

S. HRG. 114-760

THE CIVIL NUCLEAR AGREEMENT WITH CHINA: BALANCING THE POTENTIAL RISKS AND REWARDS

HEARING

BEFORE THE

COMMITTEE ON FOREIGN RELATIONS UNITED STATES SENATE

ONE HUNDRED FOURTEENTH CONGRESS

FIRST SESSION

MAY 12, 2015

Printed for the use of the Committee on Foreign Relations



Available via the World Wide Web: <http://www.gpo.gov/fdsys/>

U.S. GOVERNMENT PUBLISHING OFFICE

28-950 PDF

WASHINGTON : 2018

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

COMMITTEE ON FOREIGN RELATIONS

BOB CORKER, TENNESSEE, *Chairman*

JAMES E. RISCH, Idaho	BENJAMIN L. CARDIN, Maryland
MARCO RUBIO, Florida	BARBARA BOXER, California
RON JOHNSON, Wisconsin	ROBERT MENENDEZ, New Jersey
JEFF FLAKE, Arizona	JEANNE SHAHEEN, New Hampshire
CORY GARDNER, Colorado	CHRISTOPHER A. COONS, Delaware
DAVID PERDUE, Georgia	TOM UDALL, New Mexico
JOHNNY ISAKSON, Georgia	CHRISTOPHER MURPHY, Connecticut
RAND PAUL, Kentucky	TIM KAINE, Virginia
JOHN BARRASSO, Wyoming	EDWARD J. MARKEY, Massachusetts

LESTER MUNSON III, *Staff Director*
JODI B. HERMAN, *Democratic Staff Director*
JOHN DUTTON, *Chief Clerk*

CONTENTS

	Page
Hon. Bob Corker, U.S. Senator From Tennessee	1
Hon. Benjamin L. Cardin, U.S. Senator From Maryland	3
Hon. Thomas M. Countryman, Assistant Secretary, Bureau of International Security and Nonproliferation, U.S. Department of State, Washington, DC ..	6
Prepared statement	7
Lt. Gen. Frank G. Klotz, USAF, Retired, Under Secretary for Nuclear Security and NNSA Administrator, U.S. Department of Energy, Washington, DC	10
Prepared statement	12
ADDITIONAL MATERIAL SUBMITTED FOR THE RECORD	
Responses of Thomas M. Countryman to questions submitted by Senator Bob Corker	34
Responses of Lt. Gen. Frank G. Klotz to questions submitted by Senator Bob Corker	37
Response of Lt. Gen. Frank G. Klotz to questions submitted by Senator Marco Rubio	38
Responses of Thomas M. Countryman to questions submitted by Senator Marco Rubio	39
Response of Thomas M. Countryman to question submitted by Senator Tim Kaine	39

THE CIVIL NUCLEAR AGREEMENT WITH CHINA: BALANCING THE POTENTIAL RISKS AND REWARDS

TUESDAY, MAY 12, 2015

U.S. SENATE,
COMMITTEE ON FOREIGN RELATIONS,
Washington, DC.

The committee met, pursuant to notice, at 2:25 p.m., in room SD-419, Dirksen Senate Office Building, Hon. Bob Corker (chairman of the committee) presiding.

Present: Senators Corker, Risch, Johnson, Gardner, Perdue, Cardin, Menendez, Shaheen, Murphy, Kaine, and Markey.

OPENING STATEMENT OF HON. BOB CORKER, U.S. SENATOR FROM TENNESSEE

The CHAIRMAN. The Foreign Relations Committee will come to order. I know we have a vote at 2:45. So we will try to get through opening comments and your comments and then maybe come back and begin the questioning.

Today we begin the exercise of our statutory responsibility, a responsibility Congress requested, to review agreements between the United States and foreign nations related to cooperation on civil nuclear programs.

We must examine the political, economic, and security aspects of this agreement, weighing the risks and benefits. In doing so, we must dig beneath the surface of the agreement to expose and thoroughly examine those issues that cause concern in engaging in such an agreement.

We also should consider how this agreement could potentially impact U.S. strategic interests in the Asia-Pacific.

The agreement before us represents a continuation of a relationship that originally began in 1985 with the congressional approval of the "Agreement Between the U.S. and the Peoples Republic of China Concerning Peaceful Uses of Nuclear Energy." It expires on December the 30th, 2015 and, without a new agreement, the civil nuclear cooperation we have will cease.

At the time of submission of the 1985 agreement, China was engaged in activities that caused significant concerns—related to proliferation, lack of safeguards, lack of export controls—in Congress, and the agreement lacked key assurances to alleviate those concerns. In passing a joint resolution expressing its approval of the agreement, Congress required several certifications to address its

concerns prior to the issuance of any export licenses pursuant to the agreement.

The challenges in the relationship with China and its actions relevant to the required certifications were such that certifications could not and were not made by the administration until 1998, 13 years after the agreement originally entered into force. Some of those concerns still exist, maybe to lesser degrees, but they still exist.

The agreement before us now continues civil nuclear cooperation for another 30 years.

I am glad the administration chose to hear the concerns raised by this committee last year about civil nuclear agreements that extended in perpetuity, including a termination of this agreement after 30 years. Thank you for that.

It is right that agreements of this consequence should be periodically reviewed by Congress to ensure that they continue to be in the national interest.

Notably, and not present in the current agreement, the United States provides advance consent to enrich U.S.-supplied uranium up to 20 percent U-235 and to reprocess U.S.-obligated material. I am sure I am not alone in questioning this change in the relationship. I hope that the administration can adequately explain why it is in the U.S. interest to allow for this type of activity using U.S.-supplied or obligated material.

The President's transmission letter to Congress states that this agreement is "based on a mutual commitment to nuclear non-proliferation." But I have some misgivings. The commitment may not be so mutual. It will be incumbent upon the administration to expediently allay concerns raised by our members.

The Nonproliferation Assessment Statement, also known as the NPAS, required to be submitted to Congress with the agreement, identifies several potential issues of concern. According to the NPAS, "China's strategy for strengthening its military involves the acquisition of foreign technology as well as greater civil-military integration and both elements have the potential to decrease developmental costs to accelerate military modernization. This strategy requires close scrutiny of all end users of U.S. technology under the proposed Agreement."

