

Office of Basic Energy Sciences
GUIDE FOR PREPARATION OF REVIEW DOCUMENTS
- TO BE SUBMITTED BY NATIONAL LABORATORIES -

A new or renewal proposal from DOE National Laboratories submitted to the Office of Basic Energy Sciences (BES) must consist of a Review Document (RD) suitable for independent external scientific/technical merit review. Field Work Proposals (FWPs) and the schedule for submitting FWPs are still governed by DOE Order 412.1, "Work Authorization System." Laboratory FWPs are used by headquarters for annual budget planning and formulation, but they contain insufficient information for an external peer review. This *Guide for Preparation of Review Documents* contains information regarding the preparation of the Review Documents that BES uses for conducting external peer review, which are needed approximately once every three years upon request from BES. These RDs standardize the information BES previously required prior to peer reviews of laboratory programs. FWPs correspond to, but are not part of, the stand-alone RD. However, all applicable FWPs or parts of FWPs must be referenced in the RD as described below.

The BES Division conducting the review of a laboratory program will contact the laboratory and schedule the review dates (in the case of an on-site review) and the dates that the RDs are due to BES. Typically, BES will require the laboratory to provide RDs at least two months prior to an on-site review in order to provide sufficient time for BES to select reviewers and forward the RDs to them well in advance of the review. For more information, see *Merit Review Procedures for Basic Energy Sciences Projects at the Department of Energy Laboratories*.

Please follow these guidelines for the preparation of RDs; deviations could result in declination of a research proposal without merit review.

Relationship of the Review Document to the Field Work Proposal

For a new proposal, the RD will correspond to the proposed new FWP or the new FWP subtask.

For renewal proposals, the RD will typically correspond one-to-one with an FWP, but not always. The number of FWPs or subtasks to be included in a single RD will be determined by responsible Program Manager in consultation with the Laboratory prior to the start of the fiscal year in which the review occurs. For each subtask in the RD, the structure must conform to the specifications in this *Guide*. If multiple subtasks are included in an RD, a brief discussion should be included in Section 3 (Management Plan) that describes the relationship among the subtasks. The budgets of the subtasks for each FWP must add to the budget of the applicable FWP.

Implementation of these procedures might require future restructuring of existing FWPs to create appropriate reviewable units.

Evaluation Criteria

New or renewal research proposals from the laboratories will be submitted to BES as Review Documents, which will be subjected to formal merit review with peer evaluation and will be assessed against the following criteria (the first four criteria are listed in order of decreasing importance):

1. Scientific and/or technical merit of the project;
- for example, the influence that the results might have on the direction, progress, and thinking in relevant scientific fields of research; the likelihood of achieving valuable results; and the scientific innovation and originality indicated in the proposed research.
2. Appropriateness of the proposed method or approach;
- for example, the logic and feasibility of the research approaches and the soundness of the conduct of the research.
3. Competency of the personnel and adequacy of the proposed resources;
- for example, the background, past performance, and potential of the investigator(s); and the research environment and facilities for performing the research.
4. Reasonableness and appropriateness of the proposed budget; and
5. New and renewal proposals may include additional criteria such as synergism among the PIs in a program, programmatic focus of a multi-PI effort, and utilization of unique facilities. Other criteria may be specifically listed in an announcement for new DOE laboratory proposals. Past performance is a criterion for all renewal proposals.

Summary of Review Document Contents

- 1 Cover Page
- 2 Table of Contents
- 3 Management Plan

Sections 4 - 11 are to be completed for each subtask in the Review Document. Multiple subtasks should be presented as follows: first subtask: Sections 4.1, 5.1 ... 10.1, 11.1; second subtask: Sections 4.2, 5.2 ... 10.2, 11.2; etc.

