

# SAVING THE NPT AND THE NONPROLIFERATION REGIME IN AN ERA OF NUCLEAR RENAISSANCE

---

---

## HEARING

BEFORE THE

SUBCOMMITTEE ON TERRORISM,  
NONPROLIFERATION, AND TRADE

OF THE

COMMITTEE ON FOREIGN AFFAIRS

HOUSE OF REPRESENTATIVES

ONE HUNDRED TENTH CONGRESS

SECOND SESSION

—————  
JULY 24, 2008  
—————

**Serial No. 110-226**  
—————

Printed for the use of the Committee on Foreign Affairs



Available via the World Wide Web: <http://www.foreignaffairs.house.gov/>

—————  
U.S. GOVERNMENT PRINTING OFFICE

43-718PDF

WASHINGTON : 2008

---

For sale by the Superintendent of Documents, U.S. Government Printing Office  
Internet: [bookstore.gpo.gov](http://bookstore.gpo.gov) Phone: toll free (866) 512-1800; DC area (202) 512-1800  
Fax: (202) 512-2104 Mail: Stop IDCC, Washington, DC 20402-0001

COMMITTEE ON FOREIGN AFFAIRS

HOWARD L. BERMAN, California, *Chairman*

GARY L. ACKERMAN, New York	ILEANA ROS-LEHTINEN, Florida
ENI F.H. FALEOMAVAEGA, American Samoa	CHRISTOPHER H. SMITH, New Jersey
DONALD M. PAYNE, New Jersey	DAN BURTON, Indiana
BRAD SHERMAN, California	ELTON GALLEGLY, California
ROBERT WEXLER, Florida	DANA ROHRBACHER, California
ELIOT L. ENGEL, New York	DONALD A. MANZULLO, Illinois
BILL DELAHUNT, Massachusetts	EDWARD R. ROYCE, California
GREGORY W. MEEKS, New York	STEVE CHABOT, Ohio
DIANE E. WATSON, California	THOMAS G. TANCREDO, Colorado
ADAM SMITH, Washington	RON PAUL, Texas
RUSS CARNAHAN, Missouri	JEFF FLAKE, Arizona
JOHN S. TANNER, Tennessee	MIKE PENCE, Indiana
GENE GREEN, Texas	JOE WILSON, South Carolina
LYNN C. WOOLSEY, California	JOHN BOOZMAN, Arkansas
SHEILA JACKSON LEE, Texas	J. GRESHAM BARRETT, South Carolina
RUBÉN HINOJOSA, Texas	CONNIE MACK, Florida
JOSEPH CROWLEY, New York	JEFF FORTENBERRY, Nebraska
DAVID WU, Oregon	MICHAEL T. McCAUL, Texas
BRAD MILLER, North Carolina	TED POE, Texas
LINDA T. SÁNCHEZ, California	BOB INGLIS, South Carolina
DAVID SCOTT, Georgia	LUIS G. FORTUNO, Puerto Rico
JIM COSTA, California	GUS BILIRAKIS, Florida
ALBIO SIRES, New Jersey	VACANT
GABRIELLE GIFFORDS, Arizona	
RON KLEIN, Florida	
BARBARA LEE, California	

ROBERT R. KING, *Staff Director*

YLEEM POBLETE, *Republican Staff Director*

---

SUBCOMMITTEE ON TERRORISM, NONPROLIFERATION, AND TRADE

BRAD SHERMAN, California, *Chairman*

DAVID WU, Oregon	EDWARD R. ROYCE, California
DAVID SCOTT, Georgia,	JOHN BOOZMAN, Arkansas
<i>Vice Chair</i>	TED POE, Texas
RON KLEIN, Florida	DONALD A. MANZULLO, Illinois
GENE GREEN, Texas	THOMAS G. TANCREDO, Colorado
JOSEPH CROWLEY, New York	

DON MACDONALD, *Subcommittee Staff Director*

JOHN BRODTKE, *Subcommittee Professional Staff Member*

TOM SHEEHY, *Republican Professional Staff Member*

DAVID RODRIGUEZ, *Legislative Fellow*

# CONTENTS

---

	Page
WITNESSES	
Graham Allison, Ph.D., Director, Belfer Center for Science and International Affairs, Kennedy School of Government, Harvard University .....	6
Pierre Goldschmidt, Ph.D., Senior Associate, Carnegie Endowment for International Peace .....	15
Orde Kittrie, Esq., Professor, Sandra Day O'Connor College of Law, Arizona State University .....	33
Mr. Jack Spencer, Research Fellow, Thomas A. Roe Institute, for Economic Policy Studies, The Heritage Foundation .....	44
LETTERS, STATEMENTS, ETC., SUBMITTED FOR THE HEARING	
Graham Allison, Ph.D.: Prepared statement .....	9
Pierre Goldschmidt, Ph.D.: Prepared statement .....	17
Orde Kittrie, Esq.: Prepared statement .....	35
Mr. Jack Spencer: Prepared statement .....	45



# SAVING THE NPT AND THE NONPROLIFERATION REGIME IN AN ERA OF NUCLEAR RENAISSANCE

THURSDAY, JULY 24, 2008

HOUSE OF REPRESENTATIVES,  
SUBCOMMITTEE ON TERRORISM, NONPROLIFERATION,  
AND TRADE,  
COMMITTEE ON FOREIGN AFFAIRS,  
*Washington, DC.*

The subcommittee met, pursuant to notice, at 11:27 a.m. in room 2172, Rayburn House Office Building, Hon. Brad J. Sherman (chairman of the subcommittee) presiding.

Mr. SHERMAN. We just finished a markup in the full committee which was also held in this room, and that is why we are starting this hearing late.

I recognize myself for an opening statement, followed by our ranking member, Mr. Royce, and such other members of the subcommittee who wish to make opening statements.

It is possible that we are on the verge of a global renaissance in the nuclear power industry. Several countries, including the United States, are reconsidering nuclear power due in part to concerns about global climate and in part due to the high price of fossil fuels. Increased power consumption by big developing countries such as China and Russia seems to ensure even higher prices for fossil fuel and increased emissions in the future. Nuclear power is viewed by many, including the current Bush administration, as a big part of the solution to both of these problems.

Other countries are planning to develop nuclear power for the first time as a result of these twin problems. With the development of civilian nuclear power, a country receives the know-how, equipment and technology that could conceivably serve a military program. Civilian nuclear power programs can also serve as a cover for a military program. Moreover, as nuclear technology becomes more widespread, the chance that nuclear materials will fall into the wrong hands increases.

The Non-Proliferation Treaty, the NPT, and the nuclear non-proliferation regime are already under stress. The Iranian/North Korean weapons programs have caused insecurity about the durability of the nonproliferation regime. In addition to Iran, there are other energy-rich countries in the Middle East that have begun thinking about and talking about ostensibly non-weapons nuclear programs to generate electrical power and for desalinization, but it

appears that these countries may be acting as a hedge against the nuclear weapons program of Iran.

Given the very small punishment that has been meted out to North Korea and the even smaller punishments meted out to Iran, perhaps these states and others have little to fear from exploring the possibility of developing their own nuclear weapons.

There is a significant new and renewed interest in nuclear power. Whether this leads to an actual and massive expansion of civilian nuclear power remains to be seen. What is clear now, however, is that the nonproliferation regime in its current configuration is not ready for this so-called possible nuclear renaissance. In fact, it is treading water as it is.

The new U.S. administration, as well as the next Congress, will be confronted with these challenges immediately at the beginning of next year. Arcane matters concerning the interpretation of a 40-year-old treaty and the technical capacity of the International Atomic Energy Agency (IAEA) will be critical to our national security. Indeed, the issues we address today will, I believe, have a far greater impact on our national security than will the outcome of the War in Iraq.

Among the questions we will examine today are these: Are the current International Atomic Energy Agency resources sufficient to get the job done? Does the IAEA have the money, staff and equipment it needs to ensure compliance? If not, how should additional resources be acquired? Should member states be called upon to pay higher dues or should countries have to bear the costs of their hard-won safeguards? Does every state have the right to develop the full fuel cycle? Phrased another way, has the United States acquiesced in a massive misinterpretation of the NPT? Is it not Article IV's peaceful use right? Is that right qualified or not, and does it allow a country to get right to the edge of having a nuclear weapon while claiming that it is pursuing only a peaceful program?

What are the best options for providing states with a guaranteed fuel supply? How should the international community deal with spent fuel and nuclear waste? Should reprocessing be part of a solution or is that too dangerous, costly and ultimately unnecessary?

On the subject of reprocessing, should the next administration discontinue or significantly modify the global nuclear energy partnership started by our current President, which has advocated a purported proliferation resistant means of reprocessing? Should our Government be in the business of advancing nuclear power internationally in the first place? What are the steps necessary to ensure physical security of nuclear facilities? What are the steps necessary to improve international control on the transfer of nuclear technology to prevent it from falling into the hands of proliferators and terrorists? How should international law enforcement agencies and intelligence agencies cooperate?

Finally, and most importantly, we need to address the punishments that are imposed on those states that violate the NPT or violate the safeguards agreements that country has entered into with the IAEA. Six years have gone by since the initial revelations about Iran's then covert, clearly illegal enrichment program. Iran has still suffered only the lightest sanctions at the multilateral level, clearly

insufficient to cause them to change their course with regard to developing nuclear weapons.

It was not until February 2006 that Iran's file was finally referred to the U.N. Security Council in the first place, an action that should have been virtually automatic once it became known that Iran was constructing an enrichment plant back in the summer of 2002. If we continue to allow Iran to violate its commitments to the NPT, or allow other states to follow its path unpunished, the treaty may be a dead letter and discussions of its details may be irrelevant.

The nonproliferation regime that has held back nuclear anarchy is under grave stress, and if Iran is able to violate it repeatedly without significant punishment, it may be a dead letter.

I want to thank our distinguished witnesses for being here today and I look forward to their testimony, but first I look forward to the opening statement of our ranking member, Mr. Royce of California.

Mr. ROYCE. Thank you very much, Mr. Chairman. I appreciate you holding this hearing. When I chaired this subcommittee we closely examined the nonproliferation treaty. We had good hearings, and I expect today's hearing is going to be as productive. There are few challenges, frankly, as important as checking nuclear weapons proliferation. Unfortunately, as you all know, and especially as our expert witnesses here know, the task of doing that is getting more difficult day by day.

Nuclear energy production worldwide likely will rise as overall energy demand rises. Our nation should be expanding its nuclear energy capacity as part of our diversified energy strategy. But I wish I felt as positive about expanding nuclear energy abroad. I am not enthusiastic about 40 countries expressing interest in starting nuclear power programs, the number the IAEA reports. Included in those countries are Nigeria, Egypt, and Morocco.

The line between civilian and military use of nuclear technology is not sharp. Consider that A.Q. Khan got his start at a European organization dedicated to the civilian use of nuclear energy. Of course, he went on to put together a nuclear arms bazaar which was used not only to give this technology for a nuclear weapon to Pakistan but also to Libya, North Korea, and other countries.

With a civilian nuclear power program a country possesses a technological and knowledge infrastructure that could be translated into a military program as India and as Pakistan and as North Korea did. That possibility is why several of Iran's neighbors are looking to begin nuclear energy programs.

Other concerns with the nuclear proliferation of nuclear energy are political instability and issues of physical security in an age of terrorism. Nuclear energy nevertheless has momentum. After all, the International Atomic Energy Agency, while charged with guarding against nuclear technology spilling over from civilian to military use, has as its twin mission promoting nuclear technology for energy generation. The administration is pushing nuclear energy abroad. France, Canada and other countries are looking to maximize their nuclear export potential. At least Congress is starting to give critical attention to the nuclear technology sharing agreements between the U.S. and other nations, the 123 Agree-

ments. That we can't get the world to agree that no more countries should develop full nuclear fuel cycle capabilities very much increases the proliferation risk. That is, we have not defeated the erroneous and corrosive interpretation of Article IV of the NPT Treaty. As the chairman said, this is a massive misinterpretation of the treaty.

If we could avoid the so-called right to enrich or reprocess nuclear material, we would go a long way. This so-called right was never envisioned in the original treaty. I have a letter that we sent, myself and others, to our Secretary of State as Members of Congress explaining that point. It said that we believe that the importance of this subject requires that its consideration be made a prominent element in the preparatory process now underway regarding the 2010 NPT review conference.

A practical step to reduce the profusion of fuel cycle technology would be an international supply agreement. This might also chip away at the so-called right. We had better act quickly. The IAEA also reports that nearly a dozen new countries want to produce nuclear fuel. That portends a disaster. The NPT will become worse than useless if it sanctions this development. The IAEA's inspection capabilities should be bolstered to deter military use of nuclear technology.

Though flawed and weak, the IAEA did turn up the heat on Iran this May with a report that Tehran was stonewalling its inspectors. Any nuclear renaissance should not be allowed to overwhelm the IAEA's limited resources. Progress on these fronts will be difficult. Strengthening the international nonproliferation regime is not a political priority, unfortunately, at home or abroad. It should be. That the administration mailed it in at the last NPT review conference is puzzling to say the least. The fact that the NPT is built upon a near utopian expectation that all nuclear weapons will be eliminated challenges its utility. Much of the world appears unconcerned by proliferation as evidenced by its indifference to Iran's march toward nuclear weapon capability. Maybe this will change, but it is getting late.

As frustrating as winning international support is, the NPT, if properly interpreted, embodies a key norm for confronting would be proliferators in an era of expanding nuclear energy. It should be used against Iran. Gaining that advantage, however, would require a great deal of diplomatic work against long odds. Clearly the next administration has its work cut out if the NPT is to remain relevant.

Thank you again, Mr. Chairman.

Mr. SHERMAN. Thank you, Mr. Royce. I will now recognize for a brief opening statement the vice chair of the committee.

Mr. SCOTT. Thank you very much, Mr. Chairman. I think that this subject matter of this hearing today is certainly most profound for the future of the planet on the bleak bounds of many great paths civilizations have written those pathetic words "too late." They moved too late to deal with that crisis, and today as we look at it, it has gone beyond just Russia, France, Great Britain, United States as the Big 5. Now you have got Pakistan, we have got India, we have got North Korea who exploded a device a couple years ago, and then there is Iran and it just continues to escalate.



Then we got the discovery of the nuclear black market network that is run by A.Q. Khan that has certainly entered the debate of extreme worrisome with this nuclear issue. In the post-Cold War world the nuclear threat has certainly evolved from that of the worry of Russia and the United States meeting and attempting to annihilate one another. ICBMs were at one point dreamed a raining down on American cities, and I call to mind the movie "The War Games" where Matthew Broderick was rushing in to save the day.

Instead the threat has become one of loose nukes and dirty bombs and technology transfers from one rogue regime to another possibly to terrorists, and as such it is only fitting that we examine whether or not our old strategies for dealing with the old threats are appropriate for dealing with what the threat has now become.

Principally, as Chairman Sherman has stated and the subject of this hearing details, is the NPT still relevant? Will we see a rash of countries simply ignoring their NPT obligations, or withdrawing outright? These to me are the two most profound questions.

A few minutes ago or a couple of hours ago in this very room we marked up legislation for the implementation of a civilian nuclear cooperation agreement with Russia. Part of the reason for striking this deal was to stave off Russia's continued assistance to the Iranians in their quest for nuclear power, and to put us in a perplexing position, is it for energy or is it for war.

We have also considered in the past and will consider again presumably a similar agreement with India. So it would seem that these sorts of bilateral agreements are the logical next step in working with nations who wish to reap the benefits of civilian nuclear power. However, they are not without their problems.

We have already seen that even the possibility of working with the United States on nuclear energy has led the Indian Government to the brink of collapse because of their new left, and may touch off a new arms race with this neighbor Pakistan. This is a very worrisome predicament. So it seems there is a great deal of uncertainty about what comes next in the battle to prevent proliferation of nuclear weapons, and there are certainly many theories as to what can and should be done to allow nations to develop environmentally friendly nuclear energy without worrying about nuclear material being turned into weapons.

In fact, the distinguished gentleman from my own State of Georgia, my good and dear friend former Senator Sam Nunn seems to think that the U.S. needs to work more diligently toward our own disarmament obligations in order to set the example and prepare other nations to do more. Therein lies a soul-searching challenge to each of us in the United States.

However, unilateral disarmament may simply leave the United States more vulnerable to attack. So I would be interested in hearing what the panel thinks about these issues, these perplexing and challenging questions that I raise, and any other thoughts they may have on the subject, and I certainly want to thank the chairman for hosting this most challenging and timely and extraordinarily important subject for the future of the world.

Mr. SHERMAN. Do we have other opening statements? Okay, let us move straight to our witnesses then.

We have with us four distinguished witnesses. We have asked them to prepare opening statements of not more than 8 minutes. Given the fact that we have started late, we will hold them to that. And if you want to be thought of as particularly knowledgeable and credible by our committee, you will cut your opening statement to 6 minutes, and then we will give your comments so much more weight.

We have four witnesses as I said. The first is Dr. Graham Allison, director of the Belfer Center for Science and International Affairs, the Kennedy School of Government at Harvard University. Dr. Allison served as Assistant Secretary of Defense for Policy and Plans under the Clinton administration. Dr. Allison has been a leading analyst of U.S. national security and defense policy for the last 30 years.

Next, I will welcome Dr. Pierre Goldschmidt, a senior associate at the Carnegie Endowment for International Peace and a scientific fellow at the University of Brussels. Dr. Goldschmidt has also served as deputy director general and head of the Department of Safeguards at the IAEA.

I also welcome Mr. Orde Kittrie, professor at the Sandra Day O'Connor College of Law at Arizona State University. Mr. Kittrie is a visiting professor at the Paul Nitze School of Advanced International Studies at John Hopkins and a leading expert on non-proliferation legal issues and sanctions.

Finally, we have Mr. Jack Spencer, a research fellow at the Roe Institute for Economic Policy Studies at The Heritage Foundation. Mr. Spencer works on domestic and international nuclear energy issues relating to security and defense.