Further, the NPAS says "China's provision to Pakistan of reactors beyond Chasma I and II is inconsistent with Chinese commitments made when it joined the NSG [Nuclear Suppliers Group] in 2004."

Finally, according to NPAS, China updated its regulations and "improved actions in some areas," but proliferation involving Chinese "entities" remains of concern. State-owned enterprises and individuals have been sanctioned by the United States on several occasions for transferring proliferation sensitive dual-use materials and technologies.

Congress should also consider China's record as it relates to missile proliferation. The 2011 Director of National Intelligence Worldwide Threat Assessment said "North Korea and entities in Russia and China continue to sell technologies and components in the Middle East and South Asia that are dual-use and could support WMD [weapons of mass destruction] and missile programs."

The 2014 State Department compliance report said, “in 2013, Chinese entities continue to supply missile programs in countries of concern. The United States notes that China made a public commitment in November 2000 not to assist in any way any country in the development of ballistic missiles that can be used to deliver nuclear weapons.”

Concerns persist about Chinese willingness and ability to detect and prevent illicit transfers. I would like the administration to specifically address why Congress should feel confident that China will prevent illicit transfers going forward.

Concerns aside, the United States has realized benefits from the current agreement. Economic benefits include an \$8 billion sale of four nuclear reactors by Westinghouse in 2007, still under construction today.

We are also gaining valuable insight from lessons learned in the construction of the AP1000 reactors that will cause domestic construction to be more efficient, timely, and cost less.

China has also developed and articulated stronger nonproliferation policies and export control regulations.

It will now be up to Congress to determine if the concerns about the agreement are outweighed by the benefits. If so, we should approve the agreement without delay. If not, but the concerns can be mitigated, we should work diligently to find grounds upon which we can support the agreement. If the concerns cannot be alleviated, we should disapprove the agreement.

All this is to say that we have a difficult task ahead of us but one that I know we can approach seriously and with the best political, economic, and security interests of the United States in mind.

I thank our witnesses for joining us today to begin this examination and look forward to working with them and their colleagues in the weeks ahead. Again, thank you for being here.

**OPENING STATEMENT OF HON. BENJAMIN L. CARDIN,
U.S. SENATOR FROM MARYLAND**

Senator CARDIN. Mr. Chairman, let me thank you for conducting this hearing. It is a very important hearing. The relationship between the United States and China is one of our most difficult foreign policy challenges.

This week we are holding two hearings in our committee. Later this week, we will have a hearing on the territorial disputes in the South and East China Seas. I am looking forward to that hearing. I think it is a very important subject. Today we will focus on the elements of the United States-China relation with the recently signed U.S.-China Civilian Nuclear Cooperation Agreement.

The current agreement, as you pointed out, is set to expire on December 30 of this year. It was signed 30 years ago by President Reagan. It is interesting to point out that the implementation of that agreement had to wait for 13 years because of the Senate conditions on China's proliferation activities and then because of the aftermath of the Tiananmen Square massacre.

Up front, I want to indicate that I am supportive of the development of nuclear power. It remains a smart and effective way for the United States to achieving independence and to reduce our carbon emissions. U.S. nuclear cooperative agreements with other

countries provide the United States a number of important benefits.

First and foremost, the 123 agreement can help achieve our non-proliferation objectives because we seek to uphold the highest non-proliferation standards in these agreements, including ensuring nuclear technology and material are never misused for military purposes. That will be an issue I expect our committee will want to explore.

Second, these agreements are critical for maintaining a robust nuclear industry. The enormous growth in Chinese nuclear power generation represents a major opportunity for U.S. business and one that they have already taken advantage of. The reactors that the United States is building in China are already creating high quality jobs in the United States, including in my home State of Maryland.

And finally, these agreements are an important opportunity for the United States to assist nations in reducing their carbon emissions. China is the world's largest carbon emitter, and its carbon emissions will continue to grow for at least the next decade. As part of the joint announcement by the United States and China on climate, China committed to get 20 percent of its energy from clean sources by 2030. Nuclear power is a way China can lower its carbon emissions and in turn foster global action to address climate change.

So these are important reasons to move ahead with 123 agreements, and I fully understand that.

But as the chairman pointed out, despite the benefits of this agreement, there are a number of concerns that I hope the witnesses will address during this hearing.

While progress has been made, China's nonproliferation policies remain problematic. Multiple State Department reports document Chinese companies and individuals who continue to export dual-use goods relevant to nuclear and chemical weapons and ballistic missile programs in Iran and North Korea. Year after year, these individuals have been sanctioned related to their efforts to proliferate weapons of mass destruction. What is preventing the Chinese from taking action against the companies and individuals who we have identified to them?

I would like to hear whether China's nonproliferation record was addressed during these negotiations. To me, this agreement presents us with a golden opportunity to place pressure on China to halt these dangerous activities.

My second set of concerns focuses on Chinese plans to export nuclear power plants based upon technology provided them by Westinghouse. Under a deal signed in 2007, Westinghouse agreed to transfer its reactor technology to China. This allows Chinese firms to increase their share of the nuclear work with the ultimate goal of exporting reactors themselves. We know China has an aggressive move into many markets that the United States used to have the leading share. The transfer of the most advanced U.S. technologies may provide China the keys for dominating the world nuclear power industry. That could cost us jobs. So I would be interested in our witnesses' analysis as to what the future holds in re-

gards to the U.S. companies' ability to dominate the international market on reactors.

Relating to this issue is China's decision to continue building power reactors in Pakistan. Pakistan does not have safeguard inspections by the International Atomic Energy Agency and has not been approved as a recipient state by the Nuclear Suppliers Group. China argues its contracts with Pakistan were in place before it agreed to abide by the rules of the Nuclear Suppliers Group. However, as China makes plans to export nuclear reactors, reactors based upon U.S. technology, to other countries, one has to wonder about its commitment to nonproliferation standards that it signed up to.

My last concern is about safety, safety in the Chinese nuclear plants. I know we have worked extensively with China on their regulatory and safety regimes. But I am concerned that nothing in this agreement squarely addresses the issue of the next Fukushima or Chernobyl happening in China. China is building a nuclear fleet that will be bigger than any other country in the world. China is an authoritarian country, which has a history of problems with regulatory structure. Although we can never make nuclear power 100 percent safe, we should strive to make them as resilient as possible to natural vulnerabilities and national security threats.

