



2019 COV for Chemical, Bioengineering, Environmental and Transport Systems Division (CBET)

Chair: Jennifer Sinclair Curtis

Co-Chair: Chris Roberts

Date: June 4, 2019

Overview of COV

- Review Meeting Date: June 3-4, 2019
- Review Period: Fiscal Years 2015, 2016, 2017, and 2018
- Number of Actions Reviewed: 442
- Programs Reviewed: CBET's four clusters:
 - Chemical Process Systems (CPS)
 - Engineering Biology & Health (EBH)
 - Environmental Engineering & Sustainability (EES)
 - Transport Phenomena (TP)
 - Also, major CBET-led solicitations or 'Dear Colleague Letter' activities

Section I: Quality and Effectiveness of Merit Review Process

- Review methods are appropriate and primarily conducted via panels
- In general, panel summaries are of good quality and convey panel consensus
- Overall, documentation on rationale for the award decision is appropriate
- Good transparency throughout review process although more details about internal reviews could be provided
- Merit criteria were best addressed by the POs, then the panel summaries and then the individual reviewers
- Confusion remains on what constitutes broader impacts – better training and oversight is needed

Section I: Quality and Effectiveness of Merit Review Process

- Intellectual merit should be differentiated from technological impact
- Broader impacts review comments are more unevenly addressed and often treated less rigorously, particularly by individual reviewers
- For proposals that are declined, some of the PO review analyses were less detailed and panel summaries tend to have less constructive feedback
- For proposals that are rated in the highly competitive category, there is not sufficient feedback on why the proposal was not funded
- Some reviewers tend to not use the entire range of rankings

Section I: Quality and Effectiveness of Merit Review Process

- We encourage CBET to explore other methods of reviewer preparation to ensure reviewers understand the review of both criteria. One possible suggestion is that a detailed review template could be provided to reviewers to address the five elements that they are asked to evaluate.
- There was considerable discussion on the relative merits of initiating a peer-reviewed pre-proposal process.

Section II: Selection of Reviewers

- Overall, based on the quality of the reviews, the program makes use of appropriate reviewers in terms of expertise and qualifications
- It is clear that the NSF takes COIs very seriously and the program has a commendable, well-defined process to resolve COIs
- CBET should be careful about how the no proposal deadline impacts the selection of reviewers
- COV encourages an increase in participation of reviewers from industry and national laboratories although these reviewers may need additional training
- Description needed on the efforts made to ensure diversity and inclusion in the review process

Section II: Management of the Program

- Overall management is strong; jackets and other records were well maintained. Proposals are reviewed in a timely manner
- The portfolio analyses and program rebalancing have strengthened CBET
- CBET works effectively with PDs from other divisions and directorates
- It would be helpful to document how program directors are transitioned into the role and the extent of overlap between program directors
- Given high proposal volume, additional staff may be needed
- CBET is effective at responding to emerging research opportunities. Examples include EAGER, Special Initiatives and new programs
- CBET has a well-defined process for planning and prioritization although it is not clear how this planning and prioritization is done at the program or cluster level
- It unclear how CBET shifts its budget between and within clusters over the long term

Section II: Management of the Program

- CBET engaged in appropriate activities to address previous COV comments
- COV appreciates the detailed data and documentation provided by CBET leadership
- Some comments noted in the previous COV report are noted in this report
 - Variation in review quality and consistency
 - Inconsistency in the type of reviews for EAGER
 - Confusion regarding broader impacts
 - Contradictory comments in some panel summaries
 - Minimal documentation is more pervasive in declined proposals

Section IV: Resulting Portfolio of Awards

- Portfolio of awards is balanced across clusters
- Average award size has not kept pace with rising costs of academic research. Difficult to conduct multi-investigator research given the typical award size.
- Portfolio includes projects that are innovative and potentially transformative and some projects that are inter- and multi-disciplinary
- Geographic distribution of awards appears reasonable
- Balance of awards to different types of institutions is reasonable although awards to smaller, less well-known institutions and RUIs are low. COV recommends to evaluate this and set some goals.

Section IV: Resulting Portfolio of Awards

- CBET is encouraged to include proposal and award data for HBCUs.
- Balance of awards to new PIs is appropriate although success rate is lower for new PIs.
- CBET includes projects that integrate research and teaching but not all projects do this well.
- CBET is well aligned with national priorities and agency mission.

Section V: Other Topics

- CBET contributes to a number of the cross-functional NSF big ideas
- Data which provide information on CBET in the context of the engineering directorate and NSF would be helpful
- Some concern was expressed among the COV members that current funding levels make NSF less attractive when compared to other funding agencies (e.g. NIH)
- CBET should evaluate the optimal duration of PO rotators and the optimal mix between IPA and permanent staff
- COV noted that more information on outcomes/plans emerging from division-wide retreats, for example, would be helpful in assessing priorities and planning

Section V: Other Topics

- Providing additional information and detail about the COV process earlier would be helpful. Perhaps a second webinar hosted by the committee co-chairs after the COV members had access to the various databases, information, and template would improve the COV members understanding of their roles and responsibilities. Also, a COV reviewer checklist could help.
- Sharepoint, FastLane, and eJacket all required different usernames and passwords, and challenges were experienced in resetting passwords thereby presenting challenges to the COV. This required time from COV members in troubleshooting login issues with NSF-IT personnel prior to the meeting
- COV really appreciates the improvement in the data presented, and CBET should continue to improve on the data presented to the COV (e.g. summarized cluster-level data, data for a given award type)

Thank You!

	Name	Affiliation
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COV Members:	Diana Bauer David Berkowitz Bert Chandler Michael Harold Julianne Holloway Barbara Karn Stella Korre Jennifer Ladd-Lively Rose McCallen Andre Palmer	Department of Energy University of Nebraska - Lincoln Trinity University University of Houston Arizona State University Sustainable Nanotechnology Organization ExxonMobil Oak Ridge National Laboratory Lawrence Livermore National Laboratory Ohio State University

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