THE GLOBAL NUCLEAR REVIVAL AND U.S. NONPROLIFERATION POLICY

HEARING

BEFORE THE

COMMITTEE ON FOREIGN AFFAIRS
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THE GLOBAL NUCLEAR REVIVAL AND U.S. NONPROLIFERATION POLICY

THURSDAY, MARCH 17, 2011

HOUSE OF REPRESENTATIVES,
COMMITTEE ON FOREIGN AFFAIRS,
Washington, DC.

The committee met, pursuant to notice, at 9:48 a.m. in room 2172, Rayburn House Office Building, Hon. Ileana Ros-Lehtinen (chairman of the committee) presiding.

Chairman ROS-LEHTINEN. The committee will come to order.

After recognizing myself and my good friend, the ranking member, Mr. Berman, for 7 minutes each for our opening statements, I will recognize Mr. Royce and Mr. Sherman, the chairman and ranking member of the Subcommittee on Terrorism, Nonproliferation, and Trade, for 3 minutes each for their statements. We will then hear from our witnesses.

I would ask that you please limit your prepared statements to 5 minutes each before we move to the questions and answers with members under the 5-minute rule.

Without objection, your prepared statements will be made part of the record, and members may have 5 legislative days to insert statements and questions for the record subject to the limitations of length in the rules.

And I will excuse ourselves. Mr. Berman and I very soon will have to go to the floor to debate a resolution that is in our committee. So you will excuse us when we leave and not take it personally, I hope.

The Chair now recognizes herself for 7 minutes.

The tragedy in Japan continues to dominate the news. The scale of the devastation and suffering is unimaginable. Even though we watch in safety from the other side of the planet, I believe I speak for all of our committee members in saying that our hearts and our thoughts and our prayers are with the people of Japan during this terrible crisis, especially those who have lost loved ones and those whose lives have been unexpectedly upended and filled with despair.

The ongoing situation is of direct relevance to today's hearing. Many are already predicting that the global nuclear revival now under way will be stopped in its tracks by the images of exploding nuclear reactors, terrified refugees, and the prospect of huge areas rendered uninhabitable. These events have already begun to influence the debate over nuclear energy in the United States and in Europe.

However, China and other countries—especially in the Middle East—are unlikely to be deterred from their nuclear ambitions, and it is in these countries that are pursuing nuclear power for political aims, many for destructive goals, that the risk of proliferation is the greatest. Rogue nations attempting to build a nuclear weapons program need a nuclear energy program to use as cover.

We can be certain that the crisis in Japan will not persuade the Iranian regime to abandon its nuclear weapons program, nor should we expect North Korea to dismantle its recently revealed uranium enrichment program due to concerns that an accident could devastate the nearby population.

But the nuclear menace we face is broader than simply that of traditional nuclear weapons. The crisis in Japan is a dramatic demonstration of the real-world threat resulting from nuclear material over which we have lost control.

A radiological bomb that uses conventional explosives to disperse radioactive materials is a far more achievable goal for al Qaeda and other terrorist organizations than a nuclear device. We know that these groups are actively seeking these materials and have also targeted nuclear installations for destruction in the hope of spreading nuclear devastation. So the prospect of a sudden and widespread nuclear contamination in faraway Japan should remind us that we face an even greater threat from our self-proclaimed enemies who are even now planning to unleash it in the centers of our cities.

The crisis in Japan also shows us that even a country at the highest level of development with massive resources and legions of technicians, scientists, and officials may be unable to prevent a catastrophe. Therefore, spreading nuclear facilities to unstable regimes throughout the Middle East and the Third World, which often have only limited resources and expertise, is laying the groundwork for potential disaster and a vast expansion of proliferation opportunities. Russia and France are the most irresponsible in this regard, with their most senior officials acting as salesmen for their state-owned nuclear cooperations. But we are not innocent ourselves. At a minimum, we should be not be contributing to the program with politically driven nuclear cooperation agreements.

The Atomic Energy Act, which governs these agreements, was written in an era when safe, clean nuclear energy was the hope of the future and proliferation concerns were minimal. Over the years, tougher provisions have been written into the Act, but the situation remains far from satisfactory.

A key problem is that Congress has little influence largely because these agreements automatically go into effect unless those seeking to stop them can secure veto-proof majorities in both Houses, a high hurdle indeed. But when writing the law Congress never intended for our long-term national security interests to be made subordinate to short-term political concerns. So Congress must act to fix this problem, especially by requiring that nuclear cooperation agreements receive an affirmative vote before going into effect.

I plan to introduce legislation to give Congress that power and also to strengthen the nonproliferation provisions in all future nuclear cooperation agreements. Several other Members on both sides

of the aisle are considering similar legislation, and I hope to work with them to craft a bipartisan bill that can be passed by this committee quickly, and hopefully unanimously.

The crisis in Japan has also graphically demonstrated that the nuclear threat we face is far more than just simply an accident at electricity plants. We have enemies, non-state actors and rogue regimes, who are working to bring about an even greater disaster here, not as an act of God but, instead, of conscious design. Our laws and our policies must address this threat before it is too late.

I am now pleased to recognize my friend, the ranking member, Mr. Berman, for his opening remarks.

[The prepared statement of Chairman Ros-Lehtinen follows:]

Remarks of the Honorable Ileana Ros-Lehtinen
Chairman, Committee on Foreign Affairs
Hearing on: "The Global Nuclear Revival and U.S. Nonproliferation Policy"
March 17, 2011

The tragedy in Japan continues to dominate the news. The scale of the devastation and suffering is unimaginable. Even though we watch in safety from the other side of the planet, I believe I speak for all of the Committee members in saying that our hearts and thoughts are with the people of Japan during this terrible crisis, especially those who have lost loved ones and those whose lives have been unexpectedly upended and filled with despair.

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These events have already begun to influence the debate over nuclear energy in the U.S. and Europe. However, China and other countries, especially in the Middle East, are unlikely to be deterred from their nuclear ambitions. And it is in these countries pursuing nuclear power for political aims, many for destructive goals, that the risk of proliferation is the greatest.

Rogue nations attempting to build a nuclear weapons program need a nuclear energy program to use as cover. We can be certain that the crisis in Japan will not persuade the Iranian regime to abandon its nuclear weapons program. Nor should we expect North Korea to dismantle its recently revealed uranium enrichment program due to concerns that an accident could devastate the nearby population.

But the nuclear menace we face is broader than simply that of traditional nuclear weapons. The crisis in Japan is a dramatic demonstration of the real-world threat resulting from nuclear material over which we have lost control. A radiological bomb that uses conventional explosives to disperse radioactive materials is a far more achievable goal for al Qaeda and other terrorist organizations than a nuclear device.

We know that these groups are actively seeking these materials and have also targeted nuclear installations for destruction in the hope of spreading nuclear devastation. So the prospect of sudden and widespread nuclear contamination in far-away Japan should remind us that we face an even greater threat from our self-proclaimed enemies, who are even now planning to unleash it in the centers of our cities.

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catastrophe. Therefore, spreading nuclear facilities to unstable regimes throughout the Middle East and the Third World, which often have only limited resources and expertise, is laying the groundwork for potential disaster and a vast expansion of proliferation opportunities.

Russia and France are the most irresponsible in this regard, with their most senior officials acting as salesmen for their state-owned nuclear corporations. But we are not innocent ourselves. At a minimum we should not be contributing to the problem with politically-driven nuclear cooperation agreements.

The Atomic Energy Act, which governs these agreements, was written in an era when safe, clean nuclear energy was the hope of the future and proliferation concerns were minimal. Over the years, tougher provisions have been written into the Act, but the situation remains far from satisfactory.

A key problem is that Congress has little influence, largely because these agreements automatically go into effect unless those seeking to stop them can secure veto-proof majorities in both houses, a high hurdle indeed. But when writing the law, Congress never intended for our long-term national security interests to be made subordinate to short-term political concerns.

So Congress must act to fix this problem, especially by requiring that nuclear cooperation agreements receive an affirmative vote before going into effect. I plan to introduce legislation to give Congress that power and also to strengthen the non-proliferation provisions in all future nuclear cooperation agreements. Several other members on both sides of the aisle are considering similar legislation, and I hope to work with them to craft a bipartisan bill that can be passed by this Committee quickly and, hopefully, unanimously.

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Mr. BERMAN. Well, thank you very much, Madam Chairman.

Before I start my opening statement, I would like simply to apologize in the same sense that the chairman just did. We have a resolution on the floor that invokes the War Powers Act provisions. We will have to manage it. I cannot think of a hearing we will be holding that I more wanted to be present at for its entire time, but there are people other than us who scheduled these things, and we are stuck with living with the consequences of their scheduling.

Madam Chairman, thank you very much for holding this hearing. For several years it has been an article of faith that the world is experiencing a nuclear renaissance or revival, a post-Chernobyl era in which civilian nuclear power is increasingly seen as a solution to energy challenges around the globe. That faith collided with a hard reality in Japan this week, and the frightening events in that country which are still unfolding today will undoubtedly force a rethinking both here and abroad about the expansion of civil nuclear power as well as a fundamental reexamination of the dangers that nuclear reactors must be able to withstand.

The nuclear revival may ultimately be little more than a nuclear blip. However, for the time being, many countries, including the United States, are interested in nuclear power, in part due to its

attractiveness as a carbon-neutral energy source. Given that over 50 new reactors are under construction worldwide, it is critical that we take steps to deal with the potential nonproliferation consequences of this expansion.

More reactors require more nuclear fuel, which requires more capacity to enrich uranium. More reactors produce more nuclear waste, which means more opportunities to extract plutonium through reprocessing. Both mean more potential material for nuclear bombs. Therein lies the danger.

The nuclear revival has a double meaning, a revival of civil nuclear energy and, as a consequence of more enrichment and reprocessing, the possible resurrection of the nightmare once voiced by President Kennedy, a world populated with dozens of nuclear-armed countries. And to that nightmare we can add one he didn't foresee, the age of the nuclear terrorist.

Last week, I watched a very important documentary, "The Nuclear Tipping Point," which I recommend to my colleagues and everyone during this hearing today. In this film, four of our most respected statesmen on national security—William Perry, who is with us today; George Schultz; Sam Nunn; and Henry Kissinger—discuss the terrifying prospect of terrorists obtaining nuclear material for a nuclear weapon or, as the chairman mentioned, for use in a radiological bomb.

As the film points out, the knowledge required to make a crude nuclear weapon has proliferated over the last 10 or 15 years. The material to fuel a nuclear explosive is spread all over the world, and it is clear that terrorist groups like al Qaeda are seeking this material and wish to make weapons.

It has been estimated there are 1,600 tons of highly enriched uranium and 500 tons of separated plutonium in stocks worldwide. Most of these materials are in the U.S., Russia, China, U.K., France, and Japan. However, about seven tons of highly enriched uranium—enough for some 300 nuclear weapons—reside in other countries.

The Obama administration has made securing these stockpiles of nuclear materials a top priority. At last year's unprecedented Nuclear Security Summit, the U.S. got agreement from over 40 heads of state for our 4-year effort to secure nuclear material worldwide. So far, that has resulted in the removal of 120 kilograms of enriched uranium from other countries and agreements to remove 220 more.

Another high priority should be negotiating a new agreement with Russia to eliminate all tactical nuclear weapons. These small but powerful weapons, of which Russia has thousands, are undoubtedly on the wish list of al Qaeda and other terrorist groups.

In addition to securing nuclear materials and loose nukes, the Nuclear Nonproliferation Regime must be strengthened—and here I stand with the chairman—to better address the enrichment of uranium and the reprocessing of spent fuel. So far, efforts to limit the spread of these technologies have met with limited success. With Iran's and North Korea's development of these technologies, aided in large part by the A.Q. Khan network, they have become even more difficult to control. That is why the recent U.S.-UAE Nuclear Cooperation Agreement is so important.

The UAE, on its own, decided to foreswear enrichment and reprocessing. When the U.S. asked them if they would formalize that in a legally binding commitment within the cooperation agreement, they readily agreed. And this applies not only to nuclear fuel and equipment provided by the United States but by any country.

A State Department spokesman has since called this the gold standard for nuclear cooperation agreements, and I agree. The U.S. should seek its equivalent for every new nuclear cooperation agreement that it negotiates in the future. We should consider making this and a number of other items a statutory requirement in the Atomic Energy Act, along with the requirement that every country must adopt an Additional Protocol for safeguards to ensure that the IAEA has all the necessary authority to investigate any and all proliferation concerns.

Finally, the administration will use all its influence to convince the other nuclear supplier states to adopt the same nonproliferation and security conditions in their agreements that we observe in ours, especially when those same suppliers are seeking nuclear business in the United States.

And if I could just parenthetically add in my remaining time, yesterday we had a hearing on the whole issue of aid levels and the deficit, and there were a lot of differences between our parties on some of these issues. On the issue which the chairman talked about moving ahead on and the whole question of our approach to this tremendously important subject on proliferation, I believe the opportunity for close and bipartisan work exists, and I look forward to working with the chairman and the other members of the committee to move ahead on this issue.

With that, I yield back the balance of my time.

Chairman ROS-LEHTINEN. Thank you, Mr. Chairman, I do look forward to that as well.

Mr. Sherman, the ranking member of the pertinent subcommittee, is recognized for his opening statement.

Mr. SHERMAN. Thank you, Madam Chairwoman.

I want to echo your comments and those of others about our concern for our friends and allies in Japan. We hope Japanese authorities get the upper hand and resolve this crisis. The people of Japan are in our prayers. We should do whatever we can to help the people of northern Japan, especially to help contain the reactor problem.

It is too early for a verdict on how this is going to affect nuclear power expansion. No doubt many countries will be reluctant, at least for a while, to move forward. But, given global warming, given the cost of energy, I suspect that within a few years countries will go forward with nuclear power.

I commend the chairwoman for holding these hearings. We held hearings in the Terrorism, Nonproliferation, and Trade Subcommittee and the full committee last year on this very topic. We need to reform the Atomic Energy Act, and I commend the chairwoman for her decision to introduce legislation to do just that. I look forward to working with all of our colleagues here on this committee in that effort.

The Atomic Energy Act should provide that, unless a nuclear cooperation agreement includes four particular provisions, it will re-

quire congressional approval by an act of Congress. The chairwoman explained how illusory Congress' involvement is under the present system, and this will give an incentive to our negotiators and to the other side to have these four provisions in the agreement.

First, the other states should adopt the Additional Protocol. Second, the other states should agree to forego the supposed right to enrich and reprocess. Third, the partner countries should agree to control access to facilities in such a way that personnel from Iran, North Korea, Syria, and, depending upon developments in the next few weeks, Libya, are not invited to the facilities. And, finally, the partner nation should provide for a liability scheme that allows private companies, such as U.S. companies, to participate in the development of nuclear power.

What is the point of us going forward with an agreement if the only companies that can participate—and we are seeing this problem in India—are those who can claim sovereign immunity, such as those from Russia, France, and perhaps in the future China?

We are told that the UAE agreement is the gold standard. It contains only the first two of those provisions, so I would call it the "bronze standard." Let's say that, unless an agreement meets the gold standard, it requires an act of Congress to put into effect.

I yield back.

Chairman ROS-LEHTINEN. Thank you so much, Mr. Sherman; and now the chairman of the Nonproliferation Subcommittee, Mr. Royce, is recognized for 3 minutes.

Mr. ROYCE. Thank you very much, Madam Chair.

I think all of us feel and want to convey that our thoughts are with the Japanese people. We all understand that our ally has had to endure an earthquake, a tsunami and now a nuclear crisis. That crisis is growing, and certainly we have some lessons to learn.

As members of this committee, a top task of this committee, something we should all be mindful of, is that one of our responsibilities is to help ensure that nuclear material is out of the hands of terrorists and also out of the hands of terrorist states. I think the global expansion of nuclear power has greatly complicated that task. There are nearly 550 nuclear power reactors under construction or planned or proposed around the world today; and, post-Japan, we will see how many of these on the drawing board survive in the coming months and the coming years. But, with rising populations and rising energy costs, nuclear power will remain attractive for many of these countries.

Some of the countries that are looking at nuclear energy include Belarus and Kazakhstan and Vietnam. The technical and infrastructural sophistication of these countries pales in comparison to Japan. How able would they respond? How capable are they going to be to respond to disaster? The seemingly poor performance of the IAEA in response to Japan's crisis is what heightens our concerns.

Of course, the central problem is that it can be a sprint from a civilian to a military nuclear program, certainly not a marathon. It is the enrichment and reprocessing aspects of the fuel cycle that puts nuclear weapons within reach. This is the key bomb-making technology.

Notwithstanding its reported troubles, Iran continues to increase its supply of enriched uranium; and, last fall, North Korea unveiled a uranium enrichment plant, the sophistication of which took many of us by surprise. Experts estimate that these centrifuges are four times as powerful as those spinning at Natanz. And another piece of information, other North Korean sites are likely.

To handle concerns about enrichment and reprocessing, the U.S. Nuclear Cooperation Agreement with the UAE included a commitment to forego those sensitive technologies and ratify the Additional Protocol. But other countries, including Jordan and Vietnam, are balking at accepting these conditions.

The administration will soon have to decide whether it wants to advance the nonproliferation ball or not. And, Madam Chair, as you have argued, Congress should reclaim powers it surrendered to the executive branch long ago in a different era. We need to act so Congress positively, not passively, approves nuclear cooperation agreements.

Thank you.

Chairman ROS-LEHTINEN. Amen. Thank you so much.

And thank you to the excellent set of panelists that we have here before us this morning.

Our first witness is Olli Heinonen. He is the former Deputy Director General of the International Atomic Energy Agency and head of its Department of Safeguards. He is currently a senior fellow at the Belfer Center for Science and International Affairs at the Kennedy School of Government at Harvard.

In addition to his many years of responsibility at the IAEA regarding the nuclear program of Iran, the A.Q. Khan nuclear black market network, and other nonproliferation challenges, Mr. Heinonen lived and worked in Japan for many years and has direct experience with the crippled reactors now in the news.

We thank you for appearing before us today. We look forward to your expert testimony.

Next we have William Perry, who is well-known to all of us. From 1994 to 1997, Mr. Perry served as the Secretary of Defense in the Clinton administration. Currently, he is the Michael and Barbara Berberian professor emeritus at Stanford University. He is a senior fellow at the Institute for International Studies at Stanford and serves as co-director of the Nuclear Risk Reduction Initiative and the Preventative Defense Project.

Mr. Perry, we are all aware of your long and distinguished record of public service, and we are fortunate to have you here with us today.

Also appearing before us today is Henry Sokolski, who is the executive director of the Nonproliferation Policy Education Center. He currently serves as an adjunct professor at the Institute of World Politics in Washington, DC, and was a member of the Congressional Commission on the Prevention of Weapons of Mass Destruction, Proliferation and Terrorism. He previously served as Deputy for Nonproliferation Policy in the Department of Defense. Mr. Sokolski has been a valuable resource for this committee for many years, and we are pleased to have him with us again today.

Finally, we welcome Gene Aloise. Mr. Aloise is the Director of the National Resources and Environment Team at the Government

Accountability Office, where he is GAO's recognized expert in international nuclear nonproliferation and safety issues. Mr. Aloise is the lead author of the GAO's March, 2009, report on the extensive nuclear assistance being provided to Iran, Syria, Sudan, and Cuba by the IAEA Technical Cooperation Program. Our committee, as well as the rest of Congress, turns routinely to GAO for its expert investigation and analysis; and we thank you, Mr. Aloise, for taking the time to appear before us today.

As I have stated, your written remarks will be made a part of the official record, and we would appreciate if you would summarize your testimony to 5 minutes.

We will begin with Mr. Heinonen. Thank you.

STATEMENT OF MR. OLLI HEINONEN, SENIOR FELLOW, BELFER CENTER FOR SCIENCE AND INTERNATIONAL AFFAIRS (FORMER DEPUTY DIRECTOR GENERAL OF THE INTERNATIONAL ATOMIC ENERGY AGENCY AND HEAD OF ITS DEPARTMENT OF SAFEGUARDS)

Mr. HEINONEN. Chairman Ros-Lehtinen, Mr. Berman, and distinguished members of the committee, thank you for inviting me to discuss the nuclear challenges posed by Iran, North Korea, and Syria.

