

# Appendix A

## Charge Letter

Professor Richard Hazeltine, Chair  
Fusion Energy Sciences Advisory Committee  
Institute for Fusion Studies  
University of Texas at Austin  
Austin, TX 78712

Dear Professor Hazeltine:

The long-range vision for the world's fusion research programs is the development of power plants in which the fusion process would be used to produce electricity. It is widely acknowledged that realizing this vision will require a long-term development effort to achieve burning plasmas and technology performance levels that are highly advanced relative to today's capabilities.

However, at various times in the past, the Department's fusion program has also explored ways in which the fusion process might be used to meet other needs that would not require the levels of burning plasma and technological performance needed for economical electricity generation. These explorations have noted that fusion devices on the pathway leading eventually to fusion power plants for electricity generation might be useful for other, nearer term purposes. These non-electric uses of fusion might include the production of hydrogen that could be used as a fuel in the transportation sector, and the production of high-energy neutrons that would have a variety of uses, such as the transmutation of nuclear wastes.

I would like the FESAC to consider whether the Fusion Energy Sciences program should broaden its scope and activities to include non-electric applications of intermediate-term fusion devices. During this consideration, FESAC should answer the following questions:

- What are the most promising opportunities for using intermediate-term fusion devices to contribute to the Department of Energy missions beyond the production of electricity?
- What steps should the program take to incorporate these opportunities into plans for fusion research?
- Are there any possible negative impacts to pursuing these opportunities and are there ways to mitigate these possible impacts?

I would like FESAC to report its findings to the Office of Science by January 2003.

Sincerely,

James F. Decker  
Acting Director  
Office of Science