July 17, 2025

Chairs and Ranking Members:
Hons. Roger F. Wicker and Jack Reed, Senate Armed Services Committee
Hons. Mike Rogers and Adam Smith, House Armed Services Committee
Hons. James E. Risch and Jeanne Shaheen, Senate Foreign Relations Committee
Hons. Brian Mast and Gregory Meeks, House Foreign Affairs Committee
Hons. Mike Lee and Martin Heinrich, Senate Energy and Natural Resources Committee
Hons. Brett Guthrie and Frank Pallone, Jr., House Energy and Commerce Committee
Hons. Ted Cruz and Maria Cantwell, Senate Commerce, Science, and Transportation Committee
Hons. Brian Babin and Zoe Lofgren, House Science, Space, and Technology Committee
Hons. Rand Paul and Gary Peters, Senate Homeland Security & Governmental Affairs Committee
Hons. Mark Green and Bennie Thompson, House Homeland Security Committee
Hons. Mitch McConnell and Christopher Coons, Senate Defense Appropriations Subcommittee
Hons. Ken Calvert and Betty McCollum, House Defense Appropriations Subcommittee
Hons. John Kennedy and Patty Murray, Senate Energy and Water Development Appropriations Subcommittee
Hons. Chuck Fleischmann and Marcy Kaptur, House Energy and Water Development and Related Agencies Appropriations Subcommittee

Re: EOs & Nuclear Weapons-Usable Plutonium as Civilian Fuel

Dear Chairs and Ranking Members,

We, the undersigned experts on nuclear nonproliferation, write to ask your committees to await completion of an ongoing Executive Branch review before authorizing or appropriating funds for the proposed civilian use of nuclear weapons-usable plutonium as fuel in powerplants, which could unintentionally threaten the economic viability of nuclear energy and increase risks of nuclear weapons spreading to adversaries.

President Trump's Executive Orders (EOs), of May 23, 2025, are ambiguous in that they mandate a U.S. government study to evaluate the potential civilian use of plutonium fuel, but also call for immediate action to implement plutonium fuel prior to completion of that study. Premature implementation could unintentionally foster the spread of sensitive nuclear weapons-related technology and thereby increase risks of proliferation two ways: first, some US companies plan to export plutonium fuel and/or plutonium extraction and recycling technology; second, US diplomats cannot effectively discourage countries from extracting and recycling weapons-usable plutonium from civilian fuel if we do so ourselves.

For five decades the United States has refrained from using plutonium fuel in the civilian sector due to security and economic concerns. In the mid-1970s, US Presidents Gerald Ford and Jimmy Carter established nonproliferation policies to avoid the use of plutonium fuel domestically and to strongly discourage it abroad. New techniques to utilize plutonium mixed with other radioactive materials cannot solve the security threat because, as six US national laboratories concluded in 2009, "there is minimal additional proliferation resistance to be found by introducing [such] processing technologies when considering the potential for diversion, misuse, and breakout scenarios."

The poor economics of using plutonium fuel for energy production help explain why only one country, France, now uses it on a widespread basis out of more than 30 countries with nuclear energy, and even France's government-owned utility concedes that it loses money by doing so. Plutonium processing is very costly, due to safety and security concerns, both to extract from nuclear waste and to fabricate into fuel. Even when plutonium is considered to be available to industry for free, reactor fuel

containing it has cost up to ten times as much as traditional, low-enriched uranium fuel, in Japan and elsewhere. Because this extra cost arises from the inherent dangers of handling plutonium, not from other characteristics of the fuel, even advanced reactors are likely to face much higher costs if they use plutonium fuel. Accordingly, if the United States were to introduce plutonium fuel commercially, large government subsidies likely would be necessary to make such nuclear energy economically competitive.

The EOs call for two especially concerning steps to be taken immediately:

1. Halting the secure disposal of excess weapons-grade plutonium from the U.S. nuclear arsenal and instead "making it available to industry" to fuel civilian reactors [Sec. 3(c) of EO, "Reinvigorating the Nuclear Industrial Base"]; and

2. Approving "the design, construction, and operation of privately-funded nuclear fuel recycling, reprocessing, and reactor fuel fabrication technologies" to extract nuclear weapons-usable plutonium from commercial nuclear waste to fuel civilian reactors [Sec. 5 (c) of EO, "Deploying Advanced Nuclear Reactor Technologies for National Security"].

