NAS RECEIVES AWARD TO CONDUCT A STUDY ON U.S. BURNING PLASMA RESEARCH

The National Academies of Sciences, Engineering, and Medicine was recently awarded a grant from the Office of Science (SC) Fusion Energy Sciences (FES) program, to conduct a two-year study on magnetic confinement-based burning plasma research entitled "A Strategic Plan for U.S. Burning Plasma Research". The main tasks of this study are included below:

Statement of Task

A committee of the National Academies of Sciences, Engineering, and Medicine will be formed to study the state and potential of magnetic confinement-based fusion research in the United States and provide guidance on a long-term strategy for the field. The study will focus on research that supports understanding the magnetically confined burning plasma state but will take a broad view beyond plasma confinement science, and as such consider capabilities such as simulation and materials. Specifically, the committee will prepare an interim report that will:

1. Describe and assess the current status of U.S. research that supports burning plasma science, including current and planned participation in international activities, and describe international research activities broadly.
2. Assess the importance of U.S. burning plasma research to the development of fusion energy as well as to plasma science and other science and engineering disciplines.

The committee will also prepare a final report, building on the interim report, which will:

1. Consider the scientific and engineering challenges and opportunities associated with advancing magnetic confinement fusion as an energy source, including the scientific and technical developments since the 2004 NAS study on burning plasma research.
2. In two separate scenarios in which, after 2018, (1) the United States is a partner in ITER, and (2) the United States is not a partner in ITER: provide guidance on a long-term strategic plan (covering the next several decades) for a national program of burning plasma science and technology research which includes supporting capabilities and which may include participation in international activities, given the U.S. strategic interest in realizing economical fusion energy in the long term.

In doing the above, the committee will consider the priorities for the next ten years developed by the community and FES that were recently reported to Congress. The committee will also consider the current level of participation by U.S. scientists in international activities as well as what role international collaboration should play over the next 20 years. The committee will also consider the health of the domestic fusion research sectors (universities, national laboratories, and industry). Elements of any strategic plan for U.S. burning plasma research should ensure that the United States maintains a leadership role in this field. The committee may assume that economical fusion energy within the next several decades is a U.S. strategic interest. The committee may take into account how unanticipated events or innovations may necessitate mid- course re-directions. The committee will use the prior work of the Academies as well as that of FESAC and the domestic and foreign communities in its deliberations. The committee is not to compare fusion as an energy source against other current or potential energy sources. The committee will consider the budget implications of its guidance but will not make recommendations about the budget for burning plasma research itself. The committee will only consider magnetically confined burning plasma research as within its purview. The committee may make recommendations or offer comments on organizational structure and program balance, with accompanying supporting discussion of the evidentiary bases, as appropriate.