During those three decades which I served in the IAEA, global nuclear dangers have only become greater and more complex, while the policies to manage these threats have remained stagnant.

The international community must pay greater attention to future cases of noncompliance with the Nuclear Non-proliferation Treaty and other nonproliferation obligations, cases which, if not resolved in a timely manner, will erode the credibility of the whole verification system. We also need to be better prepared to deal with states that acquire nuclear technology as a member of the treaty and then may withdraw to pursue a military nuclear program.

The cases of Iran, North Korea, and Syria highlight the fact that the international community has allowed too much stalling and obfuscation in resolving safeguards compliance issues and broader nuclear concerns. In my written statement I focus on those cases, so I won't here, but I will go straight to the recommendations which I have in my mind.

So what can be done? There are actually several policy options which we could consider.

First, whenever special arrangements are negotiated—whether it is an agreed framework, whether it is P5 plus 1 agreements with Iran, negotiators must draw red lines with clearly stated consequences when those lines are crossed.

In addition, it should be made clear that punitive actions would be reversed when proliferators abide by the rules.

Then there are a lot of proposals to make IAEA reporting more transparent, safeguards implementation report. Tackle the problem cases in the beginning, then it is much easier to solve them.

Similarly, the IAEA should perhaps brief the United Nations Security Council in a frequent manner; and the IAEA has also to take care of its own Technical Cooperation Program. Every state who receives this report could be reviewed to ensure that the support will be provided only to states in good standing with their obligations,

and those supports will be provided exclusively for the peaceful use of atomic energy.

Additional protocols should be universalized. There are still close to 20 countries which have substantial nuclear programs without an Additional Protocol. We must work at making the Additional Protocol a precondition for future nuclear supply arrangements. In addition, we need to keep in mind that the IAEA should use vigorously all legal instruments in its use, including the provision for special inspections.

With regard to the black market and covert trade networks, the IAEA is currently maintaining an Illicit Trafficking Database. This should be extended to include not only successful cases but the attempts to acquire nuclear materials and radioisotopes, and perhaps even to extend it to cover single-use items, dual-use items, et cetera. The IAEA should also have a mandate to investigate those cases, not just report only. And, most importantly, the IAEA has to have adequate financial and human resources to take care of these tasks.

Those are just a snapshot of the recommendations which I make. Some of these challenges are technical in nature, others deal with resources and funding, and others are a question of political will. Whatever the scenario, we cannot be complacent about our concerns over the potential spread of nuclear weapon technologies and capabilities.

It is also important to see nuclear safety, security, and safeguards—Triple S, as we call them—as an integral system to ensure that nuclear energy is used safely, securely, and peacefully, in particular in the states which are just embarking on their nuclear programs.

Along with my colleagues, my past years at the IAEA have been dedicated to putting in place a strong and workable international safeguards system that was achievable, but the job is far from being done. Ultimately, the choice of pursuing nuclear power under a predicted nuclear renaissance cannot be a choice that results in endangering and unraveling efforts aimed at strengthening global nuclear governance.

Thank you.

[The prepared statement of Mr. Heinonen follows:]

The Global Nuclear Revival and U.S. Nonproliferation Policy

Olli J. Heinonen

Senior Fellow

Belfer Center for Science and International Studies

Harvard Kennedy School

Chairwoman Ros-Lehtinen, Congressman Berman, and members of the Committee, thank you for inviting me to discuss the nuclear challenges posed by Iran, North Korea, and Syria.

I served at the International Atomic Energy Agency (IAEA) for nearly three decades. In this time, global nuclear dangers have only become greater and more complex, while the policies to manage these threats have remained stagnant. Indeed, the international community must pay greater attention to future cases of non-compliance with the Nuclear Non-proliferation Treaty (NPT) and other non-proliferation obligations: cases which, if not resolved in a timely manner, will erode the credibility of the verification system. We also need to be better prepared to deal with states that acquire nuclear technology as a member of the Treaty and then may withdraw to pursue a military nuclear program.

The cases of Iran, North Korea and Syria highlight the fact that the international community has allowed too much stalling and obfuscation in resolving safeguards compliance issues and broader nuclear concerns. I will focus on the dangerous precedents set by these three states and conclude with a few recommendations of what can be done.

Iran, North Korea, and Syria: Challenges for the IAEA

1. A Comprehensive Safeguards Agreement (CSA) is a binding agreement between a state and the IAEA. It grants the Agency permission to conduct activities to verify a state is abiding by its international obligations not to divert nuclear material or technologies to a nuclear military program. The state on its part is also obliged to declare their nuclear facilities and material and subject them to IAEA safeguards. In all three cases, the IAEA has faced challenges accessing information deemed necessary to fulfil its verification obligations under the CSA. Iran and North Korea have also not heeded to demands contained in multiple United Nations Security Council Resolutions (UNSCR).

2. All three states have declared potential nuclear related locations as non-nuclear military sites and denied access to the IAEA on the grounds that an inspection would reveal sensitive national security information. In the cases of Iran and North Korea, access has been denied even though the IAEA has been requested by the UNSC to investigate certain allegations or confirm either IAEA findings or statements of the state.

3. Despite several UNSC resolutions and regular requests of the IAEA Board of Governors, since August 2008, Iran has refused to address IAEA concerns about the possible military dimension of its nuclear program. Tehran argues that IAEA requests are driven by baseless accusations and fabricated information and has yet to engage in any substantial discussions with the Agency on these matters.

4. All three states have conducted nuclear activities for extended periods of time in breach of their CSAs. When the IAEA discovered these transgressions, all three first concealed their activities, providing the IAEA with correct data only after being confronted with solid evidence.

5. Iran reverted from its earlier agreement to implement provisionally the Additional Protocol (AP), which it had previously signed. While the CSA focuses on providing assurances only on the state's declared nuclear material and activities, the AP takes a step further to extend IAEA assurances to verifying the absence of undeclared nuclear activities. Without the legally required consent of the IAEA, Iran also ceased implementation of Subsidiary Agreement 3.1. This is significant because Code 3.1 provides the Agency with a description of a nuclear facilities design information long before nuclear material is introduced. When the Fordow Fuel Enrichment Plant at Qom was exposed in 2009, Iran claimed that since Code 3.1 was not in

effect, construction of this covert enrichment facility was not in breach of its Safeguards Agreement. Tehran has stated that it will continue to design and build additional enrichment plants and other nuclear facilities which the IAEA will know only at a later stage.

6. The Agreed Framework between the U.S. and North Korea restricted IAEA inspection rights to a limited number of facilities and buildings in the Yongbyon area. The 2007 Monitoring Agreement that was the result of the 6-Party talks put additional restrictions on the IAEA by not permitting verification of nuclear materials in any shut-down facilities. As a result, in the last 15 years, North Korea was able to develop a uranium enrichment program most likely to produce uranium hexafluoride, and engage in exports without reporting them to the IAEA.

7. Iran continues to proceed with enrichment. The IAEA is able to verify the non-diversion of declared nuclear material but is unable to confirm that all nuclear material in Iran is in peaceful activities.

What Can Be Done?

8. Several policy options can be considered. Negotiators must draw red lines, with clearly stated consequences when those lines are crossed. In addition, it should be made clear that punitive actions would be reversed when proliferators abide by the rules. There are proposals to make the IAEA's annual safeguards implementation report more transparent. This could have deterrence value and be able to tackle the problems at an earlier stage when they might be more easily resolvable. Another avenue is to provide more regular IAEA briefings to the UNSC on nuclear security and safeguards matters. The principles that underlie the IAEA's technical co-operation with a state could be reviewed to ensure that support will be provided to states in good standing with their obligations, and will be provided exclusively in the service of the peaceful use of atomic energy.

9. The AP addresses the limitation of traditional safeguards by allowing the IAEA to detect, as well as deter, undeclared nuclear activities. Today, the AP is a necessary and needed tool that would help raise early red flags in terms of safeguards violations. It is in the interest of all concerned with combating proliferation to see the AP as a safeguards norm, and work towards its universalization. There are more than 100 countries today with the AP in force but it remains absent particularly in countries where it is needed most. Indeed, there are close to 20 countries with substantial nuclear

programs but without an AP. We also need to go beyond universalization. Though it may be resisted by certain quarters, we must work at making the AP a pre-condition for future nuclear supply arrangements. In addition, the IAEA should use vigorously all legal instruments in its use, including the provision for special inspections.

10. An additional challenge is the emergence of black markets in nuclear technology facilitated through global, covert trade networks. These traders conceal their clandestine shipments of dual-use equipment within legitimate trade, often taking advantage of weaknesses such as non-verification of end-user certificates in export control systems. The networks have also provided single use items such as centrifuges, uranium hexafluoride production equipment, and even information about nuclear weapon design. The IAEA maintains the Illicit Trafficking Database, which covers cases involving radioactive or nuclear material. But the database does not cover trafficking attempts. There is currently no existing database for the trafficking of single or dual-use items. We should consider mandating the IAEA to investigate and report on all nuclear technology related trafficking cases, including those involving organized crime and trafficking of nuclear material items that have not only succeeded but also those attempts that have failed. Such a comprehensive database would provide a more accurate and holistic picture that would feed into the larger process of data analysis of nuclear trafficking activities conducted. In addition, the IAEA needs to have a robust monitoring and evaluation program to ensure that its own technical cooperation support is not used for non-peaceful purposes.

11. Safeguards alone cannot provide full guarantees against nuclear non-proliferation but it remains an important first line of defence to prevent and detect any proscribed nuclear activity. For this reason, the international community must ensure that this barrier remains strong, and should take steps to make it stronger. The IAEA should be given the resources commensurate with the task at hand. To this end, the United States has been at the forefront in promoting a system of advanced safeguards approaches and technologies in the face of an increased demand for verification activities. Your continued support over the coming years is both welcomed and vital.

The above provides a snapshot on some of the key international challenges to the non-proliferation regime, and in particular, the international safeguards system. Some of the challenges faced are of a technical nature, others deal with resources

and funding, and yet others are a question of political will. Whatever the scenario, we cannot be complacent about our concerns over the potential spread of nuclear weapon technologies and capabilities.

It is also important to see nuclear safety, security, and safeguards ("Triple S") as an integral system to ensure that nuclear energy is used safely, securely, and peacefully. In particular, states embarking on their nuclear programs need to understand the long-haul undertakings involved, be prepared to make the necessary investments, and take their "Tripe S" responsibilities seriously when deciding to develop nuclear power. Public acceptance and governmental support can only be assured if one's own nuclear power can be demonstrated to be safe, secure and safeguarded to the highest standards.

Along with my colleagues, my past years at the IAEA have been dedicated to putting in place as strong and workable an international safeguards system that was achievable. But the job is far from done. My brief testimony only provides a flavour of the on-going challenges and the looming dangers on the horizon. Ultimately, the choice of pursuing nuclear power under a predicted nuclear 'renaissance' cannot be a choice that results in endangering and unravelling efforts aimed at strengthening global nuclear governance.

Thank you.

Mr. ROYCE [presiding]. Secretary Perry.

STATEMENT OF THE HONORABLE WILLIAM J. PERRY, FORMER SECRETARY OF DEFENSE, SENIOR FELLOW, HOOVER INSTITUTION

Mr. PERRY. I want to start off by commending this committee for taking on such a vitally important issue.

The potential danger of nuclear power has been dramatically illustrated in Japan. Indeed, my heart goes out to my Japanese friends. I believe that the problem with reactors in Japan is going to get much worse before the situation finally is under control.

Additionally, I have a concern about North Korea. Besides the uranium enrichment program already mentioned in North Korea, the North Koreans have taken to building their own light water reactor. One can only imagine the safety issues there are going to be with this homemade design they are pursuing.

An even greater danger, however, is if nuclear weapons fall into the hands of a terror organization. This is a serious threat to the country for which the traditional forms of deterrence are simply not applicable. Preventing nuclear terrorism is closely tied to stopping the proliferation of nuclear weapons and the proliferation of fissile material, and recent developments in North Korea and Iran suggest that we may be at a tipping point in nuclear proliferation.

While the programs that maintain our deterrence are national, the programs that prevent proliferation and safeguard weapons

and fissile material are both national and international. Indeed, it is clear we cannot meet the goal of reducing the proliferation threat without substantial international cooperation. We cannot go it alone on this crucial issue. The nations whose cooperation is most critical are at risk of nuclear proliferation as much as we, so we should be able to get that cooperation.

The international programs that are most effective in containing and rolling back proliferation can sometimes be in conflict with national programs designed to maintain deterrence. Therefore, a strategic posture for the United States that meets both of these security requirements will necessarily have to strike a balance that supports both of these needs.

The need to strike such a balance has been recognized at least since the end of the Cold War. President Clinton's policy on nuclear posture spoke of the need to lead but hedge. That policy called for the United States to lead in the reduction of nuclear arms, to lead in programs that prevent proliferation, but hedge against adverse political developments.

The leadership aspect of this policy was demonstrated most vividly by a cooperative program with Russia established under the Nunn-Lugar Act that dismantled about 4,000 nuclear weapons in Ukraine, Belarus, and Kazakhstan, a significant contribution to a safer world. U.S. leadership has also been demonstrated by three treaties: The Comprehensive Test Ban Treaty, the Moscow Treaty, and New START. I believe that the United States must continue to support programs that both lead and hedge, that is, programs that move in two parallel paths, one path that protects our security by maintaining deterrence and the other path which protects our security by reducing the danger of nuclear weapons.

The first path of deterrence is spelled out in the Nuclear Posture Review, and I do not plan to discuss that further in this hearing. The second path, reducing the danger, does include the following components: First, re-energized efforts to reverse the nuclear proliferation in North Korea and prevent the nuclear proliferation in Iran. Secondly, negotiate further arms reduction treaties with Russia that make additional reductions in the nuclear stockpiles of Russia and the United States. Third, seek an international Fissile Material Cutoff Treaty and redouble domestic and international efforts to secure all stocks of fissile material. And, finally, strengthen the International Atomic Energy Agency. In particular, work with the IAEA to promote universal adoption of the Additional Protocol to the Nuclear Non-Proliferation Treaty.

In sum, we should reject the vision of a future world defined by a collapse of the nonproliferation regime and work for a world of cooperation among the major powers. Thank you.

[The prepared statement of Mr. Perry follows:]

HOUSE FOREIGN AFFAIRS COMMITTEE TESTIMONY

DR. WILLIAM J. PERRY

For Hearing on 17 March, 2011

When one considers the destructive power of nuclear weapons, it is not surprising that the American nuclear posture has been, and will continue to be, highly controversial. What is surprising is the extent to which there is broad agreement on numerous issues related to our deterrent capabilities, nonproliferation initiatives and arms control strategies, which I believe are the three key components of U.S. strategic posture in the years ahead.

There is broad agreement that the nation must continue to safeguard our security by supporting military and intelligence programs that maintain our deterrence force. At the same time, we must also safeguard our security by supporting largely non-military programs that prevent the proliferation of nuclear weapons to other states, that reduce the number of nuclear weapons worldwide, and that provide better protection for the residual nuclear forces and fissile material. Both approaches are necessary for America's future; each can and should reinforce the other; and neither by itself is sufficient as long as nuclear weapons still exist in the world.

Nuclear weapons were a safeguard to our security for decades during the Cold War by deterring an attack on the U.S. and its allies. We will need them to continue to perform this deterrence role as long as others possess nuclear weapons. On the other hand, if nuclear weapons were to fall into the hands of a terror organization, they could pose an extremely serious threat to our security, and one for which traditional forms of deterrence would not be applicable, given the terrorist mindset. We must be mindful that Al Qaeda, for example, has declared that obtaining a nuclear weapon is a "holy duty" for its members. Preventing nuclear terrorism is closely tied to stopping the proliferation of nuclear weapons, and recent developments in North Korea and Iran suggest that we may be at or near a tipping point in nuclear proliferation. (The urgency of stopping proliferation is articulated compellingly in the recent WMD Commission report: "World at Risk.")

While the programs that maintain our deterrence force are national, the programs that prevent proliferation and safeguard nuclear weapons and fissile material are both national and international. Indeed, it is clear that we cannot meet our goal of reducing the proliferation threat without substantial international cooperation. We cannot "go it alone" on this crucial security issue, nor need we, given that the nations whose cooperation is most critical are at risk from nuclear proliferation as much as we. But the international programs that are most effective in containing and rolling back proliferation can sometimes be in conflict with the national programs designed to maintain deterrence. Thus a strategic posture for the U.S. that meets both of these security requirements will necessarily have to make some tradeoffs between these two important security goals when they are in conflict. Some security analysts give a priority to dealing with one threat while others give a priority to dealing with the other threat. But it is clear to most

analysts that the key issue is how to strike a balance that supports, to reasonable levels, both of these security needs.

The need to strike such a balance has been with us at least since the ending of the Cold War. President Clinton's policy on nuclear posture spoke of the need to "lead but hedge". That policy called for the U.S. to lead the world in mutual nuclear arms reductions and to lead in programs to prevent the proliferation of nuclear weapons, while at the same time maintaining a nuclear deterrent force that hedged against adverse geopolitical developments. The leadership aspect of this policy was demonstrated most vividly by a cooperative program with Russia, established under the Nunn-Lugar Program that dismantled about 4,000 former Soviet nuclear weapons and assisted Ukraine, Belarus and Kazakhstan in removing all of their nuclear weapons - a significant contribution leading to a safer world. U.S. leadership has also been demonstrated by its efforts on three treaties: the Comprehensive Test Ban Treaty, (signed during the Clinton administration but not ratified), the Moscow Treaty (signed during the Bush administration), and New START (signed during the Obama administration).

I believe that the U.S. must support programs that both lead and hedge; that is, programs that move in two parallel paths --- one path which protects our security by maintaining deterrence, and the other which protects our security by reducing the danger of nuclear weapons.

The first path, "Deterrence," is described in some detail in the administration's Nuclear Posture Review, and I agree with the policies and programs spelled out in that review.

The second path, "Reducing the Danger," includes the following components:

- Re-energize efforts to reverse the nuclear proliferation of North Korea and prevent the nuclear proliferation of Iran. Seek global cooperation to deal with other potential proliferation concerns arising from the anticipated global expansion of civilian nuclear power.

- Negotiate arms reduction treaties with Russia that make significant reductions in the nuclear stockpiles of Russia and the United States. The treaties should include verification procedures and should entail real reductions, not just a transfer of weapons from deployed to reserve forces. New START, ratified by the Senate in December, meets all of these requirements. Follow-on treaties should seek deeper reductions, which would require finding ways of dealing with "tactical" nuclear forces, reserve weapons and engaging other nuclear powers.

- Seek an international Fissile Material Cutoff Treaty, as President Obama has called for, that includes verification procedures, and redouble domestic and international efforts to secure all stocks of fissile material, steps that would discourage both nuclear proliferation and nuclear terrorism.

- Seek to strengthen the International Atomic Energy Agency (IAEA) in its task to prevent the proliferation of nuclear weapons to other nations and control access to

fissile material. In particular, work with the IAEA to promote universal adoption of the Additional Protocol to the NPT, which would allow extra inspections of suspected nuclear facilities as well as declared facilities.

- Augment funding for threat reduction activities that strengthen controls at vulnerable nuclear sites. The surest way to prevent nuclear terrorism is to deny terrorist acquisitions of nuclear weapons or fissile materials. An accelerated campaign to close or secure the world's most vulnerable nuclear sites as quickly as possible should be a top national priority. This would build on and expand the important foundation of work begun under the Nunn-Lugar Cooperative Threat Reduction Program. We should commit to the investment necessary to remove or secure all fissile material at vulnerable sites worldwide in four years. This relatively small investment could dramatically decrease the prospects of terrorist nuclear acquisition. The Nuclear Summit, held last April, sought to get the cooperation of other nations in safeguarding nuclear sites around the world.

