.
- Enhance the laboratories' ability to address future U.S DoE/ National Nuclear Security Administration (DOE/NNSA) missions.
- Foster creativity and stimulate exploration of forefront science and technology.
- Serve as a proving ground for new concepts in research and development.
- Support high-risk, potentially high-value research and development.

LDRD expenditures are considered an allowable cost in accordance with the terms and conditions of our contract and must be identified in the laboratory accounting system.

How are objectives achieved?

LDRD expenditures can help maintain our scientific and technical vitality by –

- supporting the R&D aspects of the laboratories' strategic plans
- advancing the technical fields relevant to DOE and other agency missions
- uncovering and vetting specific new R&D directions for the programs
- exploring creative and innovative high-risk, high-reward research ideas
- attracting the best and brightest scientific and engineering staff
- providing early support for development of new R&D facilities
- providing the flexibility to respond quickly to new R&D opportunities
- offering a mechanism for collaboration with counterparts around the globe in both the public and private sectors

LDRD Program – DOE Order 413.2B

General Characteristics of LDRD Projects

LDRD projects must be in the forefront areas of basic and applied science & technology relevant to DOE missions. Normally LDRD projects will be relatively small and will also include one or more of the following characteristics

- ✓ Advanced study of hypothesis, concepts, or innovative approaches to scientific, technical, or computational problems.
- ✓ Experiments, theoretical studies, simulations, and analyses directed toward "proof of principle" or early determination of the utility of new scientific ideas, technical concepts and devices, or research tools.
- ✓ Concept creation and preliminary technical analyses of advanced, novel experimental facilities/devices or of facilities for computational science.

All LDRD proposals are required *to identify* ***how the work differs from other programmatic funding.***

LDRD Program – DOE Order 413.2B

Requirements

- Length of Projects: LDRD projects will be limited to a **maximum period of performance (POP) of 36 months**. Projects requiring funding beyond one fiscal year may be considered for funding in out years, but must be resubmitted and re-competed with new proposals. No commitment for out-year funding is made when a project requests multiyear funding.

- Funding level: Level must not exceed 8% of a lab's total operating and capital equipment budgets. AL requested and received approval for 3%.

- Appropriate Expenditures: Projects may be charged the same allowable costs associated with similar lab's R&D activities, including fully burdened payroll, benefits, materials and supplies, travel to user-facilities, and capital equipment in direct support of a project or support for participation by non-laboratory personnel.

→ *Conferences and workshops should be funded through other sources.*

LDRD Program – DOE Order 413.2B

Requirements (cont.)

- Management of Funds: Funds must be carefully managed to ensure appropriateness and accountability of all charges.
  - ✓ LDRD projects cannot cost in excess of allocated funds, and will be closed when the budgeted allocation is exhausted, or at the end of the fiscal year, whichever occurs first.
  - ✓ Because they are from laboratory overhead, any LDRD surplus funds at end of fiscal year must be returned to the laboratory (they cannot be redirected or carried over to other fiscal years).
  - ✓ Joint lab/industry technology transfer activities should be funded through the Cooperative Research and Development Agreement (CRADA) process, although a "pre-Tech Transfer" research or development project is allowable under the LDRD program.

LDRD Program – DOE Order 413.2B

Requirements (cont.) – Restrictions

LDRD funds will **not** be used to

1. Substitute for or increase funding for any tasks for which a specific limitation has been established by Congress or DOE, or for any specific tasks that are funded by DOE or other users of the laboratory.
2. Fund projects that will require the addition of non-LDRD funds to accomplish the technical goals of the LDRD project.
3. Fund construction design beyond the preliminary phase (e.g., conceptual design, Title I design work, or any similar or more advanced design effort) or fund line-item construction projects, in whole or in part.
4. Fund general purpose capital expenditures with the exception of acquisition of general purpose equipment that is clearly required for the project and is not otherwise readily available from lab inventory.

***Explanation* for each restriction is in the DOE order and Ames' LDRD Plan.**
(Also, in slide notes.)

LDRD Program – DOE Order 413.2B

Requirements (cont.)

The LDRD program will

- Include all discretionary research and development activities other than those provided for in a DOE/NNSA program or by specific designation in a DOE contract
- Be consistent with all other applicable requirements for similar research and development activities at the laboratory.

