Project Selection and Review System

Why we use review systems

The Office of Science and Technology (OST) develops, delivers, and supports the deployment of new and improved technologies for environmental restoration and waste management. Calculating a return on that investment combines timeliness, effectiveness, efficiency, and risk reduction, as well as cost of development. These factors cannot be known with certainty at the earlier decision-making stages, so reviews are used to inform the judgments that must be made in selecting and advancing technologies, in selecting which sites or investigators will pursue new development efforts, and in designating new areas of investment. Most importantly, results of the investment must be adopted for deployment by end users (cleanup project managers).

In the science and technology community, internal and external review by peers and sponsors is recognized as an important aid to decision making. Accordingly, OST has established a system of reviews to ensure that project selection and evaluation decisions are made as wisely as possible. The review system used to identify and select projects for funding and for the technical review of ongoing projects is summarized here. Within these principles and guidelines, each program element (e.g., Focus Area) formulates specific procedures.

Goal of the review system

The goal of the review system is to secure the best possible scientific, technical, and sociopolitical assistance for the decision maker. While the precise purpose, method, and emphasis of different review system components vary, some attributes are important in all reviews:

- relevance to the DOE Environmental Management (EM) mission;
- importance of the problem being addressed;
- cost/benefit performance compared to the baseline;
- solving problems for which no baseline exists;
- readiness for a technology to advance to a later development stage;
- creativity, originality, and uniqueness (avoiding redundancy);
- feasibility, timeliness, and likelihood of technical and economic success; and
- confidence in the proposing institution and investigators.

Reviewers are briefed in advance on the purpose and criteria of the review, and they are encouraged to address additional issues pertinent to the overall program.

Components of the OST review system

Project selection reviews—The review system begins with reviews of proposals for new research and development activities by technical peers and potential users of the results. The EM Science Program (EMSP) solicits preproposals, which are screened for scientific merit and relevance to the cleanup mission as the basis for encouraging full proposals. Full proposals are reviewed first by external peer reviewers for scientific merit and then by DOE end users for potential applicability to EM problems. EMSP project selection reviews are a responsibility shared with the Department's Office of Science. For technology development, proposals are requested within Work Package areas and are screened for programmatic relevance before the technical review is conducted. Project selection reviews for technology development activities are conducted by EM's Focus Areas.

Peer reviews—Proposed or ongoing projects may be externally reviewed for technical merit. The American Society of Mechanical Engineers (ASME) conducts peer reviews for OST. OST requires technical peer reviews for all new projects, at least every three years for continuing projects, and for projects that are entering the engineering development stage (i.e., passing Gate 4).

Midyear reviews—Each EM Focus Area conducts annual programmatic progress reviews according to procedures adapted to its goals and methods. The principal focus of midyear reviews is relevance and progress toward meeting end user requirements.

Midyear reviews expose ongoing work to the users in a formal setting and seek their help in determining the applicability and performance requirements of new technologies compared to baselines. Progress and readiness are evaluated for each project, and opportunities to integrate multiple projects are identified.

Other reviews—Major program areas, specific technologies, and technology clusters (e.g., thermal treatment, subsurface barriers) are reviewed as deemed appropriate on an ad hoc basis. These reviews generally address issues of broad programmatic significance and help guide OST in addressing problems of greatest importance to EM and DOE.

All reviews culminate in written documentation. Where appropriate, an action plan delineates steps to correct deficiencies and take advantage of new opportunities. Information from reviews is considered by program and line management in selecting or continuing projects for funding, developing new areas of investigation, and evaluating programmatic progress.

Principles

Review actions are founded upon principles of scientific ethics. Particularly important are issues of confidentiality and appropriate use of privileged information.

- Reviewers are chosen for their expertise and experience in the area being reviewed.
- Reviewers must be free from any direct interest in the outcome of decisions that draw on their advice or comments. In addition, integrity is demanded to ensure that reviewers do not improperly use information in confidential or privileged documents.
- Membership of review teams and specific comments are matters of record, but the identity of reviewers making particular comments is strictly confidential.
- Where a team recommendation is formulated through discussions among reviewers, the review team must be constituted under the rules of the Federal Advisory Committee Act (FACA). Non-FACA reviews reflect only the comments of individual reviewers.
- Review comments or recommendations are formally directed to the next higher level of authority than the one being reviewed.
- Reviewers do not have authority for making decisions and are not responsible for their outcome. Such authority and responsibility belong to the program manager and OST/EM/DOE management.
- The official record of the review is documented in written comments and recommendations.
- Because the success of OST depends on deployment, a responsibility of technology end users, it is imperative that end users be integrally involved.

OST guidelines

Emphasis on particular review criteria varies according to program requirements. OST guidelines provide a broad template for planning and conducting reviews. Each program element develops procedures appropriate to the review type. For basic research efforts, adherence to the scientific method and hypothesis testing are important. In large-scale demonstrations, cost and schedule factors become more important. At the deployment stage, adaptability to specific user needs and regulator/stakeholder acceptance become the driving factors. Relevance to EM needs is a major consideration at all stages. To ensure consistency among the different procedures, OST Headquarters concurrence is required.