In addition, I firmly believe that we must expand our focus beyond narrow nonproliferation policies to address the larger security concerns and conflicts that undergird the desires of other countries to acquire military nuclear capabilities. The United States should:

- Seek a deeper strategic dialogue with Russia that is broader than nuclear treaties, to include civilian nuclear energy, ballistic missile defenses, space systems, nuclear nonproliferation steps, and ways of improving warning systems and increasing decision time.

- Renew and strengthen strategic dialogue with a broad set of states interested in strategic stability, including not just Russia and our NATO allies but also China and U.S. allies and friends in Asia.

- Seek Senate ratification of the Comprehensive Test Ban Treaty and encourage other hold-out nations to do likewise. Almost no other measure would improve the credibility of U.S. nuclear nonproliferation efforts than this. I believe that the Stockpile Stewardship Program, established as a safeguard when the U.S. signed the CTBT, has been an outstanding success and has given us the needed confidence in the reliability of our stockpile without nuclear testing. The United States has refrained from testing nuclear weapons for 17 years already and has no plans to resume such testing in the future. Prior to seeking ratification, the Administration should conduct a careful analysis of the issues that prevented ratification a decade ago.

- While the Senate has the responsibility for considering the CTBT for ratification, both the Senate and the House should support funding for any Treaty safeguards the Obama Administration may propose, which will be essential to the ratification process.

- Develop and pursue options for advancing U.S. interests in stability in outer space and in increasing warning and decision-time. The options could include the possibility of negotiated measures.

- Renew the practice and spirit of executive-legislative dialogue on nuclear strategy that helped pave the way for bipartisanship and continuity in policy in past years. To this end, we urge that the Congress consider reviving the Arms Control Observer Group, which served the country well in the past.

Concluding Remarks

In surveying nearly seven decades of nuclear history, I note that nuclear weapons have not been used since 1945. It is clear that a tradition against the use of nuclear weapons has taken hold, which we must strive to maintain, and urge all nuclear-armed nations to adhere to it.

I see our present time as a moment of opportunity but also of urgency. The opportunity arises because the Russian government has indicated a readiness to undertake a serious dialogue with the U.S. on strategic issues. The urgency arises because of the imminent danger of nuclear terrorism if we pass a tipping point in nuclear proliferation. We should reject the vision of a future world defined by a collapse of the nonproliferation regime, a cascade of nuclear proliferation to new states, a resulting dramatic rise in the risks of nuclear terrorism, and renewed fruitless competition for nuclear advantage among major powers. We should instead work for a world in which nuclear terrorism risks are steadily reduced through stronger cooperative measures to control terrorist access to materials, technology, and expertise. And a world of cooperation among the major powers that ensures strategic stability and order, and steadily diminishes reliance on nuclear weapons to preserve world peace, not as a favor to others, but because it is in the best interests of the United States and the world. I believe that the United States should lead the global effort to give fruitful birth to this new world.

Mr. ROYCE. Thank you very much, Secretary Perry.

We are going to hold everyone to 5 minutes here and go right to questions. As a matter of fact, I am going to make this suggestion: Why don't you make an opening statement, summarize your written statement in a couple of minutes, and we will come back to those points and give you a little more time to embellish on your opening points, simply because we are coming to this vote and I would like to have a few questions put before we get to it.

Mr. Sokolski, go ahead.

STATEMENT OF MR. HENRY SOKOLSKI, EXECUTIVE DIRECTOR, NONPROLIFERATION POLICY EDUCATION CENTER

Mr. SOKOLSKI. Thank you, Mr. Chairman. I ask that not only my testimony but a two-page note on the policy implications of the accidents in Japan be entered into the record.

Mr. ROYCE. Without objection.

Mr. SOKOLSKI. Your timing, sadly, is all too perfect for this hearing.

Mr. ROYCE. Well, Mr. Sokolski, the timing of your new book is all too perfect.

Mr. SOKOLSKI. Well, that is due to no planning at all. It is a year behind schedule. And that is the—I have to plug it, I guess—Nu-

clear Power's Global Expansion: Weighing Its Costs and Risks. That was not due to planning, I can assure you.

In any case, sometimes it takes bad news and fearful emotions to get us to think. I think we have seen France, China, Germany, even India and a number of other countries, freeze their construction plans while they do a safety review. What is a little odd is we haven't yet done that. Instead, our State Department is signing an MOU in earthquake-prone Chile to do nuclear cooperation.

We don't know where the Jordan and Saudi Arabia agreements or the Vietnam agreements are. They quietly went into the rear of the freezer with all of the demonstrations, but I don't think they are dead.

The administration is moving ahead with loan guarantees beyond the $18 billion they already have, even though the head of the largest merchant nuclear utility in the world gave a speech last week at AEI saying they are not only not necessary, they are harmful; and that he doesn't think they need nuclear power plants and will not build them for one to two decades to meet the carbon goals. Not only that, a public poll has come out and said the favorite cut, when suggested, from the public's perspective is loan guarantees.

In any case, whatever we do, review or not, it is pretty clear that comments of the committee are spot-on correct. You do not want to sell or cooperate or encourage countries that are really not up to snuff to take on building a reactor after the incidents that we have had in Japan. Nor after Iran do you want to do anything but toughen the nonproliferation conditions on nuclear cooperation, not just for the U.S. but for other nuclear suppliers.

Now the chair, the ranking member, Mr. Sherman, Mr. Royce, Mr. Fortenberry, and Senator Akaka have already laid and tabled very, very good legislation; and I urge the committee to file that into any revision of the Atomic Energy Act. I certainly think the idea of forcing votes which focus debate on these agreements is a great idea, and I commend Mr. Sherman's recommendations to the committee as well.

I think, in addition, however, if you are going to be serious about getting others to join in, you need to be a bit of a bad cop. I think requiring that no U.S. nuclear regulatory license, Federal contract, or loan guarantee can be approved for any foreign entity unless the President of the United States has first certified that the government of that entity has explicitly endorsed adopting the key nonproliferation provisions of the UAE agreement really needs to be put into place. If this committee does this, I believe that the administration will pay close attention; and with any luck much of what you do might be co-opted. I think that is the spirit in which you should operate.

[The prepared statement of Mr. Sokolski follows:]

What Nuclear Power's Revival Will Now Require: Tightening the Rules

Testimony of

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Submitted to

The House Committee on Foreign Affairs
"The Global Nuclear Revival and U.S. Nonproliferation Policy"

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Madame Chairman, Ranking member, members of the committee, it is an honor to testify here today. Since the U.S.-Indian nuclear cooperative agreement was first proposed in 2005, the Nonproliferation Policy Education Center has advocated revising the U.S. Atomic Energy Act to assure closer Congressional oversight of negotiations of U.S. nuclear cooperative agreements and to set a higher international standard for nuclear nonproliferation. The Congressionally mandated Commission on the Prevention of WMD Proliferation and Terrorism, upon which I served, also made a number of specific recommendations in this regard that were unanimously adopted in the commission's final report. Most of these recommendations, including reassessing what civilian nuclear activities and materials the International Atomic Energy Agency (IAEA) can effectively safeguard against military diversions, already enjoy active Congressional support. These ten specific recommendations, which could be incorporated into the current U.S. Atomic Energy Act, are listed below.[1]

1. Require majority approval in both Houses of any future U.S. nuclear cooperative agreement or alternatively, make such a vote necessary for any proposed U.S. nuclear cooperative agreement with any state that failed to meet the current requirements under the US Atomic Energy Act's for being "compliant" or that failed, in addition, to agree to:

    a. Foreswear making nuclear fuel or engaging in heavy water reactor related activities
    b. Bring the Additional Protocol into force for their country before receiving any controlled U.S. nuclear technologies or goods

1. For a point-by-point justification for each of these recommendations, which bear on the promotion of nuclear nonproliferation and safety, see my detailed testimony before this committee and the Subcommittee on Trade, Nonproliferation and Terrorism, "Nuclear Cooperation and the Atomic Energy Act," testimony given before a hearing of the House Committee on Foreign Affairs, "Nuclear Cooperation after Khan and Iran: Time for a New Paradigm," September 24, 2010 available at http://www.npec-web.org/article.php?aid=70&rtid=8 and "Keeping U.S. International Nuclear Cooperation Peaceful," testimony given before a hearing of the Subcommittee on Terrorism, Nonproliferation and Trade, "The Future of U.S. International Nuclear Cooperation," May 5, 2010, available at http://www.npolicy.org/article_file/123_TESTIMONY_6_May_2010__FINAL_030211_0714.pdf.

c. Bring the Convention on Supplementary Compensation for Nuclear Damage (CSC) into force for their country before finalization of the proposed 123 agreement.

2. Require that no United States Nuclear Regulatory license, U.S. federal contract, or U.S. loan guarantee be approved for any foreign nuclear entity unless the President of the United States has first certified that the government of that entity has explicitly endorsed adopting the key nonproliferation provisions (Articles 7 and 10) of the U.S.-UAE agreement on civilian nuclear cooperation in all future nuclear cooperative arrangements it might reach with any other non-nuclear weapons state.

3. Authorize the Government Accountability Office to create "Team-B" evaluations of the Nuclear Proliferation Assessment Statements (which the Executive Branch must currently complete under the U.S. Atomic Energy Act for any nuclear cooperative agreement it submits) upon the request of one chairman of either the foreign relations or intelligence committees in the House or Senate.

4. Adapt Section 416 of the House Foreign Relations Authorization Act for Fiscal Years 2010 and 2011 (H.R. 2410) to clarify what the IAEA can and cannot safeguard to provide a.) timely detection and b.) timely warning against possible military diversions.

5. Adapt legislation Congressman Fortenberry and Senator Akaka tabled last year (H.R. 3774 and S. 1675) for inclusion in the Atomic Energy Act to ensure proper implementation of Title V of the Nuclear Nonproliferation Act of 1978's, which requires the U.S. to cooperate with developing nations in the assessment and deployment of nonnuclear forms of energy and in the conduct of country-specific energy surveys.

6. Clarify and amplify the key provisions of the Henry J. Hyde U.S. - India Peaceful Atomic Energy Cooperation Act of 2006 to assure that all U.S. civilian nuclear cooperation would cease, including intangible nuclear technology transfers and programmatic approvals for reprocessing if India chose to resume nuclear testing or violated IAEA safeguards. Reiterate and clarify the need to assure America's compliance with the Nuclear Nonproliferation Treaty (NPT) and that of other key nuclear supplier states by incorporating the "Implementation and Compliance Report" requirements of the Hyde Act in the Atomic Energy Act itself.

7. Require that any changes to current U.S. policy to defer the commercial use of plutonium based fuels, the commercial recycling of spent fuel in the U.S., or the sharing of related technologies with other nonweapons states be approved by a joint resolution of Congress.

8. Require U.S. delegates to international or regional development banks to vote against extending subsidized loans for new nuclear construction overseas.

9. Clarify in law how the implementation of nuclear cooperation with Russia should be tied to Russian willingness to support President Obama's objective of blending down more of the world's surplus of weapons grade uranium and isolating proliferators, such as Iran.

10. Make it the policy of the U.S. to encourage the IAEA to monitor and keep account of every individual that visits any of the sites that the IAEA safeguards.

Japan's Nuclear Tragedy and Nuclear Power's Revival

Tighten the rules on nuclear exports always was needed and now is more salient than ever before. Just two weeks ago, the prevailing presumption underpinning of most assessments of nuclear power's future was that civilian nuclear power's massive, global expansion was an irresistible energy security and environmental imperative that our government and other nuclear supplier states had to support. Now, none of this seems so clear.

The key reason why, of course, has been the news of nuclear accidents following the earthquake in Japan. For years, the nuclear industry reassured us that the reactors they were building were safe because of all of the safety redundancies built into them. There would be no more Three Mile Islands. Now, after three hydrogen explosions, the continued venting of radioactive gas at several Japanese reactors, the possible breach of a containment vessel, and a massive spent fuel pond fire, this argument is no longer quite so credible.

Just the opposite: The worry now is that Japan's nuclear tragedy might repeat itself elsewhere. The Japanese reactors whose safety and cooling systems failed are roughly the same age of many of a good number of those operating in the U.S. Over twenty operating U.S. reactors are of nearly an identical design. Unlike Japan, which is retiring these machines after 40 years, though, the U.S. Nuclear Regulatory Commission has been extending their operating licenses for an additional 20. How sound is this practice? What, if anything, should our government and the reactor operators be doing to assure these reactors' run safely over their projected 60 year lifetime? Have we made any nuclear safety system assumptions that might prove to be as mistaken as those the Japanese made about the independent redundancy of their various primary and emergency nuclear cooling and hydrogen venting systems? These questions, now, should be issues of interest.

There also is likely to be pressures to review what U.S. agencies should be responsible at what time for dealing with a nuclear incident (the Department of Homeland Security, the Nuclear Regulatory Commission, the Energy Department, and the Defense Department). In addition, a case could be made for reviewing how much more or less electric utilities should pay for nuclear accident liability insurance as it bears directly on their financial stake in keeping their plants at the very highest levels of safety.[2] Finally, with the marked drop in the stock prices of most key

2. See, e.g., Jim Tankersley, "Taxpayer Meltdown: Taxpayers, Not the Utilities, Would Be Liable for Most of the Bill," The National Journal, March 15, 2011, available at

reactor vendors there is sure to be increased debate over how we should rate the financial risks of building new nuclear plants.[3]

These questions and more are likely to be reviewed, not just in Japan and the U.S., but in every state that either has nuclear power plants or is contemplating their construction. Thailand's prime minister, for example, just announced that his country would review its nuclear construction plans in light of the Japanese accidents. Senior officials from Switzerland, the European Union, India, and the Philippines have announced such decisions and German Prime Minister Merkel has called for a three-month review and the forced shut down of seven of Germany's older reactors.

Other Arresting Considerations

All of these new nuclear concerns, it should be noted, come on the heels of at least three other negative nuclear developments. The first of these is the political turmoil that has erupted in the Middle East. Up until the Tunisian and Egyptian political demonstrations, the Middle East was viewed by most nuclear supplier states as a key emerging market for new power reactor construction. Last fall and earlier this year, the U.S. government was reported to have been in negotiations on the possible conclusion of nuclear cooperative agreements with Jordan and Saudi Arabia – two countries that are coping with political turmoil of their own. Further work toward concluding such agreements, one would assume, is on hold.[4]

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http://www.nationaljournal.com/economy/a-japan-reactor-repeat-in-the-united-states-could-cost-the-government-dearly-20110315.

3. Prices for the stocks of key nuclear reactor vendors have dropped significantly this week world-wide. See, e.g., Julie Cruz, "Stock in Europe Slide Most in Four Months on Japan Nuclear-Plant Concern," *Bloomberg* , March 156, 2011, available at http://www.bloomberg.com/news/2011-03-15/european-stock-index-futures-tumble-on-radiation-concern-at-japanese-plant.html; David Fogarty and Julie Gordon, "Nuclear Sector Takes a Beating But US Offers Support," *Reuters*, March 14, 2011, available at http://mobile.reuters.com/article/idUSTRE72D3T620110315?ca=rdt; and Louise Armitstead, "Nuclear Sector Faces Delay Amid Safety Fears," *The Telegraph*, March 15, 2011, available at http://www.telegraph.co.uk/finance/markets/8381297/Nuclear-sector-faces-delays-amid-safety-fears.html

4. See Elaine Grossman, "Obama Team Eyes Saudi Nuclear Trade Deal," *Global Securirty Newswire*, January 25, 2011, available at http://www.globalsecuritynewswire.org/gsn/nw_20110125_4190.php.

Second, and related, there has been a credit crunch that has hampered financing new nuclear projects both here and abroad. Domestically, the U.S. nuclear industry has made it clear that the costs of power reactor construction are high and rising and without generous federal loan guarantees, further reactor construction in the U.S. is in doubt.[5] Unfortunately, according to a recent *Wall Street Journal* poll, one of the least popular forms of federal largesse during Washington's current budget crisis is spending on more nuclear loan guarantees.[6]

Meanwhile, overseas, South Korea -- one the most advanced and least expensive export reactor providers -- is discovering that it lacks the financial horsepower to competitively finance more, large, export reactor projects. Most recently, for this reason it was unable to compete successfully against Japan for reactor bids in Vietnam and Turkey.[7] The French firm of AREVA, the world's leading nuclear contractor, also has had to pull out of a planned reactor construction project at Calvert Cliffs in Maryland. AREVA failed to secure a credit subsidy fee rating on a U.S. Department of Energy loan guarantee low enough for it to feel comfortable to proceed. Due to several other negative financial developments, Standard and Poor's reduced Areva's A-/A-1 credit rating last year to BBB+/A-2.[8]

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5. For a review of the latest cost projections, see Henry D. Sokolski, "The High and Hidden Costs of Nuclear Power," *Policy Review*, September 2010, available at http://www.npec-web.org/article_file/20100805-The_High_And_Hiden_Costs_of_Nuclear_Power_290111_0356.pdf.

6. See, Patrick O'Connor, "WSJ/NBC Poll: Hands Off Medicare, Social Security," The Wall Street Journal, March 2, 2011, available at http://blogs.wsj.com/washwire/2011/03/02/wsjnbc-poll-hands-off-medicare-social-security/. The raw polling data showing cuts to nuclear power plant subsidies to be the most popular budget cut is available at http://texasvox.org/2011/03/04/wsj-poll-shows-americans-willing-to-cut-from-the-budget-for-nuclear-loan-guarantees/.

7. See "South Korea to Bolster Support for Exports of Nuclear Plants," *The Korean Herald,* March 9, 2011, available at http://www.koreaherald.com/business/Detail.jsp?newsMLId=20110309000846.

8. See "France-Based AREVA Downgraded to BBB+ On Continued Weakened Profitability," Standard and Poor's, June 28, 2010, available at http://www.alacrastore.com/research/s-and-p-credit-research-France_Based_AREVA_Downgraded_To_BBB_On_Continued_Weakened_Profitability_Outlook_Stable-806353; Dan Yurman, "UK Depends on "France for the Nuclear Renaissance: But first EdF and Areva Have to Get Organized at Home," *The Energy Collective*, February 3, 2011, available at http://theenergycollective.com/ansorg/50979/uk-depends-france-nuclear-renaissance; Francois de Beaupuy, "Areva's Overruns at Finnish Nuclear Plant Approach Initial Cost,"

Compounding these credit woes, the nuclear industry's prospects have been hobbled further by the global discovery of new, massive amounts of relatively clean burning, inexpensive, natural gas. Last week, just days before the Japanese earthquakes, John Rowe, CEO of Exelon, the world's largest merchant nuclear power utility, explained to an audience at the American Enterprise Institute that these gas discoveries give the U.S. and others much more room to let market forces pick energy winners and losers. He welcomed this and argued that the right energy choices were more likely to be made in such an environment. He said his firm had concluded it would not make sense for it to build a new nuclear power plant for the next decade or two. He also made clear that this decision consciously accounted for the need to reduce carbon emissions at the lowest cost in the quickest, most efficient fashion. Using these criteria, building new, expensive power reactors for the next one to two decades simply did not make sense.[9]

Nuclear Power and Proliferation: A Renaissance View

It could be argued that none of these developments have any direct relation to the security implications of spreading nuclear power plants abroad. Narrowly interpreted, Japan's nuclear woes merely highlights the potential hazards of operating nuclear reactors and of selling them to states that lack sufficient nuclear safety experience. More broadly viewed, however, nuclear power's current difficulties releases policy makers from the political pressures previously applied by lobbyists who have insisted that nuclear power's immediate, dramatic expansion demanded additional federal support.

