

BER Response to the Report of the BERAC Committee of Visitors Review of the Climate and Environmental Sciences Division

Date of COV: July 19-21, 2016

Date COV Report Approved by BERAC: October 27, 2016

Date of BER Response: November 18, 2016

Program Point of Contact: Gerald Geernaert, SC-23.1

Introduction

The Committee of Visitors (COV) reviewed the Climate and Environmental Sciences Division (CESD) in the Office of Biological and Environmental Research (BER) for the period October 1, 2012 through September 30, 2015 (Fiscal Years 2013, 2014, and 2015), including the processes used to create and manage the research portfolio. The COV presented findings and recommendations in a report presented to the Biological and Environmental Research Advisory Committee on October 27, 2016. The report provided helpful recommendations and constructive comments for the management of programs in the Division that comprise a wide range of research projects and two major national user facilities. Additional special portfolio elements are comprised by research efforts at the DOE National Laboratories, much of which is organized into team-based Scientific Focus Areas (SFAs).

BER has compiled the following responses to specific COV recommendations; although some responses are specific to CESD, others apply more generally to business practices for all of BER.

Responses to Key Comments and Recommendations

COV Recommendation	Program Response
Key General Recommendations	
<p>CESD should continue and enhance coordination with other US and international agencies to, e.g., seek opportunities for joint solicitations.</p>	<p>CESD acknowledges the importance and value added of interagency coordination, and joint solicitations are one mechanism to add value to the program as well as promote major new scientific opportunities and directions. CESD also coordinates its investment through the National Science and Technology Council, to assure that research results outside the DOE scope are produced by other agencies. CESD is committed to continue to collaborate with other agencies and will explore new opportunities where appropriate.</p>
<p>Program Managers should provide more detailed feedback to PIs, particularly for proposals not supported.</p>	<p>CESD is committed to providing feedback to all applicants. CESD will provide more details in panel review summaries, e.g., with more explicit explanations of why proposals that were submitted in response to FOAs were declined.</p>
<p>Program Managers should carefully track diversity metrics for both review panels and the participants of strategic planning workshops.</p>	<p>CESD is committed to promoting diversity, e.g., within its panel reviews as well as leadership roles and participation in workshops. In consultation with the Office of Science, BER will determine if diversity metrics can be collected and reported and then, if appropriate, explore which demographics/diversity statistics apply.</p>
<p>CESD should ask the National Academy of Sciences (NAS) to create a study group, to strengthen strategic planning.</p>	<p>CESD recognizes the value added of NAS advice and recommendations. During the past years, much of the NAS advice to USGCRP has been incorporated into the CESD planning process. Upon completion of the CESD strategic plan during FY 2017, CESD will consider options for using USGCRP and NAS study groups to assist with future strategies and priorities.</p>
<p>CESD should formulate a more formal and transparent process of initiating and terminating SFAs and other large projects; and consistency is needed for review frequency and process.</p>	<p>All research projects supported by BER undergo regular peer review and evaluation based on the procedures in the Office of Science Merit Review System and 10 CFR Part 605 for grants and parallel for the DOE Laboratories. For SFAs, CESD follows the review process and plans for Laboratory SFAs outlined in the BER SFA management document posted on the BER website at: http://science.energy.gov/ber/funding-opportunities/laboratory-scientific-focus-area-guidance/. Review frequency is determined by programmatic determination of annual progress and the explicit need to sustain integrative science programs of the highest caliber in support of BER strategic goals. CESD will continue to evaluate its processes of review, initiation, and termination of SFAs and Cooperative Agreements for consistency and transparency.</p>
<p>CESD should increase funding to universities, relative to Lab funding.</p>	<p>CESD recognizes the value of University funded research as part of its investment strategy. Besides direct support via FOAs, CESD also provides indirect support to university partners of lab projects and</p>

