



Committee of Visitors Review Report 2017-2020  
Energy Frontier Research Centers and Energy  
Innovation Hubs  
Basic Energy Sciences  
U. S. Department of Energy  
to the  
Basic Energy Sciences Advisory Committee

Chair: Ian Robertson

Co-chair: Polly Arnold OBE FRS

Co-chair: Hans Christen

Co-chair: Gary Rubloff

October 13-16, 2020

# Committee of Visitors

## Energy Frontier Research Center



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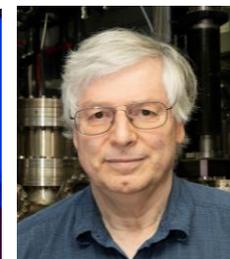
## Energy Innovation Hubs



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# Primary elements of the charge to the Committee of Visitors

The COV was asked to focus on the following major elements:

1. For both EFRCs and HUBs, assess the efficacy and quality of the processes used to:
  - a) solicit, review, recommend, and document proposal actions; and
  - b) monitor active projects and programs.
  
2. Within the boundaries defined by DOE missions and available funding, comment on how the award process has affected:
  - a) the breadth and depth of portfolio elements; and
  - b) the national and international standing of the portfolio elements.

# COV response to the primary elements of the charge

- 1a. Concerning the efficacy and quality of the processes used to solicit, review, recommend, and document proposal actions, the committee finds that the EFRCs and HUBs follow best practices and that overall the processes are exemplary.
- 1b. Concerning the efficacy and quality of the processes used to monitor active projects and programs, the committee finds that the overall level of active management and engagement is appropriate and are contributing factors to the overall success of the EFRC and HUB programs.
- 2a. Concerning how the award process has affected the breadth and depth of portfolio elements, the committee finds that the scope of efforts within the EFRCs and HUBs are appropriate, and are driven by the community through their contribution and input to the BRN reports, workshops, roundtables etc.
- 2b. Concerning how the award process has affected the national and international standing of the portfolio elements, the committee found this to be a challenge to assess because of the lack of readily available comparative benchmarking data. It is recognized that such comparative data are difficult to collect. The committee was made aware that BESAC is looking into international benchmarking of other areas of the DOE-BES portfolio and hope their report will provide guidance for future COVs. In any case, it was noted that the EFRCs and HUBs have members with outstanding national and international reputations, and are publishing in appropriate journals, generating intellectual property, and generating spin-off companies in some cases. In this regard, the EFRCs and HUBs are highly regarded nationally and internationally, which brings distinction to DOE-BES.

# Assessment of BES response to 2016 COV Recommendation

2016 COV Recommendations	BES Response
<p>The COV recommends that BES explore mechanisms to reduce the number of full EFRC proposals that must be evaluated simultaneously as the result of broad FOAs.</p>	<p>BES appreciates this recommendation and will evaluate possible mechanisms for reducing the number of simultaneous proposal evaluations, while still maintaining fair and open competitions.</p>
<p>The COV unanimously believes that the minimum time period for maximal output from the EFRCs is 5 years.</p>	<p>BES will look for opportunities to extend EFRC project periods beyond four years, taking into consideration Department policy and Congressional authorization and appropriations.</p>
<p>The COV recommends that a final 5-year summary, written in language that is widely accessible, be required at the end of a hub award, irrespective of renewal. The final report should focus on the “retroactive measure of transformational impact,” as urged in the SEAB Hubs+ report.</p>	<p>BES will incorporate this COV recommendation into the reporting instructions for the current Hub awards.</p>
<p>BES-DOE should develop a process to gauge the international standing of the hubs.</p>	<p>BES will ensure that assessment of international standing is part of the review criteria for annual reviews and renewal applications for the Hubs.</p>
<p>The COV recommends that the EFRCs, hubs and reviewers produce more concise and clear report and review documents, respectively. In particular, reports should include, for example, executive summaries and succinct descriptions of major accomplishments, and have page limits.</p>	<p>BES appreciates the merit of clear and concise reports and will revise the report guidance to include an executive summary with research highlights. BES will set page limits for report document as appropriate. Page limits for proposals have been and will continue to be included in the EFRC and Hub Funding Opportunity Announcements, as appropriate.</p>
<p>Currently, insufficient travel funds are available for BES program managers to attend site visits, to stay engaged with the community and to keep abreast of rapidly evolving fields. This issue must be addressed.</p>	<p>BES is very cognizant of the importance of travel by the program managers, particularly for the complex EFRC and Hub awards, and appreciates the recommendation by the COV. BES will continue to manage the limited travel resources to include site visits and conference travel in balance with other travel requirements.</p>

# Primary elements reviewed by the COV

## 1. Funding Opportunity Announcements:

- Energy Frontier Research Center FY18 DE-FOA-0001810
- Energy Frontier Research Center FY20 DE-FOA-0002204
- Fuels from Sunlight HUB FY20 DE-FOA-0002254
- JCESR renewal

## 2. For the fiscal years 2017 to 2020, the management and operation of:

- Energy Frontier Research Centers
- JCESR
- JCAP
- Liquid Sunlight Alliance (LiSA)
- Center for Hybrid Approaches in Solar Energy to Liquid Fuels (CHASE)

# Major Finding and Recommendation 1

## Finding

For both EFRCs and HUBs, the process employed by DOE-BES in the review, management and oversight of the programs is exemplary. The processes leading up to the negotiation of the budgets to be awarded are transparent and well documented, allowing for the decision-making process to be followed and assessed. These processes were also deemed excellent. Documentation could be clearer in the negotiation of the change in scope of work due to a reduction in the requested budget. Similarly, the use of advisory boards by EFRCs and HUBs could be better documented in the reports to DOE-BES. The improvement needed is considered relatively minor overall, but it will aid program management continuity at DOE-BES and permit future COVs to assess the entire life-cycle from the solicitation to award.

