

September 13, 2002

Dr. Ray Orbach
Director, Office of Science
United States Department of Energy
1000 Independence Avenue, S.W.
Washington, DC 20585

Dear Dr. Orbach:

The Fusion Energy Sciences Advisory Committee (FESAC) received your charge to examine the development path from our present state of understanding to fusion power production. We look forward to addressing this important topic, and have appointed a highly qualified panel to mark out such a path.

The panel's conclusions will follow from painstaking technical analysis; it would be foolish to try to anticipate them here. However, it is not precipitous to emphasize an assumption implicit in your charge: that the fusion program, given continued scientific and technical accomplishment and sufficiently increased funding, could contribute to the US electric power grid within 35 years. It is not that 35 years is a best guess for timing fusion energy production; rather the assumption is that, with continued focused effort and appropriate support, the 35-year time scale becomes a credible goal.

The purpose of this note is to assure you that FESAC endorses this assumption. We agree that recent advances in fusion science have wrought fundamental change. In particular, such advances allow a sober assessment of fusion power production as something that determined scientists and strong research support could achieve within three or four decades.

Enormous challenges in physics and technology remain to be addressed. To mention just three, we need to study the physics of a plasma under fusion burn; we need to develop our knowledge of fusion-relevant materials and technology; and we need to advance our vision of an optimized fusion power plant. Yet accomplishments of the program during the past few decades have been truly remarkable. They have brought us to a point that makes the forward look described in your charge, including its explicit time scale, entirely appropriate.

Yours truly,

Richard Hazeltine
Chair, FESAC

RDH/lh

cc: N. A. Davies
Michael Roberts
John Willis