- 4 Subtask Title and Abstract
- 5 Budget and Budget Explanation
- 6 Narrative
- 7 Literature Cited
- 8 Other Support of Investigators and Collaborations
- 9 Biographical Sketches
- 10 Description of Facilities and Resources
- 11 Appendix (All appended material must be separate from the RD, e.g., in electronic folders containing multiple PDF files of publications.)

Submitting the Review Documents

The Review Documents should be submitted to BES electronically in PDF format. All Appendices must be in separate PDF files from the Review Document.

Format of the Review Documents

Review Documents must be readily legible when printed and must conform to the following requirements: the height of the letters must be no smaller than 10 point with at least 2 points of spacing between lines (leading); the type density must average no more than 17 characters per inch; the margins must be at least one-half inch on all sides. Figures, charts, tables, figure legends, etc., may include type smaller than these requirements as long as they are still fully legible.

Number pages consecutively at the bottom of each page throughout the review document. Start each major section at the top of a new page with the section number and title, for example, "2 Table of Contents." Do not use unnumbered pages.

1. Cover Page

The Cover Page should contain the following information:

- Title of proposed project
- FWP Number(s) corresponding to the proposed project (if available for new proposals)
- BES Program announcement title (if applicable)
- Name of laboratory
- Name of principal investigator (PI)
- Position title of PI
- Mailing address of PI
- Telephone of PI
- Fax number of PI
- Electronic mail address of PI
- Name of official signing for laboratory*
- Title of official
- Fax number of official
- Telephone of official
- Electronic mail address of official
- Requested funding for each year; total request

If other institutions are participating in the project, include a table listing institutions, lead investigator at each institution, and requested funding for each institution at this point on the cover page.

Use of human subjects in proposed project: If activities involving human subjects are not planned at any time during the proposed project period, state "No"; otherwise state "Yes", provide the IRB Approval date and Assurance of Compliance Number and include all necessary information with the Review Document should human subjects be involved.

Use of vertebrate animals in proposed project: If activities involving vertebrate animals are not planned at any time during this project, state "No"; otherwise state "Yes" and provide the IACUC Approval date and Animal Welfare Assurance number from NIH and include all necessary information with the review document.

Signature of PI, date of signature
Signature of official, date of signature*

* The signature certifies that personnel and facilities will be available as stated in the review document, if the project is funded at the requested level.

2. Table of Contents

Provide the initial page number for each of the sections of the Review Document.

3. Management Plan

Describe the overarching science/technology goals that link the groups and researchers together. Include an overview of the functions of key personnel and the relationships among the subtasks. Describe any distinguishing strengths of conducting this particular research at your DOE laboratory, such as the synergisms among the investigators of a large interdisciplinary team; the ability to utilize unique DOE facilities at the laboratory; the benefits of collocation with researchers from other DOE programs; the ability to rapidly reconfigure your research thrust to respond to new challenges; and your successes at working with other research performers on transferring results to technology applications and other fields of research. Cite specific examples to illustrate such distinguishing strengths.

As appropriate for the research described in the RD, describe the role of any advisory committee, executive committee, program committee, or their equivalent. Identify any plans for administering educational programs and outreach activities associated with the proposed research. Plans for administering shared facilities should be described under Section 10, Description of Facilities and Resources, of the appropriate subtask.

This section should be no more than five pages.

If the Review Document consists of multiple subtasks, an overall budget summary should be provided here, which sums to the individual budgets for each subtask (see Section 5 for details)

*Sections 4 - 11 are to be completed for each subtask in the Review Document.
Multiple subtasks should be presented as follows: first subtask: Sections 4.1, 5.1
... 10.1, 11.1; second subtask: Sections 4.2, 5.2 ... 10.2, 11.2; etc.*

4. Subtask Title and Abstract

Provide an abstract for the subtask that is no more than 250 words. Give the broad, long-term objectives and what the specific research proposed is intended to accomplish. Indicate how the proposed research addresses the BES scientific/technical area specifically described in the announcement, if appropriate.