## Recommendation

The COV recommends that DOE-BES document the processes leading to a reduction in the scope of work when the requested budget is reduced. Such documentation will provide an archival record of the process, which will provide continuity should a change in program manager occur and will enable future COVs to assess the entire award process.

# Major Finding and Recommendation 2

## Finding

DOE-BES is commended for its significant and concerted efforts to disseminate information about topics of priority that could be represented in future funding opportunities. Such early guidance to the community is important given the short time windows that often occur between the release of BRN, roundtable, workshop reports, and related FOAs, as well as between the release of some FOAs and the pre-proposal deadline, leaving too little time to build multi-disciplinary and multi-institutional teams to develop and submit pre-proposals and proposals.

## Recommendation

The COV recommends that DOE-BES continue to communicate about future funding directions and opportunities, proposal submission, etc., extensively with the community at large and to use the communication strategies learned from the COVID19 pandemic to further broaden their reach and impact.

# Major Finding and Recommendation 3

## Finding

The reporting requirements for the EFRCs and HUBs, and, hence, the review and management effort on the DOE-BES side, could be made more effective and efficient by, where possible, streamlining the requirements and utilizing available or new tools for collection of standard data. For example, rather than being cumulative, management reports should be more informative, emphasizing the management changes made between reporting periods and the rationale for making them.

## Recommendation

The COV recommends that DOE-BES streamline - where and when they can - the management and oversight reporting requirements for EFRCs and HUBs. In this regard, the reports should be informative rather than cumulative, duplication of reported material should be minimized, and strict, specified page limits should be introduced. It is recognized that the project scopes vary between EFRCs and HUBs and even across HUBs, and the management and oversight requirements should be balanced to reflect the funding level and scope of the project.

# Major Finding and Recommendation 4

## Finding

For the JCESR renewal, there were concerns that, given the scope and funding levels, that too few reviewers were used, with insufficient balance of reviewers between national and international reviewers, and between academia, Federal Laboratories, Federal Funding Agencies, and industry reviewers. The COV recognizes this was a renewal proposal as opposed to a re-competition, which is an important distinction. The re-competition of the Fuels from Sunlight HUBs used more reviewers. The challenge of identifying experts who do not have a conflict of interest to serve on reviews of large-scale multi-institutional proposals is recognized. The COV noted that JCESR renewal review was held with an anonymous virtual panel, a different format from past panel reviews.

## Recommendation

The COV recommends that DOE-BES Continue to have a diverse and balanced representation of reviewers from academia, industry, Federal Funding Agencies, and Federal Laboratories. In addition, the number of reviewers selected should reflect the scope and complexity of the project and the level of funding. The use of virtual panel reviews presents an opportunity to enhance the overall diversity of the review panel.

The COV recommends that DOE-BES should have the flexibility to determine the best practices for conducting panel reviews both for in-person and virtual panels.

# Major Finding and Recommendation 5

## Finding

DOE-BES strives to achieve a balanced and diverse group of reviewers for panels and COVs. During the mid-term reviews, DOE-BES appropriately encourages diversity, in the broadest sense, at all levels in the EFRCs.

## Recommendation

The COV recommends that DOE-BES continue to ensure the EFRCs and HUBs, and all other DOE-BES activities, are inclusive in the broadest sense, welcoming manifestations of diversity including scientific expertise (discipline, research expertise, career stage), institutional (academia, industry, government laboratories), and people (gender, race, ethnicity, etc.).

# Major Recommendation 6

Finally, the COV recommends that BESAC:

Consider the aim, purpose and usefulness of charge 2(b): “*Within the boundaries defined by DOE missions and available funding, comment on how the award process has affected the national and international standing of the portfolio elements.*” This COV, similarly to previous COVs, recognizes that this is a complicated and demanding analysis if done comprehensively, and not one that can realistically be addressed with the time and resources allotted to a COV.

## Key comments from the COV

The Energy Frontier Research Centers and Energy Innovation Hubs are extremely well led and managed by DOE BES. The BES program managers are to be commended for their dedication to the success of the program. Their efforts are a major contributing factor to the success of the programs.

The breadth and quality of the program are impressive and the research being conducted of the highest quality.

Given the prominence of the Energy Frontier Research Centers and Energy Innovation Hubs within DOE BES and the scientific community, they have the opportunity to set the standard for diversity in ideas, science conducted, institutions represented and in people.



# Questions