



*U.S. Department of Energy  
and the  
National Science Foundation*



July 17, 2006

Professor Robert E. Tribble  
Chair, DOE/NSF Nuclear Science Advisory Committee  
Cyclotron Institute  
Texas A&M University  
College Station, TX 77843

Dear Professor Tribble:

This letter requests that the Department of Energy (DOE)/National Science Foundation (NSF) Nuclear Science Advisory Committee (NSAC) conduct a new study of the opportunities and priorities for United States nuclear physics research and recommend a long range plan that will provide a framework for coordinated advancement of the Nation's nuclear science research programs over the next decade.

The new NSAC Long Range Plan (LRP) should articulate the scope and the scientific challenges of nuclear physics today, what progress has been made since the last LRP and the impacts of these accomplishments both within and outside of the field. It should identify and prioritize the most compelling scientific opportunities for the U.S. program to pursue over the next decade and articulate their scientific impact. A national coordinated strategy for the use of existing and planned capabilities, both domestic and international, and the rationale for new investments should be articulated. To be most helpful, the plan should indicate what resources and funding levels would be required (including construction of new facilities) to maintain a world-leadership position in nuclear physics research, and what the impacts are and priorities should be, if the funding available provides constant level of effort (FY 2007 President's Budget Request) into the out-years (FY 2008-2017).

The recommendations and guidance in the NSAC 2002 LRP and subsequent reports have been utilized by the agencies as important input to their planning and programmatic decisions. Resources have been made available to the programs' major facilities and experiments that have allowed the U.S. program to be successful in delivering significant discoveries and advancements in nuclear physics over the last five years. This has occurred in the context of constrained funding that has resulted in a reduction in the number of DOE National User Facilities and limited the ability to pursue identified scientific opportunities. However, projected funding levels in the out-years would allow the agencies to begin to address the major project recommendations in the NSAC 2002 LRP. The projected funding for DOE is compatible with implementing the 12 GeV Upgrade of the Continuous Electron Beam Accelerator Facility, and starting construction of a rare isotope beam facility that is less costly than the proposed Rare

Isotope Accelerator (RIA) facility early in the next decade. At NSF the process has been put in place for developing a deep underground laboratory project and bringing this project forward for a funding decision.

Since the submission of the NSAC 2002 LRP, increased emphasis has been placed within the federal government on international and interagency coordination of efforts in the fundamental sciences. The extent, benefits, impacts and opportunities of international coordination and collaborations afforded by current and planned major facilities and experiments in the U.S. and other countries, and of interagency coordination and collaboration in cross-cutting scientific opportunities identified in studies involving different scientific disciplines should be specifically addressed and articulated in the report. The scientific impacts of synergies with neighboring research disciplines and further opportunities for mutually beneficial interactions with outside disciplines, such as astrophysics, should be discussed.


An important dimension of your plan should be the role of nuclear physics in advancing the broad interests of society and ensuring the Nation's competitiveness in the physical sciences and technology. Education of young scientists is central to the mission of both agencies and integral to any vision of the future of the field. We ask NSAC to discuss the contribution of education in nuclear science to academia, medicine, security, industry, and government, and strategies to strengthen and improve the education process and to build a more diverse research community. Basic research plays a very important role in the economic competitiveness and security of our Nation. We ask that NSAC identify areas where nuclear physics is playing a role in meeting society's needs and how the program might enhance its contributions in maintaining the Nation's competitiveness in science and technology.

Activities across the federal government are being evaluated against established performance goals. In FY 2003, utilizing input from NSAC, the long-term goals for the DOE SC Nuclear Physics program and the metrics for evaluations of the program activities were established. It is timely during this long range planning exercise to gauge the progress towards these goals, and to recommend revised long-term goals and metrics for the DOE SC Nuclear Physics program, in the context of the new LRP, if appropriate. The findings and recommendations of this evaluation should be a separate report.

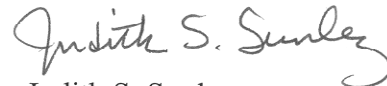
In the development of previous LRP's, the Division of Nuclear Physics of the American Physical Society (DNP/APS) was instrumental in obtaining broad community input by organizing town meetings of different nuclear physics sub-disciplines. The Division of Nuclear Chemistry and Technology of the American Chemical Society (DNC&T/ACS) was also involved. We encourage NSAC to exploit this method of obtaining widespread input again, and to further engage both the DNP/APS and DNC&T/ACS in laying out the broader issues of contributions of nuclear science research to society.

Please submit an interim report containing the essential components of NSAC's recommendations to the DOE and the NSF by October 2007, and the final report by the end of calendar year 2007. The agencies very much appreciate NSAC's willingness to undertake this task. NSAC's previous long range plans have played a critical role in shaping the Nation's nuclear science research effort. Based on NSAC's laudable efforts in the past, we look forward to a new plan that can be used to chart a vital and forefront scientific program into the next decade.

Sincerely,



Dennis Kovar  
Associate Director of the Office of Science  
for Nuclear Physics  
Department of Energy



Judith S. Sunley  
Acting Assistant Director  
Mathematical and Physical Sciences  
National Science Foundation