

Appendix A: Outline of Proposed Spending

This outline, prepared by Dr. Graham Allison, Director of the Belfer Center at Harvard University, suggests an allocation of funding for a program of this magnitude. It is not intended to be of budget quality, nor to imply that the U.S. should be the sole provider of funds for such a program.

Outline of Proposed Spending over 8-10 years	
<p>Securing Excess Russian Plutonium</p> <p>Purchase and secure monitored storage of up to 100 MT: \$3B Conversion of Plutonium pits to oxide: \$1B Immobilize or irradiate up to 100 MT: \$5B</p>	\$ 9 Billion
<p>Securing Excess Russian HEU</p> <p>(rates established by HEU deal i.e. \$20M/MT to purchase) Purchase additional 200 MT HEU: \$4B Downblend remaining excess HEU: \$7B</p>	\$ 11 Billion
<p>Improving Security and Accounting for Nuclear Material in Russia</p> <p>MPC&A improvements would include material consolidation; equipment upgrades; training of operators, managers and regulators; computerized inventory systems; upgrading security during transport, etc.</p>	\$ 5 Billion
<p>Downsizing and Restructuring of Russia's Excess Nuclear Complex</p> <p>Facility downsizing and preparation for civilian use: \$2B Employ knowledgeable nuclear personnel: \$700M Replace Pu reactors: \$300M</p>	\$ 3 Billion
<p>Assure Transparency in Russia and Verify Progress</p>	\$ 2 Billion
<p>Estimated Cost to Achieve Goals</p> <p>Benchmark: 1 percent current defense budget over this period</p>	\$ 30 Billion

Appendix B: Task Force Members' Biographies

Howard Baker, Co-Chair

Senator Baker is a shareholder with the law firm of Baker, Donelson, Bearman, & Caldwell. In 1966, Senator Baker became the first Republican ever popularly elected to the United States Senate from Tennessee, and won reelection by wide margins in 1972 and 1978. Senator Baker first won national recognition in 1973 as the Vice-Chairman of the Senate Watergate committee. He was the keynote speaker at the Republican National Convention in 1976, and was a candidate for the Republican presidential nomination in 1980. He concluded his Senate career by serving two terms as Minority Leader (1977-1981) and two terms as Majority Leader (1981-1985). In addition, Senator Baker served as President Reagan's White House Chief of Staff from 1987 to 1988.

Senator Baker was a delegate to the United Nations in 1976, and served on the President Foreign Intelligence Advisory Board from 1985 to 1987 and from 1988 to 1990. He is a member of the Council on Foreign Relations. He serves on the board of the Forum for International Policy and is an International Counselor for the Center for Strategic and International Studies.

Senator Baker serves on numerous boards and commissions in the private and public sector. He has also authored several books. After attending Tulane University and the University of the South, he received his law degree from the University of Tennessee. Senator Baker is a World War II veteran having served in the United States Navy.

Lloyd Cutler, Co-Chair

Mr. Cutler, a founding partner of Wilmer, Cutler & Pickering, maintains an active law practice in several fields, including international arbitration and dispute resolution, constitutional law, appellate advocacy, and public policy advice.

Mr. Cutler served as Counsel to President Clinton and Counsel to President Carter. He also served as Special Counsel to the President on Ratification of the Salt II Treaty (1979-1980); President's Special Representative for Maritime Resource and Boundary Negotiations with Canada (1977-1979); and Senior Consultant, President's

Commission on Strategic Forces (The Scowcroft Commission, 1983-1984). He was a member and former Chairman of the Quadrennial Commission on Legislative, Executive and Judicial Salaries, and was a member of the President's Commission on Federal Ethics Law Reform (1989).

Mr. Cutler was a founder and Co-Chairman of the Lawyers Committee on Civil Rights Under Law. He has served as Chairman of the Board of the Salzburg Seminar; Co-Chairman of the Committee on the Constitutional System; a member of the Council of the American Law Institute; a trustee emeritus of The Brookings Institution and a member of its Executive Committee; and an Honorary Bencher of the Middle Temple. He also has served as a director of a number of national business corporations. In and out of government, he has written frequently and appeared often on television as a commentator and advocate in connection with a wide range of public policy matters. Mr. Cutler received his bachelor's and law degrees from Yale University and was awarded an honorary degree of Doctor of Laws from Yale in 1983.

Andrew Athy Chairman of the Secretary of Energy Advisory Board

Mr. Athy is a partner in the Washington D.C. law firm of O'Neill, Athy and Casey. He previously served as counsel to the U.S. House of Representatives Energy and Commerce Subcommittee on Energy and Power (1978-1981). Prior to that he was an attorney in the Office of General Counsel at the Federal Election Commission (1976-1978), and Assistant Attorney General and Deputy Assistant Attorney General, Office of the Attorney General (Criminal Division) Commonwealth of Massachusetts (1973-1975). Mr. Athy received a bachelor's degree from the University of Pennsylvania, and his law degree from the Georgetown University Law Center.