However, the EOs also mandate a study to evaluate the wisdom of such policies, by directing Administration officials, "Within 240 days of the date of this order…[to] submit to the President…a report that includes…an analysis of legal, budgetary, and policy considerations relevant to efficiently transferring spent nuclear fuel from reactors to a government-owned, privately operated reprocessing and recycling facility…[so it] conforms with nonproliferation obligations, and meets the highest safeguards, safety, and security standards" [EO, "Reinvigorating the Nuclear Industrial Base"]. This study presumably will investigate why the previous U.S. attempt to transfer plutonium to the civilian sector for use as nuclear fuel was canceled in 2018 – by the first Trump Administration – when the government-funded fuel fabrication facility still was under construction after 11 years and the program's cost had exploded from $5 billion to $57 billion.

We hope you agree it makes sense for Congress to require this study be completed and submitted to Congress before you consider funding such activities.

It also would be prudent to await the Administration's report to Congress, mandated by the FY 2023 Omnibus report, on how it will implement recommendations from the 2023 National Academy of Sciences (NAS) study on "Merits and Viability of Different Nuclear Fuel Cycles," which cautioned that "a closed fuel cycle would place significant inventories of potentially weapons-usable materials at security risk in reprocessing and fuel fabrication facilities."

If Congress needs additional information on the economic and national security implications of introducing plutonium fuel into advanced reactors using new recycling technologies, it also could request a follow-up NAS study and wait to receive that prior to considering funding such activities.

In the near-term, Congress should legislate that no funds be authorized or appropriated to introduce plutonium fuel into the civilian nuclear energy sector until it has received and carefully considered these reports.

Thank you for this opportunity to share our concerns and suggestions on this timely and important national security matter.

Sincerely,

Alan J. Kuperman
Associate Professor, LBJ School of Public Affairs, University of Texas at Austin
Coordinator, Nuclear Proliferation Prevention Project (www.NPPP.org)

Frank N. von Hippel
Senior Research Physicist and Professor of Public and International Affairs emeritus
Program on Science and Global Security, Princeton University

Edwin Lyman
Director of Nuclear Power Safety
Union of Concerned Scientists, Washington, DC

Matthew Bunn
James R. Schlesinger Professor of the Practice of Energy, National Security, and Foreign Policy
Harvard Kennedy School

Daryl G. Kimball
Executive Director
Arms Control Association

Steve Fetter
Professor, School of Public Policy
University of Maryland

Henry Sokolski
Executive Director of the Nonproliferation Policy Education Center
Former Pentagon Deputy for Nonproliferation Policy, 1989–1993

Peter Bradford
Former Commissioner, US Nuclear Regulatory Commission

R. Scott Kemp, Associate Professor of Nuclear Science and Engineering, MIT
Director, MIT Laboratory for Nuclear Security and Policy
Former Science Advisor, Office of Special Advisor for Nonproliferation and Arms Control, State Dept.

Robert L. Gallucci
Distinguished Professor in the Practice of Diplomacy
Georgetown University (for identification purposes only)

Thomas B. Cochran, Ph.D.
Retired
Former director of the Nuclear Program, Natural Resources Defense Council, Inc.

James M. Acton
Co-Director, Nuclear Policy Program
Carnegie Endowment for International Peace (for identification purposes only)

James Gustave Speth
Former Dean, Yale School of the Environment
Former Chair, President's Council on Environmental Quality

Sharon Squassoni
Research Professor
George Washington University

Thomas Countryman
Chairman, Board of Directors, Arms Control Association
Former Assistant Secretary of State for International Security and Nonproliferation (2011-2017)

Allison Macfarlane
Director, School of Public Policy and Global Affairs, University of British Columbia; and
Former Chairman, US Nuclear Regulatory Commission

Jessica T. Mathews
Distinguished Fellow and President Emerita
Carnegie Endowment for International Peace (for identification purposes only)

CC:
Elbridge A. Colby, Under Secretary of Defense for Policy, DOD
Drew Walter, Deputy Assistant Secretary of Defense for Nuclear Matters, DOD
Paul Watzlavick, Senior Bureau Official, Bureau of International Security and Nonproliferation, DOS
Kasia Mendelsohn, Acting Deputy Administrator for Defense Nuclear Nonproliferation, NNSA