



U.S. Department of Energy's Office of Science

Applied Mathematics Program Committee of Visitors (COV) Response

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Applied Mathematics Program Committee of Visitors (COV) Timeline

Nov 30, 2009: Applied Mathematics COV Charge issued

COV Members:

- Linda Petzold, COV Chair, University of California, Santa Barbara
- Andrea Bertozzi, University of California, Los Angeles
- Michael Heath, University of Illinois, Urbana-Champaign
- Leland Jameson, National Science Foundation
- Timothy Kelley, North Carolina State University
- Daniel Meiron, California Institute of Technology

May 12-13, 2010: COV Meeting

Aug 24, 2010: COV Report presented to ASCAC

Sep 6, 2010: COV Report issued

Oct 6, 2010: COV Response issued

Nov 9, 2010: COV Response presented to ASCAC



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Applied Mathematics Program Committee of Visitors (COV) Charge

1. **PROCESSES** - Efficacy and quality of the processes used to:
 - a) Solicit, review, recommend and document application and proposal actions – 4 Recommendations
 - b) Monitor active awards, projects and programs – 1 Recommendation

2. **PORTFOLIO** - Within the boundaries defined by the DOE mission and available funding, comment on how the award process has affected:
 - a) The breadth and depth of portfolio elements – 1 Recommendation
 - b) The national and international standing of the program with regard to other applied mathematics research programs that are also focused on the demands of high performance scientific computing and analysis of petascale datasets – 1 Recommendation



PROCESSES-a: Solicit, Review, Recommend and Document

COV Recommendation (1 of 4):

- The committee recommends that further consideration be given to ***improving the level of outreach as regards to new funding opportunities***. The COV is aware that the program usually has a very small window to accept proposals and that this is caused by rules concerning new starts during Continuing Resolutions, government fiscal years, etc. We would like to see the DOE explore a more flexible approach so that the proposal acceptance window could be broadened and thereby enhance the program's ability to attract proposals from a broader cross section of the scientific community.

Program Response:

- ASCR agrees with this recommendation. Solicitations are announced on the ASCR Web page and planned targeted solicitations are ***announced at technical conferences in advance of the solicitation whenever possible***. ASCR will pursue extending outreach by ***creating an Applied Mathematics distribution list***, pending Office of Science approval, where investigators can sign-up to learn about updates and opportunities. ASCR must follow DOE guidelines under Continuing Resolution and other internal DOE deadlines, such as the deadline for grant packages.



PROCESSES-a: Solicit, Review, Recommend and Document

COV Recommendation (2 of 4):

- Proposal project descriptions should be ***limited to 15 pages***.

Program Response:

- ASCR agrees with this recommendation. ***Applied Mathematics targeted solicitations will limit project descriptions to 15 pages***. Office of Science sets the page limit for proposals submitted to the Annual Notice Continuation of Solicitation for the Office of Science Finance Assistance Program.
 - The Office of Science Annual Notice, which is the mechanism for university applicants to submit “unsolicited” proposals and renewal proposals, specifically states: “There is no page limit to the project narrative .” ASCR must follow the guidelines in the Annual Notice, see:
 - <https://www.fedconnect.net/FedConnect/?doc=DE-FOA-0000411&agency=DOE>



PROCESSES-a: Solicit, Review, Recommend and Document

COV Recommendation (3 of 4):

- The merit review criteria for **large multi-investigator proposals should** include an evaluation that ensures that the elements of the proposed research are **appropriately integrated, coordinated and synergistic**, as is the case with other DOE activities such as SciDAC and the EFRCs.

Program Response:

- ASCR agrees with this recommendation. **Integration, coordination and/or synergy of the proposed research will be evaluated** within the DOE Merit Review Criteria as specified in 10 CFR 605.10

Applications will be subjected to scientific merit review (peer review) and will be evaluated against the following evaluation criteria which are listed in descending order of importance codified at 10 CFR 605.10(d):

- 1. Scientific and/or Technical Merit of the Project;*
- 2. Appropriateness of the Proposed Method or Approach;*
- 3. Competency of Applicant's Personnel and Adequacy of Proposed Resources; and*
- 4. Reasonableness and Appropriateness of the Proposed Budget.*

The evaluation process will include program policy factors such as the relevance of the proposed research to the terms of the FOA and the agencies' programmatic needs.

Integration, synergy and coordination of basic research in applied mathematics impacts all of the above criteria. The whole should be greater than the sum of the individual components.



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PROCESSES-a: Solicit, Review, Recommend and Document

COV Recommendation (4 of 4):

- Actions should be taken to ***accelerate the processing of approved grants.***

Program Response:

- ASCR agrees with this recommendation. In FY10, Office of Science has been working closely with the DOE grants office. ***The time to award has improved significantly.***



PROCESSES-b: Monitor Active Awards

COV Recommendation (1 of 1):

- ***Explicit guidelines should be instituted for progress reports***, including length and a clear description of the information that should be in the report. For example, all PIs should list publications, presentations, awards, and patents attributable to the project. The metrics for impact (awards, impact on scientific community, not only on mathematics, DOE impact, publications, presentations, etc.) should also be clearly stated and explained.

Program Response:

- ASCR agrees with this recommendation. ***Explicit guidelines for progress reports will be instituted for all Applied Mathematics projects.*** ASCR must follow guidance within the Federal Assistance Reporting Checklist in the award agreement.

Federal Assistance Reporting Checklist:

- <http://www.netl.doe.gov/business/forms/FederalAssistanceReportingChecklistExample.pdf>
- Executive Summary, Recommended Format: Approach, Results and Discussion, and Conclusion

Additional Recommendations for Consideration:

- Technical Progress - free format, multiple sections as appropriate, include impact as appropriate
- Key Accomplishments - could be bulleted list, include impact to DOE and/or scientific community
- Any noteworthy changes in cost, schedule, issues, personnel
- Comprehensive list of publications, presentations or other noteworthy deliverables, e.g. software produced by this award



PORTFOLIO-a: Breadth & Depth

COV Finding (1 of 1):

- The committee finds the portfolio to be ***exceptionally strong with regards to both depth and breadth.*** The balance of awards with respect to innovation, risk and interdisciplinary research appears to be appropriate. The committee was very ***impressed with the long-term perspective*** of the DOE applied mathematics program ***and its simultaneous agility at funding new program areas.***

COV Recommendation (1 of 1):

- The committee is very impressed and has nothing to recommend in this area.

Program Response:

- ***We thank the committee for this finding and recommendation.***



PORTFOLIO-b: National and International Standing

COV Finding (1 of 1):

- The DOE Applied Mathematics program has been, and continues to be, of extremely high quality and standing, both nationally and internationally. A **great strength of the program** is the willingness it has demonstrated to **invest in** projects with a **longer-term perspective** than is possible at most U.S. agencies, enabling the support of breakthrough research and ensuring its success and eventual adoption.

COV Recommendation (1 of 1):

- The committee is very impressed. We recommend to continue along the lines noted above.

Program Response:

- ***We thank the committee for this finding.*** ASCR agrees with this recommendation.

We greatly appreciate the Committee of Visitors' careful evaluation of the Applied Mathematics research program.

The COV recommendations for process improvements are being implemented and we thank the COV for their findings on the breadth, depth and quality of our portfolio.