Graham T. Allison

Dr. Allison is the Douglas Dillon Professor of Government at Harvard University and Director of the Belfer Center for Science and International Affairs. In the first Clinton Administration, Dr. Allison served as Assistant Secretary of Defense for Policy and Plans where he coordinated DOD strategy and policy towards Russia, Ukraine, and the other states of the former Soviet Union.

Dr. Allison has been an active advisor and consultant to agencies of government, beginning with the Department of Defense in the 1960s.

He was Special Advisor to Secretary of Defense Weinberger from 1985-87 and has been a member of the Secretary of Defense's Defense Policy Board for Secretaries Weinberger, Carlucci, Cheney, Aspin, Perry and Cohen. In 1989-90, he served as Vice Chairman of JCS Chairman Crowe's Planning Committee on Strategy. He has twice been awarded the Defense Department's highest honor for civilians, the *Distinguished Public Service Medal*.

Dr. Allison was a founding member of the Trilateral Commission, a Director of the Council on Foreign Relations, and has been a member of public committees and commissions, among them Massachusetts Governor Weld's Task Force on Defense and Technology and the Carnegie Endowment's Commission on Government Renewal.

Dr. Allison has served as a Director of the Getty Oil Company, Nvest, Taubman Centers, Inc., and Belco Oil and Gas, as well as a member of the Advisory Boards of Chase Bank, Hydro-Quebec, and the International Energy Corporation.

Born and raised in Charlotte, North Carolina, Dr. Allison was educated at Davidson College; Harvard College (B.A., Magna Cum Laude, in History); Oxford University (B.A. and M.A., First Class Honors in Philosophy, Politics, and Economics); and Harvard University (Ph.D. in Political Science). He has received honorary doctorates from Davidson College, Uppsala University (Sweden), and the University of North Carolina (Wilmington). Dr. Allison and his wife Elisabeth live in Belmont, Massachusetts.

J. Brian Atwood

Mr. Atwood is President of Citizens International and Executive Vice President of Citizens Energy Corporation. One of the world's foremost development experts, Atwood served for six years as Administrator of the U.S. Agency for International Development. Mr. Atwood created Citizens International to design and manage private sector investments to meet the social and economic needs of developing nations. The new venture establishes public-private partnerships to help build democratic, market systems working with host countries, multinational corporations, and international aid and lending agencies.

As the Administrator of the U.S. Agency for International Development (USAID) from May 1993 to July 1999, he led the agency toward dramatic management reforms and a clearer development strategy. He also served as the Chairman of the

Overseas Private Investment Corporation during his tenure at USAID. Mr. Atwood helped promote a number of highly successful initiatives in the areas of global climate change, democratization, conflict prevention and health. He led presidential delegations to Haiti, El Salvador, Rwanda and East Africa and was President Clinton's Humanitarian Relief Coordinator for the Kosovo crisis.

Mr. Atwood's career in foreign policy began 30 years ago when he joined the Foreign Service and served in Cote d'Ivoire and Spain. He also served on the staff of former Senator Thomas Eagleton (D-Mo.), and as executive director of the Democratic Senatorial Campaign Committee under former Senator Lloyd Bentsen (D-Texas). Atwood has served under several Presidents in key administrative and policy-making posts. During the Carter Administration he was Assistant Secretary of State for Congressional Relations. In the Clinton Administration, he led the transition team at the State Department and was Under Secretary of State for Management prior to his appointment as head of USAID. He was President of the National Democratic Institute for International Affairs from 1986 to 1993 and, before then, was Dean of Professional Studies at the Foreign Service Institute. In December 1998, President Clinton nominated Atwood as Ambassador to Brazil. He withdrew prior to Senate confirmation to accept his current position.

David Boren

Governor Boren, who has served Oklahoma as Governor and U.S. Senator, became the thirteenth president of the University of Oklahoma in November 1994. He is the first person in state history to have served in all three positions.

Governor Boren is widely respected for his academic credentials, his longtime support of education, and for his distinguished political career as a reformer of the American political system. A graduate of Yale University in 1963, Boren majored in American history, graduated in the top one percent of his class and was elected Phi Beta Kappa. He was selected as a Rhodes Scholar and earned a master's degree in politics, philosophy and economics from Oxford University, England, in 1965. In 1968, he received a law degree from the University of Oklahoma College of Law, where he was on the Law Review, elected to the Order of the Coif, and won the Bledsoe Prize as the outstanding graduate by a vote of the faculty.

He is also a former state legislator, and spent nearly three decades in elective politics before becoming the president of the University of Oklahoma. Boren was the youngest governor in the nation when he served from 1974 to 1978. Known as a reformer, Boren campaigned with a broom as his symbol. During his term, he instituted many progressive programs, including conflict-of-interest rules, campaign-financing disclosure, stronger open meeting laws for public bodies, and more competitive bidding on state government contracts.