Dr. Allison.

**STATEMENT OF GRAHAM ALLISON, PH.D., DIRECTOR, BELFER CENTER FOR SCIENCE AND INTERNATIONAL AFFAIRS, KENNEDY SCHOOL OF GOVERNMENT, HARVARD UNIVERSITY**

Mr. ALLISON. Thank you very much, Chairman Sherman and Congressman Royce and members of the committee. It is a great honor for me to appear before you today, and I applaud the subcommittee's decision to drill down on these issues, and I like all the introductory comments that I heard. I want to submit for the record a recent report of an independent "Commission of Eminent Persons" that was done for the IAEA and for Director Mohamed ElBaradei of which I served as executive director. It is entitled "Reinforcing the Global Nuclear Order: The Role of the IAEA." This was just—

Mr. SHERMAN. Without objection, it will be made part of the record.

[NOTE: The information referred to is not reprinted here but is available in committee's records or may be accessed on the Web at: <http://www.foreignaffairs.house.gov/110/gov2008-22gc52inf-4.pdf>]

Mr. ALLISON. Thank you. But for the testimony, I am only speaking for myself, not for the commission or for any other organization I am associated with.

The questions raised in your very thoughtful letter inviting us to testify are extremely complex, and so I am going to start from

30,000 feet with four big truths as I see it, and then drill down quickly.

The four truths are: First, nuclear terrorism; secondly, present at the unraveling; third, the risks of the nuclear renaissance; fourth, strengthening the IAEA and securing the nonproliferation regime.

As one tries to think about the complexities of this issue, and Mr. Scott has already mentioned Sam Nunn with whom I agree 100 percent on these set of issues, a way to resolve the complexities, I believe, is to think about them through the lens of a single nuclear bomb exploding in a single city, and in a book that I published in 2004, a couple of copies of which I brought, "Nuclear Terrorism: The Ultimate Preventable Catastrophe," in conjunction with it we put up a Web site called "Nuclearterrorism.org" where you can put in your own ZIP code and see what the small nuclear bomb that was thought to be in New York City a month after 9/11 would do.

I think if you think about that as the bottom line, asking questions about the NPT or the IAEA or the nuclear renaissance is asking the question: How do they impact this possibility? That is not the only topic but I think that is a valuable bottom line for reminding people why this matters so much as the opening statements have already said.

Secondly, present at the unraveling. If you want a wonderful read for the summer during vacation if you have any spare time, I would recommend Dean Acheson's book which is the story of the construction of the global order that brought us the longest period of peace and prosperity human beings have ever enjoyed; that is, the post-World War II exercise which was a bipartisan undertaking under Truman and Vandenberg and the others. He calls the book "Present at the Creation."

So I think you might have to, if writing today, talk about "present at the unraveling." The potential unraveling of the nonproliferation regime, which has held back the tide of a cascade of proliferation, and I agree very much, as I say in the written testimony, with the U.N. high level panel of 2005 of which Brent Scowcroft was the American participant, which warned that the regime at that point was "eroding to the point that risked irreversibility" beyond which there would be a "cascade of proliferation."

Thirdly, risks in the nuclear renaissance. They were writing in 2005. Today, it is much clearer that the combination of the demand for energy and rising consciousness about the climate consequences of burning oil and gas are propelling a growth of nuclear power. One sees 36 nuclear power plants under construction today, 50 percent more than you would have seen at a rate 10 years ago. This entails some risk of states getting nuclear weapons, as the members of the panel have said.

The risk comes not from a new nuclear civilian energy plant, not from a new civilian energy plant, but from the fuel cycle that is associated with it. So I think, as has been said, the prevailing interpretation by the chairman of the NPT, which purports to provide right and opportunity for states that acquire a nuclear energy plant to also produce fuel for that plant, or to reprocess spent fuel from that plant is a mistake, and needs to be re-interpreted and it needs

to be re-interpreted in such a way that there can be a consensus around it.

So if states that get nuclear energy plants also can build enrichment plants like Iran today, or reprocessing facilities like North Korea, this will certainly provide cover for what will be a spread of nuclear weapons and risk to the whole nuclear renaissance.

Finally, strengthening the IAEA. In this commission report, we have a number of suggestions about the ways in which the IAEA needs to be strengthened in a reinforced nonproliferation regime. Unless the current standards and practices for nonproliferation, security and safety are significantly strengthened, the current trendline is going to abort this nuclear renaissance, but it is also going to lead to catastrophic attacks on countries like us.

So the IAEA has a language for this. They call it safeguards which really means no diversion to, or an accounting for nondiversion to military use, safety and security. In each of these areas the commission made specific recommendations about the ways in which the standards and the enforcement of the standards should be reinforced and the budgetary consequences of that in terms of contribution.

So, specifically increase the safeguards. The commission calls for an Additional Protocol Plus, and Pierre Goldschmidt has a lot to say about what the plus would look like, and secondly, stringent global nuclear security standards. U.N. Security Council Resolution 1540 calls for "effective appropriate standards." We need to define that as a global gold standard, and it needs to be enforceable, and there are details about that in the testimony.

Finally, new steps to control the fuel cycle. I think as again two of you mentioned in your opening statements, we need to think about an assured nuclear fuel cycle so that the argument that is made by somebody like Iran that says we need to make our own fuel because otherwise we are not sure that we will have access to fuel, that should be exposed as basically a fig leaf behind which Iran is seeking nuclear weapons, and I think an assured nuclear fuel system of the sort that has been proposed by the IAEA and is under discussion, including the fuel bank of last resort for which Congress has appropriated \$50 million to match the \$50 million from Buffett, is one significant part of that.

So thank you very much, Mr. Chairman.

[The prepared statement of Mr. Allison follows:]

**TESTIMONY**  
**SUBCOMMITTEE ON TERRORISM, NONPROLIFERATION, AND TRADE**  
***SAVING THE NPT AND THE NONPROLIFERATION REGIME IN AN ERA OF***  
***NUCLEAR RENAISSANCE***  
**U.S. HOUSE OF REPRESENTATIVES**  
**JULY 24, 2008**

**Securing the Nuclear Renaissance**

Graham Allison  
Director, Belfer Center for Science and International Affairs  
Douglas Dillon Professor of Government  
Harvard's Kennedy School of Government  
Harvard University

Chairman Sherman, Congressman Royce, and members of the Committee, I am honored to appear before you today and congratulate you for your decision to explore the issue of the nonproliferation regime and likely impacts upon it by the nuclear renaissance.

I wish to submit for the record a recent Report by an independent "Commission of Eminent Persons" established by the IAEA Director, Mohamed ElBaradei, entitled "Reinforcing the Global Nuclear Order: The Role of the IAEA." I served as co-Executive Director of this Commission, and as a result of that experience over the past year, have had the opportunity to examine the global nuclear order from the perspective of the IAEA. But in my testimony and in answer to questions, I am speaking not for that Commission, or any other institution with which I am associated, but expressly and entirely for myself.

Director General ElBaradei created the Commission to advise on how the nuclear future might evolve to 2020 and beyond, what the world is likely to demand of the IAEA, and what steps need to be taken to allow the IAEA to fill those needs. The question before us is: what actions must the international community take to maximize the contributions to human well-being from nuclear energy and nuclear technologies, while minimizing their risks?

Given the complexity of the issues you raised in calling this hearing, I think it is appropriate to begin with the big picture. From 30,000 feet, let me offer what I believe are four central truths:

1. Nuclear terrorism. The issues you are addressing have so many dimensions, each of which is so complex, that they threaten overload. I believe these complexities can best be resolved through the lens of nuclear terrorism. If one begins by thinking about al Qaeda exploding just one nuclear bomb and devastating the heart of one American city—a threat that I believe is larger today than it was

when al Qaeda killed 3,000 innocent Americans at their desks on the morning of the 11<sup>th</sup> of September, 2001—one can help bring these complexities into focus. In conjunction with my book, Nuclear Terrorism: The Ultimate Preventable Catastrophe, we put up a website: [www.nuclearterrorism.org](http://www.nuclearterrorism.org). You can put in your own zip code there and see what the small (10 kiloton) nuclear bomb that was thought to be in New York City a month after 9/11 would do in your neighborhood. This is, as President Bush and his challenger Senator Kerry agreed in the 2004 Presidential campaign, the “the single most serious threat to American national security.” Thus in grappling with questions about the NPT or the IAEA, I suggest it is useful to ask about this bottom line: what impact does this have on the likelihood of a nuclear 9/11?

2. Present at the unraveling? Dean Acheson, who was Secretary of State after World War II, helped create the global order that has brought us the longest period of peace and prosperity ever enjoyed by human beings. He entitled his memoir: Present at the Creation. Writing today, one might choose the title: Present at the Unraveling. In my view, there is a substantial chance that we are living through the unraveling of the nonproliferation regime that has held back the spread of nuclear weapons, nuclear wars, and nuclear terrorism, for four decades. I agree with the conclusion of the UN High Level Panel on Threats, Challenges, and Change, which warned that the erosion of the nonproliferation regime is reaching a point at which it could “become irreversible, and result in a cascade of proliferation.”

As Henry Kissinger has noted, a defining challenge for statesmen is to recognize “a change in the international environment so likely to undermine national security that it must be resisted no matter what form the threat takes or how ostensibly legitimate it appears.” An unraveling of the nonproliferation regime would constitute just such a transformation undermining the security of all civilized nations. The question is whether statesmen will act in time to prevent this catastrophe.

3. Risks in the Nuclear Renaissance. The nuclear renaissance that most observers expect to significantly expand the number of nuclear energy plants over the next several decades increases the risk that the nonproliferation regime will unravel. The increased risk comes not from new nuclear energy plants in themselves. Rather, it comes from the prevailing interpretation of the Nonproliferation Treaty that allows states that acquire nuclear energy reactors to also acquire a full fuel cycle. If the expansion of nuclear energy reactors leads to a proliferation of uranium enrichment facilities and reprocessing facilities for separating the spent fuel, this will certainly provide a cover for new nuclear weapons states, significantly increasing risks that nuclear weapons end up in hands of terrorists.
4. Strengthened IAEA. The world needs a strengthened IAEA in a reinforced nonproliferation regime. Unless the current standards and practices for nonproliferation, security, and safety are significantly strengthened, current trend-

lines will abort the nuclear renaissance and assist catastrophic attacks upon the United States. In IAEA language, the three S's - safeguards (accounting to deter and discover state diversion of peaceful nuclear energy applications to nuclear weapons programs), security (theft of nuclear material by crooks inside or outside a system who could sell this material to terrorists or states for making bombs), and safety (prevention of accidents like Chernobyl) – need to be significantly strengthened.

The report presents four key judgments, proposes four new partnerships, and makes seven specific major recommendations. The four judgments define the current nuclear challenge:

1. Supplying the energy required to sustain rapid global economic growth, while constraining greenhouse gas emissions to assure a livable environment, will require dramatically expanding the use of nuclear energy.
2. Such an expansion in the supply of nuclear energy will not be possible without significant changes in the current nuclear order. These include concrete steps to prevent nuclear accidents, nuclear terrorism, and the proliferation of nuclear weapons, as well as significant progress towards nuclear disarmament. Failing on any of these fronts will undermine hopes for large-scale growth of nuclear energy and doom the possibility of significant reductions in carbon emissions.
3. The current global nuclear order that includes tens of thousands of nuclear weapons and powerful incentives for nuclear proliferation and terrorism poses major risks that must be addressed.
4. The fundamental changes needed in the nonproliferation and nuclear energy regimes cannot be commanded or compelled by nuclear weapons states or nuclear supplier states. Instead, they must win the support of a significant majority of people and nations in the world in a new grand bargain for nuclear energy, nonproliferation, development, and disarmament.

The new global nuclear order required to respond to these challenges will evolve over time. It must, however, be defined by increased international cooperation and partnership; expanded transparency; more effective standards for safety and security worldwide; new nonproliferation measures, and firmly placing nuclear weapons in the background of international affairs.

The Commissions proposes four new partnerships to manage the evolving nuclear order.

1. A partnership between nuclear weapons and non nuclear weapons states must include major steps to strengthen the global nonproliferation regime as well as major steps toward nuclear disarmament to fulfill the nuclear weapon states' Nonproliferation Treaty obligations. Action on both of these fronts improves the security of all states, and action on both will be required to achieve agreement on either.
2. A partnership between nuclear technology suppliers and states that want nuclear power must assure international supervision and control of fuel supply and waste disposal in ways that make reliable nuclear energy available to all states while reducing proliferation risks.

3. A partnership between governments, the private sector, and international agencies in which all of these parties share the responsibilities and costs of assuring that nuclear energy is safe, secure, and does not contribute to nuclear proliferation.
4. A partnership between developed countries, developing countries, international development institutions, and the IAEA to maximize the contribution of nuclear technologies to development and human well-being.

The Commission offers a number of important findings and recommendations to reduce the chance of sliding into the “nuclear anarchy” scenario, and to increase the likelihood of moving towards an “era of Atoms for Peace and Prosperity.” These include:

- **Strengthened safeguards.** The Commission calls for an array of steps to strengthen safeguards, urging that all states adopt the Additional Protocol, and ultimately that states agree to an “Additional Protocol Plus” allowing the IAEA to inspect sites related to nuclear material production technologies (such as centrifuge-making plants), giving the Agency the right to private interviews with key scientists, and more. The Commission believes that existing agreements should be interpreted to give the IAEA the authority to look for indicators of weaponization, and recommends establishing a qualified team for that purpose.
- **Stringent global nuclear security standards.** The Commission urges states to “negotiate binding agreements that set effective global nuclear security standards,” tough enough to ensure that every nuclear weapon and every cache of plutonium or HEU worldwide is reliably protected against the kinds of threats terrorists and criminals have shown they can pose. The Commission calls for giving the IAEA a mandate to confirm that those standards are being implemented, “within the constraints of necessary secrecy”; consolidating nuclear weapons and materials to the smallest practicable number of sites; converting or shutting down HEU-fueled research reactors; phasing out civil use and all production of HEU, and giving the IAEA a precise mandate to confirm that these standards are being implemented.
- **New nuclear safety standards.** Similarly, the Commission emphasizes the critical importance of stringent safety standards applied everywhere, and calls on states to enter into binding agreements to implement effective safety measures and to allow international peer reviews of safety at all their nuclear power plants.
- **New steps to control the fuel cycle.** The group calls on the IAEA Board to approve an international nuclear fuel bank without delay, and for a continued push toward more multinational or international control of enrichment and reprocessing facilities, with the ultimate goal of bringing “the entire fuel cycle, including waste disposal, under multinational control, so that no one country has the exclusive capability to produce the material for nuclear weapons.” The Commission also emphasizes the value of fuel-leasing and reactor-leasing



approaches and international spent fuel repositories, and calls for development of multinational partnerships that would provide small factory-built reactors with extremely high levels of built-in safety and security, provided with comprehensive fuel services.

- **Stopping black-market nuclear networks.** The Commission advocates for greatly expanded international police and intelligence cooperation to stop black-market nuclear networks; a stepped-up effort to help states implement their UNSC 1540 obligations to put in place effective export controls, border controls, and transshipment controls, including having the IAEA develop model legislation that states could draw on; and beefing up the IAEA unit devoted to tracking black-market networks, giving it more resources and a broader mission, not just to inform IAEA safeguards but to help states “shut down these networks and find and fix leaks in their control systems.”
- **Broad steps toward nuclear disarmament.** The Commission makes the point that getting political support among non-nuclear-weapon states for new nonproliferation steps will require arms reduction progress, and calls for a broad disarmament agenda in which “early steps” would include “deep reductions in existing arsenals; removal of all nuclear weapons from quick-launch alert; transparent security and accounting for, and reductions in tactical nuclear weapons; verifiable dismantling of excess nuclear weapons; secure and verified storage and disposition of all plutonium and HEU not required for remaining military purposes; ratification of the Comprehensive Test Ban Treaty; and a verifiable global treaty ending the production of nuclear materials for nuclear weapons.”
- **A major boost in the IAEA budget.** The IAEA is indeed “an extraordinary bargain,” considering that it carries out its responsibilities of immense value to humanity at a very low cost. The Commission makes clear that with the amount of material under safeguards having increased more than 10-fold during the period the IAEA has largely been confined to a zero-real-growth budget, the IAEA needs more resources to do its current job – and would need still more to carry out the bigger mandate the Commission envisioned. The Commission calls for a one-time \$124 million increase to pay, among other things, for refurbishing the IAEA’s safeguards lab and beefing up its emergency response center, coupled with increasing the \$448 million regular budget by roughly \$77.5 million each year for several years (roughly 17% a year). By 2020, the Commission envisions a doubled IAEA budget.

The “nuclear renaissance” propelled by the demand for energy to fuel accelerated economic growth, and growing consciousness about climate consequences of carbon emissions from coal and oil, entails real risks. A “business-as-usual” approach could lead to a future that includes nuclear terrorism, more Chernobyls, even nuclear wars ending in nuclear anarchy. These dangers should not lead us to turn our backs on the “nuclear

renaissance.” Instead, they should focus and mobilize us to do everything we possibly can to enact a bold agenda to reconstruct a more secure global nuclear order.

Mr. SHERMAN. Thank you. Dr. Goldschmidt.

**STATEMENT OF PIERRE GOLDSCHMIDT, PH.D., SENIOR ASSOCIATE, CARNEGIE ENDOWMENT FOR INTERNATIONAL PEACE**

Mr. GOLDSCHMIDT. Thank you, Mr. Chairman and members of the committee for the invitation to testify today. I would like to submit my prepared written testimony for the record and will summarize some specific points from that testimony.

As you know, the main actors that have a key role to play in order to strengthen the nonproliferation regime are the IAEA, the U.N. Security Council, the Nuclear Suppliers Group, the P-5, and of course member states of these organizations. I will briefly mention only some of the very practical and concrete measures they should, I believe, adopt as a matter of priority and let me start with the IAEA.