These are all issues that I think need to be addressed so that we can weigh the pluses of an agreement but the risk factors of entering into such an agreement with China.

And I look forward to hearing from our witnesses.

The CHAIRMAN. Senator Cardin, thank you for your leadership here.

I think what we will do—last night, I know we had an extensive classified briefing, but I know we still want to hear the public comments that will be made. So why do we not briefly adjourn, sprint to vote, come back, and then start? I know we have to finish for our 4 o'clock briefing on another issue. But I think that would be best. Okay? And if you all do not object—I am sorry we started a few minutes late, but I think that is best for you. Thank you.

[Recess.]

The CHAIRMAN. Thank you for your patience.

I know we had a very good and extensive briefing last evening, and I know numbers of members were here. But I am going to go ahead and introduce you and let you begin your public statements. Again, I apologize for the late start and interruption.

Our first witness is the Honorable Thomas M. Countryman. He currently serves as Assistant Secretary of State for International Security and Nonproliferation. In this capacity, Mr. Countryman leads the Bureau at the head of the U.S. effort to prevent the spread of nuclear, chemical, and biological weapons, their related materials, and delivery systems. And we appreciate your many appearances with us both here but also on the phone and other places.

Our second witness is Lt. Gen. Frank Klotz, U.S. Air Force, retired. He currently serves as Under Secretary of Energy for Nuclear Security and the Administrator of the National Nuclear Security Administration. In this capacity, he is responsible for the man-

agement and operation of NNSA, as well as matters across the Department of Energy and NNSA enterprise in support of President Obama's nuclear security agenda. Prior to his service at the Department of Energy, General Klotz served nearly 38 years in uniform in a variety of military and national security positions relevant to today's discussion.

I want to thank you both for being here and sharing your thoughts. I will remind you your full statements will be entered into the record, without objection. So be as brief as you wish, and we look forward to you answering our questions and again appreciate you being here.

STATEMENT OF HON. THOMAS M. COUNTRYMAN, ASSISTANT SECRETARY, BUREAU OF INTERNATIONAL SECURITY AND NONPROLIFERATION, U.S. DEPARTMENT OF STATE, WASHINGTON, DC

Mr. COUNTRYMAN. Chairman Corker, Ranking Member Cardin, members of the committee, thank you for the opportunity to continue today in open session the briefings and consultations we have had with members and staff since these negotiations began, continuing through the initialing, right up to the signature and submission of this agreement to the Senate.

This agreement advances the primary goal we have in every 123 agreement, which is strengthening the longstanding nonproliferation policy of successive administrations. It also has important commercial and diplomatic benefits that I will talk to only briefly, since you have my prepared statement.

The U.S. relationship with China is one of the most important and complex relationships in the world. This administration's approach to China combines building high quality cooperation on a range of bilateral, regional, and global issues and constructively managing our differences. Peaceful nuclear cooperation is a key example of that type of cooperation, and this agreement is in the best interests of the United States. This agreement is not a favor that we give to China or that China gives to us. It is in the mutual interests of both countries.

Like all 123 agreements, it is a framework within which decisions on export of technology and materials are made. The agreement contains all the U.S. nonproliferation guarantees required by the Atomic Energy Act, safeguards, peaceful use assurances, physical protection assurances, U.S. consent rights on storage, retransfer, enrichment, and reprocessing of U.S.-obligated material. It contains enhanced features beyond those contained in the current United States-China 123 agreement.

China's nonproliferation record has improved markedly since the 1985 123 agreements. It can do still better, and we expect it to do better in the nonproliferation field. Implementing this agreement will better position the United States to continue to influence the Chinese Government in a positive direction on nonproliferation objectives.

The current agreement has allowed and this agreement will continue to facilitate deepened cooperation on threat reduction, export control, border security, nuclear safety, and nuclear security norms.

This agreement also has economic benefits. China has the fastest growing nuclear energy program in the world. It constitutes one-third of the global market in civilian nuclear energy. American nuclear suppliers are there now and they are keen to play an even larger role in the Chinese market. These opportunities could support tens of thousands of high-paying American jobs, and the U.S. nuclear industry strongly supports this agreement.

As Senator Cardin noted, the agreement can also help both of us to deploy non-fossil-based energy sources to address global climate change. Last year, President Obama and President Xi announced our respective post-2020 climate targets. China believes the large-scale development of civilian nuclear power is key to meeting these targets, and their commitments reinforce opportunities for U.S. suppliers in the Chinese market.

On the other hand, if civil nuclear cooperation with China lapses, our influence on Chinese practices in nonproliferation and other fields will be placed in serious jeopardy. We will lose insight into China's civil program. The vacuum of cooperation with China would be filled by other nuclear suppliers who do not have the same approach as the United States to nonproliferation and technology transfer concerns. And China would view such a lapse as evidence that the United States is less willing to engage China at a high level on important commercial, energy, and security-related issues.

In sum, we believe that the strategic nonproliferation, economic, and environmental benefits of this agreement prove that continuing nuclear cooperation with China is in our best interests. We have no illusions about the challenges of working with China in nuclear energy or in any other field. But we must remain engaged. We must constructively manage our difference and work collaboratively to advance the numerous objectives we have in common. The passage of this agreement is the best way to continue to influence and to benefit from the world's largest nuclear market.

Thank you, Mr. Chairman.

[The prepared statement of Mr. Countryman follows:]

PREPARED STATEMENT OF THOMAS M. COUNTRYMAN

Mr. Chairman and Ranking Member, good afternoon. It is a pleasure to testify before the committee today regarding the President's submission of an agreement for peaceful nuclear cooperation between the United States and China.

As you know, the U.S. relationship with China is one of the most important and complex relationships we have in the world. Over the last 6 years, the Obama administration has established a "new normal" of U.S. engagement with the Asia-Pacific that includes relations with China defined by building high quality cooperation on a range of bilateral, regional, and global issues while constructively managing our differences and areas of competition. Through the implementation of this policy, the United States and China continue to improve diplomatic coordination to address the regional and global challenges of nuclear nonproliferation, energy security, and climate change, while growing both our economies. Peaceful nuclear cooperation with China is an example of collaboration that touches on all these challenges, and I would like to explain why the administration believes it is in the best interests of the United States to continue this important area of cooperation.