Certainly, the most prevalent view until last week was that we simply had to learn to live with many, many more reactors being built internationally no matter what the security implications might be. Global warming, it was argued, would only worsen with the burning of more coal, and because relatively clean burning natural gas was presumed to be scarce and expensive, nuclear power was viewed as being the only immediate answer to reducing carbon emissions and

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Bloomberg, June 24, 2010 available at http://www.businessweek.com/news/2010-06-24/areva-s-overruns-at-finnish-nuclear-plant-approach-initial-cost.html; "Team France in Disarray: Unhappy Attempts to Revive a National Industry, *The Economist,* December 2, 2010, available at http://www.economist.com/node/17627569?story_id=17627569&fsrc=rss; Guy Chazan, "Jinxed Plant Slows A Nuclear Rebirth, *The Wall Street Journal*, December 2, 2011, available at http://online.wsj.com/article/SB10001424052748703865004575648662738551250.html.

9. See John W. Rowe, Chairman CEO, Exelon Corporation "Energy Policy: Above All, Do No Harm," a presentation given before the American Enterprise Institute Washington, DC, March 8, 2011, available at http://www.exeloncorp.com/assets/newsroom/speeches/docs/spch_Rowe_AEI2011.pdf.

enhancing energy security. For some arms control proponents eager to eliminate nuclear weapons, it also has seemed critical for nuclear weapons states to share civilian nuclear technology liberally with nonnuclear weapons states. Such nuclear commerce, they have argued, was a necessary quid pro quo to get the world's nonnuclear weapons states to uphold their Nuclear Nonproliferation Treaty (NPT) pledges not to acquire nuclear weapons.[10]

Given all these concerns, emphasizing the need to restrict or control civilian nuclear energy in the name of nonproliferation has been viewed by some as a mistake. In this regard, three basic arguments have been made.[11]

First among these is that worrying about the spread of nuclear power reactors is wrongheaded. Instead of reactors spreading, it has been argued, we should only worry about the proliferation of nuclear fuel making plants, which can bring states within weeks of acquiring the bomb fuel they need to make nuclear weapons. Certainly, the most popular power reactors, light water reactors, are not optimal for making the very highest weapons grade plutonium. Also, with more research even more proliferation resistant reactors may be possible. In the meantime, we can establish multinational nuclear fuel banks to service any demand states might have to make their own fuel.

Second, it has been argued that to the extent there might be a proliferation concern relating to power programs, we can simply scale up the IAEA's inspections to deal with the increasing number and enhance our own nuclear intelligence programs as well so we can counter-proliferate in clever ways like those Israel and the U.S. have used against Iran.

Finally, some argue, nuclear weapons proliferation might yet occur but since nuclear weapons are not all that useful in war, only a handful of states would bother to acquire them. Acquiring

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10. See, e.g., Ambassador Libran N. Cabactulan, "Defining Success for the NPT Review Conference," NGO Committee on Disarmament, Peace and Security, available at http://disarm.igc.org/index.php?option=com_content&view=article&id=340:defining-success-for-the-npt-review-conference-spring-2010&catid=145:disarmament-times-spring-2010&Itemid=2 and "The Three Pillars in the Political Declaration," The Seven Nation Initiative on Nuclear Disarmament and Nonproliferation, available at http://www.7ni.mfa.no/NPT/3_pil_in_pol_decl/.

11. Although the following arguments have been generally made by policy makers in Washington and national security academics, the specific arguments here are drawn directly from a feature article in the World Nuclear Association's flagship magazine their top policy analyst, Steven Kidd, "Nuclear Proliferation Risk – Is It Vastly Overrated?" *Nuclear Engineering International*, July, 23, 2011, available at http://www.neimagazine.com/story.asp?storyCode=2056931.

the bomb would do them no good since their nuclear weapons could be deterred relatively easily by other states' conventional and nuclear weapons.

A Critique

Each of these arguments is popular. All are misleading. Each, properly assessed, helps clarify what this committee should do to tighten our current nonproliferation policies and to get other nuclear supplier states to do likewise.

Truly Proliferation Resistant Power Reactors? Not Yet

First, there is no bright clear line between boiling water with uranium and making nuclear fuel. Once a country begins a large nuclear power program, it must train hundreds of technicians to master nuclear engineering. This instruction is generally accomplished either by bringing foreign teachers in or sending one's students abroad. In either case, any country's best and brightest young students studying nuclear matters will be naturally interested in learning about the latest and most interesting nuclear topics. This, unavoidably, includes insights into how nuclear fuels perform and the latest techniques for producing them. The idea that one might try to block such learning at Western universities violates not only commonsense, but also most Western states' own domestic laws.

Second, the construction and operation of a large nuclear power plant makes it easier for states interested in making bombs to import illicit technologies and goods that have little or nothing to do with boiling water. This certainly was the case with Iran and its construction of a light water reactor at Bushehr. The U.S. State Department sanctioned at least one Indian nuclear technician who visited the site ostensibly for "safety" reasons. It turned out that he was the world's leading experts in extracting tritium – a fuel used to boost fission bomb yields significantly -- from heavy water production facilities, which Iran was bringing on line. A Russian nuclear implosion expert also visited Iran's peaceful nuclear program. Neither visit was discovered until after it occurred. This was one of the key reasons why the Congressional commission I just served on recommended having the IAEA keep track of who actually visits IAEA safeguarded sites.[12]

Of Course, beyond serving as a cover for illicit, intangible technology transfers, large civilian nuclear programs also make the illicit acquisition of dual use nuclear goods far easier to hide.

Third, large reactors are themselves useful to would be bomb makers. Even the most popular of proliferation resistant power systems -- the light water reactor -- uses fresh low enriched uranium and generates plutonium in its spent reactor fuel that can be seized or slowly stolen to help make

12. *World at Risk: The Report of the Commission on the Prevention of WMD Proliferation and Terrorism*, December 2, 2008, page 50, available at http://www.absa.org/leg/WorldAtRisk.pdf.

bombs. In a detailed study that my center completed several years ago, a detailed analysis was given on how fresh light water reactor fuel could be used to accelerate an illicit uranium enrichment program to make weapons-grade uranium. This could be accomplished with roughly one-fifth the effort that otherwise might be required using natural uranium. This study also detailed how spent fuel from the reactor could be chemically stripped out to produce enough near-weapons grade plutonium for 30 to 60 Hiroshima-sized bombs after only a year or so of reactor operation. The report also explained how would be bomb makers could divert these materials without the IAEA necessarily being alerted.[13]

This report's key findings were validated by nuclear safeguard scientists at our national weapons laboratories, officials at the U.S. State Department, and the House Select Permanent Committee on Intelligence.[14] It was partly because of these findings that the second Bush Administration decided that North Korea could not be trusted with the two light water reactors that the Clinton Administration agreed to help build for Pyongyang.

Finally, the very operation of large reactors normally entails sensitive activities that might help states engage in illicit nuclear weapons related activities. One example is post irradiation experiments, in which spent reactor fuel is taken from the reactor, opened up, and the ceramic fuel pellets and cladding examined to help determine the reliability and performance of the fuel in the reactor. Allowing states to open up spent fuel for this legitimate diagnostic purpose could afford them an opportunity to divert spent fuel in order to separate out nuclear weapons usable plutonium. Post radiation examinations or PIEs, though, are normal for any power reactor operator and permitted even for states, like Taiwan, which have been previously caught trying to reprocess spent fuel illicitly to make bombs.

These problems have encouraged many nuclear researchers in the U.S. and other nuclear power states to call for the development of more proliferation resistant reactors. In theory, this maybe possible, but so far, little has changed. Certainly, what we have in the way of power reactors and

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13. See Victor Gilinsky, et al., "A Fresh Examination of the Proliferation Dangers of Light Water Reactors," in Henry Sokolski, editor, *Taming the Next Set of Strategic Weapons Threats* (Carlisle, PA: US Army War College, Strategic Studies Institute, 2005), available at http://www.npec-web.org/article_file/20041022-GilinskyEtAl-LWR_310111_0241.pdf.

14. See House Permanent Select Committee on Intelligence, Subcommittee on Intelligence, *Recognizing Iran as a Strategic Threat: An Intelligence Challenge for the United States*, staff report, August 23,2006, p. 11, at http://intelligence.house.gov/Media/PDFS/IranReport082206v2.pdf.

fuel making systems today are pretty much what we will be building and operating for the next two decades.[15]

Couldn't the U.S. and other nuclear supplier states convince nonnuclear weapons states not to make their own nuclear fuel by creating multilateral and international fuel banks? Again, the answer is unclear. The U.S. and other states tried to persuade Pakistan, Iran, Argentina, Brazil, Japan, and South Africa all to forgo making their own nuclear fuel and failed even though the economics of making nuclear fuel were far less favorable than they are today.

Construction of large power reactors can cost now anywhere between 4 and 10 billion dollars each – certainly no less and generally far more than what a small, crude uranium enrichment or plutonium reprocessing plant might cost. The U.S. and other nuclear supplier states, moreover, have been quite emphatic in arguing that all NPT-compliant member states have an "inalienable right" to make nuclear fuel so long as it is for peaceful purposes. None of this augers well for the proposition that giving nonnuclear weapons states power reactors and merely offering to make nuclear fuel accessible to them will suffice to persuade them to forswear their "right" to make nuclear fuel (and so develop a bomb option) of their own.[16]

More arguments could be made regarding the difficulty of keeping peaceful power programs from becoming launching pads for nuclear weapons work. What has been laid out here, though, more than suggests why it would be a mistake to share large reactors, even light water reactors, with any nonnuclear weapons state unless one was convinced it was clearly out of the bomb making business.

Nuclear Inspections and Intelligence: What Are the Limits?

This is where the idea of strengthening existing nuclear inspections and enhancing national intelligence are generally held up as nonproliferation solutions. In the case of IAEA inspections, much can be done to improve near-real time surveillance of inspected sites with remote sensors and secure communication links. Securing talented inspectors and retaining more of them would also be both possible and useful.

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15. See Committee on Review of DOE's Nuclear Energy Research and Development Program, National Research Council, "Minority Opinion: Dissenting State of Gilinsky and Macfarlane," in *Review of DOE's Nuclear Energy Research and Development Program* (Washington, DC: National Academies Press, 2008), available at http://armscontrolcenter.org/assets/pdfs/macfarlane_gilinsky.pdf and Frank Von Hippel, "Managing Spent Fuel in the United States: The Illogic of Reprocessing," in Henry Sokolski editor, *Falling Behind: International Scrutiny of the Peaceful Atom* (Carlisle, PA: Strategic Studies Institute, 2008), pp. 159-221.

16. On the matter of the NPT and the right to peaceful nuclear energy,

Yet, simply sending money to the IAEA and increasing its authority ought not to be seen as a panacea. Most U.S. officials, for example, are extremely enthusiastic about increasing the number of state adherents to the IAEA's latest inspection understanding, The Additional Protocol, which authorizes the IAEA to conduct more intrusive inspections than under existing safeguards agreements. The increased inspection authority that the Additional Protocol affords, though, is most commonly occasioned by a reduction in the number of routine inspections. Once a country qualifies for Additional Protocol inspections, it is argued, it should be trusted more and inspected less. This lessens IAEA inspection loads but it also reduces IAEA safeguards presence on the ground.

There also are real limits on IAEA inspections. After Iran, Iraq, Libya, Syria, and Algeria, we learned that in the most dangerous cases, the IAEA cannot always meet its own timeliness nuclear detection goals. Safeguarding nuclear fuel making (e.g., enrichment, reprocessing, fuel fabrication, uranium hexafluoride production) and nuclear weapons usable fuels (highly enriched uranium, separated plutonium, mixed oxide fuel) anywhere; and large civilian nuclear facilities in hostile states (e.g., Iran and North Korea), are among these cases. In these instances, the inspected nuclear activities and materials are so close to bomb making that there is scant time even with discovery of a diversion to do much and a high likelihood that any discovery might come after the diversion if at all.[17]

Finally, recent research suggests that for large organizations with conflicting goals regarding the regulation of complex technologies, their mere expansion may not help and, in certain cases, could actually make matters worse. These research findings could easily apply to the IAEA, which is designed both to promote civilian nuclear applications and to restrain them to assure they stay peaceful. These two opposing IAEA functions make achieving the agency's

17. On these points see "In Pursuit of the Undoable, Troubling Flaws in the World's Nuclear Safeguards," *The Economist*, August, 23, 2007, available at http://www.economist.com/world/international/displaystory.cfm?story_id=9687869; Marvin M. Miller, "Are IAEA Safeguards on Plutonium Bulk-Handling Facilities Effective?" (Nuclear Control Institute, 1990), reprinted in Paul Leventhal et. al. (eds.), *Nuclear Power and the Spread of Nuclear Weapons* (Brassey's, 2002); Brian G. Chow and Kenneth A. Solomon, *Limiting the Spread of Weapon-Usable Fissile Materials* (The Rand Corporation, MR-346-USDP, 1993), pp. 1□15; Henry S. Rowen, "This 'Nuclear-Free' Plan Would Effect the Opposite," *The Wall Street Journal*, Edwin S. Lyman, "Can Nuclear Fuel Production in Iran and Elsewhere Be Safeguarded against Diversion?" in *Falling Behind*, pp. 101□20. January 17, 2008, available at http://www.npec-web.org/OpEds/20080117-Rowen-WSJ-Letter.pdf; David Kay, "Denial and Deception Practices of WMD Proliferators: Iraq and Beyond" in Brad Roberts, ed., *Weapons Proliferation in the 1990s*, (MIT Press, 1995); Gilinsky, "A Fresh Examination of the Proliferation Dangers of Light Water Reactors"; and Andrew Leask, Russell Leslie, and John Carlson, "Safeguards As a Design Criteria— Guidance for Regulators," (Australian Safeguards and Non-proliferation Office, September 2004), available at http://www.asno.dfat.gov.au/publications/safeguards_design_criteria.pdf.

safeguarding mission difficult. It also makes determining how much one is "strengthening" the IAEA inherently tricky.[18]

This, then, brings us to the utility of improving national intelligence capabilities. Since the late 1980s, much has been made of what the U.S. and other states might do to "counter" proliferation with trade interdictions, covert operations, passing off sensitive information to agencies like the IAEA and, if necessary, military strikes. All of these operations may be needed; all demand timely, actionable intelligence.

To argue that we can depend on such operations to prevent proliferation if we only could secure more "actionable" intelligence, though, would be a stretch. First, there are severe limits on how much actionable intelligence any country is comfortable sharing with allies, much less international organizations. Second, there are limits on how much information most governments, including our own, are likely to demand about states that are about to or may have already acquired nuclear weapons. In more than a few cases, getting or sharing such information becomes awkward since it can force officials to have to act in ways they may be disinclined to. This arguably was the case with Israel, Pakistan, and North Korea, where at various points, senior U.S. officials actually kept intelligence officers from inspecting or reporting more on what actually was occurring in each of these countries nuclear weapons programs. We subsequently have had to downplay the implications of nonproliferation failures in each of these cases. This suggests that our problem in preventing proliferation may not be the lack of actionable intelligence so much as a lack of demand for it in the hardest and, arguably, most important cases.[19]

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18. See Charles Perrow, *Normal Accidents: Living with High-Risk Technologies* (Princeton NJ: Princeton University Press, 1984), pp. 9 ff. and Henry Sokolski, Building Support for the Agency's Safeguards Mission: More Transparency, Funding, and Safeguards Candor," A Presentation made before Panel 17 "Building Support for the Safeguards Mission" of the International Atomic Energy Agency Safeguards Symposium "Preparing for Future Verification Challenges," November 3, 2010 IAEA Headquarters, Vienna, Austria, available at http://www.npec-web.org/article_file/Building_Support_for_the_Agencys_Safeguards_Mission_More_Transparency_Funding_and_Safeguards_Candor_260111_1818.pdf.

19. Consider Victor Gilinsky, "Casting a Blind Eye: Nixon and Kissinger Finesse Israel's Bomb," a presentation before the Carnegie Endowment for International Peace, January 24, 2011 available at http://www.npec-web.org/article_file/Casting_a_Blind_Eye-Kissinger_Nixon_Finesse_Israels_Bomb.pdf.

Downplaying Nuclear Proliferation's Security Risks

Government officials' natural aversion to conflict with other states (even proliferating ones) has fostered a school of proliferation optimists for whom the spread of nuclear weapons is hardly awful and may even be good. Their underlying operating assumption is that nuclear weapons are not useful militarily and that their use, in any case, can be deterred relatively easily.[20]

To anyone who has studied the war scares between a nuclear-armed India and Pakistan, much of this optimism seems misplaced. The U.S. and others have had to intervene diplomatically more than once, partly to head off fears of nuclear weapons escalation. Also, the standard for what is thought to be worrisome – the actual use of nuclear weapons in anger -- is so low, it misses much of what matters.

Thus, the construction or operation of large nuclear reactors, in Syria, Iraq, and Iran has prompted at least nine major acts of war by the U.S., Israel, Iraq and Iran. Two of these strikes came with two major invasions of Iraq. Meanwhile, the latest historiography suggests that the 1967 Israeli War was actually prompted by Soviet desires to eliminate Israel's option to go nuclear. Similar historiography has detailed numerous plans advanced by India and Israel against Pakistani nuclear plants; by Pakistan against Indian nuclear plants; by Taiwan, Russia, and the U.S. against Chinese nuclear plants; and by the U.S. and Japan against North Korea.[21] In more than a few of these cases, the nuclear facilities that were targeted were IAEA safeguarded. All of this history helps clarify just how "destabilizing" the spread of such facilities can be and why just a "little" proliferation can produce enormous security headaches even if nuclear weapons are never produced or used or the plants themselves are not fully completed.

What's to Be Done

Of course, nearly all U.S. officials understand just how great a security threat nuclear weapons proliferation is. More than a few understand that the link between nuclear power and nuclear weapons is significant and most privately concede that it will be more difficult to manage unless

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20. See, e.g., John Mueller, *Atomic Obsession: Nuclear Alarmism from Hiroshima to Al-Qaeda* (New York, NY: Oxford University Press, 2010).

21. See, Matthew Furhmann and Sarah F. Kreps, "Targeting Nuclear Programs in War and Peace: A Quantitative Empirical Analysis, 1942-200," *Journal of Conflict Resolution* 2010 54:831 Originally published online 15 June 2010, appendix I, available at http://www.npec-web.org/article_file/Appendices_for_Matthew_Fuhrmann_and_Susan_E_Kreps-_Targeting_Nuclear_Programs_280211_1213.pdf.

tighter controls are put in place. The difficulty in doing so, they argue, however, is America's lack of leverage. The U.S. is no longer a lead manufacturer of controlled nuclear reactors or of major reactor components. The French, Russians, and Japanese now are easily America's equals. They not only can sell reactors at lower prices than the U.S., as government owned or protected entities, they are not hamstrung as US private reactor vendors are by having to get overseas customers to promise not to sue them in the case of a nuclear accident. As a result, it has been fashionable to argue that Washington must go along to get along – i.e., the U.S. must settle for whatever other nuclear suppliers will allow in the way of nuclear export control restraints.

This view, however, is mistaken on two grounds. First, what other key suppliers will voluntarily allow in the way of nuclear trade restraints is far shy of what is needed. China wants to sell reactors to Pakistan even though Pakistan has a very bad nonproliferation record. Russia, France, South Korea, and Japan, meanwhile, are happy to sell civilian nuclear power systems throughout the Middle East without demanding (as the U.S. did of the United Arab Emirates) that their customers forswear making nuclear fuel or ratify the IAEA's most stringent safeguards under the Additional Protocol.

As I have explained in previous testimony before this committee, all of these same nuclear suppliers, though, are eager to expand their nuclear businesses in America with U.S. Nuclear Regulatory licenses, Department of Energy contracts, and generous U.S. taxpayer-backed federal nuclear loan guarantees. Some of these firms, such as AREVA and EdF, are eager to secure exports to cover the costs they have incurred from their activities within France and Europe. All of this constitutes leverage.

The question is will we use it. The White House seems reluctant. Congress should not be. A key provision, this committee should insist on in revising the U.S. Atomic Energy Act is that no U.S. license, DoE contract or federal nuclear loan guarantee should be granted to any foreign nuclear vendor to expand their business here unless their host government explicitly adopts the key nonproliferation conditions of the U.S. – UAE nuclear cooperative agreement in their own nuclear cooperative activities with other non-nuclear weapons states. These conditions include getting the recipient to forswear making nuclear fuel or engaging in heavy water reactor related activities and ratifying the IAEA's additional protocol.