First and most important is the need for the IAEA Board of Governors to formally acknowledge that the compliance failures and breaches committed by the Republic of Korea and Egypt, which were reported to the Board of Governors in November 2004 and February 2005, respectively, were cases of noncompliance which should have been reported to the Security Council as foreseen under the IAEA statute.

The Board of Governors should therefore adopt a resolution requesting the director general to transmit all reports concerning those two states to the Security Council. Such reporting would be for information purpose only, but it is essential that the failures and breaches committed by those two countries be unequivocally recognized to constitute noncompliance with the comprehensive safeguards agreements.

Failure to adopt such a resolution would result in a dangerous precedent, lowering the standards for compliance with the comprehensive safeguards agreement and thereby seriously undermining the credibility of the safeguards regime.

Second, the draft India-specific safeguards agreement submitted on 9 July this year for the board's approval should, for a number of reasons, be amended before it is approved by the board. I will address just one of those reasons. Others are mentioned in my written testimony.

The biggest problem and loophole in the agreement is that this is the first time that the implementation of a safeguards agreement depends on purely commercial conditions which cannot in any event be verified by the agency. It is setting a very bad precedent. The preamble to the safeguards agreement should therefore either be substantially redrafted or eliminated. If it is not, and if India at one point in time considers that appropriate fuel supply conditions are not or are no longer met, India could refuse to accept agency safeguards and withdraw from the agreement. It is doubtful that this meets the Hyde Act requirement of IAEA safeguards in perpetuity.

Mr. Chairman, what can the U.N. Security Council do to reinforce the nonproliferation regime? Experience has demonstrated that when a state is found to have been in noncompliance with its safeguards agreement does not show full transparency and does not

proactively cooperate in resolving questions or inconsistencies with regard to its nuclear program, the agency will temporarily need expanded verification authority.

To give the IAEA verification tools it needs in case of noncompliance, the Security Council should adopt a generic, which is not state-specific, resolution stating independently of any specific case that if a state is found by the IAEA to be in noncompliance with its safeguards agreement, upon request by the agency the Security Council would automatically adopt a specific resolution under Chapter 7, requiring that state to temporarily grant to the agency extended access rights. A draft of such Security Council generic resolution is provided in Annex 1 of my written testimony.

Similarly, the Security Council should urgently adopt another generic resolution under Chapter 7 in order to deal preventively with the case of a noncompliant state notifying its withdrawal from the NPT as North Korea did in 2003.

Mr. Chairman, the Nuclear Suppliers Group also has a key role to play. The NSG should reject what are arbitrary India-specific export guidelines and instead adopt objective criteria-based export conditions that would allow all non-NPT states the right to acquire nuclear power plants while at the same time reinforcing the global nonproliferation regime. A concrete proposal can be found in Annex 2 of my written testimony.

And this brings us, finally, to the disarmament issue and the role of the P-5. In my opinion, disarmament as well as a stronger nonproliferation regime is a prerequisite for an orderly and secure expansion of nuclear energy. It is, of course, very important to publicly support the vision of a world free of nuclear weapons, but progress toward that goal would be judged on the practical and concrete steps taken and not just on the rhetorical statements made by nuclear weapon states.

The P-5 needs to agree now on the concrete disarmament steps that constitute a priority and can be achieved before the 2010 NPT review conference. If one had to select only three issues for the nuclear weapon states to agree upon, in my view those issues should be: First, ratifying the comprehensive test ban treaty; second, agreeing on a fissile material cutoff treaty, FMCT, while simultaneously implementing the trilateral initiative between the United States, Russia and the IAEA; and last but not least, concretely de-emphasizing the value of nuclear weapons.

Thank you, Mr. Chairman.

[The prepared statement of Mr. Goldschmidt follows:]

Prepared Testimony by Pierre Goldschmidt<sup>1</sup> to the House of  
Representatives Foreign Affairs Subcommittee on Terrorism,  
Nonproliferation and Trade.

**“Saving the NPT and the Nonproliferation Regime in an Era of  
Nuclear Renaissance”**

July 24, 2008

There are presently clear indications that we are about to see a revival of nuclear energy worldwide. It is important to make this expansion of nuclear energy for the production of electricity and desalinated water as safe and secure as possible.

In the coming decade, however, the rate of this expansion will be limited by several factors: in some recipient states, by the lack of an adequate industrial infrastructure, or of a nuclear safety regulatory regime monitored by a truly independent and experienced control organization; and in supplier states, by a limited capacity to produce certain types of nuclear equipment, such as reactor vessels. In short, the world-wide expansion of nuclear electricity production is not going to occur overnight.

Since there’s no rush, we have time to “do” nuclear right. Doing it right means, in particular, putting stronger barriers to proliferation in place before, not after, new nuclear capabilities spread.

I respectfully submit that there are five specific actions that must be taken by the relevant actors within the international community in order to strengthen the non-proliferation regime.

- First, increase the International Atomic Energy Agency (IAEA or Agency)’s verification authority and detection capability so that the IAEA has both the authority and capabilities required to detect *any* undeclared nuclear-related activity (including nuclear weaponization activities) in non-nuclear-weapon states (NNWS).
- Second, improve, through preventive measures, the credibility and enforcement capability of the IAEA and the UN Security Council (UNSC) in case a state is found to be in non-compliance with its safeguards agreement or, thereafter, withdraws from the NPT.
- Third, provide credible fuel supply guarantees in order to reduce the incentive for states to develop sensitive fuel cycle capabilities at the national level.
- Fourth, limit and better control illicit trafficking and transfers of nuclear material and dual use items, and
- Fifth, make significant and irreversible progress in nuclear disarmament, starting with the ratification and entry into force of the CTBT.

---

<sup>1</sup> Non-resident Senior Associate at Carnegie Endowment for International Peace, and former Deputy Director General of the International Atomic Energy Agency, Head of the Department of Safeguards

The actors within the international community who must act to achieve the objective of strengthening the non-proliferation regime are the IAEA, the UNSC, the Nuclear Suppliers Group (NSG), the five nuclear-weapon-states (NWSs or P-5), and of course the member states of which these organizations are comprised. What each of these actors must do to achieve the desired level of strength for the non-proliferation regime is as follows.

### 1. The IAEA

The IAEA Board of Governors (BoG) should:

- a) Approve and publish a list of the information that Member States are expected to communicate to the IAEA in accordance with Article VIII.A. of the IAEA Statute<sup>2</sup>. The IAEA Secretariat has inter alia recommended that the BoG *“request all States to provide to the Agency relevant information on exports of specified equipment and non-nuclear material, procurement enquiries, export denials, and relevant information from commercial suppliers in order to improve the Agency’s ability to detect possible undeclared nuclear activities”*<sup>3</sup>.

For the same reason the BoG should also request all member states to provide, on a regular basis, information regarding each **import** of specified equipment and non-nuclear material listed in Annex II of the Additional Protocol (AP)<sup>4</sup>. Today providing such information is not obligatory and (even under the terms of the Additional Protocol) requires a specific request from the Agency to the member state from which the Agency wishes to acquire such information.

- b) Acknowledge that the failure and breaches committed by the Republic of Korea (RoK) and Egypt and reported to the BoG respectively in November 2004<sup>5</sup> and February 2005<sup>6</sup> were cases of non-compliance which should have been reported to the UNSC as mandated under Article XII.C. of the Statute.

The BoG should therefore adopt a resolution requesting the Director General (DG) to transmit all reports concerning those two states to the UNSC for information purposes while commending them (if appropriate) for their proactive cooperation with the Agency and for the actions taken to remedy their non-compliance as has been the case for Libya in 2004<sup>7</sup>.

It is essential that the failures and breaches committed by the RoK and Egypt be unequivocally recognized to constitute non-compliance with their Comprehensive

<sup>2</sup> Article VIII.A states that *“Each member should make available such information as would, in the judgment of the member, be helpful to the Agency”*.

<sup>3</sup> See IAEA Secretariat’s Note 45 of August 2006

<sup>4</sup> This refers to the « Model Protocol Additional to the Agreement(s) between State(s) and the IAEA for the application of safeguards », information circular INF/CIRC/540 (Corrected) approved by the BoG in 1997.

<sup>5</sup> GOV/2004/84

<sup>6</sup> GOV/2005/9

<sup>7</sup> In its resolution of 10 March 2004 the BoG “Finds, under Article XII.C of the Statute, that the past failures to meet the requirements of the relevant Safeguards Agreement (INF/CIRC/282), identified by the Director General constituted non-compliance, and, in accordance with Article XII.C, requests the Director General to report the matter to the Security Council for information purposes only, while commending the Socialist People’s Libyan Arab Jamahiriya for the actions it has taken to date, and has agreed to take, to remedy the non-compliance”.

Safeguards Agreement (CSA)<sup>8</sup>. Failure to adopt such a resolution would result in a dangerous precedent lowering the standards for compliance with the CSA and thereby seriously undermining the credibility of the safeguards regime.

- c) Amend the draft “India-specific” safeguards agreement<sup>9</sup> submitted on 9 July 2008 to the Board’s approval.

The preamble of the Agreement, which is described within the document itself as “India-specific”, explicitly provides that “*India’s concurrence to accept Agency Safeguards*” depends on India’s “*access to the international fuel market, including reliable, uninterrupted and continuous access to fuel supplies from companies in several nations...*”

**First**, accepting the principle of an “India-specific safeguards agreement” runs against the fundamental non-discrimination principle that - apart from the initial discrimination of the NPT in favor of the five nuclear-weapon states (NWS) - is the basis of IAEA safeguards at the state level<sup>10</sup>, which are based on standard models.<sup>11</sup>

**Second**, this is the first time that the implementation of a safeguards agreement with the Agency depends on purely commercial conditions which, in addition, can hardly be verified by the Agency. Furthermore, the ambiguity of the phrase “several nations” effectively makes it discretionary with India to decide when the Agency can commence implementation.

**Third**, since it is entirely up to India to determine whether the appropriate fuel supply conditions are met or *continue to be met*, and if, at any time, India does not consider such conditions to be met, India has no obligation to accept Agency safeguards and can withdraw from the Agreement.

It is doubtful that such discretionary acceptance of a safeguards regime on the part of India meets the Hyde Act requirement of “IAEA Safeguards in perpetuity”.

Fourth, Paragraph 3 of the draft safeguards Agreement states that “*the purpose of safeguards under this Agreement is to guard against withdrawal of safeguarded nuclear material from civilian use at any time*”.

Since this paragraph 3 is limited to nuclear material and does not include non-nuclear material, equipment and components subject to the Agreement, i.e. those “*supplied to India which are required to be safeguarded pursuant to a bilateral or multilateral arrangement to which India is a party*” (§11(b)), it is not clear how the Agency would be informed of the exact content of these bilateral arrangements and therefore able to carry out its safeguards authority with respect to such non-nuclear material and equipment.

Therefore the BoG should require the Agreement to be modified so as to oblige India to notify to the Agency and place under safeguards all nuclear material, equipment

<sup>8</sup> INFCIRC/153 (corrected)

<sup>9</sup> GOV/2008/30

<sup>10</sup> INFCIRC 66-type safeguards agreements are « project » or facility specific not state level agreements.

<sup>11</sup> Comprehensive safeguards agreements INFCIRC/153-corrected, and Model Additional Protocol INFCIRC/540-corrected.

and technology<sup>12</sup> and nuclear-related dual-use equipment, materials, software and related technology<sup>13</sup> which are supplied to India pursuant to any bilateral or multilateral arrangement. In addition the BoG should require all Member States to inform the Agency<sup>14</sup> of all such items supplied to India.

## 2. The UNSC

Experience has demonstrated that when a State is found to have been in non-compliance with its safeguards agreements (or in breach of its obligation to comply with its safeguards agreements, which is synonymous) and does not show full transparency and cooperation for resolving questions and/or inconsistencies with regard to its nuclear program (both past and present), the Agency will temporarily need expanded verification authority. This expanded authority, which will be in addition to that granted to the Agency under a Comprehensive Safeguards Agreement and a Protocol Additional, will be necessary, in these circumstances, to provide, **in a timely manner**, an adequate level of assurance that there are no undeclared nuclear material and activities in that state, and that no previously undeclared nuclear activities have been undertaken in furtherance of any military purpose.

To give the IAEA the verification tools it needs in cases of non-compliance, the UNSC should consider the merits of adopting a **generic** resolution<sup>15</sup> stating, independently of any specific case, that if a state is found by the IAEA to be in non-compliance with its Comprehensive Safeguards Agreement in accordance with Article XII.C of the IAEA Statute, **upon request by the Agency**, the UNSC would automatically adopt a **specific** resolution under Chapter VII of the UN Charter requiring that state to grant to the Agency extended access rights. These rights would be used to resolve outstanding issues, and would be **terminated** as soon as the Agency's Secretariat and the BoG have drawn the conclusion that there are no undeclared nuclear material and activities in the state and that its declarations to the IAEA are correct and complete. A draft of such a UNSC generic resolution is provided in Annex I.

As has been stressed on many occasions the great benefit that the NPT brings to the international community would be dangerously eroded if countries violating the Treaty or their safeguards agreements felt free to withdraw from it, develop nuclear weapons and enjoy the fruits of their violation with impunity.

To address this issue the UNSC should adopt (under Chapter VII of the UN Charter) another **generic** and legally binding resolution stating that if a state withdraws from the NPT (an undisputed right under its Article X) **after** being found by the IAEA to be in non-compliance with its safeguards undertakings, then such withdrawal constitutes a threat to international peace and security as defined under Article 39 of the UN Charter. This generic resolution should also provide that under these circumstances, all materials and equipment made available to such a state or resulting from the assistance provided to it under a Comprehensive Safeguards Agreement would have to be forthwith frozen and as soon as possible removed from that state under IAEA supervision and remain under the Agency's Safeguards.

<sup>12</sup> listed in INFCIRC/254/Part1 (as revised)

<sup>13</sup> listed in INFCIRC/254/Part 2 (as revised)

<sup>14</sup> Under article VIII.A of the Statute.

<sup>15</sup> Such as resolution 1373 (28 September 2001) concerning acts of international terrorism, and resolution 1540 (28 April 2004) concerning the acquisition of nuclear, chemical or biological weapons and their means of delivery by non-state actors.



A pre-requisite for these proposals to be approved by the UNSC is to have the support of the five Permanent Members of the UN Security Council. Since President Putin has stated “*We are unequivocally in favour of strengthening the regime of non-proliferation*”<sup>16</sup>, one could hope that Russia would support these generic and ‘state-neutral’ measures which would, of course, have no retroactive effect. The European Union, under French presidency, should bring such proposals to the attention of the Security Council.

### **3. The NSG**

In addition to having an Additional Protocol in force as a pre- condition to exporting, the NSG should:

- a) Request that all nuclear material and other items exported to any third country be used exclusively in facilities or locations placed under an IAEA INFCIRC/66-type safeguards agreements. Contrary to Comprehensive Safeguards Agreements, INFCIRC/66-type agreement do not lapse in case the state withdraws from the NPT. The INFCIRC/66-type agreement would normally be subsumed under the CSA and become operative only in case of withdrawal from the NPT. This is particularly important when dealing with sensitive fuel cycle facilities such as enrichment and reprocessing plants. All non-nuclear-weapon states (NNWS) members of the NSG should lead by example and place their enrichment and reprocessing facilities under INFCIRC/66-type safeguards agreements.
- b) Reject arbitrary “India-specific” export guidelines and, instead, adopt objective criteria-based export conditions that would allow all non-NPT states the right to acquire nuclear power plants (NPPs) while at the same time reinforcing the global non-proliferation regime. A more detailed proposal for adopting such objective criteria based export conditions is attached as Annex II.

### **4. IAEA Members States**

#### **a. Bilateral agreements**

Over the last couple of years, not only Russia and France, but also the US and China, have been competing to conclude nuclear cooperation agreements worldwide.

It is clear that none of these supplier states wish to see non-nuclear-weapon states acquiring nuclear weapons and therefore have a common interest in making sure that this does not happen. The objective is to find a way for these nuclear supplier nations which are competing for geopolitical influence, in particular in the Middle East, to agree on measures essential to contain nuclear proliferation and to avoid using more or less stringent bilateral non-proliferation requirements as a tool for giving the supplier states’ domestic industry a competitive advantage.<sup>17</sup>

<sup>16</sup> October 2007 speech in Munich at the 43<sup>rd</sup> Conference on Security Policy

<sup>17</sup> In particular the NSG safety exception should be well defined, no export should take place to a NNWS that has no Additional Protocol in force, and all sensitive fuel cycle facilities should be under IAEA safeguards that do not end if the state withdraws from the NPT.

IAEA member states should, as a matter of transparency, provide to the Agency the clauses of all their bilateral nuclear cooperation agreements dealing with nuclear non-proliferation, including safeguards and export conditions.

b. Fuel Supply guarantees

Considering the long experience gained and the high performance achieved by commercial nuclear fuel cycle companies, there is today very little economic incentive for a non-nuclear-weapon state (NNWS) to domestically develop and construct sensitive fuel cycle facilities such as uranium conversion, enrichment or reprocessing plants, because these plants cannot be economically competitive without the support of foreign technology holders.

To further minimize any incentive to build such plants domestically, it is necessary to provide the strongest possible guaranty of a secure supply of nuclear fuel. Even though the nuclear fuel cycle industry is an oligopoly, there is not a single example in history where a state that had a CSA in force had to close down an electrical NPP because it was denied the delivery of fresh fuel assemblies.

Iran, which had been the subject of a nuclear embargo from the West after the revolution of 1979, has expressed concern that the delivery of fuel assemblies to its NPPs could be suspended or denied by a supplier for purely political reasons, and that it therefore has to develop a domestic uranium enrichment capability. Although the likelihood that all suppliers would deny such fuel deliveries is small, this concern must be addressed seriously.

One suggested solution is to construct and operate multinational facilities, in particular enrichment plants, in which the customers would also be shareholders, but without access to the technology.