DESCRIPTION OF AGREEMENT

Like all 123 agreements, this agreement is first and foremost an asset that advances U.S. nonproliferation policy objectives. It took approximately two and a half years to negotiate the agreement, and after numerous interventions by senior U.S. Government officials throughout this period, our negotiators were able to win inclu-

sion of significant new nonproliferation conditions that strengthen the agreement. The President's transmittal of the agreement, and the Nonproliferation Assessment Statement that accompanied it, include a detailed description of the contents of the agreement so I will not repeat that here, but the agreement contains all the U.S. nonproliferation guaranties required by the Atomic Energy Act and common to 123 agreements, including conditions related to International Atomic Energy Agency (IAEA) safeguards, peaceful uses assurances, physical protection assurances, and U.S. consent rights on storage, retransfer, enrichment, and reprocessing of U.S.-obligated nuclear material. The agreement clearly states that equipment, information, and technology transferred under the agreement shall not be used for any military purpose, and the new text includes a right for the United States to suspend cooperation in the event of Chinese noncompliance, as well as our long-standing right to cease cooperation altogether. It also has a fixed duration of thirty (30) years. It is worth noting that the agreement does not commit the United States to any specific exports or other cooperative activities, but rather establishes a framework of nonproliferation conditions and controls to govern any subsequent commercial transactions.

DIFFERENCES BETWEEN THE 1985 AND 2015 AGREEMENTS

The 2015 agreement enhances several U.S. nonproliferation controls beyond those contained in the current U.S.-China 123 agreement, which was signed in 1985. Unlike the 1985 agreement, the 2015 agreement requires China to make all U.S.-supplied nuclear material and all nuclear material used in or produced through U.S.-supplied equipment, components, and technology subject to the terms of China's safeguards agreement with the IAEA. The 2015 agreement also contains additional, elevated controls on unclassified civilian nuclear technology to be transferred to China. Further, the agreement requires the two Parties to enhance their efforts to familiarize commercial entities with the requirements of the agreement, relevant national export controls, and other policies applicable to imports and exports subject to the agreement—a requirement that will be implemented through joint training by U.S. and Chinese officials of commercial entities in both countries.

The background underlying the agreement has also changed. China's nonproliferation record has improved markedly since the first U.S.-China 123 agreement was signed in 1985, though it can still do better. Over the past 30 years, China has undertaken a variety of efforts to enhance its global standing on nonproliferation issues while significantly expanding its civil nuclear sector. Since the 1980s, China has become a party to several nonproliferation treaties and conventions and worked to bring its domestic export control authorities in line with international standards. China joined the Nuclear Nonproliferation Treaty in 1992, brought into force an additional protocol with the International Atomic Energy Agency in 2002, and joined the Nuclear Suppliers Group in 2004.

JUSTIFICATION FOR AGREEMENT

In addition to the improved nonproliferation conditions that I have already described, the agreement will have benefits for the U.S.-China bilateral relationship, for nuclear safety in the United States and worldwide, for our economy, and for the climate. I would like to touch on each of these for a moment.

Bringing a new 123 agreement with China into force will improve not only our bilateral nonproliferation relationship but also our overall bilateral relationship, and reflects the U.S. Government effort to better rebalance our foreign policy priorities in Asia. We strongly believe that implementing this agreement will better position the United States to influence the Chinese Government to act in a manner that advances our global nuclear nonproliferation objectives. Conversely, failing to do so would set us back immeasurably in terms of access and influence on issues of nonproliferation and nuclear cooperation. The current China 123 agreement has allowed for, and the agreement will continue to facilitate, deepened cooperation with China on nonproliferation, threat reduction, export control, and border security. We believe that continuing cooperation with China will allow us to push China further to adhere to international norms in this area and meet U.S. standards of nonproliferation, nuclear safety and security.

NUCLEAR SAFETY

With respect to nuclear safety, as U.S. and Chinese experts work together in the development of Westinghouse's AP1000 reactors in China, their collaboration enhances the strength of the safety culture in the Chinese civil nuclear program. Even the choice of AP1000 technology, with passive safety systems, over other, older, less safe technologies, enhances nuclear safety in China. It is fundamentally

in the U.S. interest to promote the spread of U.S. best practices in nuclear safety as a nuclear accident anywhere is a global problem. The United States will have a far greater influence on Chinese nuclear safety practices if cooperation is continued than if it is cut off. When we export U.S. civil nuclear technology, we also export an American nonproliferation, safety, and security culture that encourages a safe and responsible Chinese civil nuclear program.

ECONOMIC BENEFITS

There are also very significant economic reasons to remain engaged with China in nuclear cooperation. China has the fastest growing nuclear energy program in the world, with twenty-seven (27) nuclear power plants in operation, twenty-four (24) under construction, and dozens more planned. Over one-third of the world's nuclear power plants currently under construction are in China. Westinghouse estimates the value of China's second wave of six reactors at \$25 billion with the potential for \$2.5 billion in U.S. export content. In addition, U.S. civil nuclear companies are supplying China—and if this agreement is brought into force, could continue to supply China—with equipment and components as well as a broad range of services, including engineering, construction, fuel cycle expertise, and training. The proposed agreement would allow for future joint U.S.-Chinese supply partnerships if China were to become a larger nuclear supplier in the future. These export opportunities could support tens of thousands of high-paying American jobs. For all of these reasons, the U.S. nuclear industry strongly supports the agreement. Indeed, the Department of Commerce's Civil Nuclear Trade Advisory Committee identified the renewal of the U.S.-China 123 agreement as one of its top priorities and a top priority for the U.S. civil nuclear industry.

CLIMATE CHANGE

The agreement can also help both of our countries to deploy nonfossil-based energy sources to address the effects of global climate change. In November 2014, President Obama and Chinese President Xi took a historic step for climate change action and for the U.S.-China relationship by jointly announcing the two countries' respective post-2020 climate targets. The announcement was the culmination of a major effort between the two countries, inspired by our serious shared concern about the global effects of climate change and our commitment to leadership as the world's largest economies, energy consumers, and carbon emitters. One of China's announced targets is to increase the share of non-fossil energy to around 20 percent by 2030—an approximate doubling from current levels. China sees the large scale development of civil nuclear power as key to meeting this and other climate targets, and these commitments strongly reinforce opportunities for U.S. nuclear suppliers in the Chinese market.