Promoting global adoption of this nonproliferation "Gold Standard," makes sense. It is something both Presidents Bush and Obama helped establish and is critical to prevent the further spread of nuclear fuel making, which is so dangerous and difficult to safeguard. It also is something that the U.S. needs to take the lead in promoting particularly since the Nuclear Suppliers Group is unlikely, initially to do so.

The key, as I have noted in testimony before, is to get the French to adopt this standard. Once the French do, Germany politically is certain to do so almost automatically. Since Russia is

seeking German nuclear technology through Siemens to help it upgrade Russia's domestic and export reactors, Moscow will indirectly be forced to adopt the standard as well: Legally no Russian reactor containing German technology could be exported from Russia without meeting German nonproliferation requirements and formal German consent. With France, Germany, Russia and the US all on the same sheet, it should be relatively easy to secure this standard's adoption by South Korea, Japan, and, perhaps even China.

In any case, this committee should consider all of the recommendations listed in the front of this testimony and others as well to assure that the intent of the Nuclear Nonproliferation Act of 1978 is realized or, at least, not undermined. Right now, the economics of nuclear energy as compared to its alternatives allows us the time to get our nuclear policies in order.[22] After Japan's tragic nuclear experience of the last week, we owe to ourselves, our friends, and the world to do so. This includes doing a better job of controlling this technology and to assure that it not only is safe, but that it never is diverted or misused to militarily threaten others.

22. See, Henry Sokolski, editor, Nuclear Power's Global Expansion: Weighing Its Costs and Risks (Carlisle, PA: Strategic Studies Institute, December 2010), available at http://www.npec-web.org/thebook.php?bid=19.

Mr. ROYCE. Thank you, Mr. Sokolski.

We will come back after the vote for some other comments, for you to finish that thought, and to go to Mr. Aloise. And Mr. Aloise, we will do that after the vote.

I would like to go to some questions, and I would like to ask the ranking member to open with his questions at this point.

Mr. BERMAN. Well, thank you very much, Mr. Chairman. I appreciate that, because I won't be able to come back because I will be on the floor.

Mr. Sokolski has started down the path of answering this question that I wanted to ask the panel, but let me get it out there and see what he and other members of the panel and he might add.

The issue of convincing other countries to place nonproliferation concerns in the forefront of their political and commercial interests in the development and exploitation of civil nuclear energy. Other supplier countries like to look the other way. They reason strong nonproliferation conditions of the kind we have been talking about would fatally undermine their business success. Developing countries are—or give the appearance of being—hypersensitive about the West denying them their rights to technology in general to keep them less developed and to sensitive technologies like enrichment and reprocessing.

How do we forge a new consensus among all concerned to minimize the spread of these dangerous technologies that are unfortunately also necessary to supply fuel to nuclear power reactors? I would be interested in—again, Mr. Sokolski started to get into this. Any other thoughts about——

Mr. PERRY. Mr. Berman, I will make one comment about that.

We can have a reasonably successful implementation of the goals you talk about if we can get the Nuclear Suppliers Group to agree on a set of principles. It is not enough for the United States to agree on it. We have to have the Nuclear Suppliers Group.

One silver lining around this Japanese cloud is I think we might be able to go back to the NSG—which has been reluctant to make such agreements in the past—and try again. I would urge the United States to go back to the Nuclear Suppliers Group now, arguing for a very stiff set of standards dealing both with the safety issue and with the proliferation issues.

Mr. SOKOLSKI. I think what I have suggested dovetails perfectly with doing that. I think Dr. Perry is right. It shouldn't be an either/or.

Keep in mind the country that is most keenly interested in getting loan guarantees, licenses, and DOE contracts happens to be one of the largest suppliers. It is France. However, if you can get them to turn around, you automatically get Germany, for a number of political reasons. And if you get Germany, you automatically lock in Russia. The reason why is the Russians are desperately eager to work with Siemens to develop the reactors for domestic and export purposes, and by law they cannot export them without the consent and approval of the Germans, and that consent is controlled by law.

I have got to believe you can get Japan. And South Korea is very anxious to look good on nonproliferation, for a variety of reasons which this committee knows all too well. One of them is they want

to reprocess or recycle. Second, they have the Nuclear Summit coming in 2012.

This is a perfect time to work with countries, including the UAE, to parade the success. Your timing is good. And I think Mr. Perry is absolutely right, you should also parallel work with NSG. I wouldn't do one or the other. I would do both.

Mr. ROYCE. Any other thoughts?

Mr. HEINONEN. Thank you.

As I said in my written statement, I fully agree and support what Dr. Perry said. I think the NSG is the easiest and fastest way to achieve this goal.

Mr. BERMAN. Since they operate by consensus, if we can persuade them—because we had spent a lot of time at the NSG, we have in the past, and not achieved some of the things we have wanted to get there.

Mr. PERRY. Had I been testifying here 2 weeks ago, I would have been reluctant to make that recommendation because I would not believe it could have been achieved. Now I think it is worth going back and trying again.

Mr. BERMAN. Thank you very much, Mr. Chairman.

Mr. ROYCE. Thank you, Mr. Berman.

I think we are going to adjourn. We have got about 4 minutes. We are going to stand in recess until the conclusion of this vote, at which time we will meet here again.

[Recess.]

Mr. ROYCE. The committee is going to reconvene, and we will go to Mr. Aloise for his testimony. You want to summarize for the record.

STATEMENT OF MR. GENE ALOISE, DIRECTOR, NATURAL RESOURCES AND ENVIRONMENT TEAM, U.S. GOVERNMENT ACCOUNTABILITY OFFICE

Mr. ALOISE. Mr. Chairman and members of the committee, I am pleased to be here today to discuss our concerns with IAEA's Technical Cooperation Program and the State Department and IAEA's actions to implement the recommendations from our March 2009 report.

As you know, a key mission of IAEA is to promote the peaceful uses of nuclear energy. Through its TC program, the agency provides nuclear equipment, training, fellowships, and other services to its member states. The U.S. is the largest contributor to the program, and in 2010 contributed over $31 million.

While the bulk of the TC projects have not involved the transfer of sensitive nuclear materials and technology, TC assistance can have dual-use implications and has been provided to countries of proliferation concern. As we reported in 2009, neither State nor IAEA seeks to limit or deny TC assistance to countries that the United States has designated as state sponsors of terrorism, including Cuba, Iran, Sudan, and Syria; are not party to the NPT, such as India, Israel, and Pakistan; and do not have comprehensive safeguard agreements. The former head of the TC program told us that all requests for TC assistance are based on technical merits and that there were no good countries or bad countries participating in the program.

We also reported that IAEA officials told us that the agency did not limit TC assistance to Iran and Syria, even though they have been found or suspected of violating their safeguards commitments and may be engaged in undeclared nuclear activities.

Our report noted that assessing proliferation concerns with TC projects was difficult because of the lack of sufficient and timely information on project proposals. For example, of the over 1,500 projects that DOE and its national laboratories reviewed between 1998 and 2006 for proliferation risk, 97 percent of the proposals contained only project titles, which is not enough data to assess proliferation risk. In addition, DOE and its national laboratories did not have enough time to sufficiently review the projects.

While IAEA's Safeguards Department reviews TC proposals, and ongoing projects, the results of these reviews are confidential and not shared with the United States or other governments, so we cannot assess the effectiveness of this internal IAEA review.

From 1998 through 2006, DOE and its national laboratories identified 43 of the over 1,500 proposals as having some degree of proliferation concern or needing more data to determine such risk. IAEA approved 34 of the 43 projects, and it is unclear to us if State addressed DOE's concerns because in all but one case State did not document how it responded to these concerns.

We also reported on shortcomings in State's monitoring of the TC fellowships' program. Over 1,000 TC program fellows have studied nuclear issues at universities and other institutions in the United States over a 10-year period. We found that 23 of them were from countries that did not sign the NPT and in one case was from a U.S.-designated state sponsor of terrorism, namely Syria. There were six fellows from Syria.

In addition, the IAEA does not track the status, whereabouts, and activities of former TC fellows to verify that they are not involved in weapons-related research after they have completed their studies.

Our 2009 report made several recommendations to State to correct these weaknesses in the management of the TC program, and some progress has been made in implementing our recommendations.

It is important to note that State cannot require the IAEA to implement a recommendation, but as the largest financial contributor to the agency the U.S. does have leverage in making improvements to the program. According to State, the IAEA is now providing information on project proposals earlier in the approval process. However, according to DOE, the amount of information about each project is still limited and insufficient to assess proliferation risks.

In addition, State appears to be doing a better job of tracking TC projects of proliferation concern and has developed new guidance regarding fellowships.

Importantly, however, State still strongly disagrees with our suggestion to the Congress to consider requiring State to withhold a proportionate share of U.S. contributions to the TC fund for assistance to U.S.-designated state sponsors of terrorism. We continue to believe that Congress should seriously consider this matter, because there is precedent for such withholding, and such action would follow through a more consistent and cohesive U.S. policy to-

ward nations that the United States has deemed inherently dangerous.

Mr. Chairman, that concludes my remarks, and I would be happy to address any questions you or other members may have.

[The prepared statement of Mr. Aloise follows:]

United States Government Accountability Office

GAO

Testimony

Before the Committee on Foreign Affairs, House of Representatives

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NUCLEAR NONPROLIFERATION

More Progress Needed in Implementing Recommendations for IAEA's Technical Cooperation Program

Statement of Gene Aloise, Director
Natural Resources and Environment

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GAO-11-482T

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Highlights

Highlights of GAO-11-482T, a testimony before the Committee on Foreign Affairs, House of Representatives

March 17, 2011

NUCLEAR NONPROLIFERATION

More Progress Needed in Implementing Recommendations for IAEA's Technical Cooperation Program

Why GAO Did This Study

A key mission of the International Atomic Energy Agency (IAEA) is promoting the peaceful uses of nuclear energy through its Technical Cooperation (TC) program, which provides equipment, training, fellowships, and other services to its member states. The United States provides approximately 25 percent of the TC program's annual budget. While the vast majority of TC projects have not involved the transfer of sensitive nuclear materials and technology, TC assistance has been provided to countries of proliferation concern. In March 2009, GAO reported on potential proliferation and management concerns related to the program (GAO-09-276). This testimony discusses (1) GAO's findings and recommendations to the Department of State and IAEA in that report and (2) agency progress made to implement those recommendations to address these concerns. This testimony is based on GAO's 2009 report and updated in March 2011 by (1) reviewing documentation on actions taken by State and IAEA in response to the report's recommendations and (2) interviewing State and Department of Energy (DOE) officials.

GAO is making no new recommendations at this time and continues to believe that implementation of the recommendations in its March 2009 report could substantially reduce potential proliferation and management concerns related to the TC program.

View GAO-11-482T or key components. For more information, contact Gene Aloise at (202) 512-3841 or aloisee@gao.gov.

What GAO Found

As GAO reported in 2009, neither State nor IAEA seeks to systematically limit TC assistance to countries that (1) the United States has designated as state sponsors of terrorism—Cuba, Iran, Sudan, and Syria; (2) are not party to the Treaty on the Non-Proliferation of Nuclear Weapons—India, Israel, and Pakistan; and (3) have not completed comprehensive safeguards or additional protocol agreements with IAEA. The former head of the TC program told GAO that requests for TC assistance are evaluated strictly on technical merits. GAO found that the lack of sufficient and timely information provided by IAEA on project proposals limits the ability of DOE and the national laboratories to fully assess potential proliferation concerns associated with the program. In addition, GAO identified limitations in how the program is managed, including the failure of many member states to pay their full share of support to IAEA's Technical Cooperation Fund (TCF) and the use of outdated program metrics. GAO asked Congress to consider directing State to withhold a proportionate share of the U.S. voluntary contribution to the TC program that is equivalent to the amounts of TCF funding that would otherwise be made available to U.S.-designated state sponsors of terrorism, as the United States currently does with Cuba and has done in the past with other countries and territories. GAO recommended that State, working with IAEA, undertake eight actions to address proliferation and management concerns related to the program, such as establishing a mechanism to facilitate greater and more timely information sharing on proposals. GAO made two additional recommendations to State, including enhancing its record-keeping on project proposals identified as having potential proliferation concerns, and developing formal guidance to evaluate requests from TC fellows to study nuclear issues in the United States.

State and IAEA have made some progress in implementing several of the recommendations in GAO's report. This progress includes, among other things, (1) IAEA providing proposal information to the United States and other member states earlier in the project approval process; (2) IAEA pursuing efforts to promote results-based management of TC projects; (3) State doing better tracking of TC proposals that may contain proliferation concerns; and (4) State developing new guidance and criteria for accepting or denying requests by foreign TC fellows to study in the United States. State, however, continues to strongly oppose GAO's suggestion that Congress consider requiring State to withhold a proportionate share of U.S. voluntary contributions to the fund for TC program assistance provided to U.S.-designated state sponsors of terrorism. GAO continues to believe that Congress should give serious consideration to this matter because there is a precedent for such a withholding and because such action would foster a more consistent and cohesive U.S. policy toward such nations that the United States chooses not to engage directly in trade, assistance, and other forms of cooperation.

Madam Chairman and Members of the Committee,

I am pleased to be here today to discuss the findings and recommendations from our March 2009 report on the International Atomic Energy Agency's (IAEA) Technical Cooperation (TC) program and the actions the Department of State and IAEA have taken to implement the recommendations in that report.[1] In March 2011, we reviewed documentation provided by State and IAEA and interviewed State and Department of Energy (DOE) officials to obtain updated information on actions taken to implement our 2009 recommendations.

IAEA is an independent international organization based in Vienna, Austria, affiliated with the United Nations. It has the dual mission of promoting the peaceful uses of nuclear energy and verifying that nuclear technologies and materials intended for peaceful purposes are not diverted to weapons development efforts. The TC program is a main pillar of IAEA's mission to promote the peaceful uses of nuclear energy. To that end, the TC program helps IAEA member states achieve their sustainable development priorities by furnishing them with relevant nuclear technologies and expertise, and the program plays a role in facilitating Article IV of the Treaty on the Non-Proliferation of Nuclear Weapons (NPT), which affirms that all states party to the treaty have a right to participate in the exchange of equipment, materials, and scientific and technological information for peaceful uses of nuclear energy. Through the TC program, IAEA has supported the development of nuclear technology for peaceful applications in a variety of areas, including energy, human health, food and agriculture, and nuclear safety. TC projects have supported efforts to eradicate tsetse flies and other insect pests in certain regions, control communicable diseases in developing countries, and develop higher-yielding agricultural crops. In 2007, the TC program disbursed over $93 million in nuclear technical assistance to 122 countries and territories. All IAEA member states are eligible for TC assistance; however, not all countries request assistance. The United States participates as a donor and is the largest financial contributor to the

[1]GAO, *Nuclear Nonproliferation: Strengthened Oversight Needed to Address Proliferation and Management Challenges in IAEA's Technical Cooperation Program*, GAO-09-275 (Washington, D.C.: Mar. 5, 2009).

TC program, providing approximately 25 percent of its budget, or approximately $19.8 million, in 2007.[2]

In our 1997 report on the TC program, we found that while the vast majority of TC projects did not involve the transfer of sensitive nuclear materials and technologies, nuclear assistance had been provided to countries that posed proliferation risks.[3] Proliferation concerns about the TC program have persisted because of the assistance it has provided to certain countries, including four countries—Cuba, Iran, Sudan, and Syria—that the United States has designated as state sponsors of terrorism, and because nuclear equipment, technology, and expertise can be dual-use—capable of serving peaceful purposes, such as the production of medical isotopes, but also useful in contributing to nuclear weapons development. For example, in 2006, IAEA refused to support a TC proposal from Iran requesting assistance for a heavy water reactor near the town of Arak. Iran stated that the reactor was intended for the production of medical isotopes, but the United States and other IAEA members objected due to concerns that the plant could serve as a source of plutonium for use in nuclear weapons.

Background

IAEA's policy-making bodies—the General Conference and the Board of Governors—set overall policy direction for the TC program. The United States is a permanent member of the Board of Governors. IAEA's Secretariat—led by a Director General and structured into six functional departments, including the Department of Technical Cooperation—is responsible for implementing policies established by the General Conference and the Board of Governors.[4]

Typically, the TC program develops and approves new projects on a 2-year cycle. Member states begin submitting project proposal concepts to IAEA in September of the year prior to approval. IAEA officials screen proposal

[2]In 2010, the United States' voluntary contribution to the IAEA Technical Cooperation Fund was $21 million. In addition, the United States provided approximately $16.3 million in technical cooperation extrabudgetary assistance in 2010.

[3]GAO, *Nuclear Nonproliferation and Safety: Concerns With the International Atomic Energy Agency's Technical Cooperation Program*, GAO/RCED-97-192 (Washington, D.C.: Sept. 16, 1997).

[4]The other IAEA departments are the Departments of Management, Nuclear Sciences and Applications, Safeguards, Nuclear Energy, and Nuclear Safety and Security.

concepts through the fall, and member states develop and refine their proposals through March of the approval year. By July, IAEA's Secretariat comes to a final agreement on TC project proposals that it will back for approval by the Technical Assistance and Cooperation Committee and the Board of Governors. The TC project proposals are discussed with member states in bilateral and regional group meetings during IAEA's General Conference, which is held in September. In November, the Technical Assistance and Cooperation Committee and the Board of Governors give final approval to the proposed TC projects. This approval covers the entire life cycle of the project.

As of June 2008, 1,290 TC projects were under way, with each project lasting, on average, 3 to 4 years. A TC project typically has several components, including equipment procurement, provision of expert services, training, and fellowships. Each year, about 1,600 individuals around the world are granted fellowships by the TC program, allowing them to pursue specialized nuclear studies at universities, institutes, and other facilities outside their home countries.

Financing of TC projects is generally supported through the annual voluntary contributions of member states to IAEA's Technical Cooperation Fund (TCF).[5] Each member state is expected to meet an annual financial pledge to the TCF, which is set as a percentage of the total TCF target budget. The U.S. target rate has been set at 25 percent of the TCF target budget, while many of the least developed countries are expected to contribute less than 1 percent of the TCF budget. Contributions to the TCF are fungible—that is, they are not designated for, and cannot be traced to, specific TC projects.

In the United States, State and DOE are the two principal agencies involved in TC issues. U.S. funding to the TC program—including its contribution to the TCF, extrabudgetary funding for specific projects, and "in-kind" contributions—is provided from State's budget as part of the overall annual U.S. "voluntary contribution" to IAEA.[6] In addition to providing funding to IAEA, State coordinates U.S. policy toward the TC

[5]A TC project may be funded in whole or in part from the TCF, and can be supported through extrabudgetary funding provided by member states or international organizations.

[6]The U.S. voluntary contribution to IAEA also supports other IAEA programs and activities, including safeguards, nuclear safety, and nuclear security.

program by working through the U.S. Mission to International Organizations in Vienna.

In our 1997 report on the TC program, we asked Congress to consider requiring State to withhold a proportional share of its voluntary funds to IAEA that would otherwise go to countries of concern, as defined by section 307(a) of the Foreign Assistance Act of 1961, if it wished to make known that the United States does not support IAEA's technical assistance projects in those nations. In addition, we recommended that the Secretary of State direct the U.S. interagency group on IAEA technical assistance to systematically review all proposals for TC projects in countries of concern prior to their approval by IAEA to determine whether the projects are consistent with U.S. nuclear nonproliferation goals. In response, an interagency process was established, involving State, DOE, and the DOE national laboratories, to evaluate proposed and active TC projects for proliferation risks. State leads the reviews of TC project proposals and ongoing projects. DOE provides technical input to this process using the technical expertise of its national laboratories to assess the projects' proliferation risks and reports its findings to State.