In 2006 Russia launched such a facility- the International Uranium Enrichment Center (IUEC) at Angarsk- in collaboration with Kazakhstan, Ukraine and Armenia. South Korea and Mongolia have been reported to have a possible interest in joining the project, and it is open to other participants and in particular to Iran which has shown no interest so far. Russia will eventually retain 51% of the shares. In February 2007 the IUEC was entered on the list of Russian nuclear facilities eligible for IAEA safeguards implementation.

The IUEC project is not fundamentally different from the French Eurodif enrichment joint venture established in the late 1970s, with foreign shareholders (Belgium, Italy and Spain) including Iran<sup>18</sup>. Notwithstanding the merits of such a concept, these multilateral facilities don't address the real issue which is the guarantee that in the end the exporting state will not interrupt supply by denying or materially delaying the necessary export license.

---

<sup>18</sup> Iran owns 49 % of the shares of SOFIDIF which in turn owns 20 % of the capital of EURODIF.

The ultimate guaranty against such an occurrence is for the IAEA to own a fuel reserve that would be used to provide fuel assemblies to any country that is denied fuel delivery for purely political reasons.

Such a fuel reserve, to be effective, should be operated under the following three conditions:

- An IAEA low enriched fuel reserve (sometime called a “fuel bank”) should, for practical reasons, be physically located (in the form of UF<sub>6</sub>) at some, if not all commercial enrichment plant sites.
- The Agency should conclude contracts with all manufacturers of fuel assemblies, to assure the Agency’s access, in case of necessity, to some fabrication capacity.
- Countries where the fuel reserve and the fabrication plants are located should grant the IAEA a generic (or *a priori*) export license, subject to the IAEA confirming that a number of objective and well defined safety, security and non-proliferation conditions have been met by the recipient state (see Annex III), and that this state does not possess domestic sensitive fuel cycle facilities.

Independently, suppliers of NPPs should also consider the merit of leasing the fresh fuel assemblies required for the lifetime operation of the NPPs and of taking back the spent fuel (possibly in exchange for an equivalent quantity of well-conditioned high level vitrified wastes), as an incentive for the recipient State not to set up domestic enrichment and reprocessing facilities. Here again, Russia has taken the lead. So far it is the only country that has adapted its national law in order to be in a position to take back spent fuel assemblies of Russian and possibly foreign origin. The delivery of fresh fuel elements for the Bushehr NPP in Iran was made conditional on Iran committing to send back the spent fuel to Russia, thereby significantly diminishing, if not eliminating, the risk that the plutonium contained therein could be recovered by Iran.

What is not known is what other export conditions are required by Russia, for instance what Russia’s rights may be in case Iran were to withdraw from the NPT or unilaterally suspend or limit the implementation of its CSA with the IAEA. As indicated above, it would be highly desirable to have these bilateral export conditions provided to the Agency.

##### **5. Disarmament and the P-5**

Both disarmament and a stronger non-proliferation regime are a prerequisite for an orderly expansion of nuclear energy.

If the 2010 NPT Review Conference is to be successful and agreement is to be achieved on concrete steps that would strengthen the non-proliferation regime, progress on nuclear disarmament is indispensable. It is well understood that whatever progress nuclear-weapon-states (NWSs) achieve in nuclear disarmament it will not, per se, be sufficient to convince those states determined to acquire a nuclear weapon capability to change course. But it

remains a prerequisite to gaining broad international support for measures such as those proposed in this paper.

It is of course very important to publicly support the vision of a world free of nuclear weapons, but progress toward that goal will be judged on the practical and concrete steps taken, and not just on the rhetorical statements made by NWSs. President Putin said (Munich-October 2007): *“The potential danger of the destabilization of international relations is connected with obvious stagnation on the disarmament issue”*.

The P-5 now needs to agree on the concrete disarmament steps that constitute a priority and can be achieved before 2010.

If one had to select only three issues on which the P-5 must act, in my view, they should be: ratifying the Comprehensive Test Ban Treaty (CTBT), agreeing on a Fissile Material Cut-Off Treaty (FMCT) while simultaneously implementing the Trilateral Initiative between the USA, Russia and the IAEA, and last but not least, de-emphasizing the value of nuclear weapons.

- **Ratifying the CTBT**

To speak about the vision of a world free of nuclear weapons without making every effort to bring the CTBT into force will not only convince no-one, but strike most people as hypocritical.

To date 138 states have ratified the CTBT. For this most important treaty to come into force it still needs to be ratified by the following 10 States: China, Colombia, Egypt, India, Indonesia, Iran, Israel, North Korea, Pakistan, and the United States<sup>19</sup>.

It is the primary responsibility of NWSs to convince the world that nuclear weapons will progressively become obsolete and irrelevant to their future security strategy, and that therefore NWSs do not need, nor do they intend to develop and test, new types of nuclear weapons in disregard of their NPT commitments.

Until more convincing progress is made in the area of irreversible nuclear disarmament, many non-nuclear-weapon states (NNWS) will no doubt continue to oppose the highly desirable measures for strengthening the non-proliferation regime recommended in this statement.

The very first concrete step should be for the United States and China to ratify the CTBT as the other three NWSs - France, the Russian Federation and the UK - have already done.

Ratifying the CTBT (the first of the 13 practical steps agreed to by consensus by the 2000 NPT Review Conference) is the most convincing indicator of the NWSs' willingness to comply with their NPT (Article VI) disarmament undertakings.

Many NNWSs, particularly from the Non Aligned Movement (NAM), have been quite vocal in expressing their frustration not only about the lack of progress by the five NWSs with regard to the implementation of the “13 practical steps” referred to above,

---

<sup>19</sup> Among those, only 3 States have not signed the CTBT: India, North Korea and Pakistan

but also about the “*legal double standard*” between NNWSs that are party to the NPT and the three States that are not (India, Israel and Pakistan) with regard to international verification of their nuclear activities.

Once the CTBT has been ratified by all NWSs it will be logical and easier for supplier countries to request that India ratifies the Treaty as a condition for any nuclear cooperation. This would increase the chances that India would one day agree to join the CTBT, provided of course that Pakistan does so too. Israel, which has already signed the CTBT, would most likely ratify it before the other non-NPT States. It must be a priority for the next US President to have the CTBT ratified by the US before the 2010 NPT Review Conference.

Establishing a WMD free zone in the Middle East is obviously a desirable long term objective. However everyone knows that in order to reach that stage a series of difficult political steps need to be taken and that this will likely take decades to achieve.

A first important milestone on this long road would be for all states in the region that have not yet done so, to sign and ratify the CTBT, in particular Israel, Iran and Egypt. I would suggest that this would particularly be in Egypt’s interest, and that Egypt rather than appearing to be prominent among those opposing badly needed measures to strengthen the non-proliferation regime<sup>20</sup>, should use its diplomatic leverage to reach that goal.

North Korea could represent another important milestone. The so-called “Six-Party talks” that resulted in the Joint Statements of September 2005 and February 2007 have as their goal “*the verifiable denuclearization of the Korean Peninsula in a peaceful manner*” including North Korea’s commitment to abandon all nuclear weapons. The ratification of the CTBT by North Korea would be a logical and important step, and should therefore be mentioned explicitly in future discussions.

Here again, the ratification of the CTBT by the USA and China would make progress in this direction much more likely.

For any Party to the NPT to delay or obstruct the entry into force of the CTBT is incompatible with the spirit of the Non-Proliferation Treaty and with the basic undertakings of its signatories.

Nuclear supplier states (within or outside the NSG) should undertake not to provide any nuclear energy cooperation (except possibly for major well-defined safety reasons) to any state that has not ratified the CTBT. They would thereby demonstrate that they are ready to give priority to their non-proliferation undertakings for the sake of international peace and security in the long term rather than to their short term economic interests. Russia and the EU have a common interest and are in a good position to promote this objective.

---

<sup>20</sup> such as the conclusion of the Additional Protocol (AP) to Comprehensive Safeguards Agreement (CSA), a request repeatedly made by the IAEA’s Board of Governors and General Conference.

- **The FMCT and the Trilateral Initiative**

Among the 13 practical steps agreed upon in the final document of the 2000 NPT Review Conference, under implementation of Article VI of the NPT, is the application of the principle of **irreversibility** to nuclear disarmament (step 5).

However great the merit of unilateral or bilaterally agreed reductions of the number of nuclear warheads in NWSs' arsenals may be, it is nonetheless crucial to convince NNWSs that this trend is irreversible.

This is why it is so important to make progress in negotiating an FMCT that would cap globally the quantity of fissile material that can be used in nuclear weapons. In parallel the Trilateral Initiative launched in September 1996 by the USA, the Russian Federation and the IAEA to develop a new IAEA verification system for weapon-origin material removed from defense programs, should be concluded and implemented (step 8). This would serve as an example for all NWSs to place fissile material designated by each of them as no longer required for military purposes under IAEA verification in order to ensure that such material remains **permanently** outside military programs (Step 10).

In order to increase the likelihood of an FMCT being agreed sooner rather than later, it would appear reasonable to limit its initial scope to the production of weapons grade material after its entry into force and not to insist on the more ambitious goal of including existing stocks. At this stage, such insistence would be a clear recipe for failure. The other most difficult challenge is to agree on the principle and the extent of international verification measures under the FMCT. But in any case it is important to remember that under Article 18 of the Vienna Convention on the Law of Treaties "*A State is obliged to refrain from acts which would defeat the object and purpose of a treaty when:*

*(a) It has signed the treaty or has exchanged instruments constituting the treaty subject to ratification, acceptance or approval, until it shall have made its intention clear not to become a party to the treaty; or*

*(b) It has expressed its consent to be bound by the treaty, pending the entry into force of the treaty and provided that such entry into force is not unduly delayed."*

Entry into force of an FMCT is certainly many years away. But, before 2010, the P-5 should jointly declare<sup>21</sup> that pending the entry into force of a multilateral FMCT, they will not produce fissile material for nuclear weapons. If China cannot be persuaded, the other four NWSs should nevertheless make such a joint declaration.

- **De-emphasizing the value of nuclear weapons**

As suggested by Alexei Arbatov<sup>22</sup>, the first and most important step to de-emphasize the value of nuclear weapons would be for the P-5 to make an unequivocal nuclear non-first-use pledge to all non-nuclear member states of the NPT.

<sup>21</sup> As suggested by Robert Einhorn (CSIS). International Conference on Nuclear Disarmament. Oslo, February 26-27, 2008

<sup>22</sup> «Reducing the role of nuclear weapons». International Conference on Nuclear Disarmament, Oslo, February 26-27, 2008

Another important step would be for the P-5 to de-alert strategic nuclear forces and verifiably withdraw all their tactical nuclear weapons from forward bases to centralized storage sites on their national territories.

There have been clear signals that both Russia and the US agree on the necessity to place high priority on negotiating a follow-up agreement to the Strategic Arms Reduction Treaty (START), since that treaty will expire at the end of 2009, and it must either be extended or replaced by that time.

As already mentioned, these steps will not, by themselves, deter any state which intends to acquire nuclear weapons from trying to do so, but they are indispensable for gaining NNWSs' support for the non-proliferation strengthening measures proposed in this statement.

Between now and the 2010 NPT Review Conference, I deeply hope that Russia and the US will give greater momentum to the disarmament process and will compete to be perceived by all others to be the world's most responsible nuclear weapons state.

-----

**Annex I****Draft UN Security Council Resolution****June 2008**

*The Security Council,*

*Affirming* that proliferation of nuclear, [chemical and biological] weapons, as well as their means of delivery, constitutes a threat to international peace and security,

*Reaffirming*, in this context, the Statement of its President adopted at the Council's meeting at the level of Heads of State and Government on 31 January 1992 (S/23500), including the need for all Member States to fulfill their obligations in relation to arms control and disarmament and to prevent proliferation in all its aspects of all weapons of mass destruction,

*Recalling also* that the Statement underlined the need for all Member States to resolve peacefully in accordance with the Charter any problems in that context threatening or disrupting the maintenance of regional and global stability,

*Affirming* its resolve to take appropriate and effective actions against any threat to international peace and security caused by the proliferation of nuclear, [chemical and biological] weapons and their means of delivery, in conformity with its primary responsibilities, as provided for in the United Nations Charter,

*Affirming* its support for the multilateral treaties whose aim is to eliminate or prevent the proliferation of nuclear, [chemical or biological] weapons and the importance for all States parties to these treaties to implement them fully in order to promote international stability,

*Affirming* that prevention of proliferation of nuclear, [chemical and biological] weapons should not hamper international cooperation in materials, equipment and technology for peaceful purposes while goals of peaceful utilization should not be used as a cover for proliferation,

*Recognizing further* the urgent need for all States to take additional effective measures to prevent the proliferation of nuclear, [chemical or biological] weapons and their means of delivery,

*Affirming* its commitment to the Treaty on the Non-Proliferation of Nuclear Weapons, and recalling the right of States Party, in conformity with Article I and II of that Treaty, to develop research, production and use of nuclear energy for peaceful purpose without discrimination,

*Recalling that* the IAEA General Conference in its resolution GC(49)/RES/13 of 30 September 2005 noted that "the Agency's capability to detect undeclared nuclear material and activities should be increased", and stressed "the continuing need for the Agency's safeguards system to be equipped to respond to new challenges within its mandate",



*Determined* to facilitate an effective response to global threats in the area of nuclear proliferation,

*Acting* under Chapter VII of the Charter of the United Nations:

1. *Decides that* if a State is reported by the IAEA to be in non-compliance with its NPT Safeguards Agreement(s), the Security Council shall forthwith adopt a specific resolution, under Article 41 of the Charter of the United Nations:
  - a. deciding that, upon request by the IAEA, the State in non-compliance shall provide the IAEA immediate access to locations, facilities, individuals, documents and equipment as defined in the Model Temporary Complementary Protocol (TCP) attached in Annex I to this resolution and any other access right specifically requested by the IAEA. The TCP shall remain in force until such time as the IAEA has drawn the conclusion that the State declarations under its Safeguards Agreements are correct and complete and that there is no undeclared nuclear material and activities in the State;
  - b. requesting the Director General of the IAEA to report within 60 days of the adoption of the specific resolution, and thereafter on a quarterly basis, on whether the State is fully implementing the provisions of its Safeguards Agreement(s) and the TCP and is fully and pro-actively cooperating with the IAEA;
2. *Decides that* if the Director General of the IAEA is unable to report within the timeframe defined in sub-paragraph 1.b, or at any time thereafter, that the State in non-compliance is fully implementing the provision of sub-paragraph 1.a. above, the Security Council shall forthwith adopt a specific resolution under Article 41 of the Charter:
  - a. requiring the State to immediately suspend all uranium and plutonium conversion and enrichment related activities and all reprocessing related activities, including theoretical and applied research and development and suspend any other activity specifically requested by the IAEA or the Security Council until such time as the IAEA has drawn the conclusion that the State declarations under its Safeguards Agreements (including the TCP) are correct and complete and that there is no undeclared nuclear material and activities in the State;
  - b. requesting the Director General of the IAEA to report within 60 days of the adoption of this specific resolution on whether the State has fully complied with the provision of sub-paragraph 2.a.
3. *Decides that* if the reports referred to in sub-paragraphs 1.b and 2.b show that the State in non-compliance with its NPT Safeguards Agreement does not fully comply with the provision of sub-paragraphs 1.a and 2.a, the Security Council shall adopt a specific resolution under Article 41 of the UN Charter deciding that all States shall forthwith suspend the supply of any military equipment and cooperation with the non-compliant State as long as it remains in non-compliance with Security Council resolutions.

-----

## Annex II

### NSG: A Criteria-based Approach to Non-NPT States

There is little doubt that it would be desirable to provide a country such as India with access to the safest and most efficient nuclear technology to produce electricity while protecting the environment. The only problem, and it is a major one, is that such supply would be contrary to both the spirit of the NPT and the NSG export guidelines, because India has not ratified the NPT and has not concluded a comprehensive safeguards agreement with the IAEA<sup>23</sup>.

Is it therefore possible, for the NSG to elaborate a criteria-based approach, that would allow all non-NPT States the right to acquire NPPs while at the same time reinforcing the global non-proliferation regime?

As a matter of principle, to be compatible with the spirit of the NPT, any such approach should formally require that non-NPT States accept at least all the obligations and responsibilities of the NNWSs and be entitled to less cooperation from the supplier states than that which is made available to NNWSs parties to the NPT.

The US/India Agreement would achieve just the opposite result: while India would be free to further develop its nuclear weapons program<sup>24</sup> it would receive fuel supply assurances from the US and others that have never been offered to any NNWS. Also the US would be granting India a **generic consent** to reprocess<sup>25</sup> nuclear material transferred pursuant to the Agreement.

The fact that a country has more than one billion inhabitants or less than ten million is clearly not a valid criterion from a non-proliferation point of view.

The NSG should therefore consider the following objective criteria in order to export nuclear material and equipment to any non-NPT State.

#### Minimum conditions to be fulfilled

The recipient non-NPT State:

- Must have signed and ratified the Comprehensive Test Ban Treaty (CTBT) as requested from India and Pakistan in UNSC Resolution 1172. This could be done with the understanding that if another State proceeds with a nuclear test this would constitute an event, as defined in Article IX.2 of the CTBT, justifying withdrawal from the Treaty;

<sup>23</sup> At the 1995 NPT Review and Extension Conference, all NPT Parties endorsed the principle of full scope safeguards as a condition of supply.

<sup>24</sup> Article 4 of the 123 Agreement states "this Agreement shall be implemented in a manner so as not to hinder or otherwise interfere with [...] military nuclear facilities".

<sup>25</sup> Article 6.iii of the 123 Agreement provides that "The Parties grant each other consent to reprocess or otherwise alter in form or content nuclear material transferred pursuant to this Agreement".

