

December 30, 2014

Dr. Patricia M. Dehmer  
Acting Director  
Office of Science  
U.S. Department of Energy  
1000 Independence Avenue, S.W.  
Washington, DC 20585

Dear Dr. Dehmer:

I am writing to respond to your April 8, 2014 charge to the Fusion Energy Sciences Advisory Committee (FESAC) to “assess the priorities among continuing and potential new FES program investments required to ensure that the U.S. is in a position to exert long term leadership roles within and among Burning Plasma Science- Foundations, Burning Plasma Science-Long Pulse, and Discovery Plasma Science (DPS).” You also asked that four specific budget scenarios be examined.

FESAC chartered a Panel led by Prof. Mark Koepke (West Virginia Univ.) to address this charge. Prof. Koepke is also the FESAC Chair. Hence, at the request of OFES, I served as Acting FESAC Chair for purposes of reviewing the Panel report.

FESAC commends the Panel for their hard work addressing the charge and developing the draft report. The Panel’s extensive discussions regarding priorities for the Fusion Energy Sciences (FES) Program provided valuable input for both the report and future directions of the Fusion Energy Sciences (FES) Program.

FESAC reviewed the report initially on September 22-23, 2014. The report was revised based on comments at that meeting and reviewed again by FESAC on October 10, 2014. This letter contains the production version final report incorporating changes discussed at the October 10, 2014 meeting.

The Panel report generated intense discussion at both meetings. Excluding ex-officio members, 11 members of the 20 total FESAC membership were eligible to vote on the report. The report, subject to several revisions, was approved by a vote of 6-3 at the October 10, 2014 meeting, with two members eligible to vote not present. FESAC agreed at the October 10 meeting to also provide a separate “minority” comment. The final approved report and the minority comment are attached. The minority comment is signed by those voting “no” and one member not present for the vote.

In addition to forwarding the report, FESAC provides the following comments:

- a) As evidenced in the public record, there is partial consensus, and significant disagreement, within the community regarding the top-level FES Program vision, strategy and associated priorities. Much of this derives from differing views on the degree to which the FES program is a “science” program versus a “fusion energy development” program. This is not just a question of the DPS funding level, but also the nature of the science and engineering effort and facilities associated with the Burning Plasma Science program.

The lack of adequate consensus on top-level vision, strategy, and priorities makes it difficult for more technically oriented groups, such as Prof. Koepke’s panel, to achieve widespread acceptance of recommended strategic initiatives and associated program-wide FES investments. FESAC recommends more extensive senior level HQ/field discussions be held to produce a

vision and strategy with wider acceptance. This will simplify the development of detailed objectives and specific program initiatives by future groups similar to this panel.

- b) The Panel did not perform a detailed analysis of the budget options in the charge sufficient to develop, for example, individual site, facility, and initiative budgets. *Further analysis by DOE OFES is necessary to produce a credible 10-year budget plan.*
- c) FESAC recognizes the necessity of proper management of conflict-of-interest issues, and recommends OFES structure FESAC to enable voting participation on future reports by as many FESAC members as possible.

Please contact me if you have questions.

Sincerely,



Christopher J. Keane  
Vice President for Research  
Professor of Physics  
Acting Chair  
Fusion Energy Sciences Advisory Committee (FESAC)

cc: E. Synakowski (DOE/FES)  
S. Barish (DOE/FES)

FESAC:

A. Bhattacharjee (PPPL)  
T. Carter (UCLA)  
B. Cohen (LLNL)  
A. Dasgupta (NRL)  
J. Foster (University of Michigan)  
C. Greenfield (GA)  
R. Groebner (GA)  
C. Hegna (University of Wisconsin)  
V. Izzo (UCSD)  
J. Kim (FAR-TECH)  
M. Koepke (West Virginia University)  
G. Neilson (PPPL)  
G. Patello (PNNL)  
J. Rapp (ORNL)  
D. Rej (LANL)  
S. Reyes (LLNL)  
R. Rosner (University of Chicago)  
F. Skiff (University of Iowa)  
J. Steadman (University of South Alabama)  
L. Sugiyama (MIT)  
S. Zinkle (University of Tennessee)  
E. Zweibel (University of Wisconsin)