

Merit Review in NSF and Other USA Federal Agencies

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Presentation

- Overview of Processes Used in Selected USA Federal Agencies
- Focus on NSF
 - Process
 - Relevant Data
 - Issues/Concerns



National Institutes Of Health (NIH)

- Mechanism for peer review
 - Scientific Review Groups (SRG)
- Membership of SRGs is public information
- Documentation to proposer
 - SRG rating of proposal
 - SRG analysis of proposal
- <http://grants2.nih.gov/grants/peer/peer.htm>



Department of Energy (DOE)

- Mechanism for peer review
 - Panel
 - Ad hoc reviewers
- Peer reviewers are anonymous
- Documentation to proposer
 - Reviewer analysis can be requested
 - Reviewer comments may be sent to proposer to provide actionable advice
- <http://www.sc.doe.gov/grants/grants.html>



National Aeronautics and Space Agency (NASA)

- Mechanism for peer review (Science Mission)
 - Panel
- Peer reviewers are anonymous
- Documentation to proposer
 - Consensus report from panel
- <http://ec.msfc.nasa.gov/hq/granta.html>



National Science Foundation (NSF)

- Mechanisms for peer review
 - Ad hoc, Panel, Combined
- Peer reviewers are anonymous
- Documentation Proposer Receives
 - Panel summary (if panel used)
 - Context statement
 - Verbatim reviewer comments
 - PO comments (if needed)
- Grant Proposal Guide (NSF 04-23)



Peer Review at NSF

➤ Criteria

- Criterion I: Intellectual Merit
- Criterion II: Broader Impact

➤ Ratings

- Excellent, Very Good, Good, Fair, Poor



Criterion I: Intellectual Merit

- How important is the proposed activity to advancing knowledge and understanding within its own field or across different fields?
- How well qualified is the proposer (individual or team) to conduct the project?
- To what extent does the proposed activity suggest and explore creative and original concepts?
- How well conceived and organized is the proposed activity?
- Is there sufficient access to resources?



Criterion II: Broader Impact

- How well does the proposed activity broaden the participation of underrepresented groups
- How well does the activity advance discovery and understanding while promoting teaching, training, and learning?
- To what extent will it enhance the infrastructure for research and education, such as facilities, instrumentation, networks, and partnerships?
- Will the results be disseminated broadly to enhance scientific and technological understanding?
- What may be the benefits of the proposed activity to society?



Input for PO Award/Decline Decision

- Results from peer review
- Program Budget
- Program Portfolio Balance
 - Junior vs senior investigator
 - PI diversity (gender, ethnicity/race)
 - Geography
 - Potentially transformative vs mainstream