During his time in the U.S. Senate (1979 to 1994) Boren served on the Senate Finance and Agriculture Committees and was the longest-serving chairman of the Senate Select Committee on Intelligence. From his days as a state legislator and Governor of Oklahoma to Washington, Boren carried a commitment to reform, leading numerous efforts to make government work better for American citizens. As chairman of the Senate Intelligence Committee, he strengthened oversight of secret government programs and reformed the procedures for Presidential notice of such programs to Congress.

Governor Boren is married to Molly Shi Boren and has two children, Carrie Christine and David Daniel. Devoting much of his life to public service, Boren drew from the example of his father, the late Congressman Lyle H. Boren.

Lynn Davis

Dr. Davis is currently a Senior Fellow at RAND Corporation. She is also advising the Commission on National Security/21st Century in its efforts to redesign the U.S. government's national security policy-making processes. She has served as a member of the Secretary of State's review boards that investigated the embassy bombings in East Africa and the Overseas Presence Advisory Panel

From 1993-1997, she was Under Secretary of State for Arms Control and International Security Affairs. She played a central role in the negotiations that produced NATO's expansion, the guidelines for the START III Treaty, the non-proliferation agreement with the Russians and Chinese on missile transfers and conventional arms, and the establishment of the Wassenaar Arrangement, a multilateral regime that coordinates conventional arms sales policies.

Prior to joining the State Department, Dr. Davis was Vice President and Director of the Arroyo Center at RAND. She has served on the staffs of the Secretary of Defense, the National Security Council, and the Senate Select Committee on Intelligence. She was Director of

Studies at the National War College and Columbia University. She has a Ph.D. in Political Science from Columbia University and has authored numerous articles and monographs on nuclear and conventional arms control.

Butler Derrick

Congressman Derrick is a partner in the law firm Powell, Goldstein, Frazer and Murphy and previously was a partner at Williams & Jensen, P.C. From 1974-1994 he represented the Third District of South Carolina in the United States House of Representatives. During his career in Congress, Mr. Derrick served as Vice Chairman of the House Rules Committee and Chief Deputy Majority Whip. He was a member of the South Carolina House of Representatives from 1969-1974. He was a principal organizer of the South Carolina Water Resources Commission and was Vice Chairman of the South Carolina Nuclear Energy Committee. He received his law degree from the University of Georgia.

Susan Eisenhower

Ms. Eisenhower is President of The Eisenhower Institute. Formerly Chairman and Co-Founder of the Center for Political and Strategic Studies, she joined the Institute as CEO when the two organizations combined programs.

As one time consultant to IBM, American Express and Loral Space Systems, Ms. Eisenhower is best known for the fourteen years she has spent on U.S.-Soviet and then U.S.-Russian relations, while placing special emphasis on the changing political, economic and social developments in the former Soviet Union. As President of the Eisenhower World Affairs Institute, in the mid-1980s, she served as co-chairman of the first open and televised bilateral policy debate in Soviet history in 1986 and traveled extensively in the Soviet Union during the 1980s. For the next several years she designed and implemented the Institute's U.S.-Soviet program. In 1992, Ms. Eisenhower and several of her colleagues founded the Center for Political and Strategic Studies, only months after the collapse of the Soviet Union.

In 1998, Ms. Eisenhower was elected to the National Academy of Sciences' standing Committee on International Security and Arms Control. During the fall of 1998, she spent the fall semester at Harvard as a Visiting Fellow at the Kennedy School of Government's Institute of Politics. In 1998, she was also appointed

to the National Advisory Council of the National Aeronautics and Space Administration (NASA).

In addition to giving regular lectures, Ms. Eisenhower has authored several books and published numerous articles in major publications throughout the United States.

Lee Hamilton

Congressman Hamilton is the Director of the Woodrow Wilson International Center for Scholars. Prior to joining the Wilson Center, he represented the Ninth District of Indiana in the House of Representatives for 17 terms (1965-1999). While a Member of Congress, Mr. Hamilton was recognized as an authority and outspoken advocate of national security issues. He served as Chairman and Ranking Member of the House Committee on International Relations, the Joint Economic Committee, the Permanent Select Committee on Intelligence, Joint Committee on the Organization of Congress, as well as serving as Chairman of the October Surprise Task Force and the Select Committee to Investigate Covert Arms Transactions with Iran.

In addition to his duties with the Wilson Center, Congressman Hamilton serves on numerous panels and commissions including the Secretary of Defense's National Security Study Group and the Director of the Central Intelligence Agency Economic Intelligence Advisory Panel.

Congressman Hamilton attended Goethe University (Frankfurt, Germany) and holds degrees from DePauw University and Indiana University School of Law.

