



Department of Energy
Office of Science
Washington, DC 20585

Office of the Director

May 18, 2022

Professor Anne White
Head, Nuclear Science and Engineering Department
School of Engineering Distinguished Professor of Engineering
Massachusetts Institute of Technology
77 Massachusetts Avenue, 24-107
Cambridge, Massachusetts 02139

Dear Professor White:

Thank you for agreeing to serve as the Chair of the Fusion Energy Sciences Advisory Committee (FESAC). This is an exciting time for the fusion program as the Office of Science (SC) has started to implement many of the recommendations in the recent FESAC Long-Range Plan (LRP) report “Powering the Future: Fusion & Plasmas”¹ and as the Administration is developing a bold decadal vision for commercial fusion energy in partnership with the private sector. Your leadership of FESAC during this critical time for the fusion program will be very important for accelerating the development of a fusion-based carbon-free energy source for the Nation and the world.

To fulfill this promise and ensure that the U. S. will be a leader in this emerging energy technology, we must maintain and develop world-leading capabilities in multiple science and technology areas. At the same time, with the recognition that international collaborations have been a hallmark of the fusion program since its beginning, targeted and mutually beneficial collaborative activities on overseas facilities with unique capabilities should continue.

FESAC is requested to assemble a subcommittee to address the following questions:

- Since the last time FESAC assessed the opportunities afforded to U.S. scientists by international fusion facilities with unique capabilities², a number of new facilities have come online, and existing facilities have undergone significant upgrades. In what areas of research and on which facilities are there compelling opportunities for U.S. researchers over the next 10 years?
- What is the potential of these facilities to help U.S. scientists address priorities and recommendations in the LRP and the National Academies report on “Bringing Fusion to the U.S. Grid”³, contribute to the Administration’s bold decadal vision for commercial fusion, and increase the U.S. readiness for ITER operation? In addition, please assess whether the existing modes of collaboration are adequate for maximizing the impact of international collaborations on the U.S. fusion program and objectives.

¹ https://science.osti.gov/-/media/fes/fesac/pdf/2020/202012/FESAC_Report_2020_Powering_the_Future.pdf

² https://science.osti.gov/-/media/fes/pdf/workshop-reports/20120309/Intl_Collab_Final_SCSC-PRINT.pdf

³ <https://nap.nationalacademies.org/catalog/25991/bringing-fusion-to-the-us-grid>

- How can the U.S. take advantage of its considerable and growing fusion private sector in international engagements, and how can we cooperate with overseas public-private partnership programs that focus on accelerating the development of commercial fusion?
- Within the Fusion Energy Science-supported research areas and facility capabilities for fusion energy science and discovery plasma science, what are the areas where the U.S. is leading, the areas where U.S. leadership is threatened in the near- and long-term, and the areas in which U.S. is not leading at present but where investing resources could offer significant opportunities for leadership that would be beneficial to the U.S. fusion program goals and objectives?
- How can the U.S. ensure the availability of a highly trained and internationally competitive workforce in fusion science and technology and related areas, including the recruitment of talent from traditionally underrepresented groups within the U.S.?

We would appreciate receiving a written report from FESAC by Spring 2023. Please contact Dr. James Van Dam, Associate Director of the Office of Science for Fusion Energy Sciences, if there is anything we can do to help you in this process.

I appreciate FESAC's willingness to undertake this important activity.

Sincerely,

J. Stephen Binkley
Acting Director
Office of Science