NEGATIVE CONSEQUENCES OF LAPSE

I would also like to take a moment to highlight some of the negative consequences should the United States cease nuclear cooperation with China. A failure, or delay, to put in place a new agreement to replace the current expiring agreement would undermine U.S. nonproliferation policy and our nuclear industry and would have a significant effect on the broader U.S.-China bilateral relationship.

As I described earlier, the current 123 agreement has been a vehicle for significant U.S. influence on China's nonproliferation policy. If cooperation ceases, U.S. influence on Chinese nonproliferation practices will be placed in serious jeopardy. A lapse in the agreement would most likely lead to a suspension of our nonproliferation dialogues, to include recently established mechanisms seeking to enhance China's export control enforcement capabilities, thereby damaging our cooperation in countering shared proliferation challenges. In addition, if the United States does not maintain its nuclear cooperation with China, that vacuum will be filled by other nuclear suppliers who do not share the same nonproliferation and safety-focused practices in the execution of their civil nuclear cooperation.

Ending U.S.-China cooperation would also be devastating for our nuclear industry. All significant nuclear commerce between the United States and China would stop, and a large number of high-paying American jobs would likely be lost. More broadly, unilateral termination of this relationship would discredit the United States as a reliable supplier, undermining the ability of the U.S. civil nuclear industry to compete globally and enabling competitors such as Russia and France to gain a greater foothold in China's nuclear energy market, as well as in other markets. The construction of four Westinghouse AP1000 reactors in China is driving innovation in the U.S. civil nuclear industry, helping us domestically to make the AP1000 reactors currently under construction in the United States safer and more efficient.

Without this continuous learning process, the United States will lose global market share. If there is no successor agreement, U.S. civil nuclear companies with joint ventures in China will also lose the technology and hardware they have already provided to China—there is no U.S. Government right of return at the expiration of the agreement—and the United States will not benefit from future sales arising from these ventures.

Finally, it is worth emphasizing that China would view a lapse of this agreement as evidence that the United States is less willing to engage China at a high level on important commercial, energy, environmental, and security related issues. Stopping U.S.-China cooperation would also strengthen the position of those in China who advocate a more confrontational approach to the bilateral relationship and create new difficulties in our efforts to manage this complex relationship.

CONCLUSION

In sum, we believe that the strategic, nonproliferation, economic, and environmental benefits of this agreement demonstrate that the continuing nuclear cooperation with China is in the best interests of the United States. We are mindful of the challenges that this relationship and this agreement present, and yet we firmly believe the clear path forward is to remain engaged with China, constructively manage our differences, and work collaboratively to advance our numerous common objectives while bringing China toward international norms of behavior. This is not just a matter of U.S. engagement with China, it is frankly a test of U.S. leadership and our ability to continue to play a decisive and prominent role in crucial sectors such as the civilian nuclear power industry. The entry into force of this agreement will allow the United States to continue to develop and participate in the world's largest nuclear power market, which is the best way to ensure that fundamental U.S. national interests in this area are advanced in the long term.

The CHAIRMAN. General.

STATEMENT OF LT. GEN. FRANK G. KLOTZ, USAF, RETIRED, UNDER SECRETARY FOR NUCLEAR SECURITY AND NNSA ADMINISTRATOR, U.S. DEPARTMENT OF ENERGY, WASHINGTON, DC

Mr. KLOTZ. Chairman Corker, Ranking Member Cardin, and distinguished members of this committee, thank you for the opportunity to testify on behalf of the Department of Energy on the proposed United States-China agreement for peaceful nuclear cooperation.

I am very pleased to join my colleague from the State Department, Tom Countryman.

I too have provided a written statement, so I will be brief in summarizing what is in that.

First, let me note that Secretary of Energy Moniz and I fully share the thoughts expressed by Tom Countryman this morning, and we also share the view that the proposed agreement provides a comprehensive framework for nuclear cooperation with China while fully protecting and advancing U.S. interests and policy objectives with respect to nuclear nonproliferation and the peaceful uses of nuclear energy. Thus, the Department of Energy supports entry into force of this agreement following the requisite congressional review period.

This agreement is fully consistent with the law and incorporates all the terms required by section 123 of the Atomic Energy Act. Moreover, it reflects important advances over the current agreement, several of which we discussed during classified briefings to both members and staff of this committee.

Specifically, the successor agreement enhances the provisions under which we would allow China to enrich and reprocess U.S.-obligated nuclear material by requiring that such enrichment and

reprocessing take place only at facilities in China that fall under their International Atomic Energy Agency safeguards agreement.

It also provides for enhanced controls on the export of nuclear technology to China, and it commits both sides, both the United States and China, to deliver export control training to all U.S. and Chinese entities under the 123 agreement.

Taken together, these elements, not included in the 1985 agreement, provide an unprecedented level of insight into commercial transactions.

Since the preceding 123 agreement was signed 30 years ago, we have witnessed China make significant strides in its civil nuclear program. As Secretary Countryman pointed out, China now has over 20 nuclear power plants in operation, over 20 under construction, and dozens more planned. In fact, over one-third of nuclear power plants currently under construction in the world are in China. China increasingly seeks services, technology, and equipment from U.S. and other foreign commercial companies for its civil nuclear program. We believe it is in the best interest of the United States to support U.S. industry's ability to compete in this fast-growing and expanding market.

American civil nuclear companies already have numerous joint ventures with China, as well as significant assets on the ground there. They are also supplying China with equipment and components, as well as a broad range of services, including engineering, construction, and training.

The successor 123 agreement will facilitate continued nuclear cooperation with China, subject of course to U.S. Government review of specific requests to transfer nuclear technology, information, material, equipment, and components.

On the other hand, if the agreement lapses or is not renewed, U.S. industry would essentially be cut off from this market, constituting a potentially serious commercial threat to the overall health and well-being of our civil nuclear industry. U.S. industry would also be precluded from taking advantage of future opportunities in the world's fastest growing civil nuclear energy market.

In addition to these economic benefits, the successor 123 agreement will also serve as an umbrella for continuing other forms of United States-China bilateral cooperation in promoting the important U.S. policy objectives with respect to enhancing nuclear safety and nuclear security around the world, an objective which directly supports U.S. national interests, as well as those of our allies and partners.