- Must agree that if it tests a nuclear device, all cooperation will be discontinued and all nuclear material, equipment, non-nuclear material or components transferred and any special fissionable material produced through their use would be removed from the country under IAEA Safeguards;
- Must adhere to a multilateral moratorium pending completion of a formal treaty banning the production of fissile material for nuclear weapons;
- Must have **all new** NPPs constructed and operated in the State subject to IAEA safeguards in perpetuity;
- Must have ratified an Additional Protocol to its safeguards agreement (as four out of five NWSs have already done);
- Must not have materially breached an IAEA safeguards agreement;
- Must adhere to the NSG export guidelines and the Missile Technology Control Regime (MTCR), and must commit not to export sensitive fuel cycle equipment and technology;
- Must implement UNSC resolution 1540<sup>26</sup>;
- Must have ratified the Convention for the Suppression of Acts of Nuclear Terrorism;
- Must support and participate in the Proliferation Security Initiative (PSI)
- Must implement IAEA Safety Standards and adhere to accepted international safety norms;
- Must apply standards of physical protection based on current international guidelines<sup>27</sup>.

#### Scope of cooperation

- Cooperation should be restricted to the construction and operation of NPPs for electricity production, the delivery of the necessary fresh fuel assemblies and the management of spent fuel and radioactive wastes;
- There would be no export of equipment, materials, or technologies related to sensitive fuel cycle facilities, including enrichment, reprocessing, and heavy water production;
- No nuclear material delivered under any cooperation agreement or derived therefrom should be reprocessed or enriched beyond 5% U-235 without the explicit prior consent of the NSG, and only in facilities placed under IAEA safeguards.

<sup>26</sup> Deciding "that all States shall refrain from providing any form of support to non-State actors that attempt to develop, acquire manufacture, possess, transport transfer or use nuclear, chemical or biological weapons and their means of delivery".

<sup>27</sup> The minimum level of physical protection should be as set out in IAEA document INFCIRC 225/Rev.4 as it may be revised. The recipient State must have ratified the 1980 Convention on the Physical Protection of Nuclear Material (CPPNM) and any amendments thereto.

**ANNEX III****IAEA Fuel Bank and Generic Export Licence**

The supplier states which are to provide low enriched uranium (LEU) stocks to the IAEA and/or drawing rights on their fuel fabrication capacity, will have to conclude a contract with the IAEA whereby they would grant the IAEA a binding long term generic export licence for all fresh fuel assemblies to be delivered to a recipient state which, according to the Agency meets the following conditions:

- The recipient state is a party to the NPT and has been denied the delivery of fresh fuel assemblies for an operating NPP for purely political reasons.
- The recipient state has not issued any notice of withdrawal from the NPT.
- The recipient state has concluded with the IAEA an INFCIRC/66-type safeguards agreement for the NPP under consideration. This agreement would normally be subsumed under the Comprehensive Safeguards Agreement (CSA), but would be implemented in case the recipient state withdraws from the NPT, so that any fresh fuel or spent fuel remaining in the recipient state would always be subject to IAEA safeguards<sup>28</sup>.
- The recipient state has a CSA and an Additional Protocol in force.
- The IAEA has drawn the annual conclusion that there has been no diversion of nuclear material placed under safeguards and that there is no undeclared nuclear material and activities in the recipient state.
- The IAEA has not raised questions or found inconsistencies or anomalies concerning the State's nuclear programme that have not been resolved within a given period not to exceed 12 months.
- The spent fuel has been returned to the supplier state within the contractual timeframe (if applicable).
- The NPP meets international (IAEA) safety standards and an adequate level of physical protection.
- The recipient state does not carry on any sensitive nuclear fuel cycle activity domestically.

---

<sup>28</sup> A CSA remains in force only for so long as the state remains party to the NPT, whereas under a INFCIRC/66 type agreement all nuclear material supplied or produced under that agreement would remain under safeguards, even if the state withdraws from the NPT, until such time the IAEA has determined that such material is no longer subject to safeguards.

Mr. SHERMAN. Thank you. Now let us hear from Mr. Kittrie.

**STATEMENT OF ORDE KITTRIE, ESQ., PROFESSOR, SANDRA DAY O'CONNOR COLLEGE OF LAW, ARIZONA STATE UNIVERSITY**

Mr. KITTRIE. Chairman Sherman, Ranking Member Royce, distinguished members of the subcommittee, thank you for this opportunity to speak with you today about this important topic.

Forty years ago this month the U.S. joined 61 other nations in signing the Nuclear Non-Proliferation Treaty, the NPT. During its first 25 years, the NPT played a central role as nuclear nonproliferation efforts met with remarkable success. The last dozen years have been less successful for the nuclear nonproliferation regime. India, Pakistan, North Korea, Iran and A.Q. Khan all flouted the nuclear nonproliferation regime in various ways and none were seriously sanctioned. In the last 2½ years, at least 13 countries in the Middle East have announced new or revived plans to pursue or explore nuclear power programs, and most of these countries, as has been mentioned, nuclear power program make no economic sense. It seems instead to be a response to Iran's nuclear program.

What has caused this dangerous decline of the nuclear nonproliferation regime and what can be done to save it?

The primary reasons, in my view, for the regime's decline include a lack of political will to effectively sanction proliferators, i.e., IAEA verification monitoring authorities that are too weak to promptly and reliably catch proliferators, and increased availability of nuclear weapons and associated technology and a sense that the nuclear weapons states, and particularly the United States and Russia, have not lived up to their side of the NPT bargain of their disarmament commitments. I will briefly go through these reasons for the decline and suggest what Congress can do about them.

First, the international community must do a far better job of sanctioning proliferators. International laws violate with impunity soon cease to exist. The rapid advance of Iran's nuclear program in clear violation of international law is by far and away the number one threat to the vitality of the nuclear nonproliferation regime, and Iran nuclear arsenal, should it be achieved, seems like to unleash a cascade of proliferation across the Middle East. Such a cascade in the Middle East would likely lead to the worldwide collapse of the already tottering nuclear nonproliferation regime.

In addition, the proliferation of nuclear weapons in the Middle East tinder box seems like to result in only one thing, and that is nuclear war.

Unfortunately, the international community has thus far responded with remarkable passivity to the grave dangers posed by the Iran nuclear program. For example, the sanctions imposed on Iran by the international community thus far are much weaker than the sanctions which stopped Iraqi and Libyan nuclear weapons programs.

There are several steps that Congress can take to help convince Iran's leadership that the price for its nuclear program has become too high that the risk from sanctions to the regime's survival has become so great that the regime is better served by halting its nuclear program.

These include passage of legislation such as that currently pending that would, one, tighten United States Federal sanctions against Iran; and two, encourage other countries and businesses to tighten their sanctions against Iran including by expanding the Iran Sanctions Act as H.R. 2880 would expand it, to apply to foreign companies that provide Iran with the refined petroleum on which its economy depends.

The second major step we must take if we were to save the non-proliferation regime is to strengthen the IAEA's verification and monitoring authorities. The verification shortcomings of its basic safeguards agreement prompted the IAEA to issue an additional protocol which expands the IAEA's access rights. The IAEA did not, however, make adherence to the additional protocol mandatory for NPT members, and some two-thirds of the 189 NPT member states, including many states of proliferation concern have yet to adhere to the additional protocol.

I recommend that Congress consider amending U.S. law to require that U.S. nuclear exports to NPT member states be based on the willingness of such states to adopt the additional protocol. Congress should also declare its support for the Nuclear Suppliers Group, of which the U.S. is a member, prohibiting exports to NPT members that do not adhere to the additional protocol.

In addition, Congress should require that the executive branch finish as soon as possible the steps it must take to complete the U.S.'s own long-delayed ratification of the additional protocol.

Turn now briefly to minimizing the proliferation risk of increased availability of nuclear materials and technology. The key to this is the cooperative reduction program initiated by Congress in the Nunn-Lugar legislation which has been a great success in securing nuclear materials. I list in my written statement several things Congress could do in order to facilitate the strengthening and expansion of the CTR program.

In addition, there are several important steps Congress can take to help minimize the risk from increased availability of civilian nuclear materials and technology. For example, Congress should continue its support for an IAEA fuel bank that would be used to provide fuel assemblies to any country that is denied fuel delivery for purely political reasons, and has chosen not to engage in its own enrichment or reprocessing.

Congress should also support the phase-out of civilian use of HEU both overseas and here in the United States, including by phasing out U.S. exports of HEU, which unfortunately still continues.

Finally, many non-nuclear weapon states have long accused the NPT nuclear weapon states, and particularly the United States, of not acting in good faith to make progress toward nuclear disarmament. While it seems unlikely that this perception of U.S. failure to hold up its end of the NPT bargain has directly contributed to any country proliferating, the perception of a lack of U.S. commitment to disarmament has clearly made it harder for the U.S. to gain support in international fora for its efforts to isolate proliferators. The following are specific steps that Congress could take to increase the perception and enhance the reality of U.S. movement toward the goal of nuclear disarmament.

One, Congress should work with the next President to ratify the CTBT. Two, Congress should encourage the executive branch to energetically pursue a fissile material control treaty. Three, Congress should urge the President to extend the START treaty's monitoring and verification provisions before the treaty expires next year.

In conclusion, the nuclear nonproliferation regime that as it exists now has little remaining capacity to detect or to deter violations, and NPT members states currently considering whether to develop nuclear weapons can only conclude that the IAEA's verification and monitoring authorities are too weak to promptly and reliably catch a cheating and even if it is caught, it will receive light sanctions at worse.

The nuclear nonproliferation regime is at a tipping point with its viability in the balance of a nuclear 9/11 or a series of them some day occurs it will be because the international community failed to enforce and repair the nuclear nonproliferation regime while it still could. The time to act is now. Humanity's future may depend on it.

Thank you.

[The prepared statement of Mr. Kittrie follows:]

PREPARED STATEMENT OF ORDE KITTRIE, ESQ., PROFESSOR, SANDRA DAY O'CONNOR  
COLLEGE OF LAW, ARIZONA STATE UNIVERSITY

Chairman Sherman, Ranking Member Royce, and distinguished members of the Subcommittee, thank you for the opportunity to speak with you about "Saving the NPT and the Nonproliferation Regime in an Era of Nuclear Renaissance."

Forty years ago this month, the United States joined 61 other nations in signing the Nuclear Nonproliferation Treaty (NPT). The NPT has, since its entry into force in 1970, been at the heart of international efforts to prevent the spread of nuclear weapons. During its first twenty-five years, the NPT played a central role as nuclear nonproliferation efforts met with remarkable success. In 1963, President John F. Kennedy predicted as many as "fifteen or twenty" states could possess nuclear weapons by 1975. In fact, the number of states possessing nuclear weapons grew by only one (from six to seven) between 1970 and 1995.

By May 1995, when an NPT Review Conference voted to extend the treaty in perpetuity, a robust nuclear nonproliferation regime had arisen, with the NPT at its forefront, that seemed to have succeeded in converting the acquisition of nuclear weapons from an act of national pride into an act of international outlawry.

The last dozen years have been less successful for the nuclear nonproliferation regime. The first major step in the decline of the nuclear nonproliferation regime involved a set of Indian and Pakistani nuclear weapons detonations in 1998. Although India and Pakistan were not parties to the NPT, their flagrant proliferation, and the world's weak response, shook the NPT and did considerable damage to the nuclear nonproliferation regime. In 2003, North Korea announced both that it was withdrawing from the NPT and that it possessed nuclear weapons. In 2006, North Korea announced that it had successfully conducted a nuclear detonation. The sanctions imposed on North Korea by the United Nations Security Council in response were minimal. Over the course of the last several years, Iran has been proceeding virtually unhindered towards a nuclear weapons capability. In the last two-and-a-half years, at least 13 countries in the Middle East have announced new or revived plans to pursue or explore nuclear power programs.<sup>1</sup> For most of these countries, nuclear power programs make no economic sense but seem instead to be a response to Iran's nuclear program. The UN Secretary-General's High-level Panel on Threats, Challenges and Change has warned that, "We are approaching a point at which the erosion of the non-proliferation regime could become irreversible and result in a cascade of proliferation."

What has caused this dangerous decline of the nuclear nonproliferation regime and what can be done to save it?

<sup>1</sup> See, for example, NUCLEAR PROGRAMMES IN THE MIDDLE EAST: IN THE SHADOW OF IRAN (IISS: May 2008).

The NPT represents a grand bargain struck between two groups of states: the five states (China, France, Russia, the United Kingdom, and the United States) that had manufactured and exploded a nuclear device prior to January 1, 1967 (nuclear-weapon states, or NWSs), and states that had not manufactured and exploded a nuclear device by that date (non-nuclear-weapon states, or NNWSs). The three basic elements of the bargain involve nonproliferation, the sharing and development of nuclear energy technology for peaceful purposes, and disarmament.

The primary reasons for the dangerous decline of the nuclear nonproliferation regime include a lack of political will to effectively sanction proliferators, International Atomic Energy Agency (IAEA) verification and monitoring authorities that are too weak to promptly and reliably catch proliferators, the increased availability of nuclear weapon and associated technology, and a sense that the nuclear-weapon states, and particularly the United States and Russia, have not lived up to their disarmament commitments.

I know that the testimony by Pierre Goldschmidt, a former Deputy Director General of the IAEA, very thoughtfully and appropriately focuses on actions that can be taken by the international community in order to strengthen the non-proliferation regime. As a former U.S. government nuclear lawyer, I am going to try to focus as much as possible in my remarks on specific steps that the U.S. Congress could take in order to strengthen the non-proliferation regime in an era of increased foreign interest in nuclear power.

#### I. EFFECTIVELY SANCTION PROLIFERATORS

##### A. *The Iranian Example*

Iran's nuclear program is by far and away the number one threat to the vitality of the nuclear nonproliferation regime. As Elihu Root, the 1912 Nobel Peace Prize laureate, Secretary of State, and first President of the American Society of International Law, stated almost a century ago, "International laws violated with impunity must soon cease to exist."

In 2002, it was discovered that Iran had engaged in an 18-year pattern of non-compliance with its obligations to report all its nuclear activities. Over those eighteen years, Iran built major nuclear facilities without telling the IAEA. Iran has still not come clean with respect to its activities during those years. More recently, the United Nations Security Council, in three Security Council Resolutions, has issued and reiterated an order, binding under international law, that "Iran shall without further delay suspend" various "proliferation sensitive nuclear activities" including "all enrichment-related and reprocessing activities, including research and development" and "work on all heavy water-related projects, including the construction of a research reactor moderated by heavy water." Rather than comply with this legally binding Security Council mandate to cease the production of nuclear fuel by enrichment and other methods, Iran has openly and admittedly accelerated its enrichment activities. As recently as yesterday, Iranian President Ahmadinejad vowed that Iran would not "step back an inch" from these prohibited activities.

Iran's advancing nuclear program is dangerous for a number of reasons, including concern that the Iranian leadership's apocalyptic messianism and exaltation of martyrdom may make it impossible to deter Iran from using, or enabling its terrorist proxies to use, nuclear weapons; the risk of rogue elements in Iran's fragmented government taking it upon themselves to transfer nuclear arms to terrorist or other allies; and worry that an Iranian "nuclear umbrella" would make Iran an even more self-confident sponsor of terrorism. An equally important danger of Iran acquiring a nuclear arsenal, a danger most relevant to the topic of today's hearing, is that many of Iran's neighbors in the Middle East might feel compelled to follow suit.

The fear that an Iranian nuclear arsenal will unleash a cascade of proliferation across the Middle East has been heightened by the number of Arab states (at least thirteen) that have in the last two-and-a-half years announced new or revived plans to pursue or explore nuclear power. An editorial in the Egyptian government daily newspaper *Al-Ahram* put it as follows: "Iran's nuclear capability . . . will spur many powers in the region to develop a nuclear program."<sup>2</sup> Such a cascade of proliferation in the Middle East would likely lead to the worldwide collapse of the already tottering nuclear non-proliferation treaty regime. In addition, the proliferation of nuclear weapons in the Middle East tinderbox, with its border disputes, religious

<sup>2</sup>H. Avraham, Middle Eastern Media Research Institute, *Inquiry & Analysis Series—No. 277, Arab Media Reactions to Iran's Nuclear Project*, May 23, 2006 (quoting editorial in *AL-AHRAM*, Apr. 16, 2006); see also Roe Nahmias, *Mubarak Hints: We'll Develop Nukes*, ynetnews.com, Jan. 5, 2007 (stating that Egyptian President Mubarak hinted that if Iran proceeds to attain nuclear weapons, Egypt will follow suit).



fanaticism, ethnic hatreds, unstable governments, terrorist groups, and tendency for conflicts to spiral out of control, seems likely to result in a nuclear war that would be exceedingly costly in both human life and economic terms.

Unfortunately, the international community has thus far responded with remarkable passivity to the grave dangers posed by the Iranian nuclear program. The sanctions imposed on Iran by the international community thus far are much weaker than the sanctions which stopped the Iraqi and Libyan nuclear weapons programs. Indeed, the Iran sanctions are thus far weaker than the sanctions imposed by the Security Council on South Africa in response to apartheid, on Liberia and Cote D'Ivoire during their civil wars, Sierra Leone in response to its May 1997 military coup, the Federal Republic of Yugoslavia during the Bosnian crisis, and Haiti in response to its 1991 military coup.

Due to its ideology, the value to the Iranian regime of engaging in nuclear proliferation is particularly high. Yet, the price the international community has exacted from the Iranian regime for its violations has thus far been remarkably low. Security Council Resolutions 1737, 1747, and 1803 are too weak to coerce Iran into compliance, contain Iran's ability to advance its nuclear weapons program, or deter other states from following Iran's lead and developing their own nuclear weapons program. This is unfortunate, because Iran's heavy dependence on foreign trade—including especially on imports of refined petroleum—leaves it highly vulnerable to strong economic sanctions.