5. Budget and Budget Explanation

A budget, conforming to the guidelines given below, is required for the entire project period, which normally will be three years, and for each fiscal year. You optionally may utilize DOE's budget page, Form 4620.1, for providing the equivalent budget information (Form 4620.1 is available at the following web site: <http://www.sc.doe.gov/production/grants/forms.html>). Modifications of this form are permissible to comply with institutional practices. A written justification of each subtask is to follow the budget pages. For personnel, this should take the form of a one-sentence statement of the role of the person in the project. Provide a justification of the need for each item of permanent equipment. Budgets should also be provided for each research partner from a different institution who is funded under the FWP. Any other significant support received should be shown in Section 8.

Total Budget and Level of Effort: Provide the total budget for the project, not counting equipment requests. List the names of the principal investigator and other key personnel and the estimated number of person-months or percentage of time for which DOE funding is requested. Proposers should list the number of postdoctoral associates and other professional positions included in the proposed work and indicate the number of full-time-equivalent (FTE) person-months. For graduate and undergraduate students and all other personnel categories such as secretarial, clerical, technical, etc., show the total number of people needed in each job title and their level of effort. The budget explanation should define concisely the role of each position in the overall project.

Equipment: Provide the total equipment budget requested. DOE defines equipment as "an item of tangible personal property that has a useful life of more than two years and an acquisition cost of \$25,000 or more." Special purpose equipment means equipment that is used only for research, scientific or other technical activities. Items of needed equipment should be individually listed by description and estimated cost, including tax, and adequately justified. Allowable items ordinarily will be limited to scientific equipment that is not already available for the conduct of the work.

6. Narrative

The narrative comprises the research plan for the FWP subtask. Unless otherwise specified, the narrative for each new or renewal FWP subtask should not exceed 15 pages. The majority of the narrative should address the *Proposed Work*. If a Review Document involves several subtasks, the narrative for each subtask should be prepared so that it can be reviewed as a separate proposal. At the beginning of each subtask section, name the senior personnel who will participate, and state the proposed number of postdoctoral and undergraduate and graduate student participants. The narrative should contain the following subsections:

Background and Significance: Briefly sketch the background leading to the present proposal, critically evaluate existing knowledge, and specifically identify the gaps that the project is intended to fill. State concisely the importance of the research described in the proposal. Explain the relevance of the project to the research needs identified by BES. Describe the role and intellectual contribution of each senior participant in the subtask, and briefly outline the resources available or planned to accomplish the research goals. The need for a collaborative/laboratory approach involving several investigators and the means of achieving this should be clearly established. Include references to relevant published literature, both to work of the investigators and to work done by other researchers.

Progress Report (renewal proposals only): Use this section to provide an account of progress since the most recent award or renewal action consisting of a summary of scientific and technical progress. A list of publications generated under and attributed to the previous award or renewal action must be included in Section 7, Literature Cited.

Preliminary Studies (new proposals only): Use this section to provide an account of any preliminary studies that may be pertinent to the proposal. Include any other information that will help to establish the experience and competence of the investigators to pursue the proposed project. References to appropriate publications and manuscripts submitted or accepted for publication may be included. Copies of such publications or manuscripts may be included in the Appendix (Section 11).

Proposed Work: A clear statement of the work to be undertaken is needed and must include: objectives for the period of the proposed work and expected significance; relation to longer-term goals of the PI's project; and relation to the present state of knowledge in the field, to work in progress by the PI under other support and to work in progress elsewhere. The Proposed Work should outline the general plan of work, including the broad design of activities to be undertaken, and, where appropriate, provide a clear description of experimental methods and procedures needed to accomplish the Proposed Work. In addition, it should describe new techniques and methodologies and explain their advantages over what currently exists. This section should constitute the major portion of the narrative.