United States-China cooperation in the civil nuclear realm, such as under the 1998 U.S. Peaceful Uses of Nuclear Technology Agreement, has been absolutely invaluable in this regard. And in fact, just last week, senior U.S. officials met with their Chinese counterparts in Chengdu under the auspices of the PUNT Joint Coordinating Committee. They discussed many of the issues that the ranking member expressed a concern about, including not only nuclear technology but security, safeguards, environmental concerns, waste management, emergency management, and the security of radiological sources. The U.S. participants have reported to me that they had unique and unprecedented access to a number of construction, scientific, and academic sites in China. This level of

interaction and access is only possible because of the value China places on having a 123 agreement with the United States and the desire to cooperate with the most advanced, safest, and most reliable nuclear program in the world.

Without entry into force of this successor agreement, we will lose a critical mechanism for influencing China's nonproliferation behavior. We will lose potential economic advantages, and we will lose the insight that we have into China's nuclear programs, including its nuclear research and development.

So again, Mr. Chairman, thank you for the opportunity to appear before you today. I look forward to answering any questions you or the other members of the committee may have.

[The prepared statement of Mr. Klotz follows:]

PREPARED STATEMENT OF LT. GEN. FRANK G. KLOTZ, USAF (RET.)

Chairman Corker, Ranking Member Cardin, and distinguished members of the committee, I appreciate the opportunity to submit this testimony in support of the proposed successor U.S.-China agreement for peaceful nuclear cooperation, or the so-called "123 Agreement." The proposed agreement provides a comprehensive framework for peaceful nuclear cooperation with China based on a mutual commitment to nuclear nonproliferation. The Department of Energy (DOE), as a member of the interagency negotiating team, strongly supports entry into force of this agreement following the requisite congressional review period. This Agreement is fully consistent with the law and incorporates all of the terms required by Section 123 of the Atomic Energy Act of 1954 (AEA). This agreement will replace an existing 123 agreement with China that has been in place since 1985.

STATUS OF THE AGREEMENT

The agreement was submitted by President Obama for congressional review on April 21, 2015, along with the required unclassified Nuclear Proliferation Assessment Statement (NPAS) and two accompanying classified annexes. The Secretary of State and the Secretary of Energy recommended that the President make the legal determination that the agreement "will promote, and will not constitute an unreasonable risk to, the common defense and security." The Secretary of Energy and I share that view based upon a number of factors detailed in this testimony. Our complex relationship with China presents both challenges and opportunities. One of the most dynamic areas of collaboration we have is in the energy sector, which is why continuing U.S.-China civil nuclear cooperation remains in the best interest of the United States.

JUSTIFICATION FOR THE AGREEMENT

The State Department will review the agreement, and the accompanying NPAS provides details on all of the provisions of the agreement, but let me briefly highlight some important elements and why this agreement is essential for upholding our shared nonproliferation, energy, and commercial goals.

The proposed 123 agreement is an important element in promoting strong nonproliferation policies and our interest in seeing China further advance its already improved record on proliferation issues. The successor agreement not only complies with all of the nonproliferation measures and controls required by U.S. law, but it also includes new elements that provide for further assurances that this cooperation is solely peaceful in nature and will not be redirected for other purposes. In particular, the agreement includes requirements that adequate physical protection measures be maintained with respect to U.S.-obligated nuclear material and equipment; the U.S. right to prior consent to any retransfer from China of U.S.-obligated nuclear material, equipment, or components; and the requirement that no U.S.-obligated nuclear material may be enriched or reprocessed without the prior approval of the United States.

Many on this committee may be interested to know how we can proceed with nuclear cooperation with China in a way that protects our vital national security interests. In the view of the Department of Energy, the conclusion of a 123 agreement with China will enhance our ability to manage and mitigate the risk of China diverting sensitive nuclear technology to its military programs or re-exporting it without U.S. permission. Indeed, it is my view that we are better off from a national

security perspective by completing this agreement than we are without any 123 agreement in place at all.

TECHNOLOGY TRANSFER PROVISIONS IN THE SUCCESSOR AGREEMENT

The challenges that arise regarding nuclear cooperation with China are not unique to China. In working with any foreign partner, the United States places emphasis on measures to ensure that nuclear technology transferred from U.S. companies is not used or retransferred in a manner that is prohibited by the terms of the Nuclear Non-Proliferation Treaty (NPT), other treaties, or U.S. statutory law, or is inconsistent with U.S. commitments to the Nuclear Suppliers Group (NSG), and all other U.S. nonproliferation commitments and policies.

To address the opportunities and challenges presented in ongoing civil nuclear cooperation with China, the United States negotiated new and unique provisions in the proposed 123 agreement.

First, we elevated the level of authorization required for the provision or transfer of civil nuclear technology to China. Under the new agreement, technology transfers will now be authorized under the provisions of the 123 agreement itself. The terms of the proposed 123 agreement establish a mechanism for the United States to greatly increase our oversight of proposed technology transfers from the United States to China. In effect, all of the nonproliferation assurances and other provisions in the 123 agreement would now apply to technology covered by subsequent arrangements that the Secretary may issue pursuant to section 131 of the AEA. This is a far more robust process than the government-to-government nonproliferation assurances that are provided by the Government of China for technology transfers authorized by the Secretary of Energy pursuant to 10 CFR Part 810 (Part 810).

Furthermore, under the proposed agreement, the United States and China would now review, on an annual basis, requests from U.S. industry to identify projects and end-users that are eligible for receipt of nuclear technology subject to the 123 agreement, upon entry into section 131 subsequent arrangements. This is a new element that was not included in the 1985 agreement and would provide an unprecedented level of insight into commercial transactions.

As compared to the current regulatory pathway, this method would provide for greater oversight of all the covered activities, and would allow for more timely decisions regarding technology transfer requests so that U.S. companies may be increasingly competitive in the Chinese market. It would also make the failure to comply with the technology transfer authorizations issued under the 123 agreement a breach of the legally binding terms of the agreement.