Ames Lab's LDRD Program

Policy and Procedures: in LDRD Document Control

- Laboratory Directed Research and Development
  - Policy statement, general rules, and responsibilities
- Laboratory Directed Research and Development Projects
  - All of the above
  - Description of processes
- LDRD program and accomplishments are periodically assessed by a review committee chartered by our Contractor, Iowa State University, as well as by DOE program reviews and by an internal review of progress for projects desiring to continue.

Ames Lab's LDRD Program (FY13)

Components of the LDRD Program

- *Strategic Initiatives* – *identified in AMES' Lab Plan.*
- *Novel Projects* – a balance of basic, applied, single-investigator, and multidisciplinary projects in new areas or directions, not necessarily in direct support of our strategic initiatives.
- *Exceptional Opportunities* – a pursuit of capabilities in a strategic area that enhances human and physical resources to support that area.
  - mid-year opportunities, special LDRD collaborations.
  - strategic hires for LDRD projects, including *Spedding Distinguished Post-Doctoral Fellowships*.
  - Pre-commercial development to enable future use by private sector or other agencies' programs.

This balance of LDRD funded activities will be provided to DOE for approval in the LDRD Annual Plan.

Cornerstones and Strategic Initiatives

Value for the nation, delivered through mission-driven initiatives that are supported by our basic science and technology cornerstones

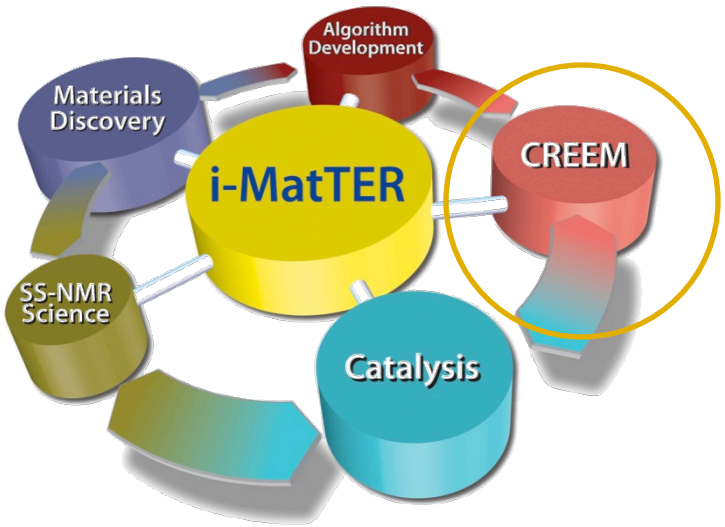
Cornerstones

- **Materials synthesis and design - *CRISPr***
  Center for Rational and Innovative Synthesis and Processing
- **Materials characterization - *CĀM-2C***
  Chemical and Advanced Materials Characterization Center
- **Chemistry & surface science - *SuCCESS***
  Surface- and Chemical-sciences Center for Energy ScienceS
- **Theory, computation and experiments - *iCOMPUTE***
  Integrated Center for Computational Chemistry, Materials, and Physics – Unifying Theory and Experiment

Center for Rare-Earth and Energy-Related Materials

Vision: Strengthened leadership position in rare earth and energy-critical materials.

- Alternative energy sources or substitutes
- Production and processing efficiencies
- New materials
- Critical materials workforce development



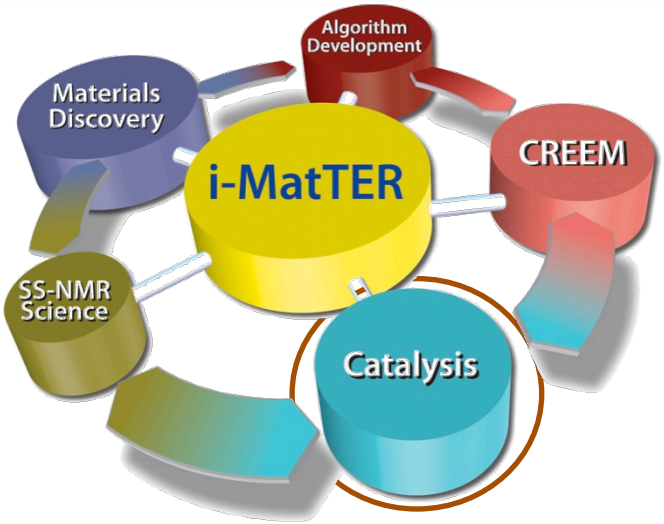
Progress to Date

- ✓ Increased funding for RE basic research (SC) - $0.20M
- ✓ Funding for substitution of RE (BREM) (EERE) - $3.05M
- ✓ WFOs in recycling of RE and for Ti gas atomization processing (KITECH and UWI)
- ✓ New ISU course in Rare Earths (Spring, 2012)

Catalyzing a Greener Future

Vision: AMES will be a world leader in predictive catalysis for a cleaner environment and more energy efficient chemical processes.