Robert I. Hanfling

Mr. Hanfling is a top-level management executive and consultant based in Washington, D.C. His diversified corporate and public sector experience includes venture capital management, bankruptcy trustee, corporate restructuring, arbitration of energy issues, and negotiation of mergers and acquisitions. Mr. Hanfling has been significantly involved in domestic and international programs for coal, synthetic fuels, nuclear, oil, gas, and electricity policy. He has been a member of the secretary of energy Advisory Board since 1995, serving as its Chair from 1995-1997. He has a B.S. in chemical engineering from Rensselaer Polytechnic Institute, an M.S.

in nuclear engineering from West Virginia University and an MBA in International Trade from the City University of New York.

Gary Hart*

Since retiring from the United States Senate, Gary Hart has been extensively involved in international law and business, as a strategic advisor to major U.S. corporations, and as an author and lecturer.

He is presently Counsel to Coudert Brothers, a multinational law firm with offices in thirty-two cities located in nineteen countries around the world. He is co-chair of the U.S. Commission on National Security for the 21st Century, having been appointed by President Clinton and Secretary of Defense William S. Cohen. He is President of Global Green, the U.S. affiliate of President Mikhail Gorbachev's environmental foundation, Green Cross International. He is a founding member of the Board of Directors of the U.S. Russia Investment Fund; a member of the Defense Policy Board; and a member of the Council on Foreign Relations.

Gary Hart was Visiting Fellow and McCallum Memorial Lecturer at Oxford University; Global Fund Lecturer at Yale University, and was Regents Lecturer at the University of California. He travels extensively to the former Soviet Union, Europe, the Far East and Latin America. Since 1988, he has been active in negotiating ground-breaking joint venture agreements in the Commonwealth of Independent States and has published a book on the former Soviet Union entitled *Russia Shakes the World: The Second Russian Revolution* (1991).

Gary Hart represented the State of Colorado in the United States Senate from 1975 to 1987. In 1984, he was a candidate for his party's nomination for President.

Senator Hart was first elected to the Senate in 1974, having never before sought public office, and was re-elected in 1980. During his 12 years in the Senate, he served on the Armed Services Committee, where he specialized in nuclear arms control and naval issues, and was an original founder of the military reform caucus. He also served on the Senate Environment Committee, Budget Committee, and Intelligence Oversight Committee.

* Senator Hart has been prevented from full participation in the Task Force's deliberations by other government service.

Gary Hart is a graduate of the Yale Law School, the Yale Divinity School and Southern Nazarene University, and resides with his family in Kittredge, Colorado.

Jim McClure

Senator McClure is co-founder of the government relations firm McClure, Gerard & Neuenschwander, Inc. and is Of Counsel to the law firm of Givens Pursley, Boise, Idaho. He represented Idaho for six years as a member of the United States House of Representatives and for 18 years in the United States Senate. As a senator, he was Chairman of the Energy and Natural Resources Committee, the Senate Steering Committee and the Senate Republican Conference. Senator McClure is widely recognized for his expertise on environmental, energy and natural resource matters including transportation, nuclear energy, natural gas, oil and electrical utility issues.

Senator McClure played a major role in negotiating an agreement between the State of Idaho, the Department of Energy and the US Navy regarding the shipment and storage of nuclear waste material to the Idaho National Engineering Laboratory.

He also serves on a number of corporate boards, as well as several volunteer boards. Senator McClure is a graduate of the University of Idaho College of Law.

Daniel Mayers

Mr. Mayers is Of Counsel with the Washington, D.C. law firm of Wilmer, Cutler & Pickering. Before becoming Of Counsel, Mayers was a Senior Partner with the firm working on major antitrust and commercial/financial litigation. Before joining Wilmer, Cutler, & Pickering, Mr. Mayers served as Assistant to Under Secretary of State George Ball working primarily on issues surrounding Viet Nam, in coordination with various intelligence agencies. Mr. Mayers also served as Assistant to Assistant Attorney General Louis Oberdorfer and as Law Clerk for United States Supreme Court Justice Felix Frankfurter. He serves on a number of boards and commissions in political, civic, and educational activities. Mr. Mayers is a graduate of Harvard College and a veteran of the United States Army. In addition, he holds a law degree from Harvard Law School where he graduated magna cum laude.

Sam Nunn

Senator Nunn is a senior partner in the Atlanta-based law firm of King & Spalding, where he focuses his practice on international and corporate matters. He served as a United States Senator from Georgia for 24 years (1972-1996).

During his tenure in the U.S. Senate, Senator Nunn served as chairman of the Senate Armed Services Committee and the Permanent Subcommittee on Investigations. He also served on the Intelligence and Small Business Committees. His legislative achievements include the landmark Department of Defense Reorganization Act, drafted with the late Senator Barry Goldwater, and the Cooperative Threat Reduction Program, also known as the Nunn-Lugar program, which provides incentives for the former Soviet republics to dismantle and safely handle their nuclear arsenals. Senators Nunn and Lugar were nominated for the 2000 Nobel Peace Prize for their work in conceiving, legislating and sustaining this important program.

