Lawrence Berkeley National Laboratory

Guidelines on Laboratory-Directed Research and Development (LDRD)

Context and Background

The United States Congress has allowed federal Laboratory Directors a limited amount of overhead funding for the purpose of seeding research and development projects. This is because the case has been effectively made that some of the most innovative and useful ideas might otherwise be unable to get the initial support, which is prerequisite to more standard funding sources. This discretionary authority is a privilege and has the continued interest of the Congress and the General Accounting Office. The requirements of the Department of Energy (DOE) Order on Laboratory-Directed Research and Development (LDRD) can be directly traced to historical concerns and criticism of management of the program in Congressional testimony and in GAO reports (e.g., GAO/RCED-91-18 of 12/90). Laboratory Directors have this limited capability to determine both the level and the specific projects to be funded, up to the mandated limit of 8%.

General Guidance

It is the policy of the Ernest Orlando Lawrence Berkeley National Laboratory, consistent with the DOE guidelines (DOE Order 0 413.2B of April 19, 2006), to encourage innovation, creativity, originality and quality to maintain its research activities and staff at the forefront of science and technology. To further this objective, the Laboratory allocates a limited amount of its operating and capital equipment funds for the LDRD program. These funds are collected on a *pro rata* basis from all operating and capital equipment funds. The use of these funds allows the seeding of innovative approaches to scientific problems, the early exploration of potential future major projects, and the development of R&D capabilities which are relevant to the missions of Berkeley Lab and the DOE and which further Berkeley Lab's position as a leading national laboratory.

Responsibilities

The Laboratory Director is responsible for the overall execution and management performance of the LDRD program. Specific oversight responsibility has been delegated to the Deputy Director, who is designated as the LDRD Program Manager. The program administration and reporting is done by the LDRD Administrator in the Directorate. The LDRD Administrator also monitors program compliance with the relevant procedures including NEPA/CEQA and Human Subject and/or Animal Use. Division Directors are responsible for the effective fiscal, scientific oversight, and management of the principal investigators and projects in their respective divisions. The Financial Services/Budget Office monitors the approved project budgets and expenditures by controlling account opening and closings, making institutional ledger adjustments, and insuring the program expenditures conform with required accounting procedures.

These Guidelines identify the requirements and aspects that are a consequence of the unique nature of the LDRD program; all other responsibilities and procedures should be consistent with those for other DOE scientific programs and projects. Examples of the latter include environment-health-safety responsibilities, project accounting, record keeping, procurement activities, and foreign travel regulations. Travel authorization is subject to the same controls and ceilings as other DOE funded projects.

Funding Level

The level of LDRD funds requested in a given year is based on the overall Laboratory funding and

the Laboratory's strategic, overhead, and budget plans. The Director determines this level after consultation with the senior managers. The DOE's Director of the Office of Science must approve the level of funding, which cannot exceed eight percent (including G&A assessment) of the Laboratory's total operating and capital equipment budgets. The approved funding level will reflect Berkeley Lab's performance in managing the LDRD program, as well as its overall laboratory management performance.

General Characteristics of LDRD Projects

Under the DOE Order 413.2B, projects eligible for support from the LDRD program are defined as follows:

> LDRD projects shall be in the forefront areas of science and technology. The LDRD projects normally shall be relatively small and should also include one or more of the following characteristics:
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> (1) Advanced study of hypotheses, concepts, or innovative approaches to scientific or technical problems.
> (2) Experiments and analysis directed towards "proof of principle" or early determination of the utility of new scientific ideas, technical concepts, or devices.
> (3) Conception and preliminary technical analyses of experimental facilities or devices.

Length of Projects

LDRD projects are funded by the fiscal year cycle, October 1 to September 30 of the following year. Projects which require funding for more than one fiscal year will be considered for funding in outyears, but must resubmit and compete on an equal footing with new proposals in the following years. No commitment for outyear funding is made when a project identified as multiyear is funded. LDRD projects are limited to a maximum period of three years (36 months) of funding. Projects can extend beyond this period only by approval from the Director of the Office of Science. Such projects therefore must be truly exceptional and of significant value to the Laboratory for this approval to be requested. Historically Berkeley Lab has not considered, let alone requested, such an extension. Project account(s) close by September 30, if a project has not received continuation funding, and outstanding liens are to be canceled or transferred.

Appropriate LDRD Expenditures,

With the exception of the restrictions listed below, LDRD projects may charge all costs normally associated with similar research and development activities at the Laboratory, including research operations, supplies and expenses (S&E), and travel or capital equipment in direct support of a project or support for participation by non-laboratory personnel. LDRD funds, however, must be carefully managed to ensure appropriateness and accountability of all charges. The project must be thoughtfully planned at the start of the fiscal year and a monthly cost profile submitted for the allocation. If LDRD project accounts appear to be under-running during of the fiscal year, principal investigators through their Division Budget Analysts or Administrators must submit revised spending plans and justify the delay in spending, or return the surplus funds to the general overhead. LDRD project accounts cannot be overrun, and will be closed when the budgeted allocation is exhausted.

