

ASCR Response to the Report of the ASCAC Committee of Visitors Review for FY13-FY15

Date of COV: October 31 – November 1, 2017

Date of Response: March 13, 2018

Program Point of Contact: Barbara Helland (ASCR)

Overall ASCR Summary Findings and Recommendations		
	COV Recommendation	ASCR Response
ASCR-1	Given the rapid and changing landscape of scientific areas that ASCR covers, the COV encourages ASCR to develop a five-year strategic plan. As part of the strategic plan, ASCR should develop strategies for hiring and retaining scientifically trained program managers.	The development of an ASCR five-year strategic plan for a robust research program is underway. Next steps include reverse site visits of DOE Laboratories to Germantown in May 2018. Lab leaders will give half-day presentations on their unique expertise, core capabilities, and research outlooks in order to inform ASCR planning. Also in 2018, ASCR plans to hire a second Applied Mathematics program manager with expertise in new and emerging areas of scientific computing.
ASCR-2	The COV recommends that new programs like EXPRESS, which emphasize short term, high-risk projects, be advertised more broadly and with increased available funds, to initiate new fields of ASCR-related science. In addition, ASCR should track Early Career Research and EXPRESS awardees to build the ASCR research community.	ASCR agrees with this recommendation. In FY17 and FY18, high-risk, high-reward EXPRESS funding announcements were issued for new programs in quantum algorithms and quantum computing applications. Advertisement efforts have been broadened to include relevant Quantum Information Science communities (e.g., Dec 2017 Office of Science QIS Dear Colleague Letter). ASCR tracks and builds its research community through awardee participation in workshops, annual PI meetings, review panels, and other events.
ASCR-3	The COV recommends that PAMS be used to document and archive information from the DOE National Laboratories and that PAMS should be used to process and document ASCR pre-proposals.	ASCR agrees with this recommendation. Future enhancements to the PAMS system are determined at the Office of Science level, and not unilaterally by ASCR. Currently, there are several future enhancements to PAMS that are being considered including the ones mentioned here.
ASCR-4	Given the breadth of the research portfolio, the COV recommends that program managers be given the opportunity to attend a wider range of professional meetings. Attendance at meetings is an effective and efficient way to monitor ongoing projects and assess how sponsored work is being perceived by the research community.	ASCR agrees with this recommendation. As travel funds become more available, program managers will be able to attend more meetings.

ASCR Response to the Report of the ASCAC Committee of Visitors Review for FY13-FY15

Applied Mathematics Research Program		
	COV Recommendation	ASCR Response
AM-1	The COV recommends that targeted solicitations in the applied mathematics program be advertised more broadly to the community. The solicitations should also make it clear what type of work the program will support.	ASCR agrees with this recommendation. In addition to funding announcements advertised at ASCR Advisory Committee meetings and through the Society for Industrial and Applied Mathematics (SIAM), ASCR will also reach out to researchers in statistics (e.g., American Statistical Association), machine learning, and other scientific computing-related communities. Each solicitation will more strongly emphasize the purpose, scope, expected number of awards, expected project award sizes, and merit review criteria for responsive proposals.
AM-2	The COV recommends that the applied mathematics program encourage early career awardees to respond to subsequent solicitations.	ASCR will continue to look for ways to attract new and early career researchers. Currently, ASCR attracts researchers through participation at DOE workshops and professional conferences such as the Society for Applied and Industrial Mathematics (SIAM). Another mechanism to enhance awareness is through research participation on ASCR review panels and electronic reviews.
AM-3	Although the depth of the applied mathematics research program is excellent and the investigators of funded projects are first-class mathematicians, the COV recommends that the program seriously consider extending the breadth of its programs by seeking to cover a broad spectrum of topics and supporting a corresponding increase of scientific and technical expertise.	ASCR agrees with this recommendation. Research portfolio management of programs, topics, areas of expertise, and investment levels will continue to be guided by available resources and the emerging needs within the DOE Office of Science mission.
AM-4	The COV recommends that the program accommodate new and emerging areas of research in applied mathematics not specifically tied to extreme-scale computing.	ASCR agrees with this recommendation to accommodate new and emerging areas as addressed in the recent workshop on Scientific Machine Learning.

ASCR Response to the Report of the ASCAC Committee of Visitors Review for FY13-FY15

AM-5	Workshops and panels are very effective mechanisms to identify challenges and emerging areas required to develop programmatic responses to support future DOE missions. These workshops should be continued and expanded.	ASCR agrees with this recommendation. For example, ASCR recently hosted a January 2018 Basic Research Needs workshop on Scientific Machine Learning to understand the role of machine learning, applied mathematics, and scientific computing in advancing the DOE mission.
AM-6	Applied mathematics program managers should make regular visits to facilities to identify needs of the scientific community and to anticipate future opportunities in mathematics.	ASCR agrees with this recommendation. Given that travel funds are limited, regular visits to facilities for anticipating future opportunities in mathematics will need to be balanced with attending professional meetings and visits to monitor ongoing projects.
AM-7	The applied mathematics program managers should continue and expand efforts to interact with Applied Program Offices. The work with Office of Electricity Delivery and Energy Reliability produced several successful activities and there are opportunities for additional interactions with Energy Efficiency and Renewable Energy.	ASCR agrees with this recommendation and thanks the COV for the encouragement of broader efforts.