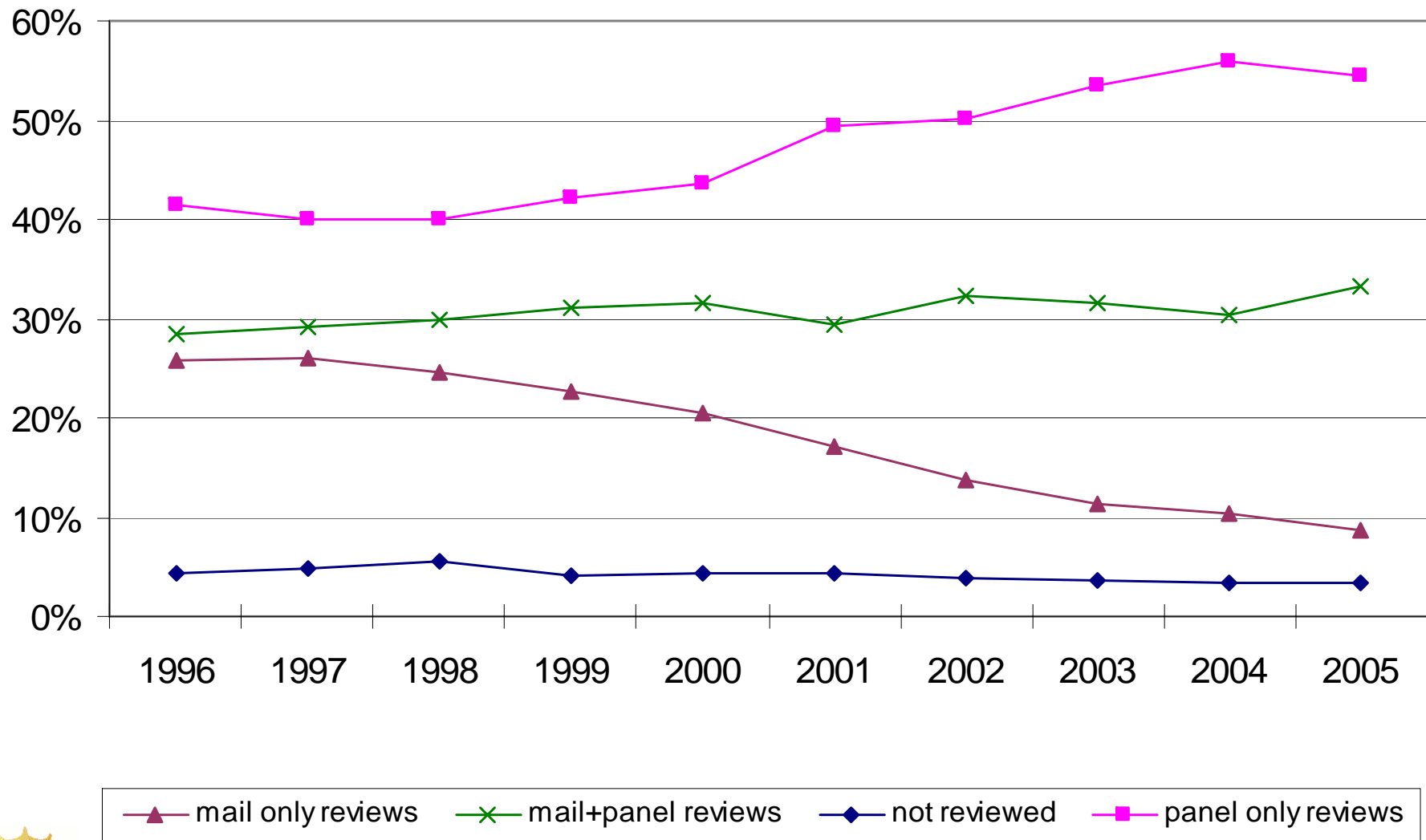


NSF Proposal, Award, Success Rate

Fiscal Year	2000	2001	2002	2003	2004	2005
Proposals	29,508	31,942	35,165	40,075	43,851	41,722
Awards	9,850	9,925	10,406	10,844	10,380	9,757
Success rate	33%	31%	30%	27%	24%	23%
NSF Budget	\$3.9B	\$4.4B	\$4.8B	\$5.4B	\$5.7B	\$5.5B



