

Position Statement #55

Nonproliferation

A photograph showing two hands in business suits shaking hands, symbolizing agreement or partnership. The background is a light blue world map.

For its many benefits to be realized, nuclear technology should continue to be applied in such a way that it does not contribute to the spread of nuclear weapons. In addition, the public must have confidence that the diversion of civil nuclear materials into weapons programs will not happen. An effective nonproliferation policy should prevent

- diversion by States of fissile material from the nuclear fuel cycle;
- theft of fissile material by subnational or terrorist groups;
- clandestine operation of a fissile material production facility.

It is the position of the American Nuclear Society (ANS) that the following actions are required to deal with these threats effectively:

1. Nuclear science and technology can be applied for peaceful purposes in a manner that fully supports and is compatible with achieving nonproliferation goals, as embodied in the Treaty on the Nonproliferation of Nuclear Weapons (NPT). To prevent proliferation, sovereign states should adhere to the NPT and its safeguards system including the Additional Protocol and adopt effective export controls. Incentives to acquire nuclear weapons must also be addressed through foreign policies that discourage clandestine nuclear weapons programs in all nations. ANS endorses the steps to strengthen the NPT contained in United Nations (U.N.) Security Council Resolution 1887.
2. Successfully addressing current and evolving proliferation threats requires that the United States work effectively with

both industrialized and developing nations and with established international institutions such as the International Atomic Energy Agency (IAEA). U.S. Governmental policy and actions must accept the variety of approaches toward nonproliferation chosen by other countries, including alternative fuel cycle approaches. In particular, European nuclear power programs have demonstrated that effective safeguards can be designed into programs that involve the separation of plutonium in the fuel cycle. ANS strongly endorses¹ an orderly transition to a U.S. policy that encompasses nuclear fuel recycling in parallel with the establishment of a high-level waste repository.

3. ANS encourages the U.S. Government to establish a policy that definitively endorses peaceful applications of nuclear technology. A strong domestic nuclear industry and supporting infrastructure are essential to the credibility of the United States in working effectively with other countries in meeting the proliferation challenges of today and tomorrow. ANS applauds² efforts by agencies of the U.S. Government to revitalize the nuclear workforce and to support education programs in nuclear science and technology.
4. The United States should continue to explore and develop technologies that will further enhance the proliferation resistance of nuclear power systems. The safeguarded civilian nuclear fuel cycle needs to remain an unattractive route for acquiring nuclear weapons. U.S. research and development policy should recognize the widely held view that the long-term benefits of nuclear power will depend on utilizing more fully the vast potential energy resources in uranium¹ and thorium.³ Consequently, research and development of recycle options is

warranted to ensure a secure and sustainable energy future with reduced proliferation risk.

5. The United States should continue to invest in the development of technologies to monitor and safeguard nuclear materials. This includes strengthening material accountability and physical protection of nuclear materials in cooperation with other countries and IAEA. ANS endorses the principles and objectives of U.N. Security Council Resolution 1540, which requires nation states to implement “effective measures to establish domestic controls to prevent the proliferation of nuclear . . . weapons . . . , including by establishing controls over related materials” and to criminalize export control violations, and calls for states to assist one another to implement such controls.
6. Significant quantities of weapons-grade plutonium and highly enriched uranium (HEU) pose a continuing proliferation threat to the world community. Important efforts to secure these materials and to transform them into more proliferation-resistant forms require and warrant substantial attention and resources. Significant progress has been made with HEU.

Essential programs such as plutonium disposition⁴ will require sustained and stable support from the United States and other countries over many years. The continued support of a strong nuclear nonproliferation regime is a vital national security objective for the United States. In order to be effective, U.S. nonproliferation policies must be developed and implemented in a manner that ensures broad and bipartisan national support and is carried out with the dedication and constancy that is essential in meeting challenging, long-term objectives.

References

1. “Nuclear Fuel Recycling,” Position Statement 45, American Nuclear Society, November 2005, Revised June 2007.
2. “Stewardship of Nuclear Engineering Education,” Position Statement 21, American Nuclear Society, November 2007.
3. “The Use of Thorium as a Nuclear Fuel,” Position Statement 78, American Nuclear Society, November 2006.
4. “Disposition of Surplus Weapons Plutonium as Mixed Oxide Fuel,” Position Statement 47, American Nuclear Society, November 2002, Revised November 2009. The American Nuclear Society, founded in 1954, is a not-for-profit scientific and educational society of over 11,000 scientists, engineers, and educators from universities, government and private laboratories, and industry. Position Statements are the considered opinions and judgments of the Society in matters related to nuclear science and technology. They are intended to provide an objective basis for weighing the facts in reaching decisions on important national issues.



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