Because they are overhead, funds for LDRD projects cannot be redirected or carried over to other fiscal years. It is important to note that the source of LDRD operating funding, unlike scientific program funding, is the same as the general laboratory overhead so that all unexpended budget revenues are lost

to the Laboratory at the end of the fiscal year. Therefore, there is no mechanism to retain unexpended operating allocations.

Starting in FY06, Congress mandated that lab G&A be assessed on LDRD projects. In part because this amount does not actually represent true costs to the ultimate funding agencies, the lab policy is to separately allocate funds as a "pre-G&A" amount that defines the scientific scope of work (with respect to the original proposal), and sufficient G&A to cover the work defined. The G&A allocation is not to be redirected to different cost categories.

Restrictions

Consistent with the DOE Order, 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 the Department, 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 to fund construction line-item projects, in whole or in part.
(4) To 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 the laboratory inventory.

The intent of the first restriction is to insure consistency with Congressional budget decisions. Consequently, any LDRD support perceived as augmentation of existing program funding is not allowed. All LDRD proposals are required in the annual call for proposals to identify how the work differs from other programmatic funding.

The second restriction follows from the first in that no LDRD project can be a supplementation to current funding or an obligation on future funding. Typically, this is taken to mean that LDRD projects must reach "a useful stage of completion" within the proposed lifetime of the project, and should identify specific aims that can be achieved within the annual funding cycle.

The third restriction is to insure that LDRD supports preliminary R&D research in keeping with the General Characteristics defined above.

A consequence of the fourth restriction is that no LDRD proposal with capital equipment can be funded that does not have an operating budget. The self-contained nature of an LDRD project, reference restriction two, requires that some useful outcome must be achieved with the equipment being purchased. Therefore, capital equipment allocations are made for the year and the purpose defined in the LDRD proposal, and the project must have an operating allocation to conduct some R&D activity for the stated purpose.

In keeping with the General Characteristics of LDRD projects as well as these restrictions, projects should not have a high proportion of administrative support costs. Conferences and workshops should also be funded through other sources. Joint lab/industry technology transfer activities likewise 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.

Solicitation of Proposals

A call for proposals will be drafted annually by the Directorate, approved by the Deputy Director, and issued by the Director. The approved call will be distributed to Division Directors and Division Administrators, as well as notification directly to scientific staff. The call will also be publicized in Laboratory news outlets and posted on the World Wide Web. The call will describe the criteria for project selection, and will provide guidance on proposal content and structure. A schedule for proposal submission, review, and award announcement will be included. Proposals for LDRD funds typically are submitted through the principal investigator's Division Director. The call is typically issued between December and February with proposals due sometime in March or April to division offices. After review and evaluation under the auspices of the Division Directors, all proposals are then forwarded to the Director's office for consideration through the Director's review committees.

Selection of Projects

The Laboratory Director is responsible for establishing an internal process for the selection of LDRD projects with criteria that emphasize scientific and technological excellence. The Director will utilize scientific management and/or peer review to evaluate proposals based on these criteria. This process should be uniformly applied throughout a given fiscal year, but may be revised from one year to another. Division Directors will provide review and comment on proposals from their division, and may be asked to provide additional input, depending on the process established by the Director and/or Deputy Director.

Reporting Requirements

The enacting legislation and other DOE documents for LDRD requires both a pre-project approval by the appropriate government agency (e.g. DOE BSO) on all proposed projects, and a publicly available summary report on completed projects.

The pre-project approval for all proposed projects are done using a "datasheet" prepared by the LDRD Administrator using the coversheet information and descriptions required in the call for proposals for the LDRD program. In addition, summary information based on these datasheets also goes into a centralized database in the DOE CFO office. This information includes actual costs for each project and is forwarded for review to Congressional staffers.

For the summary report, principal investigators must prepare a brief annual report on his/her project within about sixty days after the end of the fiscal year. The LDRD Administrator compiles these individual reports and prepares an Annual Report on the LDRD program for submission to DOE. This Annual Report is also submitted to the Office of Scientific and Technical Information for the DOE, and posted on the World Wide Web. The reports are not to be scientific publications, and should not include extensive scientific justifications, technical details, or references. No proprietary, sensitive, or competitively disadvantageous (to the Laboratory or principal investigator) details should be included; overview and/or general descriptions typically fulfill the reporting requirements.

In addition, the LDRD Administrator prepares an annual LDRD Program Plan giving an overview of the Berkeley Lab program and requesting the funding level for the upcoming fiscal year. DOE requires other reports on LDRD, and there are inquiries from DOE or other agencies or Congress concerning the LDRD program. Special assistance or information from division offices or principal investigators might be required on occasions to fulfill such requests.