- Biomass conversion catalysts
- Biomimetic catalysts
- Cooperative and multifunctional catalysts
- Greener industrial catalysts



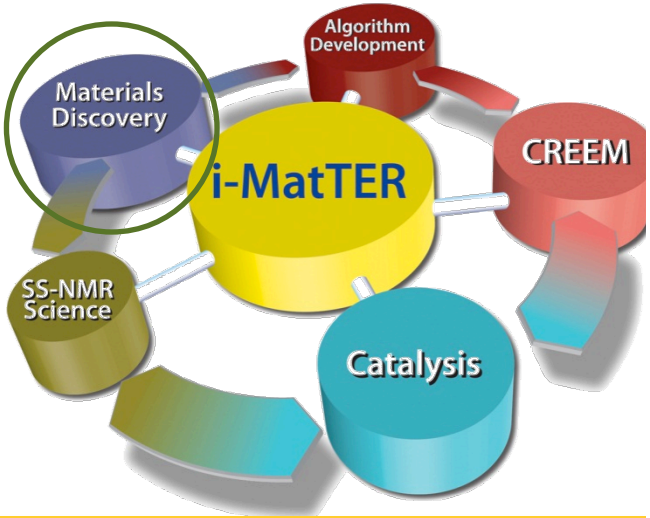
Progress to Date

- ✓ **BES special funding for equipment - $390K**
- ✓ **Developed computational tools for analysis of behavior of catalysts in restricted mesoporous nanoparticles**
- ✓ **Designed a novel mesoporous catalysts for esterification**

Computational & Experimental Materials Discovery, Design, Synthesis & Processing

Vision: AMES will be the premier US center for new energy-critical materials

- Materials Discovery and Design
- Synthesis and Processing



Progress to Date

- ✓ BES Special Equipment
  - High-pressure Bridgman furnace for processing volatiles
  - Inert atmosphere glove box for reactive materials
- ✓ EERE – Beyond Rare Earth Magnets
- ✓ ARPA-E REACT: two projects (AMES & PNNL - Leads)
- ✓ Fossil Energy – high-strength nickel -molybdenum
- ✓ AMES/ANL joint effort in MGI (planning meeting at ANL May 21,2012)
- ✓ E.O. Lawrence Award – Paul Canfield

LDRD: Acceptance of Funding Conditions

Principal Investigator's Responsibilities

- Management and oversight of project costs.
- Notifying the CRO and LDRD program administrator of any significant problems/concerns.
- Technical leadership, sharing results/findings, and publications.
- The appropriate consideration, protection, and disposition of intellectual property.
- Conduct, safety, and technical supervision of all LDRD projects resides with line management and the individual employee researchers.

LDRD: Acceptance of Funding Conditions

Legislation requires both a *pre-project approval*, and a publicly available summary report on completed projects.

Principal Investigator's Responsibilities

- Submit a Project Data Sheet

  (reported to congress)
- Submit Quarterly reports
- Submit year-end annual Summary Report

  (1-2 pages, see template. Goes in the annual report to DOE HQ and GO).

LDRD: Policy and Procedures

Maximum = 36 months

- Projects requiring funding beyond one fiscal year may be considered for funding in out years, but must be resubmitted and re-competed with new proposals.
- No commitment for out-year funding is made when a project requests multiyear funding.
- (Sec. 2.4.8 possible) With LDRD Program and Laboratory Director approval, submit data sheet to Site Office for project requesting a cumulative budget increase ≥ 50% over DOE approved amount or $200K, which ever is less. Increases up to $25K do not require concurrence.

Travel

- If travel is necessary to conduct the work, it will be supported. Conferences and other discretionary travel are not supported.

