

Congress of the United States
Washington, DC 20515

February 8, 2023

Christopher T. Hanson
Chairman
U.S. Nuclear Regulatory Commission
One White Flint North
11555 Rockville Pike
Rockville, MD 20852-2738

Dear Chairman Hanson:

We are writing to provide our views on the Nuclear Regulatory Commission's (NRC) ongoing efforts to establish a regulatory framework for commercial fusion energy, and to encourage the Commission to pursue a framework that promotes the adoption of fusion energy, protects public health and safety, and maintains the U.S.'s position as the global leader for fusion technology.

The United States faces unprecedented energy challenges. Our nation must reduce carbon emissions while also developing secure, domestic sources of energy which are insulated from global demand and unrest. All the while, global demand for electricity is expected to increase by 75-150% by 2050.¹ The successful commercialization of fusion energy holds the enormous promise to satisfy these objectives. Fusion energy has the potential to produce virtually unlimited amounts of emissions-free energy. Winning the race to develop and deploy fusion energy is vital to our country's long term economic success and our national security. Fortunately, with over two dozen privately funded fusion companies, many of which are seeking to deploy power plants within a decade, the United States leads today in fusion innovation. To remain the world leader in fusion, it is critical we ensure a right-sized regulatory path forward.

We understand that the Commission is considering options presented by the NRC staff on how to regulate commercial fusion facilities, pursuant to directives in the Nuclear Energy Innovation and Modernization Act (NEIMA) passed by Congress in 2017. This paper follows more than two years of public meetings, stakeholder engagement, and research by NRC staff.² We commend the Commission and the NRC staff for its progress on responding to this directive in NEIMA, for the staff's work to evaluate regulatory options based on a technical analysis of the risks and benefits of fusion energy, and for the NRC's openness and transparency during this process. The resulting paper, *SECY-23-0001: Options for Licensing and Regulating Fusion Energy Systems*, highlights the important safety and security benefits of fusion energy: no high-level nuclear waste, no chance of a meltdown, and no special nuclear material, such as plutonium or uranium.

¹ IEA, *Outlook for Electricity* (2022), <https://www.iea.org/reports/world-energy-outlook-2022/outlook-for-electricity>.

² SECY-23-0001: Options for Licensing and Regulating Fusion Energy Systems, (Jan. 4, 2023), <https://www.nrc.gov/docs/ML2227/ML22273A178.html>.

We understand that the options presented include (1) regulating fusion facilities as a “utilization facility” under the same framework as traditional fission-based nuclear power plants, (2) regulating fusion under the “byproduct materials” framework applicable to particle accelerators and fusion research and development facilities, or (3) developing a new “hybrid” regulatory framework that would create a new “decision criteria” to determine which regulatory regime facilities would fall under.

In considering your decision, we urge the Commission to select a regulatory framework for fusion energy based on the significantly lower practical risks of fusion facilities (as compared to fission reactors). It is our opinion, and federal courts have consistently agreed, that the Atomic Energy Act (AEA) provides the Commission with very broad authority. The staff paper agrees that commercial fusion could be regulated under the existing byproduct materials approach, implemented by the Commission via 10 C.F.R. Part 30 and related regulations. As the staff paper says, “*near-term fusion devices are unlikely to meet the public health and safety criterion in the [Atomic Energy Act] definition of a utilization facility.*”³ The staff paper likewise confirms that legally “the NRC’s byproduct material framework, which is currently applied to particle accelerators, could be used as a foundation for an approach to the licensing and regulation of fusion energy systems,” and that this program can scale over time.⁴ We believe the current language of the Atomic Energy Act provides the Commission with sufficient discretion to pursue any of the above regulatory options, including regulating fusion energy facilities as byproduct material facilities under the Commission’s existing regulations. We further encourage the Commission to strive to utilize a process that avoids unnecessary regulatory burden on this emerging industry, which could play an important role in our economy and national security, which appears to align with regulation under the byproduct materials approach. The Commission should make clear if it feels the current statutory language poses a barrier to regulation of fusion devices under the byproduct materials framework, so Congress can take appropriate action to address those statutory barriers.

Furthermore, in any approach it takes, we urge the Commission to avoid any unnecessary regulatory uncertainty with the licensing and regulation of commercial fusion energy. We are concerned that the proposed hybrid approach could delay efforts in the United States to commercialize the diverse fusion technologies under development, in direct contradiction to the needs of fusion, because it injects confusion into an already complex regulatory environment and seems to run counter to the NRC Principles of Good Regulation of Efficiency, Clarity, and Reliability.⁵ The private fusion industry aims to deploy new pilot fusion power plants by the early 2030s, with many companies in the siting process now. Uncertainty in the regulatory regime could drive companies and investors to other countries that are racing to put in place fusion regulatory frameworks that permanently separate fusion from fission.

Given the domestic importance of commercial fusion, we ask the Commission to expeditiously establish a regulatory framework for commercial fusion facilities that ensures public health and

³ SECY-23-0001, p. 14.

⁴ *Id.* at pp. 10, 17. As further stated by a member of the NRC staff in a presentation to the Commission, “There is not necessarily a technological limit to what Part 30 could do.” Transcript of NRC Staff, *Briefing on Regulatory Approaches for Fusion Energy Devices* (Nov. 18, 2022), <https://adamswebsearch2.nrc.gov/webSearch2/main.jsp?AccessionNumber=ML22318A265>.

⁵ <https://www.nrc.gov/about-nrc/values.html#principles>

safety, while avoiding unnecessary regulatory burden and uncertainty. We recommend that, to the extent possible, the Commission rely on existing regulatory authority and avoid engaging in expansive new rulemaking. Further, in line with the NRC Principles of Good Regulation of Openness, we encourage the Commission to consider the regulatory choices made by allied nations, such as the United Kingdom, which align the regulation and licensing of commercial fusion in the same manner as other research and test fusion devices and industrial facilities, not fission reactors.⁶ The United Kingdom does not use a hybrid approach because it determined that the upper bound radiological hazard for all proposed fusion concepts would be significantly less than that for a fission power plant.⁷ Engaging in a lengthy regulatory process that delays developers' ability to start design work, or adopting an overly stringent regulatory regime as compared to competitor nations, presents the risk that fusion energy companies will choose to develop their pilot plants in another country. This will place the United States at a competitive disadvantage and could cede its position as the world leader in this area.

We thank the Commission for its attention to this matter and are willing to engage with the Commission's Office of Congressional Affairs if we may be of assistance to the Commission's ongoing efforts.

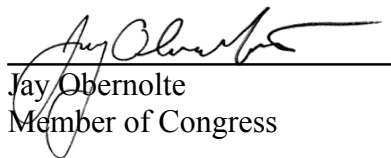
Sincerely,



Lori Trahan
Member of Congress



Donald S. Beyer Jr.
Member of Congress



Jay Obernolte
Member of Congress



Charles J. "Chuck"
Fleischmann
Member of Congress

⁶ *Towards Fusion Energy: The UK Government's Response to the Consultation on its Proposals for a Regulatory Framework for Fusion Energy* (June 2022), ("We are also clear that the fundamental differences between nuclear fission and fusion mean that it would be disproportionate and unnecessary to incorporate fusion energy facilities into nuclear [reactor] regulations"), https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1084472/towards-fusion-energy-uk-government-response.pdf.

⁷ UK Atomic Energy Authority, Fusion Safety Authority, *Technology Report – Safety and Waste Aspects for Fusion Power Plants* (Sept. 2021), <https://scientific-publications.ukaea.uk/wp-content/uploads/UKAEA-RE2101-Fusion-Technology-Report-Issue-1.pdf>.