

Report of the Committee of Visitors to the DOE Office of Nuclear Physics

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NSAC Meeting March 8-9, 2007

- Overview of Charge
- Review process and committee makeup
- Findings in each sub-group
- Recommendations

CHARGE to COV

Provide evaluation of the following major elements

- a) the effectiveness, efficiency and quality of process to solicit review and make decisions on funding of projects and proposals
- b) the monitoring of active programs
- c) the depth and breadth of the portfolio
- d) the national and international standing of the program (or, how the decisions have an impact on this metric)

Also, comment on progress since 2003 COV and possible improvements to process



The review

- 2.5 days in Germantown: Jan 9-11, 2007
- 1 full day of presentations (very valuable)
- Access to all documentation in the office (mix of paper and electronic)
- Informal discussions with Division Directors and Program Managers throughout the meeting
- Additional (e.g. statistical) information provided on request

Committee

University Grants I	University Grants II	Laboratory Research	Facility Operations	Projects
E. Beise (ch)	A. Nathan	M. Thoennesen	R. Gerig	K. Robinson
B. Fulton	K. Kemper	W. Louis	G. Dodson	D. Sinclair
C. Elster	W. Koch	R. Betts	L. Merminga	D. Lowenstein
R. Tribble	G. Young			

Reviewed about 1/3 of 180 grant jackets

New since 2003
This group reviewed all available documentation

Included S&T reviews of ATLAS and HRIBF

Included full range of funded projects

Findings: General Remarks

- Reorganization of office since 2003 is very beneficial to program. There are several vacant positions, and we expect the proposed new positions will also have a big impact. We encourage use of detailees/IPAs to relieve the (notable) workload on the staff.
- The office makes excellent use of and responds well to the broad range of NSAC reports, academy studies, program reviews. Examples are through project starts, relative enhancement of the theory program, and strategic response to the difficult FY06 budget.
- The COV was very impressed with the collegiality, management and exceptional work ethic we found during our 2.5 day visit. The frank and open discussions we were able to have with the program managers and division directors are essential to the process.

Findings: University Grants

- Solicitation of reviewers and review of proposals is excellent. Documentation on decision process is outstanding.
- A new (since 2003) set of explicit instructions for submission and annual reports has been implemented, along with deadline for new submissions. Seems to help with making timely decisions.
- Annual progress reports are a major portion of workload
- Grants cover full spectrum of research, and boundaries appear to be “permeable” (examples: RHIC spin, fundamental symmetries)
- OJI program is big benefit to attracting and promoting promising young scientists. New PIs are also started as existing grants evolve.
- However, there is a perception of low turnover and difficulty in “breaking into” the system: perception vs reality?

Findings: Laboratory Research

This review process is new since 2004. Four areas reviewed on 4-year cycle, three had been completed as of Jan 2007. We generally found it to be very effective.

Annual progress is monitored with “field work proposals” (FWPs), S&T reviews, and laboratory budget briefings. The 4-year review includes both written reviews and an international panel of experts.

Process is still evolving, and we have several recommendations for incremental improvements

- Better match review criteria and materials requested from the groups
- Develop uniformity in metric to determine “cost-effectiveness”
- Solicit reviewer comments as part of evaluation of graduate student and postdoc mentoring

Findings: Facility Operations

Management of facilities is generally outstanding despite difficult budgets. Note that during last 3 years, two facilities (Berkeley 88-inch cyclotron and MIT-Bates accelerator) have been shut down. Funds have been redirected to new programs, including towards accelerator R&D. Cancellation of RIA RFP was also a setback, but resources have been directed towards existing low energy facilities to maintain U.S. strength in this area.

There are now S&T reviews for HRIBF and ATLAS (response to last COV recommendation). In both cases, one result (along w/Ops review) was a proposed budget increase for FY07.

We endorse the Accelerator Technology R&D program at its present level, which is largely directed towards rare isotope beam development. We encourage further development of more general initiative, which could include graduate fellowships.

Findings: Projects

- The project portfolio includes everything from the JLab upgrade (>\$200M) to relatively small fundamental neutron physics experiments (\$<0.5M), and from accelerator improvement, to capital equipment and information technology.
- A tailored approach is used depending on size, scope, duration and risk of project. Oversight and monitoring is very complete, review mechanisms are very rigorous.
- Excellent use is made of NSAC reports in deciding on priorities and timing for new projects. Very few unsolicited proposals are received, and those tied to laboratories must include “ownership” of laboratory.
- There is a perception that the community does not have a good understanding of how to get new projects started, particularly when the project is not based at a facility.

National/International Standing

- We did *NOT* attempt to fully assess the international standing of the U.S. nuclear physics program. We focused on how decisions have affected the perceived quality of the program.
- The two large laboratories and their respective science programs are unique and have clear international impact. Access and partnerships with the international community are significant.
- Strategic use of special programs such as SCIDAC has brought leadership in the areas of modeling of stellar evolution and lattice QCD theory.
- More measured investments have been made in fundamental symmetries and nuclear structure/astrophysics, and add important and necessary breadth to the program, but there is substantial international competition, although individual U.S. researchers often have leadership.

Progress since last COV

The 2003 COV had 9 major recommendations, all have been acted on, only one is still ongoing. Highlights include:

- increase in travel funds
- proposal submission deadline implemented
- annual reports now have a uniform reporting format
- conflict-of-interest guidelines implemented
- “Director’s reserve” initiated to deal with short-term budget issues
- “workforce development” is now tracked in S&T reviews

Recommendations

- A common database of reviewers, shared among program managers, would be very valuable, especially as the overlaps between subprograms is increasing.
- We recommend more use of statistics to take a regular “pulse” of the vitality of the program. (e.g., turnover, grant size, PI’s per grant, time to notification, international investments/returns, etc.)
- Vacant positions should be filled ASAP, encourage use of detailees where appropriate
- The community needs a better understanding of the process, approach and constraints to starting projects. This could include a primer on a web site, or presentations at national meetings and/or informal conversations.

Recommendations, cont'd.

- For the review process for laboratory research groups, we recommend several incremental improvements
 - better mapping the review criteria to the suggested list of materials to be provided for the review, particularly for outreach, and workforce development)
 - more consistency in methodology for determining “cost effectiveness”
- We recommend an increase in informal site visits to laboratories (for both research groups and project monitoring), although this is strongly coupled with filling vacant positions (and sufficient allocation of travel funds)
- We encourage efforts to further develop the accelerator R&D program, along with the possibility of a fellowship program in accelerator physics.



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