LDRD: Policy and Procedures

Subcontracts

- May be used to obtain materials, supplies, services and testing to obtain expertise not available at the laboratory.
- Should support rather than dominate the building of capabilities.
- May not comingle with other subcontract projects or task numbers.
- "LDRD-funded subcontract" must be included on purchase requisition.
- Subcontract end date shall not exceed the LDRD project end date.
- Subcontracts awarded after the start date of a LDRD project will have a maximum POP that is the project duration less the elapsed time to the subcontract award.

LDRD: Policy and Procedures

Accruals

- Project Funds will be monitored on **encumbrances**, including commitments to pay for goods or services that have been received/supplied but not paid for or invoiced.

Reporting

- LDRD Pre-Project Approval Form
- Quarterly Reports
- Year-end summary
  - Goes in the annual report to DOE HQ and GO

What are Full Proposal Requirements?

General Overview of 4 page proposal:

- **Proposal Title** (exactly as submitted in LDRD proposal web form)
- **Scientific/Technical Opportunity**
- **Context** (description of the same or similar work previously done or in progress elsewhere, - who, want, when and relationship to this project)
- **Benefits/Beneficiaries/Customers** (relation to DOE mission included)
- **Hypothesis/Objective/Approach** (nature of work, deliverables, milestones, leveraging of external activities, this FY work and expected results)
- **Resource Required** (dependencies, key skills, new hires [specify when post-docs are expected to be available for this project])
- **Future Funding Opportunities**
- **Future Funding Plan**
- **Investigator Background** (optional – include on 5th page if necessary)

What Makes a Good LDRD Proposal?

General Characteristics

- Descriptive and Clear Proposal Title
- Scientific/Technical Opportunity – a short introductory summary paragraph to set the stage.
- Avoid jargon for non experts.
- Address all criteria set forth for LDRD.
- Pictures and plots help tremendously.
- It is blatantly clear to reviewer what the research goals and relations to DOE mission are after ONE reading.
- It is made perfectly clear why this LDRD this is not supplementary funds for ongoing program and what capability is being established/developed.

General Process for Proposals

- ✓ **Yearly notification for starting LDRD Process**
  - Beyond FY13, March-April announcement via email/May due date.

- ✓ **Pre-proposal and Full Proposal**
  - Descriptive and clear title/proposal/mission relevance
  - Down-select Stage
    - Initial down-select via ~1 page pre-proposal
  - Invitation to full (~4 page) proposal
    - required PPF (pre-proposal form) and LDRD Pre-Approval Form

Submitting a Proposal

- ✓ **LDRD specifics and links:** see www.AmesLab.gov/LDRD
  - Details of LDRD, processing, and submission requirements online
  - Submission will be on protected (internal) site.

- ✓ **Online Submission**
  - Details of LDRD submission, see online [fully implemented in FY14]
  - Ames Laboratory PPF form required for full proposal, online upload.

- ✓ **Reporting Templates online, with reporting uploaded**
  - LDRD Pre-Project Approval Form, Annual Report Template, etc., online

Online Proposal Call (see www.ameslab.gov/ldrd)

Laboratory Directed Research and Development | Ames Laboratory

http://www.ameslab.gov/ldrd

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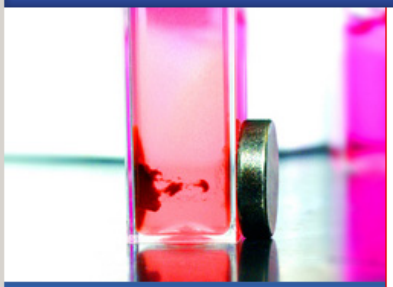


RESEARCH

- Who we are and what we are building
- Scientific Programs
- Our Science Explained
- Topical Resource Library
- Research Highlights
- Material Preparation Center
- Midwest Forensics Resource Center
- Tech Transfer
- Office of Sponsored Research Administration
- LDRD Program