JOINT TRAINING REQUIREMENTS IN THE SUCCESSOR AGREEMENT

It is important to highlight that the new terms regarding technology control also mean that both the United States and China will need to educate our respective industries on the new process, its goals, how it would work, and most importantly, the terms and limitations of the successor 123 agreement. We are building upon the significant efforts already underway regarding the training of China's export control officials and experts. To do so, we have included as a requirement in the agreement that the United States and China jointly provide training to commercial entities in both countries regarding the requirements of the successor 123 agreement, including controls and policies applicable to exports and imports subject to the agreement. This training would emphasize the legal obligations that: (1) there would be no diversion of materials, equipment, components, technology, or assistance to non-peaceful or military uses; and (2) there would be no retransfer without prior consent. This is the first time that this kind of training and educational component has been included in any 123 agreement; neither U.S. nor Chinese commercial entities will be able to claim to be unaware of the terms of the agreement or their corresponding legal obligations.

COMMERCIAL IMPLICATIONS

DOE and State considered many factors in the negotiation of this agreement, including the recognition that China has an advanced civil nuclear program that is heavily dependent on U.S. commercial vendors. The Department of Commerce has identified China as one of the largest and most important markets for the U.S. nuclear industry. China has the fastest growing nuclear energy program in the world with 26 nuclear power plants in operation, 24 under construction, and dozens more planned. China increasingly seeks services, technology, and equipment from U.S. and other foreign commercial vendors for its civil nuclear program. We believe it is in the best interest of the United States to continue to support U.S. vendors' ability to compete in this fast growing market.

The growth of Chinese clean nuclear energy demonstrates its commitment to combating the challenges of global climate change. Last November, in a Joint Announcement between our two Presidents, China announced its intention to increase the share of nonfossil fuels in its primary energy consumption to around 20 percent by 2030 as part of its effort to meet its post-2020 climate change targets. Nuclear power will be an important part of those targets, providing a significant commercial opportunity for U.S. vendors while advancing U.S. interests in facilitating China's pledge to peak its greenhouse gas emissions by about 2030.

A failure to allow the proposed 123 agreement to go forward would essentially cut off U.S. vendors from this market, constituting a potential serious commercial threat to the overall health and well-being of our civil nuclear industry. For example, DOE invests in a variety of research and development programs that work with industry to develop the next generation of nuclear reactors. These interactions have yielded significant commercial interest from Chinese entities seeking U.S. nuclear technologies. Absent a successor 123 agreement, these vendors will be unable to compete in a burgeoning Chinese market.

U.S.-China collaboration on peaceful nuclear cooperation provides us with invaluable insights into not only China's civil nuclear program, but also its science, engineering, and technology programs, as well as its research and development priorities. If the United States fails to replace the expiring U.S.-China 123 agreement, all of this important work could be put in jeopardy.

Finally, failure to bring the agreement into force with China would significantly impact diplomatic relations and likely eliminate the broad range of U.S.-China cooperative programs that the United States uses to strengthen China's nonproliferation, safety, and security culture in its nuclear industry, which are intended to ensure that China develops its civil nuclear program in a safe and responsible manner. Should Chinese civil nuclear programs no longer be able to rely on technology, material, and equipment from the United States, they will turn to other providers whose nonproliferation and safety standards may not be on par with those of the United States.

EXPORT CONTROL AND PEACEFUL USE COOPERATION WITH CHINA

Bilateral cooperation on the peaceful uses of nuclear technology is governed by the legal framework provided in the subsequent 1998 U.S.-China Peaceful Uses of Nuclear Technology (PUNT) Agreement, which falls under the umbrella of the current U.S.-China 123 agreement. This cooperation has been invaluable in strengthening both countries' civil nuclear power programs. Without a legal framework to facilitate collaboration with China, the United States ability to influence safety and nonproliferation design considerations in China as it moves forward with the development and deployment of advanced reactor and fuel cycle technologies would be diminished. This is especially important in light of China's growing efforts to promote its technologies worldwide.

DOE/NNSA's export control outreach program is also reliant on the 123 agreement and PUNT framework, which has been working since 2007 in China under the PUNT umbrella. This program has trained over 100 governmental officials per year from six different Chinese agencies that have various export control and internal compliance responsibilities. DOE/NNSA also has trained dozens of additional industry personnel on the subjects of internal compliance and best practices of China's export controls. Provided the successor 123 agreement is brought into force, DOE/NNSA expects to expand significantly the number of industry officials engaged through a train-the-trainer awareness-raising approach, to underscore the importance of the principal of nondiversion to nonpeaceful or military purposes which is outlined under the 123 agreement.

SCIENCE AND ENERGY COOPERATION WITH CHINA

The Department also has broader science and energy cooperation with China that is made possible by the 123 agreement. Collaboration has been taking place for over 30 years in important areas including high energy physics, magnetic fusion, materials research, synchrotron and neutron science, and topics relevant to environmental management (EM). U.S.-China cooperation in these areas continues to benefit the United States as China has increased its funding significantly for basic research and our scientists have the chance to work with some of the world China's brightest scientists and engineers. There is also extensive cooperation with China in the area of civil nuclear energy research and development. The scope of this collaboration is broad and deep; it includes advanced R&D in separations technologies, fast reactor technologies and safety analysis, molten salt reactor coolant systems,

fuels and materials development, nuclear safety enhancement, spent fuel storage, repository science, and uranium extraction from seawater.

CONCLUSION

When reviewing the successor 123 agreement, it is important to consider the specific provisions of all our 123 agreements. The United States requires our trading partners to provide guaranties consistent with the legal requirements contained in section 123 of the AEA. These requirements are intentionally stringent and set the global standard for nuclear commerce. It is therefore in the U.S. national interest to encourage other governments that are considering commercial nuclear programs and that are in compliance with their nuclear nonproliferation obligations to sign 123 agreements with the United States. Our 123 agreements feature the highest nonproliferation standards, thereby discouraging a nonproliferation "race to the bottom," in which potential partners negotiate peaceful nuclear cooperation agreements with suboptimal nonproliferation controls.

Replacing the 123 agreement with China continues a path that Congress started down 30 years ago when the current 123 agreement was negotiated. Since the 1985 agreement was negotiated, the United States has witnessed China make great strides in the area of nonproliferation and in its civil nuclear program, even though we know there is more work to do. Some of these strides were made specifically because of the value that China placed on having a 123 agreement with the United States and the desire to cooperate with the most advanced, safest, and reliable civil nuclear program in the world. Without this 123 agreement, the United States will lose a critical mechanism for influencing China's nonproliferation behavior, and the insight and transparency into China's nuclear programs as a result of the thirty years of cooperation to date in this area.

