

March 5, 2003

Dr. Ray Orbach
Director, Office of Science
U.S. Department of Energy
1000 Independence Avenue, S.W.
Washington, D.C. 20585

Dear Dr. Orbach:

The Fusion Energy Sciences Advisory Committee (FESAC) here submits the final report of the Fusion Development Path Panel, with FESAC's strongest, unanimous endorsement. In response to your charge of September 10, 2002, the Panel has constructed a plan to provide what the President has described as "commercially available fusion energy by the middle of this century." The first stage of the report, which outlined the key scientific and technical issues, was submitted to you on December 12, also with unanimous FESAC endorsement. The present, final stage of the report brings additional structure and detail to the information of Stage 1; in particular, it includes cost estimates.

On December 18, after the Development Path Panel had begun its work, you submitted a second charge to FESAC, to study new and upgraded facilities within the fusion program, as part of the Twenty Year Facilities Plan being constructed by the Office of Science. Because this charge overlapped in several respects the Development Path work already underway, I asked the Development Path Panel to respond to both charges in a single report. Hence the present Report includes, beginning on page 77, a detailed response to the facilities charge. Of course FESAC's unqualified endorsement applies equally to this segment of the Report.

In endorsing this report, FESAC congratulates and thanks the members of the Development Path Panel and its Chair, Professor Goldston, for their extraordinary effort. Despite the complexity of the task and the rigorous schedule that was imposed, the Panel completed a thorough, systematic study, identifying "critical milestones, key decision points, needed major facilities and required budgets." FESAC finds the Report to be rational, impressively detailed and altogether convincing.

Beginning with the observation that "recent advances in the science and technology of fusion energy have dramatically improved the prospect for practical fusion power," the Report identifies key tasks whose accomplishment "will form a strong basis for the development of practical, economically competitive fusion energy." It concludes that "establishing a program now to develop fusion energy on a practical time scale will maximize the capitalization on the burning plasma investments in NIF and ITER, and ultimately will position the US to export rather than import fusion energy systems."

Yours truly,

Richard Hazeltine
Chair, Fusion Energy Sciences Advisory Committee

Enclosure

cc: N. A. Davies
FESAC