*There are several steps that Congress can take to help convince Iran's leadership that the price for its nuclear program has become too high, that the risk from sanctions to the regime's survival has become so great that the regime is better served by halting its nuclear program rather than further risking its grip over the Iranian people. These include passage of legislation, such as that currently pending, that would 1) tighten U.S. federal sanctions against Iran and 2) encourage other countries and businesses to tighten their sanctions against Iran—including by facilitating state and local divestment from foreign companies doing business with Iran, divesting federal pensions from such companies, acting to prevent diversion of sensitive items to Iran, conditioning the proposed U.S.-Russia nuclear cooperation agreement, and expanding the Iran Sanctions Act (as H.R. 2880 would expand it) to apply to foreign companies that provide Iran with refined petroleum.*

Preventing Iran from developing a nuclear arsenal is the most important contribution we can make to saving the NPT and the nonproliferation regime in an era of nuclear renaissance. An additional step we could take to dissuade potential future proliferators would be to pre-set sanctions for proliferation.

#### *B. Pre-set Sanctions for Proliferation*

Pierre Goldschmidt, my fellow panelist today, has set out a very thoughtful approach to pre-setting sanctions for proliferation. United Nations Security Council sanctions on proliferators are currently imposed on a case-by-case basis after the proliferation has come to light. In contrast, legislatures set penalties for criminal violations on a generally applicable basis ahead of time. Pre-setting proliferation sanctions while the identity of the violator is still unknown might help 1) avoid vetoes by P-5 members whose companies would lose an especially large share of trade with a particular proliferant state, 2) avoid the prospect of proliferants attempting to use bribes or threats of violence to dissuade Security Council members from voting for sanctions, and 3) contribute to deterring future proliferation, for example because by announcing in advance types of sanctions that would affect specific groups within target states, those groups would be spurred into lobbying against proliferation even before sanctions were imposed.

The most effective way to pre-set such sanctions is probably, as Pierre suggests, for the Security Council to pass a resolution expressing its intent to impose particular sanctions for specified future proliferation activity. Although the initial resolution could not legally constrain the contents of subsequent resolutions, it would set an important political baseline. As another alternative, the P-5 could reach an agreement between themselves to support specified sanctions on proliferators in particular future circumstances. It is far from clear, however, that such an advance commitment would inevitably lead to the imposition of stronger sanctions. The League of Nations Charter provided that "should any Member of the League resort to war . . . all other Members of the League" would immediately subject the warring member to comprehensive economic sanctions, but League members nevertheless failed to impose sanctions in response to blatant aggression. Pre-set sanctions might ultimately prove to be an important advance—and *Congress should consider expressing support for pre-set sanctions in a "sense of Congress" resolution*—but they seem unlikely to dissuade proliferation on their own.

## II. STRENGTHENING IAEA VERIFICATION AND MONITORING AUTHORITIES

The NPT and its principal verification tool, the so-called “comprehensive safeguards agreement,” were developed in the 1960s and 1970s, when the technology for constructing a nuclear weapon was not widely available and the greatest proliferation risks were thought to be from technologically advanced “countries like Germany and Sweden, democratic states that were fairly open.”<sup>3</sup> With such countries, it was relatively easy to both trust and verify.

Today, more than sixty years after the Hiroshima and Nagasaki detonations, detailed descriptions of how to construct a nuclear weapon are widely available, including over the Internet. It is relatively easy to create every part of a nuclear weapon except the weapons-grade fissile material—highly enriched uranium (HEU) or plutonium—at the weapon’s core. From a technological perspective, then, only the acquisition of weapons-grade fissile material stands between most states (and sophisticated terrorist groups) and manufacturing a nuclear weapon.

Civilian nuclear power technology and the nuclear technology needed to develop weapons-grade fissile material overlap considerably. Any nuclear power program that operates fully independently (with a “full fuel cycle”) includes technology readily adaptable to the production of weapons-grade fissile material. The fuel cycle stages most readily adaptable to producing such material are the enrichment and reprocessing stages. Yet, under NPT Article IV as currently interpreted, state parties (including NNWSs) are not prohibited from possessing enrichment or reprocessing technology, or even weapons-grade nuclear material, so long as the technology and material are “for peaceful purposes” and “in conformity with articles I and II” of the NPT. As IAEA Director General El Baradei puts it: “under the current regime . . . there is nothing illicit in a non-nuclear-weapon state having enrichment or reprocessing technology, or possessing weapon-grade nuclear material.”<sup>4</sup> The overlap between civilian and military nuclear technologies poses a key challenge facing the nuclear nonproliferation regime: the ease with which a state—in the guise of conducting a peaceful nuclear weapons program—can acquire either weapons-grade fissile material or the technologies necessary for its production.

The NPT’s principal tool for detecting cheating by member states on their non-proliferation obligations is the comprehensive safeguards agreement, which NPT Article III requires each NNWS to conclude with the IAEA for the purpose of “verification of the fulfillment of its obligations assumed under this Treaty with a view to preventing diversion of nuclear energy from peaceful uses to nuclear weapons.” Although NPT Article III requires that state parties “shall conclude” safeguards agreements with the IAEA, thirty NPT state parties have yet to conclude such safeguards agreements. In the absence of such agreements, the IAEA has no authority to carry out inspections in these countries.<sup>5</sup>

The IAEA’s model for the comprehensive safeguards agreement is contained in an IAEA document usually referred to as INFCIRC/153. Under INFCIRC/153 safeguards agreements, parties must report to the IAEA on their nuclear facilities and the nuclear material that moves through them. The INFCIRC/153 agreements are significantly flawed, however, in that they contain no effective mechanism for the IAEA to assess whether the reports are complete. The agreements operate on the assumption that all states declare all relevant facilities and materials.

The verification shortcomings of the comprehensive safeguards agreement prompted the IAEA to issue a model protocol in 1997 to be appended to the INFCIRC/153 agreements (the Additional Protocol). The Additional Protocol expands the IAEA’s access rights and requires parties to submit a broader range of information to the IAEA about their nuclear programs. As the IAEA explained: “While the chief object of safeguards under INFCIRC/153 is to verify that declared nuclear material was not diverted, the chief object of the new measures . . . is to obtain assurance that the State has no undeclared activities.”<sup>6</sup> The IAEA did not make adherence to the Additional Protocol mandatory for NPT members, however, and some two-thirds of the 189 NPT member states, including many states of proliferation concern, have

<sup>3</sup> See Wade Boese, Paul Kerr & Daryl G. Kimball, Reviving Disarmament: An Interview with Hans Blix, *Arms Control Today*, July–Aug. 2006, at 7, 56, available at [http://www.armscontrol.org/act/2006\\_07-08/BlixInterview.asp?print](http://www.armscontrol.org/act/2006_07-08/BlixInterview.asp?print) (quoting Hans Blix, former IAEA Director General).

<sup>4</sup> Mohamed El Baradei, Towards a Safer World, *Economist*, Oct. 18, 2003, at 48.

<sup>5</sup> [http://www.iaea.org/Publications/Factsheets/English/nptstatus\\_overview.html](http://www.iaea.org/Publications/Factsheets/English/nptstatus_overview.html). Although many of the countries without safeguards seem unlikely to develop nuclear weapons programs in the foreseeable future, one country on the list—Saudi Arabia—is considered a strong candidate for acquiring nuclear weapons should Iran do so.

<sup>6</sup> IAEA, International Nuclear Verification Series: The Evolution of IAEA Safeguards, at 27, IAEA Doc. IAEA/NVS/2 (Nov. 1998).

yet to join. States of potential proliferation concern which did not have the Additional Protocol in force as of May 30, 2008, included Algeria, Belarus, Brazil, Egypt, India, Iran, Iraq, Malaysia, Morocco, Pakistan, Saudi Arabia, Sudan, Syria, Tunisia, Venezuela, and Yemen.<sup>7</sup>

If it is not subject to an Additional Protocol (and even more so if it is not subject to a comprehensive safeguards agreement), an NPT member state currently weighing whether to develop nuclear weapons would inevitably calculate the likelihood of getting caught cheating as slim. Iran managed to conceal nuclear facilities, materials, and activities from the IAEA for eighteen years before an Iranian dissident group revealed them in 2002. Libya successfully hid its nuclear weapons program from the IAEA for over a decade. Iraq also kept a nuclear weapons program secret from the IAEA for more than a decade, coming within six months of a nuclear bomb before Iraq invaded Kuwait in 1990. Yet the IAEA still frequently must depend for verification on the weak tools contained in the INFCIRC/153 safeguards agreements. Enhanced verification and monitoring authorities, such as those contained in the Additional Protocol, would significantly improve the IAEA's capabilities to detect violations.

Unfortunately, the NPT is nearly impossible to amend formally. With the exception of its 1995 extension, the treaty has not been formally amended since its entry into force. Of the seven NPT Review Conferences since the treaty's entry into force, three—those in 1980, 1990, and 2005—were so contentious they ended without even an agreed concluding statement. The near-impossibility of formally amending the NPT is due in part to this contentiousness which has beset the treaty's formal review mechanism. An even greater obstacle is NPT Article VIII.2, which requires that any amendment be approved by "the votes of all nuclear-weapon States Party to the Treaty and all other Parties which, on the date the amendment is circulated, are members of the Board of Governors of the International Atomic Energy Agency." In other words, every member of the IAEA Board of Governors has a veto over any NPT amendment. In 2008, there are thirty-five members of the IAEA Board of Governors, including several countries with questionable commitment to nonproliferation.

The simplest and speediest way to make legally binding changes to the nuclear nonproliferation regime is through a UN Security Council resolution. Passage of a Security Council resolution requires the support of nine of the fifteen Security Council members, including the concurring votes (affirmative vote or abstention) of the five permanent members of the Council. "Amending" the nuclear nonproliferation regime through a UN Security Council resolution would be consistent with an important new Security Council practice: the adoption under Chapter VII of "global legislative resolutions" that impose universally binding obligations of general application for an indefinite period of time on all UN member states in response to threats of a global nature.<sup>8</sup> The IAEA's ability to spot violations of the NPT could be significantly enhanced through a new Security Council resolution imposing on all NPT parties the IAEA authorities contained in the INFCIRC/153 and currently optional Additional Protocol agreements.

In the absence of such a resolution, the U.S. and its partners in the Nuclear Suppliers Group should agree not to transfer nuclear technology to NPT countries that have not adopted the Additional Protocol. U.S. law could also be changed to require that U.S. nuclear exports to NPT member states must be based on the willingness of such states to adopt the Additional Protocol. Such requirements would provide countries that have not yet adopted the Additional Protocol with an incentive to do so. In addition, although many key countries have yet to adopt the Additional Protocol, it is not too soon to begin thinking about IAEA verification procedures that

<sup>7</sup> IAEA, *Strengthened Safeguards System: Status of Additional Protocols*, [http://www.iaea.org/OurWork/SV/Safeguards/sg\\_protocol.html](http://www.iaea.org/OurWork/SV/Safeguards/sg_protocol.html) [hereinafter IAEA, Strengthened Safeguards System].

<sup>8</sup> This new practice is distinct from more traditional resolutions, which impose binding obligations that seek to address, and last for the duration of, a particular dispute or situation. The two preeminent examples of "global legislative resolutions" are Security Council resolutions 1373 and 1540. Resolution 1373, unanimously adopted on September 28, 2001, obligated all states to take various measures to combat terrorism, including preventing the financing of terrorist acts, freezing terrorist funds, refraining from providing "active or passive" support to terrorists, and denying safe haven to terrorists. Resolution 1373 filled a gap in international law left by stalled efforts to negotiate a comprehensive convention against international terrorism and the failure by many states to become party to the twelve existing international conventions and protocols related to terrorism. In drafting Resolution 1373, the Council drew provisions from those existing anti-terrorism conventions and made them binding on all states. Resolution 1540, unanimously adopted in April 2004, effectively filled several gaps in the NPT, including the NPT's failure to fully prohibit assisting terrorists to acquire nuclear weapons and failure to require physical protection of sensitive nuclear materials.

go beyond the Additional Protocol and would further strengthen the IAEA's ability to detect proliferant activity. As Henry Sokolski points out, even the Additional Protocol is a far from perfect tool. One option for a more intrusive verification procedure, a variant of which has been thoughtfully set forth by Pierre Goldschmidt, is to require, perhaps via a "global legislative resolution," that a state party announcing its withdrawal from the NPT be subject to 1) highly intrusive verification measures to prove that it had not already embarked on a nuclear weapons program and 2) a requirement that all materials and equipment made available to such a state, or resulting from assistance provided to it, under IAEA safeguards be forthwith frozen and as soon as possible removed from that state under IAEA supervision.

*I recommend that Congress consider amending U.S. law to require that U.S. nuclear exports to NPT member states be based on the willingness of such states to adopt the Additional Protocol. Congress should also consider declaring its support for NSG policies to require recipient adherence to the Additional Protocol and for development and implementation by the IAEA of additional more rigorous verification procedures. In addition, Congress should require that the Executive Branch finish as soon as possible the steps it must take to complete the U.S.'s own ratification of the Additional Protocol.<sup>9</sup> Furthermore, Congress should, as Henry Sokolski suggests, require the Executive Branch to periodically provide a classified report on what the IAEA can and cannot successfully safeguard on a country by country basis, how sound the IAEA's standards are for safeguarding, and what specific steps might enable the IAEA to meet these standards where they currently cannot meet them.*

It is important to note that both a geographic expansion of safeguards agreements and the expected increase in the number of nuclear power plants may sap the limited resources of the IAEA. In addition, because the IAEA has been kept at zero real budget growth for all but one year of the last two decades or so, the IAEA's labs, including its Safeguards Analytical Laboratory, have not kept up with technological advances. Furthermore, IAEA financial planning has been hampered by the U.S.'s regularly being behind on its assessed dues to the IAEA. A recent report by a prominent international commission on the future of the IAEA sensibly recommended that the international community increase the IAEA's budget by some \$80 million per year for the next several years. *I recommend that Congress work to double the IAEA budget in the next four years (increasing the U.S. annual share to about \$225 million) and direct that the United States pay its IAEA dues on time each year.*

### III. MINIMIZING THE PROLIFERATION RISK OF INCREASED AVAILABILITY OF NUCLEAR MATERIALS AND TECHNOLOGY

#### A. Securing Nuclear Weapons Materials

The Cooperative Threat Reduction program, initiated by Congress in the Nunn-Lugar legislation, has been a great success. However, more needs to be done both in the former Soviet Union and elsewhere to reduce the threat from nuclear weapons grade fissile material. The following are some things Congress should consider doing in order to facilitate the strengthening and expansion of the Cooperative Threat Reduction program:

- "Notwithstanding" Authority—Although many restrictions on the CTR program have been lifted in recent years, the program is still prohibited from undertaking work in certain sanctioned countries. It would be a pity if important cooperative threat reduction work were held up pending enactment of a legislative exemption. In contrast to CTR, the much smaller Nonproliferation and Disarmament Fund (NDF) has authority to operate "notwithstanding" any other provision of law. However, the NDF operates with management, expertise and resource limitations, some of which have been referenced by the Government Accountability Office and the State Department Inspector General. *Congress should consider authorizing CTR to operate "notwithstanding" any other provision of law, perhaps with a short notify-and-wait requirement if Congress feels the need to retain some check on new CTR initiatives.*
- Authority to Accept Contributions—As part of the G-8 Global Partnership and other initiatives, the Executive Branch has been encouraging its allies to contribute financially to cooperative threat reduction activities. Some countries would prefer to contribute to U.S.-managed projects rather than initiate

<sup>9</sup>The Senate advised in 2004 of its consent to U.S. ratification of the Additional Protocol and passed implementing legislation for the U.S. Additional Protocol in 2006, but the Executive Branch has yet to complete the steps necessary to submit the U.S. instrument of ratification to the IAEA.

and manage their own. However, the Defense Department is not currently authorized by Congress to accept funds from other countries and co-mingle them with CTR funds without penalty. In contrast, Congress has authorized such contribution receipt authority for some specific DOE programs, including Second Line of Defense and GTRI. *Congress should consider providing the Defense Department with analogous authority to accept contributions for its CTR work.*

- **Sustainability of U.S.-Funded Nuclear Security Upgrades**—The GAO and others have expressed grave concern about the willingness of the Russian and other governments to sustain U.S.-funded nuclear security upgrades once U.S. funding has been drawn down. Other agencies and entities that provide foreign assistance, such as USAID, private donors, and foreign governments, have presumably given a lot of thought and hopefully developed useful mechanisms for promoting sustainability after the conclusion of donor funding. *Congress should require the Executive Branch to undertake a study which examines how other foreign assistance providers maximize sustainability and devises specific steps to be taken by CTR to maximize the sustainability of its programs.*
- **Low Penalties for Nuclear Material Trafficking**—Nuclear material security depends both on physical barriers to theft and also deterrence of potential thieves. Nuclear smuggling networks can include principals, corrupt officials, and middlemen who transport nuclear material, forge export licenses and customs slips, and engage in other black market activities. For individuals and businesses that engage in or facilitate illicit smuggling of fissile material and related nuclear components for financial reasons, the choice to do so will depend in part on the magnitude of the penalty if caught. Russian law's currently low criminal penalties for nuclear material trafficking<sup>10</sup> could more effectively deter nuclear material trafficking if they were increased. For example, Article 188 of Russia's Criminal Code imposes penalties of no more than ten years' imprisonment for smuggling weapons of mass destruction.<sup>11</sup> Of even greater concern from a deterrence perspective are the extraordinarily low sentences, often entirely suspended, actually imposed by Russian authorities on those convicted of nuclear smuggling.<sup>12</sup> UN Security Council Resolution 1540 of April 2004 requires all member states to detect, deter, prevent and combat nuclear smuggling. Resolution 1540 also "recognizes that some States may require assistance in implementing the provisions of this resolution within their territories and invites States in a position to do so to offer assistance as appropriate in response to specific requests to the States lacking the legal and regulatory infrastructure, implementation experience and/or resources for fulfilling [Resolution 1540's] provisions." *Congress should require the Executive Branch to energetically assist Russia and other countries with improving their capacities, including their laws, targeting nuclear smuggling.*
- **Need for Improved Material Protection, Control & Accounting Regulations**—Although Russia has developed a considerable body of laws and regulations governing nuclear safety and security, there is still considerable room for improvement. A detailed analysis by the University of Georgia's Center for International Trade and Security found that Russia's nuclear regulations are too often obsolete and in urgent need of updating, frequently contradictory, sometimes ambiguous (thus leaving unacceptably wide discretion for interpretation), pervaded by unnecessary technical jargon that makes them difficult to understand, and too often lack specific and detailed practical instructions for handling critical tasks.<sup>13</sup> Russian Federation MPC&A regulations also fail to preclude the most high-risk categories of nuclear material from being accessed or handled by single individuals. In contrast, the U.S. nuclear complex requires application of the prophylactic two-person rule with respect to all access to or handling of the highest-risk categories of nuclear material. UN Security Council Resolution 1540 of April 2004 requires all member states to develop and maintain "appropriate effective" measures to account for and secure sensitive nuclear materials in production, use, storage and transport as well as to develop and maintain appropriate effective physical protection

<sup>10</sup>Igor Khripunov & James Holmes, eds., *NUCLEAR SECURITY CULTURE: THE CASE OF RUSSIA*, Chapter VII ("Enforcement as Deterrent") (University of Georgia Center for International Trade and Security, December 2004), available at <http://www.uga.edu/cits/documents/pdf/Security%20Culture%20Report%2020041118.pdf>.

