**The ERC Proposal Review System**

Initial Review

Upon receipt of a proposal, the following occurs:

* ERC Program Leader—
  + Forms the panel review system under the Program-wide conflict of interest (COI) policy
  + Sorts the proposals into “buckets” of proposals focused on similar topics that would require similar expertise to review; these would be the basis for technical panels
  + Assigns a team of ERC Program Directors (PDs) to manage the technical panels.
* ERC PD serving as manager of a technical panel—
  + Develops a list of potential panelists under the COI guidelines
    - As a group, panelists should have sufficient disciplinary breadth to provide the disciplinary expertise needed to review the set of proposals.
    - Mail reviews can be obtained to cover outlier disciplines.
    - As a group, panelists should come from academe, industry, and in some cases from other research funding agencies.
    - Panel should be demographically diverse as to gender, race, and ethnicity (added in the 1990s).
  + Gains approval from the ERC Program Leader for the list of potential reviewers
  + Contacts potential reviewers and gains their acceptance to prepare written reviews and attend a panel meeting at NSF
  + Assigns a minimum of three, but usually five or more, reviewers to review each proposal and each reviewer reads about seven proposals
  + Assigns panelists as lead reviewers (briefly summarizing the proposal and its reviews in real time at the panel) and scribes (to prepare panel summaries) before the panel meets
  + Provides lists of reviewers and assignments to ERC Program support staff, who send proposals, the review criteria, and review forms to the reviewers with a due date for the review a few days before the scheduled panel
    - By the mid-1990s the proposals and review criteria were sent to the reviewers electronically and the review was submitted electronically via FastLane.[[1]](#footnote-1)
    - Reviewers read assigned proposals, rate them from Excellent to Poor, and write their review (ratings and reviews mailed to NSF in the 1980s and then submitted through FastLane after 1996).
  + Prepares a spreadsheet of the proposals and their review ratings, which serves as a live panel management tool when projected to the panel (spreadsheets were later replaced by the live, real-time capabilities of FastLane).

Proposal Panel Reviews

* Initially, these panels were held on the same day at NSF and all panelists were briefed at the same time; this was changed over time because it was too difficult to get sufficient numbers of reviews for only one window of days. As a result, the two-day panels were held over several days during the course of a week or two.[[2]](#footnote-2)
* Panel Meeting Days—
  + ERC Program Leader and ERC PD brief the panelists on the ERC Program’s goals, key features, the review criteria, the review process, and the COI policy.
  + Staff provide reviewers with the reviews for the proposals under consideration during the panel meeting.
  + Each proposal is introduced—i.e., briefly summarized—to the panel by a lead reviewer, and a scribe is reminded to prepare a summary of the discussion.
  + Panel discusses the proposal; process is managed by the ERC PD.
  + After discussions, the proposals are rated as Highly Recommended (HR), Recommended (R), and Not Recommended (NR) and each panel ranks the HR and R proposals separately.
  + Scribes prepare their proposal panel summaries based on the full range of discussions; the summaries are reviewed by a subset of panelists who read the proposal and approved by the whole panel, and then officially approved by the Panel Leader.
* After all panels are completed, the ERC Program Leader, in consultation with ERC PDs who managed the technical panels and the Division Director, selects proposals for a review by the ERC “Blue Ribbon” Panel. As an outcome of that panel review, all of those rated HR and the highest rated proposals in the R category would receive an invitation for a site visit, unless knowledge of some deficiency emerged in this internal process. This process remained in effect until 2000, when more layers were added to the recommendation process. [LP: Not clear; no reference below to changes in 2000]

Introduction of Preliminary Proposals and Process to Determine a Set of Invitees who Can Submit a Full Proposal

Starting in FY 1994, ERC solicitations required the submission of pre-proposals. The pre-proposals were reviewed by technical panels that provided recommendations for invitations to submit a full proposal. Based on these recommendations, decisions to select the PIs of pre-proposals to be invited to submit full proposals were based on the following:

* All proposals Highly Recommended for an Invitation by all technical panels, and
* Highest ranked (usually the first and second place) proposals in the Recommended category across all panels.

Full proposals were reviewed by a new set of technical panels, in which some of the members could be from prior pre-proposal technical panels. Those panels were managed in the same way as the pre-proposal technical panels; they each recommended the proposals out as Highly Recommended, Recommended, and Not Recommended for further consideration. (LP note to self – derived from 98-146 Digest of Review process – an internal document in case I have to reference it.)

