

# **THE FUTURE DIRECTION OF U.S. NUCLEAR NON-PROLIFERATION POLICY**

A Workshop Sponsored by  
The Center for Strategic & International Studies (CSIS), and  
The American Nuclear Society (ANS) Special Committee on Non-Proliferation

December 6, 2001  
CSIS, 1800 K Street NW, Washington, D.C.

## **FINDINGS AND RECOMMENDATIONS**

A workshop was arranged on December 6, 2001 to provide a forum for discussion regarding the future of U.S. Non-Proliferation Policy. More than 40 key individuals from government, academia and the private sector attended.

The primary focus of the workshop was to explore possible new paths towards achieving an appropriate balance between two objectives; reducing the threat of nuclear weapons proliferation, and expanding the peaceful use of nuclear energy for its environmental and energy benefits.

In the opinion of the organizers the workshop produced some new insights and perspectives that may be of value to the government as it pursues actions designed to prevent the global proliferation of nuclear weapons, while encouraging the safe and cost effective expansion of civilian nuclear energy, both here in the U.S. and worldwide. These are organized under the three main themes of the workshop: **Energy Policy and Non-Proliferation, Disposition of Excess Weapons Fissile Materials, and Nuclear Industrial Infrastructure**.

One overarching observation emerged, that the time may be ripe to develop a new 'Atoms for Peace' initiative such as the one launched by President Eisenhower in 1954, and that such a possibility merits serious consideration.

The organizers welcome comments on these findings and recommendations from the American Nuclear Society, CSIS, participants in the December 6, 2001 workshop, and other interested organizations.

### **Energy Policy and Non-Proliferation**

In the 21<sup>st</sup> century, nuclear power will become increasingly important as a source of clean energy worldwide. In the less developed regions of the world, nuclear power could play a significant role in redressing such conditions as a lack of adequate electricity supplies and of sources of clean water, which restrain the standard of living of large populations to below poverty levels. The alleviation of such conditions is essential in reducing the bases for political instability that sometimes lead nations to develop weapons of mass destruction.

Unfortunately, due to a variety of factors, there has been significant erosion through the years in the nuclear ties and active collaborative relationships that the United States has been able to maintain with a number of other key countries in the civil nuclear sphere. This, in turn, has served to weaken U.S. influence in the nuclear sphere, including in the non-proliferation area.

An effective U.S. non-proliferation and international nuclear policy requires a close integration of foreign policy and non-proliferation objectives, a careful balancing of incentives as well as controls, and in many cases, the active and constructive involvement of the United States with the legitimate civil nuclear programs in a variety of other countries. Moreover, in many cases, national security, political and foreign policy considerations will be more dominant than technical considerations, including fuel cycle approaches, in determining whether nations actually elect to acquire, or try to acquire, nuclear weapons.

For example, it is not necessary, nor practical, that the same nuclear technology, and fuel cycle approach be used in all regions, and in all states, in order for the benefits of nuclear energy to be enjoyed worldwide and under conditions that foster non-proliferation objectives. In some states and regions, geologic repositories for disposal of spent fuel, or high-level waste, are not practical, both from a geologic and an economic point of view. Aggregating these materials in a few locations may be preferable. In other states, processing of spent fuel, as may be needed for recycle and/or waste separation and transmutation to reduce the radio-toxicity of high level waste, may not be wise because of concerns over the political stability of the region, and the possibility that effective non-proliferation constraints, including IAEA safeguards, may not be applied.

For these practical reasons, it may be necessary and desirable that a global non-proliferation regime evolve in which some nations will rely on the fuel cycle services being provided from outside their borders under effective non-proliferation controls. Such services could include the fuel supply, enrichment, protracted spent fuel storage or reprocessing, separation and transmutation of long-lived isotopes, MOX fuel fabrication, or geologic disposal of spent fuel and/or immobilized high level waste.

## **Recommendations**

1. We urge that prompt study and attention be given by the U.S. government and interested public and private groups, to reviving the philosophy and concrete approach of the Atoms for Peace program of the 1950's and '60's that proved so effective in establishing the basic foundations of the international regime for civil nuclear cooperation as well as non-proliferation.

To this end, prompt and high level study and attention should be devoted to the question of whether a second Atoms for Peace program should be framed and launched by the United States in cooperation with other key countries and international organizations. The objective would be to allow the benefits of nuclear energy to be made available to all nations while minimizing the risk of proliferation of nuclear weapons.

2. The U.S. government should continue to fully support the IAEA safeguards programs with enhanced field inspection personnel and inspection of all covered nuclear installations –

declared and undeclared. Ways should be promptly identified to assure that the IAEA safeguards system has the requisite financial, human and material resources to keep up with the growing demand on the system.