GAO's 2009 Findings and Recommendations on Potential Proliferation and Management Concerns Surrounding the TC Program

In our 2009 report, we identified potential proliferation concerns with the TC program, including concerns about certain countries receiving TC assistance—such as those designated by the United States as state sponsors of terrorism—and lack of sufficient and timely information from IAEA on TC project proposals to allow the United States or other member states to assess the proliferation risks of the proposed projects. We also identified several limitations in how the TC program is managed, which could undermine its long-term effectiveness, including the use of outdated program metrics and financial resource constraints.

GAO's Findings on Potential Proliferation and Management Concerns in the TC Program

In our 2009 report, we found that neither State nor IAEA sought to systematically limit or prevent TC assistance to countries that (1) have been identified as sponsors of terrorism, (2) are not parties to the NPT, and (3) have not completed comprehensive safeguards or additional protocol agreements with IAEA. Specifically:

- State officials told us that the United States did not systematically try to limit TC projects in Cuba, Iran, Sudan, and Syria—which the department designated as sponsors of terrorism. These four countries received more than $55 million in TC assistance from 1997 through 2007. Moreover, IAEA officials told us that the agency did not seek to limit or condition TC assistance in countries such as Iran and Syria that have been found or suspected by IAEA of having violated their safeguards commitments and may be engaged in undeclared nuclear activities. Under U.S. law, however, State withholds a portion of its contributions, except for certain projects, to the TCF equal to the U.S. proportionate share of TC expenditures in Cuba. In addition, in the past, State has withheld a proportionate share of its TCF contribution for Iran, Libya, and the Territories Under the Jurisdiction of the Palestinian Authority. Regarding Iran, State reported in 2007 that three TC projects in that country were directly related to the Iranian nuclear power plant at Bushehr. IAEA's former Deputy Director General for the TC program told us that requests for TC assistance are evaluated strictly on technical merits and the contributions of the proposed projects to a nation's development priorities.

- From 1997 through 2007, the TC program disbursed approximately $24.6 million in assistance to India, Israel, and Pakistan, although these states are not party to the NPT. IAEA officials told us that NPT membership is not required for IAEA member states to receive TC assistance under the agency's statute. State officials told us that the United States did not attempt to systematically limit TC program support to countries that are not signatories to the NPT.

- According to IAEA, Article III of the NPT requires all nonnuclear weapon states to conclude comprehensive safeguards agreements with the agency, and the United States and IAEA have recognized an inherent linkage between nonnuclear weapon states' rights to access peaceful nuclear technology and their obligation to accept safeguards on their nuclear activities.[7] We found, however, that nonnuclear weapon state members of IAEA are not required to complete comprehensive safeguards or additional protocol agreements with IAEA to be eligible for TC assistance, even though U.S. and IAEA officials have stressed the need for all

[7]The NPT requires nonnuclear weapon state parties to the treaty (defined as those countries that had not manufactured and detonated a nuclear device before January 1, 1967) to accept IAEA safeguards on all nuclear material used in peaceful activities so that the agency can verify that their nuclear programs are not being used for weapons purposes. Most countries have concluded "comprehensive safeguards agreements" with IAEA, under which governments declare their nuclear materials and activities to IAEA. The agency then verifies and monitors these declarations.

countries to bring such arrangements into force as soon as possible.[8] We found that 17 states and territories without comprehensive safeguards agreements in force in 2007 received approximately $6.7 million in TC program assistance that year, while 62 states and territories without an additional protocol in force in 2007 received approximately $43.2 million in assistance that same year.

We also found that the proliferation concerns associated with the TC program were difficult for the United States to fully identify, assess, and resolve for the following reasons:

- *Lack of sufficient and timely information on TC project proposals.* State, DOE, and national laboratory officials told us that there was no formal mechanism for obtaining TC project information from IAEA during the proposal development phase. Of the 1,565 proposed TC projects DOE and the national laboratories reviewed for possible proliferation risks from 1998 through 2006, information for 1,519 proposals, or 97 percent, consisted of only project titles. DOE and national laboratory officials told us that a TC project proposal title alone is generally insufficient to reliably assess proliferation risk. In addition, DOE and national laboratory officials told us that in recent years they had received less information about proposed TC projects and that the information they did receive is arriving closer to the time when such projects must be approved by IAEA's Technical Assistance and Cooperation Committee and the Board of Governors. State, DOE, and national laboratory officials told us that it is preferable to raise potential proliferation concerns about TC proposals with IAEA officials early in the development cycle, when project proposals can be modified more readily. Finally, while IAEA's Safeguards Department reviews TC proposals and ongoing projects, we were told the results of these reviews are confidential and are not shared with the United States or other governments. We were unable to assess the effectiveness of this IAEA internal review process because IAEA officials declined to provide us with certain basic information regarding the results of the review, including the total number of TC proposals the Safeguards Department identified as having potential proliferation concerns.
- *Limited State documentation on how proliferation concerns of TC proposals were resolved.* From 1998 through 2006, DOE and the national

[8]IAEA has sought to further strengthen its verification efforts through a complementary "additional protocol" to a country's comprehensive safeguards agreement. Under such protocols, states must provide IAEA with broader information and wider access rights on all aspects of their activities related to the nuclear fuel cycle.

laboratories identified 43 of the 1,565 TC proposals they reviewed as having some degree of potential proliferation risk. IAEA approved 34 of these 43 proposals. However, we were unable to determine if State addressed DOE's and the national laboratories' concerns because—with the exception of one case—State could not document how it responded to these findings. State officials told us that as a result of a 2005 reorganization of the department's arms control and nonproliferation bureaus, the office that monitors TC program issues has fewer staff to conduct IAEA oversight.

- *Shortcomings in U.S. policies and IAEA procedures related to TC program fellowships.* From 1997 through 2007, we found that of 1,022 TC program fellows who studied nuclear issues at universities or other organizations in the United States, 23 were from non-NPT member states, such as Israel and Pakistan, or from U.S.-designated state sponsors of terrorism, such as Syria. We found that State's Office of Multilateral Nuclear and Security Affairs lacked a formal policy and specific criteria to serve as the basis for approving or rejecting requests from TC fellows to study nuclear issues in the United States.[7] In addition, we found shortcomings in the extent to which IAEA monitored the proliferation risks of TC fellowships. Specifically, IAEA did not systematically track individuals who completed fellowships to determine whether they were still working on peaceful nuclear programs in their home country, and how the knowledge and expertise they obtained is being applied.

In the 2009 report, we also identified management challenges limiting the TC program's long-term effectiveness in three areas: program performance metrics, financial resource constraints, and project and program sustainability. Specifically:

- *Inadequate program performance metrics.* IAEA did not have adequate metrics for measuring the TC program's impact. For example, IAEA officials told us that performance metrics developed in 2002 did not assess the impact of TC projects in meeting specific member state development and other needs, such as the number of additional cancer patients treated

[7]However, we noted that TC fellows must apply for a U.S. nonimmigrant visa in order to enter the United States and begin their studies. State's Bureau of Consular Affairs handles the adjudication of these visa applications, and in some cases, the consular officers will request a security advisory opinion, known as a Visa Mantis, if there are concerns that a visa applicant may engage in the illegal transfer of sensitive technology. According to State, the key role of the Visa Mantis process is to protect U.S. national security, particularly in combating the proliferation of weapons of mass destruction, their delivery systems, and conventional weapons.

or the number of new nuclear security safety regulations promulgated. IAEA's internal auditor also reported that the TC program lacked appropriate performance indicators.

- *Financial resource constraints.* Many member states did not pay their full share of support to the TCF but nevertheless received TC assistance, while some high-income countries also received support from the TC program. The TCF experienced a shortfall in 2007 of $3.5 million, or 4 percent, of the $80 million total target budget because 62 member states did not pay their full contributions, including 47 countries that made no payment at all. In addition, in 2007, 13 member states that the UN defined as high-income received a total of $3.8 million in assistance from the program, or 4 percent of the total TC disbursements that year. While IAEA officials told us it would be helpful if more developed countries shifted from TC recipients to donors, IAEA had not developed a policy or criteria for determining when such countries should be graduated from assistance.

- *TC project and program sustainability challenges.* IAEA did not systematically review completed TC projects to determine or verify whether the host country is sustaining project activities and results. In addition, the TC program overall faced sustainability challenges because program funding was distributed across 18 different technical areas, making it difficult for IAEA to set clear program priorities and to maximize the impact of limited TC program resources. Finally, IAEA had developed outreach strategies to engage new potential partners and donors—primarily from international development organizations—to help sustain the TC program. However, this effort faced several limitations and shortcomings, including a focus on attracting TC program donors and partners in the economic and social development communities—rather than private sector partnerships—and failure to evaluate long-term commercial potential of TC projects.

GAO's Recommendations to Address Potential Proliferation and Management Concerns in the TC Program

Based on our findings, we asked Congress to consider directing State to withhold a proportionate share of future U.S. voluntary contributions to the TC program that is equivalent to the amounts of TCF funding that would otherwise be made available to U.S.-designated state sponsors of terrorism and other countries of concern, as it currently does with Cuba and has done in the past with Iran, Libya, and the Territories Under the Jurisdiction of the Palestinian Authority. Alternatively, we noted that if Congress wishes to obtain additional information before making this decision, it could require State to report to Congress explaining its rationale for not withholding a proportionate share of the U.S. contribution to the TCF for U.S.-designated state sponsors of terrorism.

In addition, we recommended that the Secretary of State, working with IAEA and member states through the Board of Governors, explore undertaking the following eight actions to address the range of proliferation and management concerns related to the TC program:

- Establish a formal mechanism to facilitate greater and more timely information sharing on TC project proposals between IAEA and the United States and other countries—including detailed information on the TC proposals themselves, as well as the results of IAEA's internal proliferation reviews of the proposals—so that proliferation and other concerns can be identified and addressed early in the project development cycle.
- Promote a regular and systematic process for obtaining, retaining, and updating information on prior TC project fellows to better track where and how the knowledge and expertise they have obtained is being applied.
- Strengthen the TC program's mechanisms for collecting member states' contributions to the TCF to include withholding from nonpaying states a percentage of TC assistance equivalent to the percentage of their target rate that they fail to contribute to the TCF.
- Establish criteria for determining when member states, especially those defined as high-income countries, no longer need TC assistance in particular fields and when such states could be graduated from further TC support altogether.
- Seek to implement new results-based performance metrics for the TC program that establish specific national, regional, and interregional social and economic needs and measure the collective impact of TC projects in meeting those objectives.
- Focus the TC program on a more limited number of high-priority technical areas to maximize the impact of program resources.
- Encourage the TC program to reach out to private sector entities as part of its new partner and donor development strategy.
- Request member states to assess in their TC project proposals the prospects for commercialization of and private sector investment in the results of the projects. Such steps could include requiring information in the proposals on potential business plans, marketing strategies, and strategies for attracting commercial partners once IAEA support has concluded.

Finally, to clarify and improve U.S. oversight of the TC program, we recommended that the Secretary of State undertake the following two actions:

- Enhance record-keeping and formally document management actions regarding the discussion, action, and disposition of TC project proposals that DOE and the national laboratories identify as having potential proliferation concerns.
- Issue formal guidance with well-defined criteria—such as countries designated by State as sponsors of terrorism or gross human rights violators—that State should use as the basis for approving or rejecting TC fellowship requests for nuclear studies in the United States. This guidance could include, among other things, a list of specific countries from which State would not approve TC fellows that could be updated and revised annually, or as other circumstances warrant.

State Continues to Oppose Withholding a Proportionate Share of U.S. Funding for the TC Program, but State and IAEA have Made Some Progress in Implementing Our Other Recommendations

State officials told us that they continue to strongly oppose our matter for congressional consideration to require State to withhold a proportionate share of the U.S. voluntary contribution to the TC program that is equivalent to the amounts of TCF funding that would otherwise be made available to U.S.-designated state sponsors of terrorism and other countries of concern. In its comments on our 2009 report, State objected to the matter for a number of reasons, noting that (1) it would be counterproductive to a separate recommendation we made in the report encouraging all states to pay their full share to the TCF; (2) it would not stop TC projects in targeted countries because TCF funding is fungible; (3) Congress has exempted IAEA contributions from this type of proportionate withholding; (4) none of the TC projects in state sponsors of terrorism have been shown to have contributed to a WMD program; (5) there are adequate safeguards within IAEA's Secretariat to prevent TC projects from contributing to a WMD program; and (6) it would negatively impact the ability of the United States to achieve other critical objectives within IAEA.

We continue to believe that Congress should give serious consideration to this matter, and that it is not unique or unprecedented. As we noted in our report, U.S. law currently requires the withholding of a proportionate share of the U.S. contribution to the TCF for certain projects in Cuba, and has required withholding in the past for Iran, Libya, and the Territories Under the Jurisdiction of the Palestinian Authority. Moreover, we believe there is a fundamental principle at stake. As we described in our report,

the United States has applied several types of sanctions limiting foreign assistance and trade to states it has designated as sponsors of terrorism and to other countries. To avoid the appearance of an inconsistent approach and to foster greater cohesion in U.S. policy toward such nations, we believe that it is fair for Congress to consider requiring State to withhold a share of the U.S. contribution to the TCF for program activities in countries that the United States chooses not to engage directly in trade, assistance, and other forms of cooperation. The United States would almost certainly continue to be the largest donor to the TC program even with such a withholding, and State could deflect potential criticism from other member states by offsetting the amount of funding it withholds from the TCF by increasing the amount of funding provided through its extrabudgetary contribution for "footnote a/" TC projects.[10] In this way, total U.S. financial support to the TC program—and U.S. political commitment to the IAEA mandate and the NPT—could be preserved. To give Congress greater flexibility and more information on this matter, we suggested that Congress could consider the alternative option of requiring State to report on its rationale for not withholding a proportionate share of the U.S. contribution to the TCF for U.S.-designated state sponsors of terrorism.

Despite its disagreement with our matter for congressional consideration, State has taken our other 2009 report recommendations seriously and has communicated directly with IAEA officials on their potential implementation. For instance, we reviewed correspondence from 2010 between State and IAEA officials in which State underscored its support for most of our recommendations. In addition, in March 2011, State officials told us they were optimistic that the new IAEA Director General and new Deputy Director General for the Technical Cooperation Program will continue to be receptive to changes to the management of the TC program. Nevertheless, State officials commented that while the United States remains the largest TC program donor, State has limited ability to influence IAEA's decision-making and cannot direct or require IAEA to implement our recommendations. Moreover, in the correspondence between State and IAEA we reviewed, IAEA officials indicated that while they are supportive of some of our recommendations—such as phasing out highly-developed nations from further TC assistance—fully

[10]Projects that IAEA approves but that cannot be supported by available TCF resources are referred to as "footnote a/" projects. Extrabudgetary funding provided by member states or international organizations can be allocated directly to specific footnote a/ projects.

implementing them could require changes in IAEA policies that must be decided by IAEA's governing bodies, not by the Secretariat itself.

Nevertheless, State and IAEA officials were able to cite varying levels of progress concerning implementation of our recommendations.[11] Progress was reported by State and IAEA in 7 of our recommendations, as follows:

- *Establishing a formal mechanism to facilitate greater and more timely information sharing on TC project proposals between IAEA and the United States and other countries.* Although no formal mechanism has yet been established, according to State officials, IAEA's Secretariat took steps to ensure that descriptions of TC project proposals were provided to all IAEA member states during the September 2010 Board of Governors meeting. State officials told us that receiving the TC proposal descriptions 5 weeks in advance of the November 2010 Technical Assistance and Cooperation Committee and Board of Governors meetings, during which the proposals were approved, was a significant improvement from the previous practice, in which proposal information was typically made available to member states 2 weeks prior to these meetings. IAEA officials indicated in documentation provided to us in March 2011 that the Secretariat is aiming to provide proposals 5 to 6 weeks in advance of the 2011 November Technical Assistance and Cooperation Committee and Board of Governors meetings. A DOE official, who coordinates efforts by DOE and its national laboratories to assess proliferation concerns with the TC program, confirmed that information on TC project proposals was provided earlier by IAEA and that this additional amount of time was helpful to the U.S. proliferation review process. This official believed, however, that the amount and usefulness of information provided by IAEA about the proposed projects had not significantly improved since our report was issued in 2009. As a result, the DOE official told us that DOE generally considered TC proposal information alone to be insufficient to allow DOE and its national laboratories to reliably assess the proliferation risks of the TC proposals. The DOE official noted that the U.S. government has continued efforts to obtain more information from IAEA on TC proposals, although he said that it remains to be seen whether such efforts will bear fruit.
- *Promoting a regular and systematic process for obtaining, retaining, and updating information on prior TC project fellows.* Documentation

[11]We did not independently verify the progress made by IAEA in implementing our recommendations given the time constraints in preparing this testimony.

IAEA provided to us in March 2011 highlighted a new IAEA system called the "InTouch Platform" launched in early 2011 that will allow IAEA to remain in contact with TC fellows. State officials told us that the usefulness of this system, however, depends on the willingness of TC fellows to voluntarily report and update information on their whereabouts and activities.

- *Seeking to implement new results-based performance metrics for the TC program.* According to State officials, IAEA officials in the TC Department have undertaken steps to foster results-based performance metrics for TC projects. These steps have included IAEA sponsorship of an interregional TC project and issuance of guidelines that are designed to promote results-based management of TC projects by IAEA member states. Documentation IAEA provided to us in March 2011 noted that the TC program is working on standard performance indicators for each of the TC program's 30 fields of activities, and that the 2012-2013 cycle of TC projects will include strengthened monitoring and reporting requirements on project results.

- *Focusing the TC program on a more limited number of high-priority technical areas to maximize the impact of program resources.* In documentation provided to us in March 2011, IAEA reported that it has consolidated the field of activities covered by the TC program from 140 fields to 30 fields, notified member states that no more than 8 active TC projects will be supported per country, and undertaken a major management effort to close long-standing TC projects. According to IAEA, these steps are expected to lead to a smaller overall portfolio of TC projects.

- *Requesting member states to assess in their TC project proposals the prospects for commercialization of and private sector investment in the results of the projects.* While no formal mechanism for assessing commercialization or private sector investment potential appears to have been incorporated into the TC proposal development process, in documentation IAEA provided to us in March 2011 it was noted that there have been instances where TC project commercialization has been realized, including mutation breeding of rice varieties in Vietnam and Pakistan.

- *Enhancing State record-keeping and formally documenting management actions regarding the discussion, action, and disposition of TC project proposals having potential proliferation concerns.* State has implemented a new e-mail and cable management system since our report that State officials said they believe will improve storage and retrievability of their records regarding the discussion, action, and disposition of TC project

proposals that DOE and its national laboratories identified during the interagency review process as having potential proliferation concerns.

- *Issuing formal guidance with well-defined criteria that State should use as the basis for approving or rejecting TC fellowship requests for nuclear studies in the United States.* State has developed formal guidance establishing criteria for accepting or denying applications from TC fellows from foreign countries requesting opportunities to study nuclear issues at institutions in the United States. Among other things, this guidance states that TC fellowship applications for nuclear studies in the United States from countries listed as state sponsors of terrorism and from countries deemed gross human rights violators would not be approved.

We are making no new recommendations at this time. In preparing for this hearing, we interviewed State officials on how our recommendations have been implemented. We also interviewed a DOE official for his views regarding changes in the quantity and timeliness of information DOE has received on TC proposals since our 2009 report and whether this information has improved DOE's ability to assess proposed TC projects for potential proliferation concerns. We also reviewed documentation provided by State and IAEA concerning our recommendations and the steps taken to implement them. We discussed the factual information in this statement with State and DOE officials and incorporated their comments as appropriate. We conducted the performance audit work that supports this statement in accordance with generally accepted auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to produce a reasonable basis for our findings and conclusions based on our audit objectives. We believe the evidence obtained provides a reasonable basis for our statement today.

Madam Chairman, this concludes my prepared statement. I would be pleased to answer any questions that you or other Members of the Committee may have at this time.

GAO Contact and Staff Acknowledgments

For further information about this testimony, please contact Gene Aloise at (202) 512-3841 or aloisee@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this statement. Glen Levis, Assistant Director, and William Hoehn made key contributions to this statement.