Home » Laboratory Directed Research and Development

Laboratory Directed Research and Development

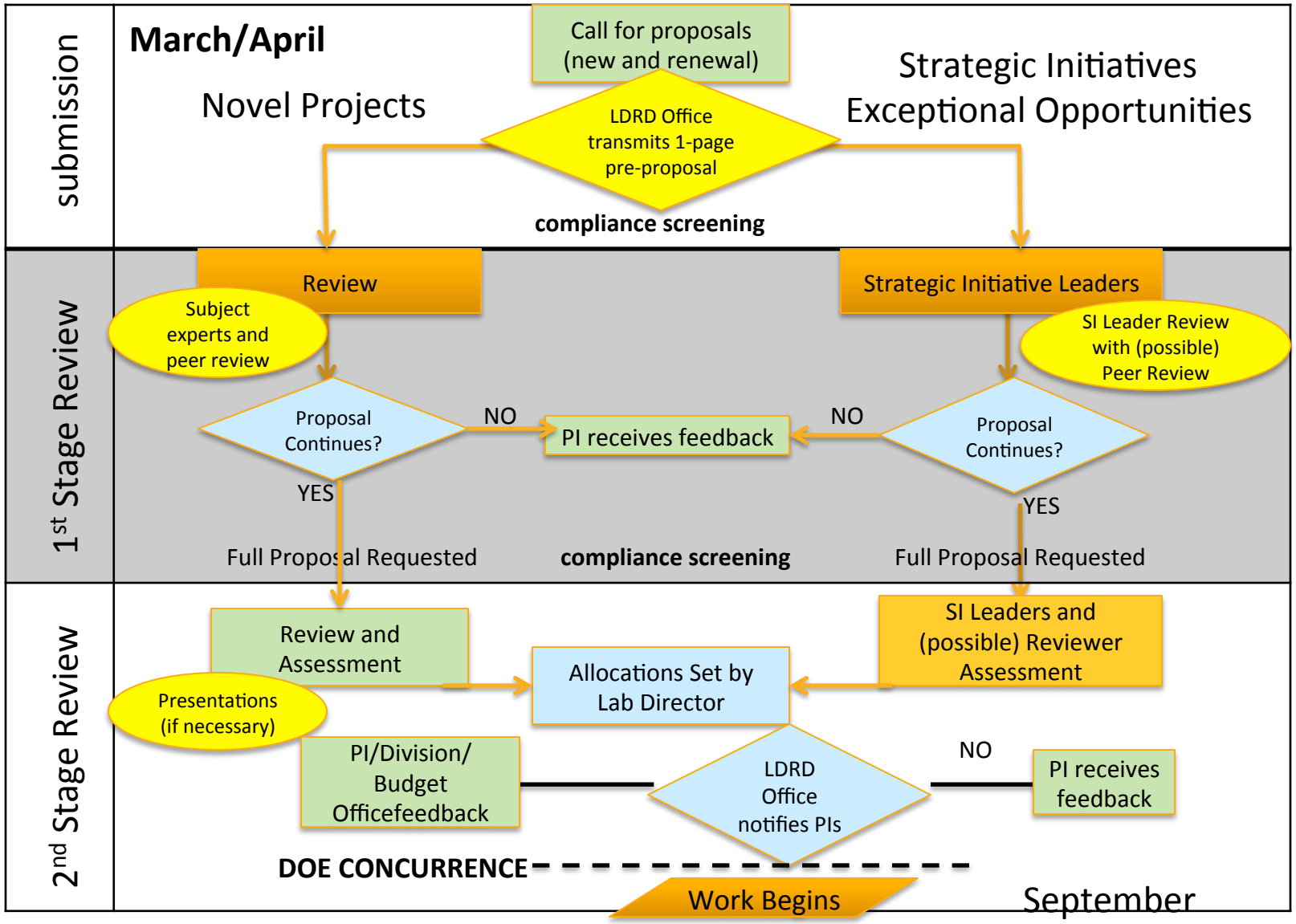
Ames Laboratory LDRD Plan
Laboratory Directed Research and Development (LDRD) funds enable creative and innovative R&D projects at Ames Laboratory (AMES) that directly support our mission. Selection of projects is the responsibility of the Laboratory Director.

The LDRD program objectives are to stimulate innovation and creativity, and to enhance the research activities to keep the Ames Laboratory at the forefront of science and technology. LDRD funding will continuously renew the Laboratory's scientific and technological vitality, and enable AMES to respond to rapidly emerging R&D opportunities of clear potential benefit to DOE's mission. The program enhances AMES' ability to attract and retain the high-caliber scientists and engineers essential to pursue the mission of DOE and the needs of the nation. The LDRD program helps insure that AMES will continue providing scientific and technical leadership in its mission areas. AMES' annual Lab Plan and 5-year scientific strategic plan, which identify our major initiatives, inform strategic areas for LDRD, consistent with our mission.

Program Structure
The LDRD program provides support for *Strategic Initiatives, Novel Projects, and Exceptional Opportunities that enhance the Laboratory's ability to achieve its mission, and for which no other source of funds is available.* Resource allocations to initiatives must be requested annually and must be approved by DOE.