ERC “Blue Ribbon” Panel Review of the Best Full Proposals

* ERC Program Leader forms the ERC “Blue Ribbon” Panel, mindful of conflict of interest policies—
  + ERC Blue Ribbon Panel is a panel of experts who review the Highly Recommended full proposals and the highest rated Recommended full proposals, attend site visits as observers, and recommend awards to NSF.
  + Panel is a diverse mixture of reviewers with academic experience only, combined academic and industrial experience, or industrial experience.
    - In the 1990s and early 2000s, many of the industrial reviewers were retired VPs for R&D or chief technical officers; as industrial R&D labs were phasing out this source of reviewers with a broad base of experience in funding academic and industrial R&D began to dry up as well.
    - NSF’s conflict-of-interest policies regarding personal investments also began to impinge on the ability to use these types of reviewers.
* Blue Ribbon Panel Review of Proposals—
  + Proposals and their reviews are sent to the panelists; they are required to prepare their own reviews and submit them to NSF.
  + ERC Program Leader prepares spreadsheet of panels by reviewer (spreadsheets were later replaced by FastLane).
  + Assignments of lead reviewers and scribes are made.
  + Panel is convened at NSF, welcomed by the NSF Assistant Director for Engineering (if he/she is not conflicted), and briefed by the Leader of the ERC Program
  + Each proposal is introduced, i.e. briefly summarized, to the panel by a lead reviewer, a scribe was assigned to prepare a summary of the discussion, and the panel discussed the proposal, process managed by the ERC Program Leader
  + After discussion, the proposals are recommended for site visit in the HR, R, and NR categories, and the HR and R proposals are rated separately
  + Scribes prepare their panel summaries, which are reviewed by a subset of panelist and approved by NSF staff.
* Based on this review, NSF staff selects proposals for site visit—all of those rated as HR and the highest-ranked Recommended Proposals; usually 8-10 site visits are held and the number depends on the potential number of awards.

Pre-Award Site Visit Preparation

* ERC Program Leader calls the proposed Center Director (the PI) for each proposal that will receive a site visit to congratulate him/her on reaching this stage of the process and inform him/her of the remainder of the review process.
* ERC Program Leader sends the PIs site visit guidelines (these were developed a few years into the program to provide uniform guidance across all site visits).
* ERC Program Leader assigns a PD to lead the site visit and develop the site visit team (SVT); two ERC Panelist are assigned to each visit as observers.
* ERC PD works with the proposing PI and staff plus the assigned ERC Panelists to determine a site visit date of two full days, with an evening NSF briefing to the SVT the night before the site visit starts.
* Proposal and its prior reviews are sent to the site visitors.
* Prior reviews are sent to the PI, minus reviewer identification.

Pre-Award Site Visits – 2.5 days (This was the format as of 2014)

* SVT is briefed by the lead ERC PD regarding the review process the evening before the team starts the visit on campus.
* Day 1:
  + SVT is welcomed by the PI and university officials.
  + SVT is briefed by the proposing team regarding its key features, and updates as a result of the prior reviews.
  + SVT meets privately with
    - University officials
    - Proposed industrial members.
  + There is a lunch where the SVT sits with the faculty, students, and industry members of the proposing team.
  + Students present their current research through a poster session.
  + Laboratory or facilities visit conducted if deemed useful.
  + One executive session held for the SVT to discuss findings before lunch.
  + Second and final executive session held at the end of the first day to develop a few questions regarding issues that need to be clarified before the site visit report can be written. Those questions are presented to the proposing team before the SVT leaves campus. (This is a better approach than originally used, which was to “spring” the questions on the proposing team the morning of the second day for their response, because now they have time in the evening to develop their responses, and it also points to how effective a team leader the proposed Director is.)
* Day 2:
  + Proposing team responds to the SVT’s questions.
  + SVT adjourns to a private room to discuss those responses and develop a recommendation—
    - SVT members prepare a SWOT analysis to summarize their findings.
    - SVT members determine a recommendation
      * High Quality
      * May become High Quality if the following significant weakness(es) /threat(s)are addressed
      * Does not address ERC key features with a sufficiently high-quality effort.
    - SVT members write their assigned sections of the report (the report format is electronic and includes summaries of the review criteria at the start of each section.
    - ERC PD assembles the report and projects it on a screen, later through SharePoint, so all members can see/read the report. (The ERC PD and other NSF staff used to read the report out loud to the SVT, but this proved very time consuming, so the SVT members were assigned sections to review and revise as needed in real time.)
    - Corrections are made and the report is accepted by the SVT.
    - SVT members sign a signature page.

Final Blue Ribbon ERC Panel Meeting

* ERC Program Leader schedules a 2.5-day meeting to recommend awards based on the proposals, their reviews, and visit reports.
* She/he develops an agenda for the meeting that includes a briefing by NSF staff on the remainder of the process, briefings by each of the proposing PIs accompanied by up to 4 members of his/her faculty team, a Q&A session for each, and a discussion after each PI session.
* At the end of the second day, the agenda includes a session to narrow down the field to a set of potential awards (reviewers who have not read those proposals must become familiar with them overnight). [LP: Does this mean they’ve gone through all these briefings and discussions without having read the proposals? Doesn’t seem right.]
* Final morning session involves a final short discussion of potential awardees, a final vote for recommendation, and ranking of those in the HR and R categories.
* Scribes prepare their panel summaries based on the full range of discussions, which are reviewed by a subset of panelist and approved by NSF staff.

1. See <https://www.nsf.gov/about/history/timeline90s.jsp> regarding the introduction of FastLane at NSF. [↑](#footnote-ref-1)
2. Shortly after NSF moved to Arlington in the early 1990s, the panels were again scheduled for one two-day period. Unfortunately, the transformer outside of NSF failed and there was no power. One of the ERC PDs, Jay Lee, had arrived early at NSF and discovered it. He called Lynn Preston and Marshall Lih so they had a plan by the time they arrived at NSF, which was to round up rooms in nearby hotels and at nearby Federal agencies. Miraculously, that was achieved and the panel reviews proceeded. However, after that Preston decided to never again hold all the panels on one two-day period. [↑](#footnote-ref-2)