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Mr. ROYCE. We appreciate your testimony, Mr. Aloise.

I think we will go first to Jean Schmidt for her questions.

Mrs. SCHMIDT. Thank you so much, Mr. Chairman.

Mr. Sokolski—did I say that right?

Mr. SOKOLSKI. Sokolski.

Mrs. SCHMIDT. Sokolski. I apologize, sir. We are all Irish today. Are you Irish, sir? Well, Schmidt is an Irish name, too.

Anyway, sir, a key element of U.S. policy related to the expansion of civilian nuclear energy overseas is providing ready access to a fuel supply, so that emerging nations, nuclear nations, do not have to build their own enrichment capabilities. This policy serves a major nonproliferation goal in that enrichment can be used both for peaceful purposes and for developing highly enriched uranium for weapons. However, in order for the U.S. to maintain a leadership position in this arena, it is necessary for a domestic U.S. enrichment capacity to be available to the world market. Sir, do you agree that it is in the policy interests of the United States to maintain a strong domestic enrichment industry?

Mr. SOKOLSKI. Let me answer that question by noting that I am an avid car buff. I actually do now own one American automobile. The rest are Japanese, made in the United States. They are better.

We are now very strong in enrichment because of URENCO. I would say that is okay. In other words, I don't really think we are anything other than supplied well, and there are a lot of other suppliers besides those housed in the United States.

I wish the supply of fuel was the major lever for nonproliferation that it might have been in the 1970s. I suspect, although you can't be against multinational fuel banks, or for that matter almost anything multinational, we have gone a bit too far in arguing everyone has an inalienable right to make fuel, which I don't read in the treaty and I have written extensively on, and many others have. I think we have overdone it.

And the economics of making fuel, unfortunately, are not that much worse than boiling water, and these reactors are costing $4 billion to $10 billion. Making fuel under some circumstances can cost a fraction of that. I think we are in trouble for that reason, and I think it would be nice to think that we could be cast back into the 1960s when we made almost all the fuel and the Russians were the only others. Those days are, unfortunately, well behind us.

And I would not be apprehensive about URENCO, which is owned by foreigners, but I think they are friends. They are very close friends. Mr. Domenici certainly was not upset about it, and I think he is a pretty good measure for what is okay when it comes to the nuclear industry. So I wouldn't be apprehensive about that.

Mrs. SCHMIDT. Thank you.

Mr. Heinonen, did I say that correctly?

Mr. HEINONEN. Yes.

Mrs. SCHMIDT. Oh, good. Thank you, sir.

Recently, Syria announced that on April 1st it will allow IAEA inspectors to visit an acid purification plant in the city of Homs. One of the byproducts of this plant is yellowcake and uranium concentrate. Commercial satellite photos recently released by the Institute for Science and International Security, however, may prove

that Syria has been working to perfect atomic weapons since before Israel's military strike in 2007. There may also be another two or three sites in Syria with nuclear facilities. If Syria chooses to revoke its permission to the IAEA to conduct the April 1st inspection, or, should it continue to refuse the IAEA inspection access to its other potentially nuclear sites, how should the IAEA respond?

Mr. HEINONEN. Thank you.

First of all, I think that this step to allow the IAEA to visit this production plant in Syria is a very modest step. It doesn't solve this problem at all, in my view. It is important that the IAEA have full access to the destroyed reactor and facilities which might be related to that, and these are the locations which you just mentioned in your question. In order to solve this problem and to ensure that all nuclear material in Syria is placed under the IAEA safeguards. What needs to be done, if Syria doesn't heed to this IAEA request, in my personal view the IAEA would use all the powers which it has and then the next logical step is to do a special inspection.

Thank you.

Mrs. SCHMIDT. I yield back my time.

Mr. ROYCE. Thank you.

I am going to go to Mr. Sherman. He is the ranking member of the Terrorism, Nonproliferation, and Trade Subcommittee.

Mr. SHERMAN. Thank you.

First, I want to commend the chairwoman for moving forward with legislation. But, let's face it, the only bills the President is going to sign this year are appropriations bills and post offices. Everything else is a statement. If we are going to be able to have Congress play a role in this area we are going to have to take whatever bill this committee comes up with and insist that it be made part of the appropriations bill. If we are not able to do that, unwilling to do that, unwilling to cross party lines in order to demand it, it is not going to happen and service on this committee will be educational but otherwise irrelevant. As I said, if it is not in the appropriations bill, it is never going to become law; and the President is not going to want us to reinject Congress into the decision-making process.

One thing I found is, whatever people believe when they are running for President, whatever party they are for, they are against Congress actually having any control of anything just as soon as they walk into the White House. Whether there is some sort of new form of Legionnaire's Disease inhabiting that building that skews one's view of the division of power and the balance of power, I don't know.

I want to commend Mr. Sokolski for your comment that our Government has, in effect, given away the store by seeming to acknowledge that Article 4 of the NPT allows countries to enrich and get within striking distance of a nuclear weapon all while claiming to be in compliance with the NPT. I can understand why the Iranian Foreign Ministry takes that position. If you look at the text, your interpretation is just as valid and has the additional advantage of not leading to nuclear weapons in the hands of some of the most nefarious governments.

I raised this question informally with some of your colleagues, so I will ask you, why is it that countries are reluctant to agree to a

liability protocol that allows American companies to do business in their country when sovereign immunity grants that same liability protection automatically to French and Russian companies? And is there a way for these companies to simply agree that whatever defenses the relevant French or Russian company would have are also available to others building nuclear plants in their country?

Mr. SOKOLSKI. I want to make sure I understand the question, so I don't just talk.

Mr. SHERMAN. It is my understanding nobody wants to build a nuclear plant if they can get sued for $20 trillion unless they have a damn good defense. The French company can claim sovereign immunity. I don't know exactly the French Government's involvement. The Russian company likewise. The American company goes in unless the laws of the host country provide for special liability treatment, and even the so-called gold standard agreement we reached with the UAE did not provide that.

As you may have heard, some of my constituents are concerned about jobs, and what is the good of all these nuclear agreements if American companies are completely shut out of the process? So why are host countries reluctant to give our companies the same liability protection which they in effect give to the French, the Russians, and someday maybe the Chinese?

Mr. SOKOLSKI. Simple. It saves money. The product that they can buy from the Koreans, French, and if the Germans help the Russians, is pretty good. It costs less.

Mr. SHERMAN. I am not asking why they buy the other product. I mean, you can lose a bid. Why do they shut us out of the bidding by not adopting the liability law?

Mr. SOKOLSKI. Well, because they have to spend—it is not just something you sign. You have to take money and put it into an account and create a pool of money to implement that CFC law, which is really what you are asking them to do.

Mr. SHERMAN. No, what I am asking is simply to provide by law that a lawsuit against General Electric would be treated just the same as a lawsuit against a Russian company that happens to be government owned.

Mr. SOKOLSKI. You can change the law. If that is the character of the question, have at it.

I think that the problem is just that, though. What we tried to do is use an international vehicle, and we created the CFC. I can sense the frustration with that because no one wants to sign up to it because it requires putting money aside. Effectively, you may very well have a point. But you have to understand you are then putting the U.S. Government in the position of assuming risk, and you are hoping——

Mr. SHERMAN. Again, my question is just a simple one-sentence statement in the liability law. I realize you——

Mr. SOKOLSKI. Well, I do think that the recourse—I guess the simple one-sentence answer is "heads up." Our court system would take seriously suits in a way that people going to a French or Russian court would be very unlikely to get relief. So the Treasury is open for raiding if you do this, I think, if there is an accident.

To give you an example, the Japanese did channel away the liability, so GE is not subject to suit.

Mr. SHERMAN. I believe my time is expired.

Mr. ROYCE. We are going to go to Mr. Jeff Duncan from South Carolina for his questions.

Mr. DUNCAN. Thank you, Mr. Chairman; and I thank the panelists for being here today.

The issues around the world and Japan are very concerning to me, because I have been to Japan and my heart goes out to the folks there. We are watching that issue very, very closely.

And, Mr. Chairman, as you know, we have the Nation's most important site for nonproliferation in my district in South Carolina, and that is the Savannah River Site and Savannah River National Laboratory. The Savannah River Site handles the most sensitive nuclear materials and seeks to ensure that the legacy weapons materials once used in the nuclear weapons that kept our country safe are used in the future hopefully for energy production.

In addition to these legacy materials, the Savannah River Site receives spent fuel from the countries that were involved in IAEA's Atoms for Peace programs dating back to the 1950s. This issue is of particular importance, as you can see, to my district, and I commend the chairwoman for holding the hearing today.

But let me be clear, while we are proud of the ongoing missions and future missions at the Savannah River Site, especially the role that the Site plays in helping the Nation address energy independence, the Site is not—and I repeat not—suitable for long-term storage of legacy weapons materials, nor spent fuel from the Atoms for Peace countries.

As we continue to pursue MOX reprocessing in this country, we need to also address the long-term stable and secure storage of these materials. I specifically point to Yucca Mountain and the billions of taxpayer dollars that have been spent there and ask this: With further and future nonproliferation agreements in place resulting in a future increase in legacy weapons materials, I would be interested in hearing your ideas for how these materials should be dealt with, specifically storage and the validity of Yucca Mountain. And I will address that to Mr. Sokolski first.

Mr. SOKOLSKI. First, you have got time. Don't get in a rush to get this wrong. I think there is a kind of imperative about solving these waste problems which does not parallel the reality of what is going on.

Certainly with the civil fuel it is pretty clear. When environmentalists and utility managers are doing and thinking the same thing and storing it on-site in casks, and the National Research Council says that is a good, safe way and cheap way to do things, you should take yes for an answer. That will do, I was told by DOE. But that is only good, they said, for 500 to 1,000 years. I said, well, for government work, that is a start. Not bad. Last I checked, we haven't been around that long. So let that happen. Don't get in the way of that.

Second, with regard to the military things—I think Dr. Perry may have ideas as well—I think it is very important, first, to make what you have secure, whatever form it is in. Moving stuff around, particularly moving stuff around in places like Russia, I don't know, I would be not too quick to do that unless you had to.

With those two rules of thumb, you can get by for quite a while. And in government doing a pretty good job in getting by is a pretty high standard these days. Generally, we don't meet that standard. So I would shoot for that first.

Mr. DUNCAN. Are you familiar with the processes that are being handled at H Canyon, Savannah River Site?

Mr. SOKOLSKI. A little, yes.

Mr. DUNCAN. It is very concerning to me, Mr. Chairman and the panelists here, that we are seeing the Department of Energy re-evaluate and I guess divert assets and revenues to environmental management, which is an important aspect going on at both Savannah River Site, Hanford, and all across the land.

But it is concerning to us that they are taking resources from H Canyon, which has been up and running for 40 years, processing the nuclear material; and with the nonproliferation materials coming to Savannah River Site and the role that H Canyon would play in reprocessing that and a lot of other missions that are going on there, it is very, very concerning to me and the delegation from South Carolina that Secretary Chu and his staff have decided to take $100 million away from H Canyon. Because what is going to happen there is we are going to lose the valuable human resources that would seek employment in other areas, and we will lose those from Savannah River Site.

And so as we move forward, as we talk about the nonproliferation and the legacy weapons materials, that we keep in mind that H Canyon plays a vital role in this country and has for 40 years. It doesn't need to be put in warm standby. It needs to be continuing to conduct the missions it was designed for.

Thank you. I yield back.

Mr. ROYCE. Mr. Faleomavaega from Guam.

Mr. FALEOMAVAEGA. No, I am from American Samoa, Mr. Chairman.

Mr. ROYCE. American Samoa, I stand corrected.

Mr. FALEOMAVAEGA. Mr. Chairman, thank you; and thank our panel of witnesses for their expertise in also sharing with us the issue that we are discussing this morning.

I have somewhat of a different perspective in terms of how we are to address the issue of nuclear technology and the problems that we are faced with right now, especially with the situation in Japan and the aftermath of the earthquake and the tsunami. I say that I take a different perspective because it is almost like a broken record now. We have been talking about nuclear proliferation, we talk about regulatory aspects and the importance of the strategic and military interests that we have. The number of nuclear weapons that are now in place—and correct me if I am wrong—that we now currently have the capacity with all the nuclear powers they have in their possession, these nuclear weapons, enough to blow this planet 10 times over with its capacity and to say that madness that continues in terms of why we continue to have in our possession these nuclear weapons or weapons of mass destruction——

I wanted to ask you gentlemen if you can help me. What country—my understanding is France currently depends—about 80 percent of its energy resources come from nuclear technology. I wanted

to ask in your opinion which country currently has the most advanced technology dealing with nuclear energy?

It is quite obvious that, what, for the last 30 or 40 years Japan has revealed the fact that there is tremendous weakness in the capacity and ability of the Japanese Government to address the dangerous situation that we are now faced with with the four nuclear reactors that have dangerously come down to the problems of what is happening in the Fukushima nuclear reactor there in Japan.

But I am curious, gentlemen, in your best judgment, which country currently has the best technology on nuclear technology for its use for peaceful purposes, for example, France being one of those countries?

Mr. SOKOLSKI. I will take a stab.

Mr. FALEOMAVAEGA. Please.

Mr. SOKOLSKI. I think it is not fair to pick just one.

Mr. FALEOMAVAEGA. Your microphone.

Mr. SOKOLSKI. I am sorry.

I think that each country has some comparative strengths, and they are different. When it comes to design, the U.S. is pretty good. In advanced design, the U.S. advanced design is pretty good. When it comes to constructing something quickly and for a reasonable firm price, boy, I think the Koreans have a lot to offer. When it comes to large plants that are reasonably modern that can be built, France has something to offer. It doesn't come cheap. And if you want price, the price leader is Russia. By the way, reliability is a different problem. So it depends what you are looking for, and that is the reason why there is all these different firms.

Now, I didn't mention China because they are not quite in the game yet, but they will come into the game because we gave them a lot of good reactor technology, and we really did give it to them. My guess is once they get into the mode of mastering that you will see them on the market, and their price will be low.

Mr. FALEOMAVAEGA. Mr. Heinonen.

Mr. HEINONEN. Thank you.

Well, I have a couple of remarks, though Mr. Sokolski I think summarized this pretty well.

One can look at this from another angle, which is maybe important from the nonproliferation point of view. When we look at the risks of nuclear energy, it is not only the enrichment. We need also to look at what to do with the spent fuel and how to deal with the plutonium contained in the spent fuel with the longer term.

And, therefore, when we look for solutions we should look to a leasing option for the nuclear fuel. So whoever sells you a reactor actually leases the fuel for the lifetime of the reactor by providing investment services and taking the fuel back and then disposing of it. This is the kind of solution we should look for at this point in time. As Henry said, I think that might be the widest nuclear fuel cycle support that can be provided today both by Russia and, to a certain degree, France. Many other countries have a lot of limitations to take back, for example, spent fuel to their own territory.

Mr. FALEOMAVAEGA. Secretary Perry.

Mr. PERRY. I concur with what both the previous witnesses have said.

Mr. FALEOMAVAEGA. My time is up. I appreciate it. Thank you, Mr. Chairman. I barely started.

Mr. ROYCE. Thank you very much.

We are going to go to Mr. Fortenberry from Nebraska.

Mr. FORTENBERRY. Thank you, Mr. Chairman.

Before I begin my questions, let me make an observation. As I look out here, we have got a group of young people here, and that is good. I am glad you are interested in the question. As I look over here, we have a few members of the press. We have a former Secretary of Defense, a high-ranking official, former official in the International Atomic Energy Agency nonproliferation experts. A few Members. What is at issue here is the future of civilization, but I guess no one has the time.

This is a very, very real problem that has heightened awareness in this body, and I assume in other places, but is just not quite a priority. Now, maybe with the disasters in Japan, it will become more so. But this is not something that we can react to. This is something that we have to prevent, nonproliferation of this powerful technology that can be used for good or for devastating harm.

And so, Mr. Chairman, I think those of us who care deeply about this—and I know others do, but it just doesn't get to be prioritized—have an important job to do here in heightening the awareness of a need to be focused constantly on how we think clearly and strategically as to reduce proliferation in our world or to increase nonproliferation objectives in our world.

With that said, I think if I could summarize as succinctly as possible what you all are talking about, is in effect what we have to have, what we are looking for, what is very delicate to achieve for the objective of nonproliferation, is a global private-public partnership that effectively is enforced through a shared geopolitical strategy. And that is tricky. That sort of transcends the boundaries of treaties. It transcends the boundaries of trade. It sort of becomes a hybrid model of enforcement that is based upon good will, based upon a willingness to not cheat in terms of business agreements, and pressure by governments consistently to achieve the objective of nonproliferation.

Now, the Nuclear Suppliers Group I guess approximates this entity or this kind of concept as much as possible. China is now apparently cheating, so there might be even cracks in what has worked to a degree in seeking nonproliferation objectives in a communal worldwide sense.

So, with that said, let me ask you this. Mr. Sokolski, you had said earlier I don't think there is an inalienable right to make your own nuclear fuel. How did this paradigm come about? How can we shift and change that? I heard your earlier answer that perhaps it is foregone now. It is too late. This is related to the idea of how again do we strengthen the capabilities of the other entities that are out there.

And this would be your question Mr.—is it pronounced Heinonen? The governor of Nebraska is named Heineman, by the way. Is the IAEA capable of achieving the objective of nonproliferation or is it constrained by—just tell me the constraints that are there that prevent the ultimate objective, what we are trying to achieve.

Mr. SOKOLSKI. In answer to your question, if you are on a bad, bad roll, it is very important—I know when you ski if you are making mistakes the first thing you are supposed to do is stop. You don't keep skiing and try to correct yourself. You stop, and then you rethink what you are doing. I think with regard to this argument about rights, it is a way of interpreting the treaty. But I think, as Mr. Sherman pointed out, it is corrosive to a lot more of the provisions of the treaty to interpret it that way than to say, Well, whatever it is has to be safe.

Mr. FORTENBERRY. So why hasn't the paradigm shifted?

Mr. SOKOLSKI. Well, because we have chosen in this country, as well as encouraging other nuclear suppliers to follow our lead, to make our mistakes in this regard hereditary. What we have done is, well, because we said yes to Japan and yes to South Africa and yes to Brazil, we cannot stop and say maybe we need to rethink that. Maybe, at a minimum, we need to stop saying out loud, they clearly have the right. Maybe we need to start saying, you know, it is really not in the treaty. And maybe we have to make sure that, at a minimum, whatever activity it is, it is safeguardable and beneficial.

Mr. FORTENBERRY. The right depends upon certain conditions.

Mr. SOKOLSKI. Right.

Mr. FORTENBERRY. Now, in that regard, we put out an agreement with the UAE that was supposed to become a gold standard for nonproliferation objectives while pursuing civil nuclear technology.

Mr. SOKOLSKI. Right.

Mr. FORTENBERRY. There is some problem there in that we don't have other countries who are willing to accept the same standards and therefore can outcompete us.

Now, you were talking earlier about leverage. If you can get the French to go along with certain provisions by, I assume, leveraging our loan guarantees for their business in this country to accept that gold standard, then the Germans and the Russians potentially follow. Did I follow you correctly in that regard?

Mr. SOKOLSKI. Yes, roughly. There are other things the French want, too. It seems to me that the key advantage of the gold standard is that, in lieu of having an international organization that runs and owns everything, you are at least making a clear distinction between what is safe and dangerous. You have got to get everyone to go down that road. Keep in mind in 1945 we actually tried to do this.

Mr. FORTENBERRY. How? What are the entities out there that can leverage this if you shift the paradigm and actually cause enforcement? Back to my earlier comment——

Mr. ROYCE. If the gentleman would yield, shift the attitude in the Department of Energy.