He has continued his service in the public policy arena as a distinguished professor in the Sam Nunn School of International Affairs at the Georgia Institute of Technology, and as chairman of the board of the Center for Strategic and International Studies in Washington, D.C. In addition, Senator Nunn serves as co-chairman of The Concord Coalition, a grass-roots organization formed to educate the public on our nation's fiscal challenges.

Alan Simpson

Senator Simpson is the Director of the Institute of Politics at Harvard University's Kennedy School of Government. From 1973 to 1997, Mr. Simpson served as United State Senator from Wyoming. While in the Senate, he was Assistant Majority Leader for 10 years. Senator Simpson was also the Chairman of the Committee on Veterans' Affairs. Prior to his time in the Senate, he served for 13 years in Wyoming's legislature. Senator Simpson also served as Assistant Attorney General for the State of Wyoming and is a veteran of the United State Army, Infantry.

Senator Simpson serves on numerous boards and commissions. He also is the author of *Right in the Gazoo: A Lifetime of Scrapping with the Press*.

David Skaggs

Congressman Skaggs is Executive Director of the Democracy & Citizenship Program at the Aspen Institute, and Of Counsel to the Washington, D.C.-based law firm of Hogan & Hartson. In addition, he serves as an adjunct professor at the University of Colorado. Congressman Skaggs represented the Second District of Colorado in the United States House of Representatives for twelve years. Before that, he served three terms in the Colorado House of Representatives, the last two terms as Minority Leader.

Mr. Skaggs served eight years on the House Appropriations Committee. During his last six years in Congress, he was a member of the Permanent Select Committee on Intelligence, where he devoted particular attention to classification and information security issues. Prior to joining the Appropriations Committee, he was a member of the Public Works and Transportation Committee and the Science Space and Technology Committee. Congressman Skaggs was a founding co-chairman of the House Bipartisan Retreat and the Constitutional Forum.

Prior to serving in elected office, Mr. Skaggs practiced law in Boulder, Colorado and as a judge advocate in the United States Marine Corps. He was chief of staff to Congressman Timothy Wirth. In addition to current duties, Mr. Skaggs serves on a number of boards and committees; he recently completed work as a member of the Department of State's Overseas Presence Advisory Panel.

John Tuck

Mr. Tuck is a Senior Public Policy Advisor at Baker, Donelson, Bearman & Caldwell. From 1989 to 1992, Mr. Tuck served as Under Secretary of the United States Department of Energy in President Bush's administration.

Prior to his service with the Department of Energy, Mr. Tuck served in a number of positions at the White House during President Reagan's administration, including Assistant to the President, and Director of the Office of the Chief of Staff. From 1981 to 1986, he worked in the United States Senate as Assistant Secretary for the Majority. He has held a number of positions on Capitol Hill including Chief of the Minority Floor Information Services for the House of Representatives.

John Tuck was commissioned in the United States Navy and served on active duty from 1967 to 1973. Subsequently, he served in the United States Naval Reserve for over 20 years, retiring with the rank of Captain. Mr. Tuck holds a bachelor's degree from Georgetown University School of Foreign Service.

Appendix C

TERMS OF REFERENCE for the SECRETARY OF ENERGY ADVISORY BOARD (SEAB) TASK FORCE ON EVALUATION OF DOE'S NONPROLIFERATION PROGRAMS WITH RUSSIA

Scope and Objectives:

The objective of this Task Force is to provide appraisals and recommendations to the Secretary of Energy regarding the policy priorities established by DOE to pursue cooperative nonproliferation and nuclear safety programs with Russia, with an eye to identifying crucial program areas that may not have been addressed in the past. The Task Force should provide an assessment of the performance of DOE's programs in achieving national security and nonproliferation missions. The scope of this appraisal will be all nonproliferation projects, including but not limited to the Initiatives for Proliferation Prevention program, the Nuclear Cities Initiative, the Material Protection Control and Accounting program, the Second Line of Defense program, the HEU Purchase Agreement, the International Nuclear Safety program, and the Plutonium Disposition program.

The Task Force will tackle key questions such as: Are we achieving U.S. nonproliferation and national security goals with Russia? Given Russia's current political and economic environment, how can DOE best achieve these goals? What other practicable opportunities might exist to promote these goals? How can DOE maximize programmatic self-sustainability? The Task Force will not examine issues such as security at DOE's national laboratories, nor the overlap between DOE and DOD programs.

Background:

The President and the Secretary of Energy have stated that DOE's Russian nonproliferation programs are among the most important of the U.S. Government's national security initiatives. Now is an opportune time to step back and evaluate what DOE has achieved. Perhaps more importantly, however, the DOE should work to determine in which direction its programs should proceed and what, if any, new priorities should be established.