<sup>11</sup>Id.

<sup>12</sup>Id.

<sup>13</sup>Id. at Chapter VI ("MPC&A Legal and Regulatory Framework").

measures. The National Defense Authorization Act for FY 2008 includes a sense of Congress provision and a reporting requirement relating to the security of nuclear weapons and related equipment outside of the United States, including a statement that the President should work with other countries to ensure that effective and enforced regulations are in place. The United States should reach agreement with other key stakeholders on what the essential elements of appropriate effective measures are and then work to encourage and if necessary assist all states to put those essential elements in place. *Congress should continue to press for the effective use of Resolution 1540 as a tool for assisting Russia and other countries to put effective domestic controls in place to prevent the theft, diversion or spread of sensitive nuclear materials. If necessary, Congress should provide funding in support of such an effort to establish and implement effective global nuclear security standards.*

*B. Minimizing the Risk from Increased Availability of Civilian Nuclear Materials and Technology*

The IAEA projects that nuclear power may grow by 15–45% by 2020 and by 25–95% by 2030. There are several important steps Congress can take to help minimize the risk from the increased availability of civilian nuclear materials and technology. Just as Resolution 1540 is an exceptionally valuable tool for helping countries to protect nuclear weapons material itself, Resolution 1540 is also an exceptionally valuable tool for helping countries to develop domestic controls that will minimize the risk of civilian nuclear materials and technology being diverted to develop nuclear weapons material. In addition, Congress can facilitate the following steps to help minimize the risk:

- *Fuel Bank—Congress should continue its support for an IAEA fuel reserve that would be used to provide fuel assemblies to any country that is denied fuel delivery for purely political reasons and has chosen not to engage in its own enrichment or reprocessing. In doing so, Congress should seek to ensure that it does not encourage more states to get into developing nuclear power programs sooner than market forces would otherwise suggest.* There are currently economic disincentives for countries to produce their own nuclear fuel. It is currently much more expensive for a country to produce its own nuclear fuel than to purchase it from highly efficient foreign suppliers such as the Urenco consortium. An IAEA fuel reserve should help convince countries that they do not need their own nuclear fuel production facilities for energy security purposes. Once an IAEA fuel reserve arrangement is in place, countries nevertheless insisting on producing their own nuclear fuel will have the burden of proving that their motivation is not in fact the option of producing nuclear weapons.
- *Phase out Civilian Use of Highly Enriched Uranium—The United States must continue to remove HEU from vulnerable reactor sites around the world and expedite the process of converting to LEU, which is less proliferation-sensitive, or shutting down, those reactors that currently use HEU. Congress should support the phase out of civilian use of Highly Enriched Uranium both overseas and here in the United States, including by phasing out U.S. exports of HEU.*

IV. LIVING UP TO DISARMAMENT COMMITMENTS

Article VI of the NPT specifies that “Each of the Parties to the Treaty undertakes to pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament, and on a treaty on general and complete disarmament under strict and effective international control.” Many non-nuclear weapon states have long accused the NPT nuclear weapons states, and particularly the United States, of not acting in good faith to make progress towards nuclear disarmament. While it seems unlikely that this perception of U.S. failure to hold up its end of the NPT bargain has directly contributed to any country proliferating, the perception has clearly made it harder for the U.S. to gain support in international fora for its efforts to isolate proliferators. The following are specific steps that Congress could take to increase the perception and enhance the reality of U.S. movement towards the goal of nuclear disarmament:

- *CTBT—The most important short-term step that the United States can take towards the goal of nuclear disarmament is to ratify the Comprehensive Test Ban Treaty. To date, 138 states have ratified the CTBT, including France, Russia, and the UK. For the CTBT to come into force it must be ratified by ten more specified states including the United States. The argument for rati-*

fyng the CTBT is even stronger today than it was when the Senate rejected the Treaty in 1999, as significant progress has been made in the U.S. capability to detect foreign noncompliance with the Treaty and ensure confidence in the reliability of our nuclear deterrent in the absence of nuclear testing. *Congress should work with the next President to ratify the CTBT.*

- Fissile Material Control—The United States should lead the way towards negotiation of a verifiable treaty ending the production of fissile material for weapons purposes. *Congress should encourage the Executive Branch to energetically pursue a Fissile Material Control Treaty.*
- No Development of Nuclear Weapons—*Congress should not authorize the development of new types of nuclear weapons.*
- Extend START—The U.S.-Russia Strategic Arms Reduction Treaty (START) expires on December 5, 2009. Both sides fulfilled their START reductions several years ago, but they continue to employ the treaty's monitoring and verification regime to conduct inspections and exchange data on their deployed strategic nuclear forces. *Congress should urge the President to extend the START Treaty's monitoring and verification provisions.*
- Further Reduce Nuclear Arsenals—The United States must work with Russia on a binding verifiable arms control agreement to as soon as possible reduce the size of our nuclear arsenals to the lowest possible number consistent with our security requirements and global commitments. Such reductions should, to the extent possible, be made irreversible. The United States should also explore with Russia ways to reduce or eliminate deployments of tactical nuclear weapons in Europe. The United States should also set nuclear disarmament as an explicit long-term goal while remaining cognizant that several of our closest allies, such as Japan, may have thus far refrained from developing their own nuclear arsenals in part because they feel protected by a U.S. nuclear deterrent umbrella. *In support of these goals, Congress could, for example, pass a resolution asserting its "sense" that the United States should work with Russia on such a binding verifiable arms control agreement, explore with Russia ways to reduce or eliminate deployments of tactical nuclear weapons in Europe, and adopt nuclear disarmament as a long-term goal.*

There is obviously a lot of work to be done if we are to maximize our chances of saving the NPT and the nonproliferation regime in an era of nuclear renaissance. One key obstacle to quickly, efficiently and effectively implementing as many of these steps as possible is the lack of sustained high-level leadership on nonproliferation in the Executive Branch. In Public Law 110-53, the Implementing Recommendations of the 9/11 Commission Act of 2007, Congress mandated the establishment within the Executive Office of the President of an office to be known as the "Office of the United States Coordinator for the Prevention of Weapons of Mass Destruction Proliferation and Terrorism." The Coordinator is to be appointed by the President, by and with the advice and consent of the Senate, and to have various responsibilities and authorities as set forth in the Act. Establishment of this position could be a very useful step towards ensuring that United States nonproliferation policy is comprehensive, well-coordinated, matches resources to priorities, identifies and corrects gaps and overlaps, overcomes obstacles and seizes new opportunities, and does not suffer from the wasteful inefficiencies and turf battles of the past. Unfortunately, the Administration has thus far refused to appoint such a Coordinator or create such an office. *Congress should consider pressuring the Administration, including by withholding funds if necessary, to obey the law and appoint the Coordinator and create the office.*

#### V. CONCLUSION

The nuclear nonproliferation regime worked well for its first 25 years, converting the spread of nuclear weapons from an act of national pride into an act of international outlawry. Today, however, the nuclear nonproliferation regime is on the verge of collapse.

The regime as it exists now has little remaining capacity to coerce, contain, or deter violations. An NPT member state currently considering whether to develop nuclear weapons can only conclude that the IAEA's verification and monitoring authorities are too weak to promptly and reliably catch it cheating and, even if it is caught, it will receive light sanctions at worst. If the nuclear nonproliferation regime is not soon enhanced, it is likely to collapse, with grave consequences for international peace and security.

The nuclear nonproliferation regime is at a tipping point, with its viability in the balance. If a nuclear 9/11, or a series of them, someday occurs, it will be because

the international community failed to enforce and repair the nuclear nonproliferation regime while it still could. The time to act is now. Humanity's future may depend on it.

Mr. SHERMAN. Thank you. Mr. Spencer?

**STATEMENT OF MR. JACK SPENCER, RESEARCH FELLOW,  
THOMAS A. ROE INSTITUTE, FOR ECONOMIC POLICY STUDIES,  
THE HERITAGE FOUNDATION**

Mr. SPENCER. Thank you. Mr. Chairman, members of the committee, thank you for inviting me to testify before you today on this critical issue.

While the nonproliferation regime is clearly under stress, it is not broken. That being said there is no question that a global nuclear renaissance will present new and unique challenges, but if met appropriately, I believe that a global nuclear renaissance is not incompatible with nonproliferation objectives. The challenge for the United States will be to integrate its principles into a new rule set that governs peaceful nuclear commerce. The following recommendations can help meet this challenge.

First, the U.S. must take a lead in developing an international nuclear fuel supply program. Such a program must be the center of any strategy to save the nonproliferation agenda in an era of nuclear renaissance. The international component of the administration's global nuclear energy partnership is a good first step but it must evolve further. Because fuel supplies can never be unconditionally guaranteed, the program should assure fuel access as long as certain nonproliferation guidelines are followed by participant countries.

Another important component will be that fuel supplier maintain title of the fuel throughout the fuel cycle. This means that supplier nations must also have a workable spent fuel management strategy, including the United States. This should be expanded upon to codify new rules that govern commercial nuclear activities broadly.

The most effective way to protect U.S. interests in an era of nuclear renaissance is to ensure that the rules and norms of the global nuclear industry are consistent with America ideals such as free markets, openness and transparency. As part of this, fuel supplier states should agree to open their markets to international competition. Supplier companies, including state-owned companies, should operate as private for-profit firms and every effort should be made to eliminate tariffs and quotas that artificially distort the commercial nuclear market. Doing this requires the U.S. to be fully engaged in the near term by ensuring that agreements, such as 123 Agreements, respect proliferation concerns without unduly sacrificing commercial activity. If these agreements do not strike this balance, the United States risks diminishing its influence over international trade policy by isolating itself from the global nuclear market.

Third, the United States must not seek control of any nuclear fuel services to an international body such as an international fuel bank or an international nuclear waste management agency. While the international fuel bank could have some merit as an insurance policy for countries whose fear of being denied access to fuel would limit their participation in a larger nuclear fuel supply program,



such an effort must not be used to control nuclear fuel distribution broadly.

Furthermore, the international community should not be responsible for managing nuclear waste. Instead, each nation should operate under its specific rules and regulations as they pertain to nuclear waste issues. Reprocessing, permanent geologic storage and other fuel processing technologies would be brought to bear as each nation deems appropriate.

Instead of ceding power to international bodies, the U.S. should take a more active role in safeguards and verification. The International Atomic Energy Agency currently has a virtual monopoly over this responsibility. While the IAEA has a critical role in promoting safety, security and cooperation in the nuclear field, safeguards and verification need additional oversight. A more active U.S. role, especially in activities involving fuel services, would have multiple benefits.

First, it would allow the IAEA to focus its efforts on high-risk countries and activities; second, it would provide another level of scrutiny for potential proliferation concerns, especially those associated with nuclear fuel services.

Finally, the U.S. should reiterate its support of the enduring role of Article IV of the Nuclear Non-Proliferation Treaty. The reality is that any country can pursue whatever technologies that it chooses. As the article states, countries' rights to pursue peaceful nuclear technologies are inalienable. This inalienability, however, is not absolute in the context of the NPT. It is contingent on fulfilling our obligations and responsibilities under the pact. Any non-proliferation regime that does not respect the rights of individual states will ultimately fail. The key is to devise a system that promotes buy-in from both suppliers and consumers of nuclear fuel services. If the system is economically rational, credible and reliable, then peaceful nuclear countries should find participation beneficial. Only those that would seek to use nuclear technology for nefarious purposes would find benefits in operating outside of the system.

In conclusion, the current nonproliferation regime provides the international community with the tools to control the spread of dangerous nuclear materials. However, none of these tools can magically prevent a dedicated nation or other international actors from seeking threatening capabilities. This is not a nonproliferation policy problem or a commercial nuclear problem, but a hostile regime problem. Prevent hostile regimes from acquiring nuclear capabilities requires the political will to use the available tools effectively. Furthermore, there will always be a struggle to keep technology of all sorts out of the hands of those that use it for nefarious purposes. The struggle, however, is not that justification to deny society the benefit of critical technologies such as nuclear power.

Thank you for this opportunity. I look forward to your questions.  
[The prepared statement of Mr. Spencer follows:]

PREPARED STATEMENT OF MR. JACK SPENCER, RESEARCH FELLOW, THOMAS A. ROE  
INSTITUTE, FOR ECONOMIC POLICY STUDIES, THE HERITAGE FOUNDATION

Chairman Sherman, Congressman Royce, and Members of the Committee:  
My name is Jack Spencer and I am the Research Fellow for Nuclear Energy Policy for The Heritage Foundation.

Thank you for inviting me to testify today before the Subcommittee on Terrorism, Nonproliferation, and Trade.

As we sit here today there are approximately 440 commercial nuclear reactors operating around the world. One hundred and four of them are operating in this country alone. With the exception of a few highly publicized and, I might add, mostly misunderstood, accidents, these reactors have operated safely, cleanly, and to the benefit of society for most of their lifetimes.

This is not to suggest that no problems have ever arisen. It is merely to acknowledge the relatively good track record of nuclear power.

And it is this track record that essentially brings us here today to discuss ways to save the Nonproliferation Treaty and the nonproliferation regime in an era of nuclear renaissance.

#### IS A NUCLEAR RENAISSANCE UNDER WAY?

Answering such a question is difficult. Certainly the world is preparing for an expansion of nuclear power. But the size and scope of that expansion remains unknown. It is clear that many countries, including the United States, are beginning to look at nuclear power as a viable alternative for meeting future energy demand.

Indeed, approximately 39 nuclear power reactors are under construction around the world. More important to the question before us today is the large number of reactors that could come online in the next few decades. Nations across the world have voiced an interest in building nuclear power plants. Literally hundreds of reactors are in the planning stages. But even that could be a fraction of what is about to come if there is truly a nuclear renaissance.

The likelihood of a massive expansion of nuclear power depends on the factors behind the growth. If it is a question of energy independence and economics, then the expansion of nuclear power in the United States, while potentially significant, will likely remain moderate. However, a mandate to reduce CO<sub>2</sub> emissions could bring about a much more comprehensive expansion.

Recent analysis by the United States Department of Energy's Energy Information Agency suggests that the United States will need to add approximately 268 gigawatts of new nuclear power by 2030 to meet the CO<sub>2</sub> emissions objectives mandated by the Lieberman-Warner climate change bill (S.3036).<sup>1</sup> In terms of reactors, assuming an average of 1.3 gigawatts per reactor, the U.S. would need to construct approximately 200 reactors over the next 25 years.

If the rest of the world were held to similar emissions levels, 268 gigawatts in the U.S. would extrapolate to roughly 1000 new reactors for the rest of the world. This would meet anyone's definition of a nuclear renaissance.

Whether such an outcome is likely—or even possible for that matter—is certainly up for question. However, what is clear is that the path towards drastic CO<sub>2</sub> reduction will lead to an accelerated expansion of nuclear power.

But even aside from being CO<sub>2</sub> free, nuclear energy has many attributes that make it attractive. For that reason, I believe that even absent CO<sub>2</sub> restrictions, nuclear power in one form or another will play a larger role in energy production around the world in coming years. China and India provide good examples. Neither of these countries are necessarily concerned about CO<sub>2</sub> emissions, yet both are planning a significant nuclear expansion to meet their skyrocketing energy demands.

The question then becomes, what can the U.S. and the international community do to manage this potential growth so that states can enjoy the benefits of nuclear power without increasing the risk of proliferation.

#### THE NONPROLIFERATION REGIME

While the nonproliferation regime is under stress, it is not broken. Indeed, it is largely working. The treaties, agreements, organizations, and initiatives in place today provide peaceful nations with numerous tools to control the spread of dangerous technologies and the authority to act when dangerous behavior is identified. The question is whether supplier states follow the established rules and to what extent peaceful nations are willing to compel proliferators to discontinue risky behavior.

North Korea, for example, did not surprise anyone where its so-called peaceful nuclear activities were revealed as a cover for a nuclear program. To the extent there were any surprises in the early 1990s, the international community had ample time to respond. Whether changes in policy toward North Korea altered its behavior can

<sup>1</sup>United States Department of Energy, Office of Integrated Analysis and Forecasting, *Energy Market and Economic Impacts of S.2191, the Lieberman-Warner Climate Security Act of 2007*, April 2008, at <http://www.eia.doe.gov/oiiaf/servicerpts2191/pdf/sroiaf200801.pdf> (May 22, 2008).

be debated, but certainly the nonproliferation regime worked insofar as it gave the world ample warning of North Korea's intentions.

The same is true today with Iran. The world is not unaware of Iran's programs. The problem is with states that enable Iran's actions and the difficulty of developing a cohesive policy to compel a change in its behavior.