Mr. SOKOLSKI. I was going to say charity starts at home. You have an opportunity to make it very clear what you think safe and dangerous is, that you like the gold standard. And I think this point about the Appropriations Committee is, unfortunately, right on point that Mr. Sherman made. Go talk amongst yourselves and see if anybody knows anybody on the Appropriations Committee. Believe you me, if you start moving down this road, you will probably leverage the most important group. They are over in the

White House. And they will go, oh, my God, if they are going to do this, we need to preempt them. You might be able to get some of this done without necessarily getting the law passed if they think you are serious and it looks like you are really going to do it.

Once you do it, the NSG has an opportunity that becomes riper because, oh, my God, they are really going to do this. Let's preempt it.

You have a golden opportunity here, I think, to get the gold standard looked at more seriously by more countries. And I think, unfortunately, it has taken this accident and the reduced value of stocks in nuclear vendors, the lack of credit, the opportunity that has been afforded by natural gas not to have to go nuclear immediately. All of this is in your favor. If you don't act now, I think it is a mistake.

Mr. FORTENBERRY. Thank you.

Mr. ROYCE. If I could follow up on that observation or that point. Right now, we have the leverage. We have the President's statement in Prague in 2009 that we were going to face this new paradigm in civil nuclear cooperation in which all countries are going to be able to enjoy the benefits of nuclear power while avoiding the spread of nuclear weapons and technology.

Well, we have a basis for that—or we had—the UAE agreement. If you look at a situation like the one that the administration is contemplating for Vietnam, which is what we are talking about now, I think what you called that was driving a stake through the heart of our efforts to stop the spread of nuclear fuel. I mean, once we back off of the position that you had to forego enrichment and reprocessing, we really are in a new paradigm.

And so if we use the leverage we have now to get back to the agreements that will at least halt that spread, I don't think that the problem is as dire as my colleague would indicate in terms of the situation with the votes in either the House or the Senate. And certainly with a two-thirds override the administration would, I think, be confronted with the real politics of dealing with this issue. And I think it is very important that we deal with it quickly, especially when we have the leverage.

So it is true we might be able to do it through the appropriations process, but we could also run legislation into the Senate and talk to Mr. Lugar and talk to Mr. Kerry and other members of the Senate.

I do think—well, I will go to a question to you, Mr. Sokolski; and that is, one of the excuses for not following through with the type of agreement we had with the UAE vis-à-vis Vietnam was, well, it is a different situation. In the Middle East, you are facing proliferation, but you don't have that problem in Asia. I think the quote was, "It doesn't apply to Asia. The concerns about an arms race in the Middle East aren't the same concerns in Asia."

Well, I am not sure that that is the right premise. I think about North Korea: First plutonium and then uranium enrichment. We see the reactions to that in South Korea, Japan, and Taiwan. I think about the transfer from North Korea to Burma that we are all concerned about in terms of this capability, of the fact that China is looking to sell reactors to Pakistan. Isn't this just as com-

bustible an area, potentially, as the Middle East, and shouldn't we apply the same standard? Isn't this an opportunity right now to leverage that standard?

Mr. SOKOLSKI. It is worse than you even have laid out. Privately, Jordanian officials were reported to have said, "Why in the world would we in the Middle East agree to a standard if you are not willing to inflict it on Vietnam? Why are we different?" So you do—it is kind of like the house divided speech that Lincoln gave. Now, that was a more odious topic, it was slavery and whether or not you could divide the good States from the bad States and you would have slavery in the South but not the North. And he said, "This is not tenable. You will either have the country entirely free or entirely enslaved." I think this is just such a proposition, and it is clear enough for any other foreign official to figure. It should be clear enough for anyone here to figure as well.

Mr. ROYCE. Then why is that unclear to these spokesmen? Why is it unclear to the U.S. Department of Energy? What is the impetus for going off of the gold standard and going onto this slippery slope that will get away from us with Vietnam?

Mr. SOKOLSKI. I think Dr. Perry can perhaps address this as well as anyone. But my own personal experience working in the Pentagon is it is very hard to think about the long run and what might be important if what is urgent is just getting people happy who are right in front of you and you have a current country that you want to please. So it is really the reason why we have—I hate to say it—division of power and why there is oversight.

Mr. ROYCE. Thank you.

Secretary Perry, your observations on this point.

Mr. PERRY. I would just add to what Mr. Sokolski said that the danger in Asia is at least as great as the danger in the Middle East.

Mr. ROYCE. All right. Well, that counters pretty effectively the quote.

Mr. Heinonen, your thoughts.

Mr. HEINONEN. Yes, thank you.

Actually, I agree with what the both witnesses said. And I would say that we have also to look forward. And what we are here testing is the credibility of the regime. You cannot have two standards in the same regime. And then also I think that it is important to think that times may change, and there is also a threat also in Asia.

Mr. ROYCE. Yes, yes. Thank you, Mr. Heinonen.

Mr. Aloise.

Mr. ALOISE. I would just add we have addressed this overall problem in light of our nonproliferation work and that is sending mixed messages. I think we should be as careful as we can in making sure in all the different realms of nonproliferation that we send the same message and that we are serious about it. What is good for one nonproliferation regime in one country should be the same in another.

Mr. ROYCE. Thank you, Mr. Aloise.

I think this is a critical issue that we are dealing with, and one of the things I just want to convey is our appreciation for having you witnesses with your expertise join us today and lay out your

views. We have your written testimony as well for the record, and let me express our deep appreciation to you for being here for this hearing today.

The hearing will now stand adjourned. Thank you.

[Whereupon, at 11:50 a.m., the committee was adjourned.]

APPENDIX

Material Submitted for the Hearing Record

FULL COMMITTEE HEARING NOTICE
COMMITTEE ON FOREIGN AFFAIRS
U.S. HOUSE OF REPRESENTATIVES
WASHINGTON, D.C. 20515-0128

Ileana Ros-Lehtinen (R-FL), Chairman

March 16, 2011

You are respectfully requested to attend an OPEN hearing of the Committee on Foreign Affairs, to be held in **Room 2172 of the Rayburn House Office Building (and available live, via the WEBCAST link on the Committee website at http://www.hcfa.house.gov):**

DATE: Thursday, March 17, 2011

TIME: 9:45 a.m.

SUBJECT: The Global Nuclear Revival and U.S. Nonproliferation Policy

WITNESSES: Mr. Olli Heinonen
Senior Fellow
Belfer Center for Science and International Affairs
(Former Deputy Director General of the International Atomic Energy Agency and head of its Department of Safeguards)

The Honorable William J. Perry
Former Secretary of Defense
Senior Fellow, Hoover Institution

Mr. Henry Sokolski
Executive Director
Nonproliferation Policy Education Center

Mr. Gene Aloise
Director, Natural Resources and Environment Team
U.S. Government Accountability Office

By Direction of the Chairman

The Committee on Foreign Affairs seeks to make its facilities accessible to persons with disabilities. If you are in need of special accommodations, please call 202/225-5021 at least four business days in advance of the event, whenever practicable. Questions with regard to special accommodations in general (including availability of Committee materials in alternative formats and assistive listening devices) may be directed to the Committee.

COMMITTEE ON FOREIGN AFFAIRS

MINUTES OF FULL COMMITTEE HEARING

Day *Thursday* Date *March 17, 2011* Room *2172 Rayburn*

Starting Time *9:48 a.m.* Ending Time *11:48 a.m.*

Recesses [ ] (*10:32 a.m.* to *11:04 a.m.*) ( ) ( ) ( ) ( ) ( )

Presiding Member(s)

Chairman Ileana Ros-Lehtinen
Representative Ed Royce

Check all of the following that apply:

Open Session [✓]
Executive (closed) Session [ ]
Televised [✓]

Electronically Recorded (taped) [✓]
Stenographic Record [✓]

TITLE OF HEARING:

The Global Nuclear Revival and U.S. Nonproliferation Policy

COMMITTEE MEMBERS PRESENT:

Attendence Attached

NON-COMMITTEE MEMBERS PRESENT:

HEARING WITNESSES: Same as meeting notice attached? Yes [✓] No [ ]
(If "no", please list below and include title, agency, department, or organization.)

STATEMENTS FOR THE RECORD: *(List any statements submitted for the record.)*

Rep. Bilirakis' QFR to the Panel

TIME SCHEDULED TO RECONVENE _____
or
TIME ADJOURNED *11:48 a.m.*

Jean Carroll, Director of Committee Operations

Hearing/Briefing Title: The Global Nuclear Revival and U.S. Nonproliferation Policy

Date: March 17, 2011

Present	Member
X	Ileana Ros-Lehtinen, FL
X	Christopher Smith, NJ
	Dan Burton, IN
	Elton Gallegly, CA
X	Dana Rohrabacher, CA
	Donald Manzullo, IL
X	Edward R. Royce, CA
	Steve Chabot, OH
	Ron Paul, TX
	Mike Pence, IN
	Joe Wilson, SC
	Connie Mack, FL
X	Jeff Fortenberry, NE
	Michael McCaul, TX
	Ted Poe, TX
	Gus M. Bilirakis, FL
X	Jean Schmidt, OH
X	Bill Johnson, OH
X	David Rivera, FL
	Mike Kelly, PA
	Tim Griffin, AK
	Tom Marino, PA
X	Jeff Duncan, SC
X	Ann Marie Buerkle, NY
X	Renee Ellmers, NC

Present	Member
X	Howard L. Berman, CA
	Gary L. Ackerman, NY
X	Eni F.H. Faleomavaega, AS
	Donald M. Payne, NJ
X	Brad Sherman, CA
	Eliot Engel, NY
	Gregory Meeks, NY
X	Russ Carnahan, MO
	Albio Sires, NJ
X	Gerry Connolly, VA
X	Ted Deutch, FL
	Dennis Cardoza, CA
X	Ben Chandler, KY
	Brian Higgins, NY
	Allyson Schwartz, PA
X	Chris Murphy, CT
	Frederica Wilson, FL
	Karen Bass, CA
	William Keating, MA
X	David Cicilline, RI

[Responses from Mr. Olli Heinonen, senior fellow, Belfer Center for Science and International Affairs:]

Questions for the Record
HCFA Full Committee Hearing: "The Global Nuclear Revival and U.S. Nonproliferation Policy"
Congressman Gus M. Bilirakis
March 17, 2011

1. If, as shown with the nuclear reactors in Japan, we can build nuclear reactor containment vessels that hold despite an earthquake that measures 9.0 on the Richter scale, a tsunami, multiple hydrogen explosions, and repeated aftershocks, does it demonstrate that nuclear power may actually be relatively safe?

   If the tsunami had hit a solar farm instead, many tons of lead and cadmium telluride would now be poisoning the Sea of Japan.

   Would you agree with this statement?

2. As chairman of the Homeland Security's Subcommittee on Emergency Preparedness, Response and Communications, I am working to ensure that this nation is as prepared as possible for emergencies and disasters.

   Do we have the necessary plans in the rare event of a nuclear emergency?

   Have all countermeasures, such as the stockpiling of potassium iodide among other options, been looked at?

   What have we learned so far from the incident in Japan about our preparedness here at home?"

3. Following Israel's destruction in 2007 of a suspected nuclear reactor in Syria built with North Korean assistance, Damascus has gone to great lengths to cover up all evidence. By refusing to allow IAEA inspectors to visit sites that are suspected of being part of a clandestine nuclear weapons program, Syria is in violation of its IAEA safeguards agreement. The IAEA has the option of calling for a "special inspection" in which Syria would be obligated to allow IAEA inspectors to examine these and other sites, but many experts predict that Syria would continue to block them.

   Should the IAEA demand a "special inspection?"

   In my written statement I noted that the international community has allowed too much stalling and obfuscation in resolving safeguards compliance issues of Iran, North Korea, and Syria. With the information currently available one can conclude that Syria is not in compliance with its safeguards undertakings. Syria has conducted uranium conversion activities without reporting them as required under its comprehensive safeguards

agreement with the IAEA. Syria was also most likely constructing a nuclear reactor at Dair Alzour without reporting it to the IAEA. Syria allowed an - one time- access to the site, but has since then not provided any plausible explanation about the origin of man-made uranium particles found at the site. Syria has not permitted additional sample taking at this site or at three additional sites which appear to be related to activities at Dair Alzour nor it has provided any information regarding the nature of the destroyed building at Dair Alzour. The recent access by the IAEA to the phosphoric acid purification plant at Homs is a minor step which could shed light to the unreported uranium conversion activities at Damascus research reactor, but it leaves unaddressed major concerns related to the construction of a fairly large nuclear reactor, and sites likely associated with that as well as reasons for the presence of uranium particles at Dair Alzour. This stalemate has continued since summer 2008 leaving the IAEA Secretariat having no other option than proceed with the special inspection to confirm that all nuclear material and facilities in Syria have been placed under IAEA safeguards.

What can the U.S. and other responsible countries do to penalize Syria if it refuses to allow this "special inspection"?

The IAEA Secretariat should initiate required consultations with Syria with regard to the special inspection. In case Syria does not heed to the request, the Secretariat has to report the non-compliance to the 35 member IAEA Board Governors which the U.S. is member of. The Board has several options to proceed: ask Syria to reconsider the case and heed to the request, limit technical co-operation provided to Syria, and/or inform or defer the case to the UN Security Council.

[Responses from Mr. Henry Sokolski, executive director, Nonproliferation Policy Education Center:]

Questions for the Record
HCFA Full Committee Hearing: "The Global Nuclear Revival and U.S. Nonproliferation Policy"
Congressman Gus M. Bilirakis
March 17, 2011

1. If, as shown with the nuclear reactors in Japan, we can build nuclear reactor containment vessels that hold despite an earthquake that measures 9.0 on the Richter scale, a tsunami, multiple hydrogen explosions, and repeated aftershocks, does it demonstrate that nuclear power may actually be relatively safe?

Answer: The short answer is no, this may not be enough. Certainly, at a minimum, we also need to be sure that the spent fuel in the cooling ponds does not overheat. This requires that the pools not leak coolant, that the coolant continues to circulate after a loss of power if the pool does not leak, and that there are back up systems if there are failures on either front. Also, as a practical matter, it is unlikely we can make either pressure vessels or containment buildings that can deal with the pressures of gas build up that can occur with massive fuel failures without venting some of the gas out from the pressure vessel or into the atmosphere.

If the tsunami had hit a solar farm instead, many tons of lead and cadmium telluride would now be poisoning the Sea of Japan.

Would you agree with this statement?

ANSWER: That would depend on where you placed the solar farm. Solar farms do not need large bodies of water for coolant purposes as nuclear power plants do so it is not obvious why a solar farm would need to be located on the coast the way many nuclear power plants currently are.

2. As chairman of the Homeland Security's Subcommittee on Emergency Preparedness, Response and Communications, I am working to ensure that this nation is as prepared as possible for emergencies and disasters.

Do we have the necessary plans in the rare event of a nuclear emergency?

Answer: This is less clear after Fukushima and should be reviewed.

Have all countermeasures, such as the stockpiling of potassium iodide among other options, been looked at?

Answer : See answer above.

What have we learned so far from the incident in Japan about our preparedness here at home?"

3. Following Israel's destruction in 2007 of a suspected nuclear reactor in Syria built with North Korean assistance, Damascus has gone to great lengths to cover up all evidence. By refusing to allow IAEA inspectors to visit sites that are suspected of being part of a clandestine nuclear weapons program, Syria is in violation of its IAEA safeguards agreement. The IAEA has the option of calling for a "special inspection" in which Syria would be obligated to allow IAEA inspectors to examine these and other sites, but many experts predict that Syria would continue to block them.

Should the IAEA demand a "special inspection?"

Yes, it should.

What can the U.S. and other responsible countries do to penalize Syria if it refuses to allow this "special inspection"?

We could declare that Syria is in violation of the NPT, urge other major states to so declare, ask the IAEA to stop all IAEA technical assistance, call on all nations to stop lending Syria any nuclear assistance, get the UNSC to call for such a ban and establish interdiction measures to implement such a ban.

[Responses from Mr. Gene Aloise, director, Natural Resources and Environment Team, U.S. Government Accountability Office:]

Questions for the Record
HCFA Full Committee Hearing: "The Global Nuclear Revival and U.S. Nonproliferation Policy"
Congressman Gus M. Bilirakis
March 17, 2011

1. If, as shown with the nuclear reactors in Japan, we can build nuclear reactor containment vessels that hold despite an earthquake that measures 9.0 on the Richter scale, a tsunami, multiple hydrogen explosions, and repeated aftershocks, does it demonstrate that nuclear power may actually be relatively safe?

   If the tsunami had hit a solar farm instead, many tons of lead and cadmium telluride would now be poisoning the Sea of Japan.

   Would you agree with this statement?

   GAO Answer:

   GAO has not assessed the near- or long-term impacts of the recent earthquake and tsunami on the Fukushima nuclear power plant to make a specific conclusion about the safety at that facility or about the safety of nuclear power generally. GAO has not evaluated hypothetical scenarios involving similar natural disasters on other parts of the Japanese power sector to make any conclusions about the environmental impacts of such events.

2. As chairman of the Homeland Security's Subcommittee on Emergency Preparedness, Response and Communications, I am working to ensure that this nation is as prepared as possible for emergencies and disasters.

   Do we have the necessary plans in the rare event of a nuclear emergency?

   GAO Answer:

   GAO is continuing to collect information informally on this issue and anticipates beginning work in the near future to formally assess aspects of U.S. preparedness for natural disasters and other events that could impact the nuclear energy sector, including a review of U.S. nuclear power plant readiness to withstand major seismic events.

   Have all countermeasures, such as the stockpiling of potassium iodide among other options, been looked at?

   GAO Answer:

   GAO has not evaluated the extent to which this specific countermeasure has been developed and implemented to protect the American public against a nuclear power

accident, nor has it assessed the costs and benefits of this countermeasure individually or relative to other options for protecting the public against radioactive releases to the environment.

What have we learned so far from the incident in Japan about our preparedness here at home?"

GAO Answer:

GAO continues to observe and collect information regarding the incident, but—given the limits of the information available about the event to date and the fluid, ongoing nature of the crisis–it has not has not made any determination regarding implications for U.S. nuclear accident preparedness strategies and plans.

3. Following Israel's destruction in 2007 of a suspected nuclear reactor in Syria built with North Korean assistance, Damascus has gone to great lengths to cover up all evidence. By refusing to allow IAEA inspectors to visit sites that are suspected of being part of a clandestine nuclear weapons program, Syria is in violation of its IAEA safeguards agreement. The IAEA has the option of calling for a "special inspection" in which Syria would be obligated to allow IAEA inspectors to examine these and other sites, but many experts predict that Syria would continue to block them.

Should the IAEA demand a "special inspection?"

GAO Answer:

GAO has not specifically assessed the potential merits and drawbacks of calling for a special inspection in Syria or identified other possible remedies that could facilitate greater Syrian cooperation or force greater transparency and accountability from the Syrian government.

IAEA can request a special inspection if it considers the information made available by the country to be inadequate during the course of routine inspections under the safeguards program. Even if IAEA were to request a special inspection, the country does not have to grant IAEA access to certain facilities. As we noted in a prior report entitled, Nuclear Nonproliferation: IAEA has Strengthened Its Safeguards and Nuclear Security Program, but Weaknesses Need to Be Addressed, a country can still conceal a nuclear weapons program if it is determined to do so.

What can the U.S. and other responsible countries do to penalize Syria if it refuses to allow this "special inspection"?

GAO Answer:

IAEA does not have enforcement capabilities under the safeguards system. If a country refuses to allow a special inspection or other types of inspections, IAEA can report that the country is not in compliance with its safeguards commitments. In certain cases, the lack of compliance can be referred to the United Nations Security Council for further potential punitive actions, such as sanctions. There is precedence for such actions, including violations identified in the cases of Iran, Iraq, and North Korea.

However, GAO has not identified the range of specific national or multilateral penalties that could be applied to Syria, which are not already being utilized, for its failure to comply with an IAEA special inspection. Nor has GAO evaluated the potential effectiveness of such actions as steps to promote greater Syrian compliance with its safeguards obligations.

[NOTE: Responses from the Honorable William J. Perry, former Secretary of Defense, senior fellow, Hoover Institution, to Mr. Bilirakis' questions were not submitted to the committee prior to printing.]