The DOE has six major program objectives in the national security and nonproliferation arena: (1) secure nuclear materials and expertise; (2) limit the stockpiles of weapons-useable fissile materials; (3) promote transparent and irreversible nuclear reductions; (4) strengthen the nuclear nonproliferation regime; (5) enhance the safety of nuclear facilities; and (6) promote proliferation resistant civil nuclear technologies. In

considering these six objectives, the Task Force should limit itself to examining DOE's bilateral Russian nonproliferation and nuclear safety programs.

Description of the Task Force's Duties:

1. The Task Force should assess the Department's ongoing activities in the nonproliferation field with Russia.
2. The Task Force should provide the Secretary and the SEAB with policy recommendations as to how the Department can be most effective in supporting U.S. national security interests.
3. The Task Force should investigate ways to increase the reach and accessibility of these programs, in an effort to gain the broad private sector support that is crucial to the success of programs such as the Nuclear Cities Initiative.
4. The Task Force should seek to identify ways to draw on the unique capabilities of our National Laboratories while maintaining programmatic focus and coordination within the DOE complex.
5. The Task Force should seek to develop a metric to measure progress and successes of DOE's programs.

Estimated Number and Frequency of Meetings:

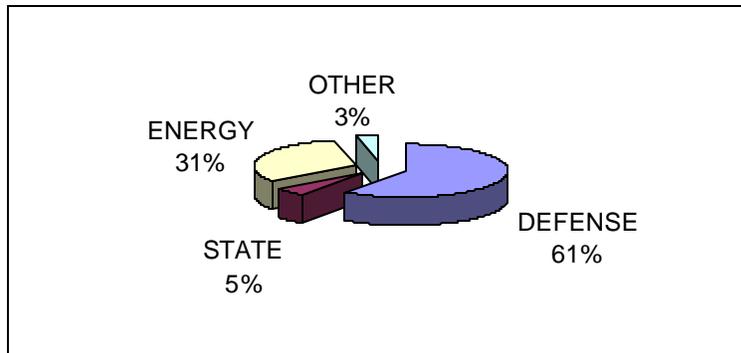
This Task Force shall meet as required. In order to enhance members' knowledge and understanding of DOE programs in Russia, the Department will organize a trip to several Russian sites involved in cooperative programs.

Membership:

The Task Force shall have at least eight members, including at least two individuals who are also members of the Secretary of Energy Advisory Board. The remaining members shall be appropriate experts in the field of Russia, nonproliferation and/or national security and shall reflect a balance of expertise and viewpoints. The Chairman of the SEAB, in consultation with the Secretary of Energy, shall appoint the Chair (or Co-Chairs), as well as all other members.

Duration and Termination Date: This Task Force shall serve for not more than six months, subject to the extension or dissolution by the Chairman of the SEAB.

Appendix D: Programmatic Chart and Budget Pie Chart of U.S. Government Nonproliferation Programs in Russia¹



	DEFENSE	ENERGY	STATE	OTHER
DEFENSE	Arctic Military Environmental Cooperation (AMEC) Military Technical Cooperative Efforts	Warhead Safety and Security Exchange (WSSX)	Border Security And Law Enforcement*	
ENERGY	Cooperative Threat Reduction (CTR)	MPC & A Export Control Assistance Second Line of Defense Russian Border Security	Plutonium Production Reactor Agreement	
STATE	Warsaw Initiative Partnership for Peace International Military Education & Training	Nuclear Cities Initiative* Fissile Materials Disposition Initiatives for Proliferation Prevention HEU Purchase Agreement	International Science and Technology Center (ISTC) ² Export Control Assistance	
OTHER	Counter-proliferation		Scientific Collaboration Biotechnical Activities*	

¹ This chart was based on figures provided by the Office of the Special Advisor Coordinator of U.S. NIS assistance; the total budget spent on U.S. nonproliferation programs in Russia in FY 2000 is approximately \$706 million.

² This is an international initiative to deter brain drain. U.S. funding is from the State Department.

* Other Departments are also involved.

Appendix E: Budget Chart of DOE Nonproliferation Programs with Russia

PROGRAM (\$ in millions)	FY 00	FY 01
MPC & A	144.6	173.9
Second Line of Defense	1.2	3.0
Plutonium Disposition	30.0	40.0
Nuclear Cities Initiative	7.5	27.5
Initiatives for Proliferation Prevention	22.5	24.5
HEU Purchase/Transparency	15.7	15.2
Nuclear Safety	15.0	20.0
TOTALS	236.5	304.1

Appendix F: Glossary

brain drain - the emigration of personnel from former Soviet institutes, laboratories and facilities who were involved in weapons of mass destruction work.

downblending- the process of blending highly enriched uranium with low enriched uranium or natural uranium to decrease the overall enrichment level of the uranium in order to make it less attractive from a proliferation perspective, i.e. not as readily useable in a weapon.

highly enriched uranium (HEU) - uranium that is enriched in the uranium-235 isotope to greater than 20 percent. For weapons, generally 90 percent enrichment is used. [Natural uranium, which cannot be used for weapons contains only 0.7 percent uranium-235 and 99.3 percent uranium-238.]