NSF Review Methods-Trends

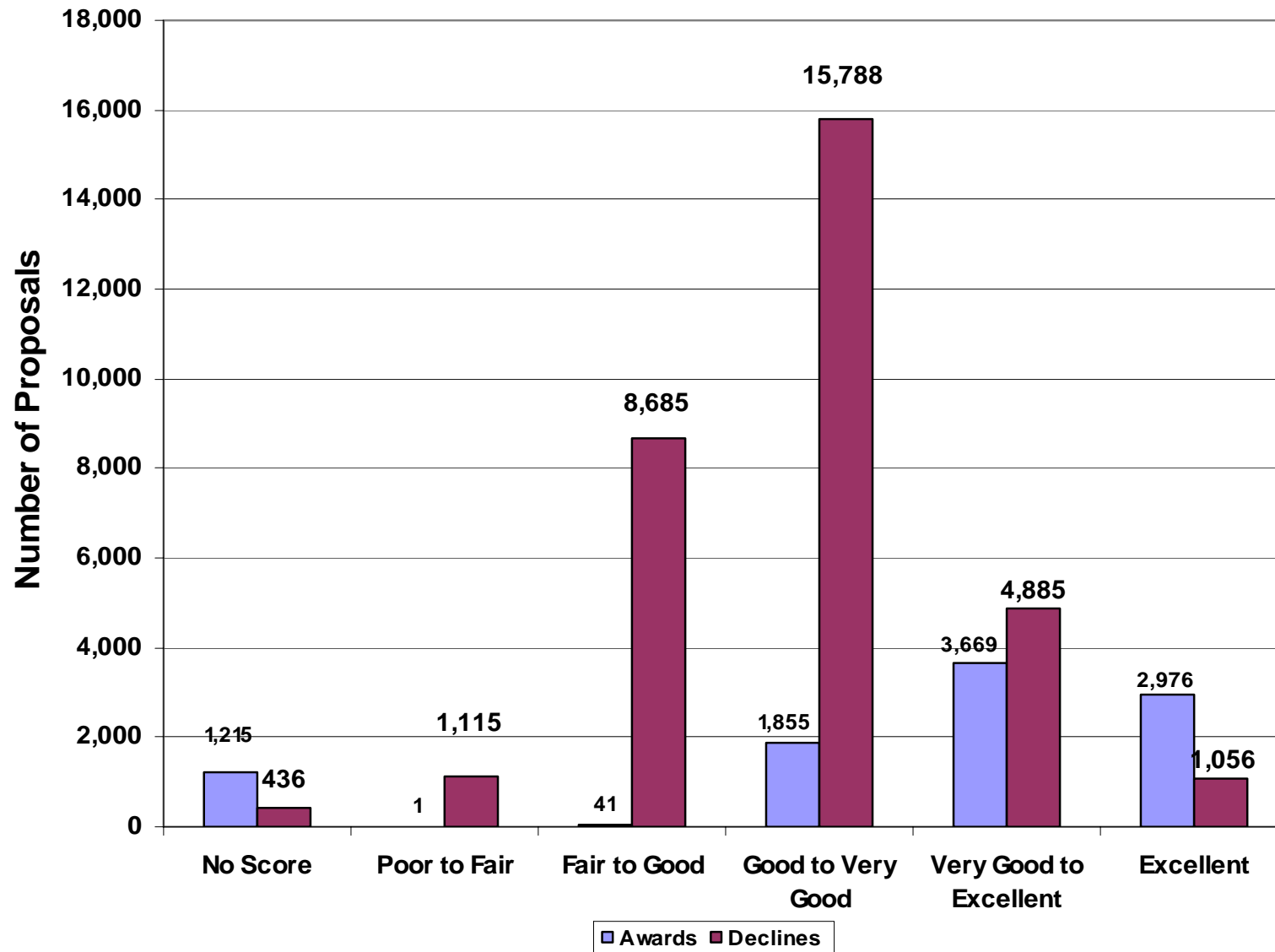


Reviews Per Proposal, FY 2005

	All Methods	Mail-plus-Panel	Mail-Only	Panel-Only
# of Reviews	246,273	108,591	15,552	122,130
# of Proposals	40,310	13,919	3,656	22,735
Reviews per Proposal	6.1	7.8	4.3	5.4



Distribution of Average Reviewer Ratings



Transparency Issues/Concerns

- Is current NSF policy on documentation to PI adequate?
 - Verbatim reviewer comments, Panel summary (if panel used), Context statement, PO comments (if award/decline decision not explained by panel summary)
- What training is needed for reviewers/POs?
- How does agency ensure intended transparency in implementation of merit review process?



Design of Process Issues/Concerns

- What is appropriate balance of qualitative and quantitative in peer review to be most effective?
 - For award/decline decision
 - For feedback to PI
- Does peer review process foster or inhibit support of transformative research?
- What mechanism (s) would best promote and identify potentially transformative research?



Implementation Issues/Concerns

- Criteria I&II: Intellectual Merit and Broader Impacts
 - Interpretation
 - Relative Weight
- Quality of peer review (expertise, comments)
- Panel
 - Quality of panel summary
 - Depth of expertise on panel



Implementation Issues/Concerns

- Identification and Selection of Experts
 - content expertise
 - balance of representation: gender, underrepresented minority, geographical region, institution type
- Low proposal success rate
- Workload
 - NSF Staff
 - Reviewer community



Other NSF References

<http://www.nsf.gov>

- Report to National Science Board on NSF Merit Review Process, FY 2005 (NSB 06-20)
- Report of National Science Board on NSF Merit Review System (NSB 05-119)
- Grant Proposal Guide (NSF 04-23)
- Committees of Visitor Reports