One could argue that the Iran and North Korea problems are examples of nonproliferation regime failure. Perhaps they are to the extent that the purpose of nonproliferation policy is to prevent any spread of nuclear technology for the purposes of weaponization. But the reality is that as long as the basic building block of the international system is the sovereign nation-state, no international treaty or regime can stop a state from pursuing dangerous programs. It is not a problem of nonproliferation policy, but a problem of hostile, dangerous regimes.

That is not to suggest that current nonproliferation policy could not be modified. Any set of rules used to manage something as dynamic as nuclear technology will always require adjustments to accommodate for tactical changes by would-be proliferators. That is why there are regularly held NPT conferences, Nuclear Suppliers Group meetings, and so forth.

In essence, the fundamental bargain of the Nuclear Nonproliferation Treaty is sound. However, a global nuclear renaissance would present certain new and unique challenges. Yet I believe that a global nuclear renaissance is not incompatible with national and international nonproliferation objectives.

#### REESTABLISHING AMERICA'S CREDIBILITY AS A COMMERCIAL NUCLEAR POWER LEADER

Even if a nuclear renaissance were to come at the expense of nonproliferation objectives, it is unclear whether the United States is in a position today to do much about it. Like us, other nations are facing serious challenges with their energy policy. The fact is that notwithstanding optimistic predictions about renewable energy sources, nuclear power helps solve many nations' energy problems.

The U.S. is no longer dominates the commercial nuclear technology field. Its industry has atrophied over the past three decades. During that time other nations—most notably France, Russia, and Japan—have continued to build their commercial nuclear capacities. Now they are prepared to supply the world with commercial nuclear technology, and there is little that the U.S. can do about it.

That is not to suggest that the U.S. has nothing to offer or has no leverage. It does. While other countries were developing strong nuclear industrial bases and commercial business models, the United States was engaged in significant research and development and perfecting nuclear power plant operations. Furthermore, despite its lack of domestic nuclear industry, the United States remains the most influential nation in the world.

These three things (R&D, expertise in operations and maintenance, and prestige) are precisely what is needed to ensure that a global nuclear renaissance moves forward without unduly jeopardizing the nation's nonproliferation objectives. America's research and development in nuclear technology will be critical to the future of safe, global nuclear energy. These technologies will bring about safer reactors, proliferation-resistant fuels, and new methods for managing nuclear waste. While other nations also engage in R&D, the U.S. and its system of national labs and universities are the best. Exporting these technologies would help to advance nonproliferation goals.

America's nuclear plants operate at over 90 percent capacity, which is an extremely efficient level. This allows the U.S. to produce much more power per reactor than anywhere else in the world. Thus, by exporting our operations and maintenance expertise, other nations would need fewer reactors. America's reactors are safe, efficient, and secure. If every reactor in the world operated like those in the U.S., there would be no proliferation risk.

The challenge for the United States will be to integrate its concerns, principles, and values into global norms without isolating itself from the process. This means not attempting to stop progress on commercial nuclear power, but instead taking the lead in creating new rules for global nuclear commerce.

#### NUCLEAR FUEL SUPPLY AND USED FUEL MANAGEMENT

Nations such as Iran and North Korea have insisted that they need a domestic fuel services industry to ensure fuel supplies. Although most observers recognize these justifications as a sham, they are technically legitimate insofar as nothing exists to guarantee those supplies. Therefore, a credible fuel supply guarantee must be at the center of any strategy that sets out to save the nonproliferation agenda while allowing for a nuclear renaissance.

Fuel supplies, however, can never be unconditionally guaranteed. Instead, a system should be implemented that assures fuel access as long as certain nonproliferation guidelines are followed. This system could be built around a statement of principles such as those stated in the President's Global Nuclear Energy Partnership. As long as a country complies with the statement of principles, they can have access to fuel services.

Of course this puts a premium on the statement of principles. While the President's GNEP program may serve as a useful guide, it is not adequately comprehensive.

One of the ideas for guaranteeing fuel supplies has been to establish an international fuel bank. An international fuel bank has some merit, but it should not be the primary mechanism for controlling nuclear fuel supplies. Instead, it should merely be an insurance policy against any coordinated effort to deny a compliant participant country access to fuel.

A central tenet of any future fuel services regime must be that fuel suppliers maintain title of that fuel throughout the fuel cycle, as long as it is in a form that could be potentially dangerous. This means that any nation that engages in the fuel supply market must also have a workable spent fuel management strategy. The elements of the strategy would be developed by each individual fuel supplier state.

There should also be a concerted effort to ensure that the fuel supplier and fuel management markets are as free, open, and transparent as possible. Indeed, the idea of promoting free markets should be embedded in any potential statement of principles. This means that fuel supplier states should open their markets to international competition. Supplier companies (including state-owned companies) should operate as private, for-profit firms, and every effort should be made to eliminate tariffs and quotas that artificially protect domestic fuel and fuel services markets.

The international community should not be responsible for managing nuclear waste. Instead, each nation would operate under its specific rules and regulations as they pertain to nuclear waste issues. Reprocessing, permanent geologic storage, and other used fuel processing technologies would be brought to bear as each nation deems appropriate.

The U.S. can simultaneously advance its nonproliferation and commercial objectives by:

- *Developing an international nuclear fuel services program.* The United States and other fuel service supplier nations should develop a program to guarantee nuclear fuel services (fuel supply and used fuel disposition) to any nation that agrees to the nonproliferation guidelines set forth by the program. The international component of the President's GNEP program could serve as the foundation of such a system, but it must be developed further.
- *Taking a more active role in safeguards and verification.* The International Atomic Energy Agency has a monopoly over the safeguards and verification process. While the IAEA has a critical role in promoting safety, security, and cooperation in the nuclear field, safeguards and verification need additional oversight. A more active U.S. role, especially in activities involving fuel services, would have multiple benefits. First, it would allow the IAEA to focus its efforts on those countries that are not part of the fuel services program and are often the sources of legitimate national security concerns, as opposed to spreading its resources across the entire nuclear industry. The reality is that most of the world presents little or no proliferation threat and requires only minimal related oversight. Second, it would provide a second opinion and another level of scrutiny for potential proliferation concerns. The U.S. and other fuel service suppliers should make their provision of fuel services contingent on verification of compliance.
- *Leading the world in developing new rules to govern commercial nuclear activities.* The United States should use the resurgence of nuclear power to reestablish itself as a player in the industry. The best way to position itself to compete is to ensure that the rules and norms of the global nuclear industry are consistent with America's strengths. This means ensuring that the system is based on free-market principles, openness, and transparency. However, doing this requires the U.S. to be fully engaged in the international commercial nuclear market. The rules that it creates in governing the commercial transactions between it and others could become the basis for all international nuclear trade as long as these agreements are practical, fair, and relevant. This means ensuring that agreements, such as 123 agreements, move forward in ways that respect proliferation concerns, but do not sacrifice commercial activity. If these agreements do not strike this balance, the U.S. will

be denied access to the global nuclear market while others step in to take its place.

- *Recognizing the enduring role of Article IV of the Nuclear Nonproliferation Treaty.* The reality is that any country can pursue whatever technologies that it chooses. As the article states, countries' rights to pursue peaceful nuclear technologies are "inalienable." This inalienability, however, is not absolute. It is contingent on states party to the NPT fulfilling their obligations and responsibilities under the pact. Any nonproliferation regime that does not respect the rights of individual states will not be successful. The key is not to deny others the right to develop technology, but to devise a system that promotes buy-in from both providers and consumers of nuclear fuel services. If the system is economically rational, credible, and reliable, then all peaceful nuclear countries would find participation beneficial. Only those that would seek to use nuclear technology for nefarious purposes would find benefits in operating outside of the system.

#### CONCLUSION

In conclusion, the current nonproliferation regime provides the international community with numerous tools to control the spread of dangerous nuclear materials. However, none of these tools can magically prevent a dedicated nation (or other international actor) from seeking dangerous capabilities. Such prevention requires the political will to use the available tools effectively. Furthermore, there will always be a struggle to keep technology of all sorts out of the hands of those who would use it for nefarious purposes. However, the existence of this struggle is not justification to deny society the benefit of critical technologies such as nuclear power.

That concludes my testimony today. Thank you for this opportunity. I look forward to your questions.

Mr. SHERMAN. Thank you and because I know he is going to be brief, I am going to recognize first for questions, Mr. Royce.

Mr. ROYCE. Thank you, Mr. Chairman. I am going to ask you each to be very succinct on this. You know Brad's view, and you know my view on it. What are the prospects for achieving an international agreement to avoid the NPT's so-called right to enrich uranium or reprocess plutonium which many nations of course now claim, and which would leave them uncomfortably close to possessing a nuclear weapon?

The chairman and I obviously view this as a misinterpretation, but a real quick assessment as to this question.

Mr. ALLISON. I think if put to a vote in the Board of Governors at the IAEA or at the U.N., the chances would be about zero to get agreement. So I think this is something that will have to be—number one. Secondly, I have tried to think about how it can be commanded or coerced—

Mr. ROYCE. Yes.

Mr. ALLISON [continuing]. And I do not think that seems likely either. I think what one might best hope for is that the Nuclear Suppliers Group would come to such an interpretation, which is in their interest, and would actually begin to enforce it. And since the technologies—

Mr. ROYCE. So do it through the nuclear fuel bank, we get the concurrence.

Mr. ALLISON. Right.

Mr. ROYCE. Yes.

Mr. ALLISON. But particularly with the Nuclear Suppliers Group.

Mr. ROYCE. Right.

Mr. ALLISON. But then over time trying to make this would take away the legitimate components of the concern, namely, if I am operating a nuclear power plant, how am I going to get fuel.

Mr. ROYCE. Right.

Mr. ALLISON. But secondly, simply do not provide the technologies that are required for enrichment or reprocessing or even specifically for producing a fuel assembly after you have enriched uranium. I mean, it is a dirty little secret but Iran's enrichment facility which will produce and has produced 4 percent enriched uranium which they say is for fuel for a nuclear power plant, which of course they have already bought the fuel and leased it forever so that is step one that is not too credible.

Step two is they cannot take that fuel and create a fuel assembly which is another technology which is significantly guarded by the companies that own it, and they should significantly guard it, and not provide it to Iran.

Mr. ROYCE. And as a generalist, Dr. Goldschmidt, do you agree with that general thrust?

Mr. GOLDSCHMIDT. Yes, I do. I agree but I would just like to add something if I could.

Mr. ROYCE. Yes, sir.

Mr. GOLDSCHMIDT. Concerning Article IV, one has to read it to the end which means these rights that is in the treaty is subject to compliance with Article I and II of the treaty, and I think this is very important, and that is probably where some progress can be made.

In that sense once a state has been found to be in noncompliance with its safeguards agreements or the NPT, then I think it is legitimate for the U.N. Security Council to decide that under those conditions the right for sensitive fuel cycle activities may be suspended, and I say suspended, not canceled but suspended.

Mr. ROYCE. And Jack your view?

Mr. SPENCER. I agree that it is virtually impossible, and whenever I say, to reiterate support for Article IV, it is not because I want everyone to have fuel services all over the place, but instead of focusing on something that we may never achieve, we should focus on creating a system that creates buy-in for the rest of the world so we can better focus our nonproliferation efforts.

Mr. ROYCE. But you agree that enrichment will undermine the NPT though, do you not?

Mr. SPENCER. Yes. Without question we need to control it.

Mr. ROYCE. Mr. Kittrie.

Mr. KITTRIE. I agree that the idea of an unconditional right to an entire fuel cycle is a misinterpretation of the NPT to which the Bush administration has unfortunately contributed. Somehow as Pierre mentioned, the last words in conformity with Articles I and II of this treaty seem to have been lost in the interpretation.

It seems to me very difficult to walk it back. It is really impossible to amend the NPT since you need every member of the IAEA Board of Governors has a veto over any NPT amendment. The best way to amend the NPT is with a Security Council resolution which is somewhat easier to get, a global legislative resolution like 1540, but barring that I think you need to rely on incentives and indeed on the NSG to create a situation where in practice countries are dissuaded from getting enrichment and reprocessing.

Mr. ROYCE. Thank you. Mr. Chairman, I yield back.

Mr. SHERMAN. Mr. Kittrie, I am intrigued by that last answer because I think it gives us our best chance to get the right interpretation. Which permanent members of the Security Council do you think would object to a Security Council resolution clarifying the NPT in the right way?

Mr. KITTRIE. That is a very good question to which I am afraid I do not have the answer. That would obviously be the key to get the P-5 on board. You would want to get the P-5 on board, and then you just need the support of four of the additional 11 Security Council members.

Mr. SHERMAN. I think if you get five, you get the other four. I do not know if anyone else has a response to that. Seeing none, I am going to move on to the next question.

Dr. Allison, you alluded to how American citizens would respond if they were hit with a nuclear weapon, particularly in their own ZIP code. When I was growing up, they had those bomb drills, and at that point it might have been kind of silly because if we were going to be hit by Soviet weapons, it would not have been one, it would have been at least 100, probably 1,000. There would be no medical care coming from outside my city, and in the words of Khrushchev, "the living would envy the dead."

If a single small nuclear weapon was exploded in one American city, I doubt the living would envy the dead. I would ask you to furnish for the record and others on the witness panel in particular current information about what the civil defense plans of the United States ought to be, and in particular, whether if the center of a city is hit, those half a mile, one mile, two miles from that center would be best to shelter in place or best to depart the area quickly.

Of course, we have no system of telling people which way the wind is blowing and which way they should be running, and I think the main reason for that is if we adopted civil defense, we would have to admit to the American people that there is a problem.

So I look forward to gathering that information. I will at least tell my constituents what to do and the Federal Government will ignore the other 434 districts.

Let us go back to the—

Mr. ALLISON. If I could just in that line—

Mr. SHERMAN. Yes.

Mr. SPENCER [continuing]. I would say that if one can only remember one thing, it would be first prevent.

Mr. SHERMAN. Yes.

Mr. ALLISON. But secondly, shelter in place.

Mr. SHERMAN. Rather than departing the area, even if that sheltering cannot be done underground, even if shelter in place—

Mr. ALLISON. Basically, one wants as much thick material between you and the radioactivity—

Mr. SHERMAN. Understood.

Mr. ALLISON [continuing]. So it does not need to be a basement. It can be within a building.

Mr. SHERMAN. Understood.

Mr. ALLISON. But inside, not by a window, not by an open window, and actually the speed at which the radioactive cloud diminishes and falls is about within 2 days.

Mr. SHERMAN. Yes.

Mr. ALLISON. So if a person has a normal Red Cross recommended domestic preparedness plan in which they have 3 days of water and food, if they stay inside for that period of time, their chances of surviving, if they are not in the hot zone, is quite good.

Mr. SHERMAN. We look forward to trying to get that information out.

I do not know which member of the panel to ask this, I will just see who wants to respond. Did the United States make a critical diplomatic mistake in seeming to acquiesce to the wrong interpretation of Article IV?

Mr. ALLISON. I think it is a wonderful question and extremely complicated, and Pierre—

Mr. SHERMAN. We have time for one word answers.

Mr. ALLISON. The footnote point would be yes, but Pierre has a different view and I think that maybe would be worth to hear.

Mr. GOLDSCHMIDT. No, I am not so sure there is a wrong interpretation.

Mr. SHERMAN. Well, the interpretation that I do not favor will be defined here and after as the wrong interpretation. Other than that, do you have a comment?

Mr. GOLDSCHMIDT. No, except to say what Graham said before. I mean, whether it is wrong or right, it is there and it is not going to be changed, and we have to find—

Mr. SHERMAN. I think Professor Kittrick has given us a way to go, and I yield to our vice chairman, Mr. Scott.

Mr. SCOTT. Thank you very much, Mr. Chairman. As you know, we have a vote so I have got about 3 minutes I think we can go before the bell goes down.

It has been 63 years since a nuclear bomb has been detonated that affected mankind so severely, that was in Nagasaki and Hiroshima. I would like to ask you how much more powerful is this weaponry now compared to then, knowing the damage that was done?

Then secondly, what is our greatest worry? What is the greatest threat to having a nuclear bomb go off in one our cities, or any other nation's cities that would affect human life, and by that I mean would it be a bomb on the black market?

Mr. SHERMAN. If I may interrupt, Mr. Scott. We have 3 minutes and 43 seconds to vote. Is it your preference to come back or just get the question out?

Mr. SCOTT. Yes, just—I am just getting at one of those quick answers. I think it is important for this hearing.

Mr. SHERMAN. We will get a quick answer then.

Mr. SPENCER. If I can just answer quickly. One, the bombs today are a lot bigger than they were then. The bombs that a terrorist might make would probably be along the same size as the Hiroshima/Nagasaki, but the technology is different, depending on who is giving those bombs.

I would like to answer that second question quickly, what I think is the greatest problem that we face as the United States when it



comes to nuclear terrorism today is that we wallow in our own arrogance while the rest of the world moves forward in a new era of renaissance, and we isolate ourselves from that process, and therefore are not prepared to influence it as much as we otherwise could because we remain wed to old ways of thinking.

Mr. SCOTT. Thank you.

Mr. ALLISON. Just real quick. I think the gravest threat is one bomb exploding in one city brought to us by somebody like Osama bin Laden who has been working on this problem for a long time, coming into the country illicitly and devastating the heart of one of our great cities, and as I argue in this nuclear terrorism book, I think the likelihood of that happening is quite real. Actually, I make it more likely than not within a decade, and I wrote that in 2004. That means I think 51 percent are more likely.

Secondly, the weapons on top of a missile today for the U.S. in terms of their destructive power would be thousands of times greater than Hiroshima. The kind of bomb that a terrorist will bring us looks like a ten kilo ton bomb which is about the size of Hiroshima.

Mr. SCOTT. Thank you. Thank you very much.

Mr. SHERMAN. Thank you.

Mr. SCOTT. Sobering news.

Mr. SHERMAN. Yes, I regret the votes have occurred. I would like to do a second round but we stand adjourned.

[Whereupon, at 12:30 p.m., the subcommittee was adjourned.]