low enriched uranium (LEU) - uranium that is enriched in the uranium-235 isotope to less than 20 percent.

mixed oxide fuel (MOX) - nuclear reactor fuel composed of a mixture of uranium and plutonium in oxide form. The plutonium replaces some of the fissile uranium, thus reducing the need for uranium or enrichment. This is a form of the fuel that would be used in plutonium recycle.

rapid upgrades - upgrades that are done initially to provide a rapid increase in security of the nuclear material and may include placing bricks in front of windows and installing equipment that monitors personnel and/or vehicles entering and leaving the facility.

weapons-grade - nuclear material of the type most suitable for nuclear weapons, i.e., uranium enriched to 90 percent or more of uranium-235 or plutonium that is primarily plutonium 239.

weapons-usable - nuclear materials in a form that can readily be fabricated into nuclear weapons, without need for processes that alter the isotopic content. Highly specialized enrichment, separation, and /or chemical processes have already been completed to reach this condition, which leaves the material ready for conventional manufacturing operations (e.g. casting, alloying, drilling, machining, pressing) or conventional chemical processes. Weapons-usable material would include weapons-grade uranium, plutonium, as well as deuterium and tritium.

Appendix G: Bibliography

Overview

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Appendix H: Audit Report Summary

External Audit Reports on 7 of DOE's Russia Programs

December 2000. *Nuclear Nonproliferation: Implications of the U.S. Purchase of Russian Highly Enriched Uranium*, 12/15/2000, GAO-01-148. Pursuant to a congressional request, GAO reviewed (1) the implementation of the 1993 HEU agreement; (2) USEC Inc.'s performance as the U.S. executive agent; (3) the impact of USEC's privatization; and the HEU agreement on the United States capability to produce fuel for nuclear power plants domestically and; (4) federal oversight of the HEU agreements implementation.

September 2000. *Nuclear Material Protection, Control, and Accounting Program*, 09/16/99, DOE/IG-0425. The objective of the OIG's audit was to assess whether the Department ensured that funds and equipment provided to the Former Soviet Union (FSU) under the Department's Nuclear Material Protection, Control, and Accounting (MPC&A) program were accounted for and used for their intended purposes.

April 2000. *Biological Weapons: Effort to Reduce Former Soviet Threat Offers Benefits, Poses New Risks*. Letter Report, 04/28/2000, GAO/NSIAD-00-138. Pursuant to a congressional request, GAO reviewed efforts to reduce the threat of biological weapons proliferation from the former Soviet Union, focusing on: (1) the potential threats that the former Soviet biological weapons institutes could pose to the United States; (2) current and future U.S. efforts to address these threats; and (3) risks associated with the expanded U.S. effort and Executive Branch plans to mitigate them.

April 2000. *Nuclear Safety: Concerns With the Continuing Operation of Soviet-Designed Nuclear Power Reactors*. Chapter Report, 04/25/2000, GAO/RCED-00-97. Pursuant to a congressional request, GAO provided information on Soviet-designed nuclear power reactors, focusing on: (1) how much money has been spent by the United States and other countries for assistance to improve the safety of Soviet-designed nuclear power reactors--and the types of assistance being provided--as well as planned U.S. expenditures; (2) experts' views on the impact of the assistance; (3) the status of efforts to close high-risk Soviet-designed reactors; and (4) the management of the Department of Energy's (DOE) and the Nuclear Regulatory Commission's (NRC) safety assistance activities.

March 2000. *Nuclear Nonproliferation: Limited Progress in Improving Nuclear Material and Security in Russia and the Newly Independent States*. GAO/RCED/NSIAD-00-82. Pursuant to a request from the Senate Armed Services Committee, GAO reviewed the Department of Energy's Material Protection, Control and Accounting Program. The GAO recommended that DOE develop and annually update an overall cost estimate and time frame for completing the program.

March 2000. *Survey of Department of Energy Programs in the Former Soviet Union*, March 8, 2000, Letter Report, CR-L-00-04. The OIG performed a survey to determine whether the Department had developed an integrated management approach to achieving its nuclear nonproliferation objectives in the FSU.

March 2000. *Weapons of Mass Destruction: U.S. Efforts to Reduce Threats From the Former Soviet Union*, testimony by Harold J. Johnson, before the Subcommittee on Emerging Threats and Capabilities, Senate Committee on Armed Services. GAO/T-NSIAD/RCED-00-119, Mar. 6 (13 pages). Since 1991, Congress has authorized the Departments of Defense, Energy, and State to help Russia and other newly independent states control and eliminate weapons of mass destruction and to reduce the risks of proliferation. This testimony draws on 20 reports GAO has issued during the past eight years on various aspects of these programs. GAO presents overall observations on the costs and impacts of these programs and suggests issues that Congress may want to consider as it reviews current and future budget requests for these programs.