- ***Strategic Initiatives*** are employee-initiated proposals that address at least one of the strategic goals or an area of potential growth within AMES' initiatives for the current fiscal year.
- ***Novel Projects*** are a balance of basic, applied, single-investigator, and multidisciplinary projects in new areas or directions, not necessarily in direct support of our strategic initiatives.
- ***Exceptional Opportunities*** is an integral part of the pursuit of capabilities in a strategic area that enhances human and physical resources to support that area. This component consist of projects that do not fit neatly into the other two components or that can arise outside the normal fiscal-year schedule, e.g., strategic hires, collaborations with external institutions where a superior expertise resides, or projects offering exceptional R&D opportunities for AMES. The laboratory director retains the option to identify and support these exceptional types of LDRD projects.

LDRD Review and Selection Process



Worksheet for Scoring LDRD Proposal

Scoring Areas	Excellent	Good	Adequate	Marginal	Poor
Novelty, innovativeness or originality of proposed research					
Scientific/Technical Excellence					
Align with strategic initiative/goals					
Clear and compelling relation to DOE mission(s)					
Benefits to science/technology derived from a successful project					
Feasibility of proposed research					
Likelihood of success in proposed duration and requested funds					
Qualifications of investigators in the field of proposed research					
Potential for follow-on funding, if successful					
Clarity and completeness of the written proposal, including graphics					

Important Point: Never be afraid to ask …

- **May** an Ames Lab post-doc submit a LDRD proposal?
  - **YES** – no rules prevent this!

must be submitted by someone with **PI status (P37+)** whose signature signifies strong support, but not necessarily cofunding

- **Should** a Ames Lab post-doc submit a LDRD proposal**?**
  - **Depends** on several factors
    - Above all else, your proposed R&D is at the forefront of a field important to the Lab.
    - Your own expertise is very well matched to the work proposed.
    - Either you are rather senior (i.e., experienced), or you have partnered with a senior co-investigator or mentor on the proposal.
    - Your post-doc appointment runs at least as long as the LDRD project's duration, or a co-PI is prepared to become lead PI if a job offer arises that you can't refuse.
    - Other parallel project involvements (programmatic or LDRD) would not interfere with pursuit of your proposed LDRD project.
- Are there other LDRD options for a post-doc?
  - **YES**! Your are already making a huge contribution to the program.
  - Opportunity for a LDRD Spedding Distinguished Post-doctoral Fellowship

Important Point: Never be afraid to ask …

- **May** an off-site LDRD collaborator submit proposal?
  - **NO** – PI must be Ames Lab Principle Investigator (**P37+**).

- **May** an Ames' P35 or below submit proposal?
  - Following ISU and Ames Lab requirements, only if person receives Director's waiver for PI status. (Otherwise submission via P37+)
  - So, if you have a great and compelling proposal, it can be done.

BUT… a co-PI of P37+ is quick, clean, and does not have to be funded, although will be held responsible for reporting requirements!

… if your proposal is funded

- ✓ You'll must tell the LDRD Program Office of any changes in scope or personnel;
- ✓ You should expect to receive mid-year progress reviews;
- ✓ You must submit "data sheet" for reporting to site office.
- ✓ You'll need to prepare an annual progress report for each fiscal year and supply some "metric" data such as publications, inventions, etc., even after your project has concluded;
- ✓ You'll have to stop the LDRD work if and when the R&D is funded by a sponsor; and
- ✓ We'd like to learn all about your great R&D accomplishments to respond to DOE's frequent requests for LDRD "highlights."

… and you can help the LDRD program by

- ✓ Volunteering to serve as a Subject Matter Expert for the strategic initiatives and/or novel projects component.

Look for an invitation in your email!

Ames' LDRD Administration

To fulfill the DOE Order 403.2b

- The LDRD Program falls within the Office of the CRO (Duane Johnson).
- The Program as a whole reports to the Laboratory Director (Alex King).
- The LDRD Office is staffed by
  - Duane Johnson, CRO
  - Deb Covey, Associate Lab Director Sponsored Research
  - Tessa Lemons, LDRD Program Coordinator
- Contact us at: E-mail: LDRD@AmesLab.gov

  post: TASF 315, LDRD Program, c/o CRO
- Visit LDRD Website: www.ameslab.gov/LDRD

Questions?