Subcontract or Consortium Arrangements: If any portion of the project described under "Research Design and Methods" is to be done in collaboration with another institution,

provide information on the institution and why it is to do the specific component of the project. Further information on any such arrangements is to be given in the sections "Budget and Budget Explanation," "Biographical Sketches," and "Description of Facilities and Resources."

7. Literature Cited

List all references cited in the narrative. Limit citations to literature relevant to the proposed research. Information about each reference should be sufficient for it to be located by the reviewers.

For renewal proposals: Publications that are directly attributed to earlier work done under BES funding of the subtask must be listed separately. Copies of some or all of these publications that are considered most relevant to the progress that has been attained may be included in the Appendix (see Section 11).

8. Other Support of Investigators and Collaborations

Other support is defined as all financial resources, whether Federal, non-Federal, commercial or institutional, available in direct support of an individual's research endeavors. Information on significant levels of active and pending other support is required for all personnel, including investigators at collaborating institutions to be funded by a subcontract. For each item of other support, give the organization or agency, inclusive dates of the project or proposed project, annual funding, level of effort devoted to the project, and a one paragraph scope statement for each such project.

Describe any proposed interactions and collaborations with other institutions and sectors, such as universities, other national laboratories, and industrial institutions. Define the goals of the collaboration, and describe the planned activities. Describe the roles of the senior participants, the mechanisms planned to stimulate and facilitate knowledge transfer, and the potential long-term impact of the collaborations.

9. Biographical Sketches

This information is required for each senior personnel at the laboratory submitting the review document and at all subcontracting institutions. Provide concise vitae, listing professional and academic essentials and complete contact information. List up to ten publications most pertinent to the subtask. *For renewal proposals,* publications that are directly attributed to earlier work done under BES funding of the on-going program must be clearly differentiated. Reference to the information already provided in Section 7 may be appropriate. This portion of the biographical sketches is limited to a maximum of two pages for each investigator.

Each biographical sketch should also include the following information on collaborators and other affiliations to help identify potential conflicts or bias in the selection of reviewers:

Collaborators: A list of all persons in alphabetical order (including their current organizational affiliations) who are currently or who have been collaborators or co-authors with the individual on a project, book, article, report, abstract or paper during the 48 months preceding the submission of this proposal. Include collaborators on this proposal. If there are no collaborators, this should be so indicated.

Graduate and Postdoctoral Advisors: A list of the names of the individual's own graduate advisor(s) and principal postdoctoral sponsor(s), and their current organizational affiliations.

Thesis Advisor and Postgraduate-Scholar Sponsor: A list of all persons (including their organizational affiliations), over the last five years with whom the individual has had an association as thesis advisor or postgraduate-scholar sponsor. The total number of graduate students advised and postdoctoral scholars sponsored also must be identified.

10. Description of Facilities and Resources

Describe briefly the facilities to be used for the conduct of the proposed research. Indicate the performance sites and describe pertinent capabilities, including support facilities (such as machine shops) that will be used during the project. List the most important equipment items already available for the project and their pertinent capabilities. Include this information for each subcontracting institution, if any. Describe any shared facilities and infrastructure to be established, including specific major instrumentation, and plans for the development of instrumentation. Describe plans for maintaining and operating new facilities, including staffing, and plans for ensuring access to outside users. Distinguish clearly between existing facilities and those still to be acquired or developed.

11. Appendix

All appended material must be submitted as separate PDF files from the Review Document PDF file, e.g., in electronic folders containing multiple PDF files of publications. Do not use the appendix to circumvent the page limitations of the review document. Information should be included that may not be easily accessible to a reviewer. However, reviewers are not required to consider information in the Appendix. Reviewers may not have time to read extensive appendix materials with the same care as they will read the Review Document proper.

The appendix may contain publications, manuscripts accepted for publication, abstracts, patents, or other printed materials directly relevant to this project, but not generally available to the scientific community. The appendix may also include letters from investigators at other institutions stating their agreement to *participate* in the project. Do not include letters of endorsement of the project.

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