ASCR Response to the Report of the ASCAC Committee of Visitors Review for FY13-FY15

Computer Science Research Program		
	COV Recommendation	ASCR Response
CS-1	The EXPRESS program was valuable, giving DOE program staff the ability to do what might be described as seedlings – high risk, short duration investigations – to see if a topic is ripe for expansion into a full-blown program. Thus the EXPRESS program and open calls for unsolicited proposals should be explored as strategic tools in the ASCR program toolbox.	ASCR agrees with this recommendation.
CS-2	ASCR programs should examine a means of increasing the participation of under-represented demographics and early-stage PIs in review panels, and potentially in proposals and awards, especially within lead PIs.	ASCR agrees with this recommendation. ASCR is actively participating in a SC-wide working group to assess what SC program offices are doing to promote diversity and inclusion in various business practices (e.g. through its research awards processes, workshops, advisory panels, oversight of national laboratory activities). The goals of the working group are to identify best practices and to determine their applicability and benefits for implementing SC wide.
CS-3	The COV recommends that ASCR continues to highly value and prioritize basic computer science research to build a foundation for the groundbreaking activities that will be required in the future.	ASCR agrees with this recommendation. ASCR recently adopted the Basic Research Needs model for its workshops in order to improve their effectiveness in identifying basic research needs in a particular area and in engaging the basic research community. The recent Extreme Heterogeneity Workshop employed this model. The purpose of the workshop was to identify the priority research directions for ASCR in providing a smart software stack that includes artificial intelligence techniques to make future computers composed of a variety of complex processors, new interconnects and deep memory hierarchies easily used by a broad community of computational scientists. Additional workshops are in preliminary planning stages.
CS-4	The ASCR program managers continue diversity consideration (such as geographic, ethnic, and gender diversity) to ensure balance for meetings, reviews, and funding decisions for the portfolio.	ASCR agrees with this recommendation. This is already standard practice for the Computer Science program, though identifying under-represented minorities continues to be a challenge. See the response to Computer Science Recommendation #2 (CS-2).

ASCR Response to the Report of the ASCAC Committee of Visitors Review for FY13-FY15

CS-5	<p>The COV recommends a study of methods and ways to make DOE assets, in particular software, findable, available, and accessible. The DOE CODE repository (https://www.osti.gov/doecode) is a good start.</p>	<p>ASCR agrees with this recommendation. ASCR also encourages its researchers to make their code available and accessible as open-source software. SciDAC Institutes and partnership awards are another vehicle that will continue to be used for this purpose – see Computational Partnerships Recommendation #2 (CP-2).</p>
CS-6	<p>ASCR should do all that it can to ensure that it continues to invest in high quality, enabling computer science research to enable U.S. efforts to maintain leadership both nationally and internationally in areas whose impact continues to increase and support DOE missions.</p>	<p>ASCR agrees with this recommendation. The Workshop on Extreme Heterogeneity, mentioned above, is intended to help ASCR secure new funding for computer science research.</p>

ASCR Response to the Report of the ASCAC Committee of Visitors Review for FY13-FY15

Computational Partnerships Research Program		
	COV Recommendation	ASCR Response
CP-1	Due to the importance of the SciDAC partnerships program, the COV recommends that DOE determine and accumulate measures of success within the program.	ASCR agrees with this recommendation. To that end, beginning in CY2015, PAMS implemented the OMB mandated, and Federal-wide, Research Performance Progress Report (RPPR) [cf. https://www.nsf.gov/bfa/dias/policy/rppr/] that standardized reporting by PIs of grants or cooperative agreements. Any changes to reporting requirements contained in the RPPR for grants or cooperative agreements would require a waiver from OMB; no changes to RPPR for SciDAC or any other aspect of Computational Partnerships are planned. It remains to implement reporting requirements for work performed via Field Work Proposals (FWPs) by the National Laboratories. It is anticipated that such requirements will be implemented in those modules of PAMS designed to manage explicitly work performed under FWPs.
CP-2	The COV recommends that DOE consider using identifiers, such as DOIs, as one method to gauge use and reuse of DOE software, data, and other research products.	ASCR agrees with this recommendation. ASCR currently funds work to provide web development support for the SciDAC web-site by addressing outstanding development issues around www.scidac.gov , outreach.scidac.gov (where SciDAC-2 software is listed) and the listing of SciDAC codes in DOE's CODE (OSTI's software services platform and search tool for DOE-funded code). Since FY12, ASCR has been funding SBIR/STTR projects under the topic that specifically seeks applications that will take a component or components of codes developed via the SciDAC program, or other ASCR programs, and "shrink wrap" them into tools that require a lower level of expertise to utilize.
CP-3	The COV recommends that SciDAC develop opportunities for new and younger investigators to participate in its programs.	ASCR agrees with this recommendation. Annual SciDAC PI Meetings continue to be excellent venues for new and younger investigators to present their work, exchange ideas and learn more about the SciDAC program. Additionally SciDAC Institutes engage new and younger investigators through tutorials (examples can be found in the Institutes web-sites such as https://rapids.lbl.gov/news) and summer schools (e.g. Argonne Training Program on Extreme-Scale Computing).

ASCR Response to the Report of the ASCAC Committee of Visitors Review for FY13-FY15

CP-4	The COV recommends that ASCR clearly articulate a strategic goal for the SciDAC partnerships.	ASCR agrees with this recommendation. SciDAC Partnerships are led by the partnering DOE programs. ASCR program managers co-manage the SciDAC Partnerships and work closely with their counterparts in the partner programs to align the goals of the projects with the strategic science goals of the partner programs.
CP-5	ASCR should consider including international reviewers for its programs.	ASCR agrees with this recommendation. The ASCR SciDAC program managers are mindful of the balance between US and international reviewers for their programs. Typically international reviewers are embedded in the review of the SciDAC Partnerships as “science” reviewers chosen by the partner programs whereas they are directly recruited by the ASCR program managers for the review of the SciDAC Institutes.