	by providing BER scientific user facilities. CESD will strive to achieve and maintain an appropriate balance of University and Laboratory research, in support of the Division’s strategy.
CESD should expand its number of performance metrics beyond number of publications, to include e.g. conference presentations and citations.	CESD recognizes that scientific productivity is not defined by just numbers of publications. CESD currently considers a wide set of scientific productivity outcomes and research accomplishments as criteria that can be applied to all reviews conducted by the Division. Application across BER will be evaluated for consistency.
Individual PMs should have travel budgets and management support to attend key meetings and visit labs.	CESD agrees with the importance of engaging the national and international scientific communities to maintain scientific leadership of BER Program activities. CESD will continue to work with DOE management to maximize and optimize Program Manager participation in national and international scientific meetings as well as lab visits.
Key Climate Modeling (ESM, RGCM, IAR) Recommendations	
The 100-km atmosphere of ACME should be for efficient testing in support of developing the very high resolution version of ACME, and its applications should be aimed at those related efforts within DOE that demand high resolution projections.	CESD is committed to the development of an earth system modeling platform, able to serve the science vision and mission of the Department of Energy. While some of the mission needs, e.g., projections of extremes, demand a high resolution atmosphere, there are other DOE mission needs, e.g., drought projection, that require only a lower resolution atmosphere. Therefore, the ACME model must retain low as well as high resolution versions of its atmospheric model.
Key Environmental System Science Recommendation	
Research in subsurface radionuclide transport should not be abandoned entirely.	CESD recognizes the importance and value of subsurface radionuclide science to its overall investment strategy, including providing new capabilities at its scientific user facilities. CESD will continue to maintain an appropriate investment in subsurface radionuclide transport research, that includes a balance of University and Laboratory funded research and capabilities through EMSL.
Further integration of elements of SBR and TES is encouraged, where feasible.	SBR and TES share important scientific challenges, most notably involving soil biogeochemistry, hydrology, and root dynamics. CESD will continue to develop the Environmental Systems Science strategy with elements of the SBR and TES portfolios.
Key Atmospheric System Research Recommendations	
The ASR program should strive to maintain a balance between the scientific use of ARM data and innovative	The ASR program is committed to advance atmospheric process science, by utilizing the best available observing capabilities. CESD will continue its initiatives to expand opportunities for its ASR scientists to exploit remote sensing approaches that complement capabilities available in the ARM facility.

remote sensing approaches for new data product development.	
ASR should expand its scope to include research that does not make use of ARM data.	ASR currently supports research that includes complementary non-ARM data, while being committed to support the best scientific proposals and concepts that exploit capabilities provided by DOE user facilities (including ARM and EMSL) and PI laboratories, where appropriate. CESD will continue to require that its investments exploit DOE-supported data, including ARM data.
ASR should consider joint solicitations with other agencies to exploit other data sets for process research.	CESD is committed to advancing the atmospheric sciences in the most efficient and effective manner, in support of the DOE science mission. This includes a commitment to coordinate ASR research priorities with the priorities of other agencies. CESD will continue to explore new options for interagency coordination, including coordinated solicitations, where appropriate.
Key Facility Recommendations	
The ARM Facility should be reviewed externally within the next few years to supplement the 2014 internal review.	As per Office of Science policy, CESD conducts external triennial reviews of its user facilities on a triennial cycle, to assure that they are technically state of the art and can maximize scientific output. The 2014 review of ARM involved external reviewers. The ARM facility will undergo its next triennial review in FY 2017. The review criteria will include questions on whether ARM is supporting the objectives of ASR, other CESD programs, and the broader scientific community. The review outcome will contribute towards identifying scientific priorities for the ARM facility that are aligned with CESD strategic priorities.
Key Data Management (DM) Program Recommendation	
The DM program should develop a list of high priority capabilities it needs to provide to the CESD community, that exploit opportunities across Office of Science and other agencies.	CESD is committed to the development and maintenance of forward looking data archives, informatics tools, and practices in service to the CESD scientific community. CESD organized during FY 2015-2016 a series of workshops that outline the requirements for next generation data archiving and analysis capabilities. CESD will continue to work with the Office of Advanced Scientific Computing Research (ASCR) and the scientific community with a goal to build the best possible capabilities in service to CESD science.
CESD should determine if the data management infrastructure would function better as a User Facility.	CESD is committed to engaging the research community and determining through reviews and workshops how to best serve their data management needs. CESD will continue to review research-related infrastructure, user facility needs, and other requirements to accomplish BER programmatic priorities.