September 1999. *Nuclear Nonproliferation: Status of Transparency Measures for U.S. Purchase of Russian Highly Enriched Uranium*. Letter Report, 09/22/1999, GAO/RCED-99-194. Pursuant to a congressional request, GAO examined the nuclear nonproliferation status of transparency measures for U.S. purchase of Russian highly enriched uranium (HEU), focusing on: (1) the transparency measures that are in place; (2) whether these measures ensure that the nonproliferation objectives of the agreement are met; and (3) the proposals for additional transparency measures.

August 1999. *Nuclear Safety: Information on the International Nuclear Regulators Association*. Letter Report, 08/06/1999, GAO/RCED-99-243. Pursuant to a congressional request, GAO provided information on the Nuclear Regulatory Commission's (NRC) participation in the International Nuclear Regulators Association, focusing on: (1) the Association's activities since it was created; (2) U.S. costs to support NRC's participation in the Association; (3) the views of NRC's commissioners and others on the benefits of the Association; and (4) other groups and activities that promote nuclear safety and the extent to which these groups duplicate the work of the Association.

May 1999. *Cooperative Approaches to Halt Russian Nuclear Proliferation and Improve the Openness of Nuclear Disarmament*. Congressional Budget Office, United States Congress. Pursuant to a congressional request, the CBO analyzed a broad range of cooperative measures between the United States and Russia aimed to enhance nuclear security; namely (1) preventing the spread of nuclear materials and technical knowledge from Russia, and improving openness, or transparency, in dismantling warheads and (2) accounting for fissile materials. In keeping with CBO's mandate to provide objective, impartial analysis, this memorandum makes no recommendations.

April 1999. *Weapons of Mass Destruction: Effort to Reduce Russian Arsenals May Cost More, Achieve Less Than Planned*. Letter Report, 04/13/99, GAO/NSIAD-99-76. Pursuant to a congressional request, GAO reviewed the cost and realization of national security objectives at Russia's Mayak nuclear complex and Shchuch'ye chemical weapons storage depot, focusing on whether the: (1) Mayak project will be completed on schedule and within past Department of Defense (DOD) estimates of its total cost to the United States; (2) United States has made progress in ensuring that the completed Mayak facility would achieve U.S. national security objectives by safely and securely storing retired materials

taken only from dismantled nuclear weapons; (3) Shchuch'ye project will be completed on schedule and the status of DOD efforts to estimate its total cost to the United States; and (4) completed Shchuch'ye facility will achieve U.S. national security objectives by helping Russia destroy the Shchuch'ye depot's stocks and accelerate elimination of all Russian chemical weapons under the Chemical Weapons Convention.

April 1999. *Federal Research: Information on International Science and Technology Agreements*. Letter Report, 04/22/99, GAO/RCED-99-108. Pursuant to a congressional request, GAO provided information on the U.S. government's international science and technology (S&T) agreements that support and encourage international cooperation in research and development, focusing on the: (1) number of international S&T agreements active during fiscal year 1997; and (2) number of these agreements that resulted in research projects or other activities.

March 1999. *Nuclear Safety: The Convention on Nuclear Safety*. Testimony, 03/17/99, GAO/T-RCED-99-127. Pursuant to a congressional request, GAO discussed the Convention on Nuclear Safety, focusing on the: (1) Convention's scope and objectives; (2) process for reviewing compliance with the Convention; (3) dissemination of information related to the Convention's proceedings; and (4) costs to implement the Convention.

February 1999. *Nuclear Nonproliferation: Concerns With DOE's Efforts to Reduce the Risks Posed by Russia's Unemployed Weapons Scientists*. Chapter Report, 02/19/99, GAO/RCED-99-54. Pursuant to a congressional request, GAO reviewed the Department of Energy's (DOE) efforts to create jobs for displaced former Soviet Union scientists through its Initiatives for Proliferation Prevention program, focusing on: (1) the costs to implement the program for fiscal years 1994-98, including the amount of funds received by weapons scientists and institutes; (2) the extent to which the program's projects are meeting their nonproliferation and commercialization objectives; and (3) DOE's Nuclear Cities Initiative.

January 1998. *Nuclear Nonproliferation and Safety: Uncertainties About the Implementation of U.S.-Russian Plutonium Disposition Efforts*. Letter Report, 01/14/98, GAO/RCED-98-46. Pursuant to a congressional request, GAO provided information on: (1) the goals of the Department of Energy's (DOE) plutonium disposition program and the impediments facing its implementation; (2) U.S. government officials' views on the importance of a U.S.-Russian agreement on plutonium disposition and the status of efforts to negotiate an agreement; (3) the costs to implement plutonium disposition programs in the United States and Russia; and (4) experts' views about the potential nonproliferation impacts of the U.S. plutonium disposition program; and (5) surplus nuclear weapons that are among the sources of plutonium for DOE's disposition plan.