3. The United States should continue to support the research and development recommendations of the so-called 'TOPS' group for advancing intrinsic and extrinsic proliferation barriers. Areas of high priority are establishing international standards for proliferation resistance, integrating plant design with safeguards and working to enhance extrinsic safeguards systems for easier detection. In this regard, proliferation resistance should be viewed from the perspective of the entire fuel cycle, and not by facility or process.

4. Reduced proliferation risk recycling technologies should be actively developed by the United States and other countries to minimize the high level nuclear waste problem and reduce the potential for material diversion, as recommended in the 2001 National Energy Plan.

5. The United States should continue to work hard to try to normalize civil nuclear relationships with the Russian Federation, including establishing a climate that will permit the negotiation and conclusion of a U.S.-Russian civil nuclear agreement for cooperation. Conclusion of such an agreement could better integrate the nuclear technology capabilities of both countries. It could also facilitate the export of U.S. origin spent fuel (representing 90 percent of the potential spent fuel storage market) to Russia under international safeguards, thereby producing significant benefits to civil nuclear programs in countries such as Taiwan and South Korea. We recognize that achievement of this goal will depend on resolution of U.S. and Russian differences over Russian export policies towards Iran.

6. The United States should explore whether there are any ways to establish prudent cooperative ties in the civil nuclear sector with some of the countries outside the NPT regime that are fully prepared to abide by responsible nuclear export policies. While U.S. law and policy clearly and appropriately provide for meaningful nuclear cooperation with nations that adhere to the NPT, or that accept full scope safeguards, the United States also has an interest in cooperating with some energy starved developing countries that are not parties to the NPT, in nuclear safety and other areas. Consequently, without compromising the intent of U.S. non-proliferation policies, the United States should be open to assessing whether there are ways, consistent with international commitments, in which nuclear links with these countries can be strengthened.

### **Disposition of Excess Weapons Fissile Materials**

Subsequent to the December 6, 2001 workshop, the Administration has completed its review of plutonium disposition options and has elected to proceed expeditiously with a domestic MOX program as recommended by many participants at the workshop. The Administration decision and rationale are described in a report to Congress dated February 15, 2002. There remains less certainty regarding the Russian program of plutonium disposition, since it was not covered in the Administration decision and report to Congress. The following recommendations are made in recognition of these recent developments.

## **Recommendations**

1. In view of the events of September 11<sup>th</sup>, and the threat that proliferation of nuclear explosive devices poses to U. S. national security, the Administration should assign the Fissile Material Disposition Program the highest priority and ensure that the senior leadership in the White House (OMB and NSC) and Departments of Energy, Defense, and State actively support the program.

The Administration should proceed expeditiously with the Plutonium Disposition Program by requesting full funding for fiscal year 2003 and beyond.

Congress should demonstrate bipartisan support by providing the needed funding.

2. The Administration (Departments of Energy and State) should settle with the Russian Federation the exact approach, schedule, facilities to be used and estimated costs to be born by the Russian Federation and the Western nations for disposing of the Russian excess plutonium.

The State Department should solicit and obtain necessary commitments from other nations concerning the support and contributions they will make to the Russian Federation's program to dispose of excess plutonium.

3. The Department of Energy, with input from the State Department should publish annually a report detailing progress against the schedule for the domestic as well as the Russian parts of the program. Any shortfalls should be identified along with plans for recovery.

## **Nuclear Industrial Infrastructure**

Positive resolution of the future of Yucca Mountain is required, and soon, if nuclear energy is to secure a place in the U.S. energy future.

U.S. national security laboratories have appropriately provided increased emphasis on security in recent years. This has led to reduced participation of scientists at these laboratories in national and international scientific collaboration and undertakings, which potentially inhibits the advancement of science.

The suggestion that a new "Atoms for Peace" initiative be studied and, if appropriate, implemented, as outlined above, could also provide momentum to needed efforts to rebuild the nuclear infrastructure in the U.S. and elsewhere.

## **Recommendations**

1. Efforts should be made to assure an appropriate balance between the legitimate security needs of the nation and the legitimate needs or scientific cooperation which is needed to assure progress in the civilian nuclear sector.

2. Public and private funding of university academic programs and research reactors must be encouraged if the nuclear future of the United States is to avoid serious constraints imposed by a weakened workforce that will be inadequate in size and in skills.

3. To encourage students to enter the nuclear science and engineering professions at the college level, leadership is necessary by the President and members of Congress. It is vital that they publicly stress the importance of nuclear scientists and engineers for energy and national security.

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