The CHAIRMAN. Well, I want to thank you both, and I appreciate what you do for our country.

And I know yesterday evening, you all had mentioned you all were going to make the public comments as to why this was good for our Nation, and certainly you did not disappoint.

But let me ask you a question. According to NPAS—and I know we have talked about this in other settings—and I quote—"China's strategy for strengthening its military involves the acquisition of foreign technology, as well as a greater civil military integration." And both elements have the potential to decrease development costs and accelerate military modernization. I included that in my opening comments.

So there is no question that we understand going into this agreement that what we are doing here—the Chinese, regardless of what they say, are going to be utilizing this to accelerate their military development. Is that correct?

Mr. COUNTRYMAN. What I would say, sir, is that there is no doubt, based on the historical record, that China will make every attempt to benefit from technology transfer, whether in the economic or commercial or military field. Our job, which only begins with this 123 agreement, but is actually carried out through the licensing procedure, is to frustrate that effort. We have every intention of doing so and believe we have the means to do so.

The CHAIRMAN. So now that we have established that, that in fact this is going to happen, you mentioned that our involvement with them would help cause proliferation not to occur. I just would like to ask a question. Are they organically interested as a nation—forget the fact that in doing business with us, we champion nonproliferation and other kinds of issues—but organically do you believe that China cares about nonproliferation and nuclear safety?

Mr. COUNTRYMAN. The short answer is yes. I do believe that China takes far more seriously than it did 30 years ago or even 10 years ago its obligations under the Nonproliferation Treaty, as a

member of the Nuclear Suppliers Group, and in other fields as well. They take it seriously.

I cannot say that they yet have the level of political commitment that will enable them to spend the resources you need to effectively control the export from the second biggest economy in the world, a very high-tech economy, and one that they do not have a long track record in controlling exports as effectively as the U.S. and other nations. I do believe they are trying. I do believe that they need a higher level of political commitment to meet the standards to which they aspire.

The CHAIRMAN. In the past when we have had these types of agreements—you know, of course, we have the gold standard agreement that we like to stick to—but we typically do not give advance consent for enrichment and reprocessing. Certainly the first agreement we had with them in 1985 that was not implemented until 1998 did not do that.

Can you explain to us and to the American people why in this particular case we decided to give advance consent?

Mr. COUNTRYMAN. China is a nuclear weapon state under the Nuclear Nonproliferation Treaty. It already possesses and developed on its own numerous enrichment and reprocessing facilities. There is not a logical reason nor would there be a practical effect to prevent China from enrichment and reprocessing.

The CHAIRMAN. And then under the Nuclear Suppliers Group guidelines, is China upholding those? I know we have had some issues relative to the nuclear plants in Pakistan. Could you talk with us a little bit about that and whether they are actually honoring the NSG guidelines?

Mr. COUNTRYMAN. When China became a member of the Nuclear Suppliers Group, there was a consensus from the other members to grandfather construction of plants in Pakistan, which China had initiated.

However, there was not agreement that that was an open-ended clause. The problem is that China has since announced other power plants that it intends to build in Pakistan, and this is not consistent with the rules of the Nuclear Suppliers Group, which it joined. We raised this issue both as a bilateral issue and within the context of the Nuclear Suppliers Group.

The CHAIRMAN. So they are not honoring the NSG guidelines. We have issues there. We know for a fact that they will take, even though this agreement states that you cannot take this civil nuclear agreement and use it to move along more swiftly their military development—we know they are going to do that.

So if you would step back—I know this is a way for a former U.S.-based company and others I know through the supply chain to enhance their business and obviously create some U.S. jobs, but could you step back and just talk about why this is in our national interest?

Mr. COUNTRYMAN. Yes, sir. As I said at the beginning, jobs are important. My responsibility is to ensure that we promote the highest standards of nonproliferation policy in the world, and that is what successive administrations have done with strong congressional support for decades. We would not have concluded this agreement if I were not satisfied that this was the best way to im-

prove China's record on nonproliferation, to maintain our capability to have influence on that record. That is a very short answer.

Frank may want to add to this.

Mr. KLOTZ. If I could, Mr. Chairman. The fact that we have an agreement like this—and hopefully we will have a successor agreement—also allows us to engage in dialogue and discussion with the Chinese in a variety of different venues on a variety of different fronts. For instance, we have discussions, as I mentioned earlier, in the PUNT Joint Coordinating Committee on a whole host of safety, security, emergency response issues. We have the opportunity to discuss issues associated with nuclear smuggling detection. We have been involved in the business of educating and training their people on export controls. We have helped them in the development of a center of excellence that will do training in the area of safeguards and security. So it is along these various avenues, which we engage them, not just the insight that we gain through commercial interactions with them that help move them along on issues associated with nonproliferation and with safety and security and safeguards.

The CHAIRMAN. Well, look, I know that the initial input, as we were walking through this, from staff, as you all are dealing with them as you were moving through, leaned on the positive side.

I do want to say that I understand our desire to continue to be involved with other countries with our superior nuclear technology. I do think there are important reasons for us to do so. I do hope, as we move through this process, again we will realize we are dealing with a country that plans to sap all of our technology and move totally to indigenous methods of doing this as quickly as possible. Now, they are going to use this to develop their military. I know this is the third time I am going to say it, but to develop their military more quickly and that they are not honoring the existing Nuclear Suppliers Group guidelines.

So I understand, you know, again it is economically driven. I know we have a lot of companies that involve themselves with you on these agreements. I do hope, as we move through this, we will take into account all of the liabilities and the benefits that come with it.

And again, I thank you very much for your service to our country.

And with that, our distinguished member, Senator Menendez.

Senator MENENDEZ. Thank you, Mr. Chairman.

Secretary Countryman, let me ask you. In the last few years, China's nonproliferation policies remain from my view problematic. Chinese companies and individuals continue to export dual-use goods relevant to nuclear and chemical weapons and ballistic missile programs to Iran and North Korea. Numerous Chinese individuals and companies have been sanctioned for those activities.

Were these issues addressed during our negotiations to renew the 123 agreement?

Mr. COUNTRYMAN. I have addressed these issues constantly in the 3½ years I have been on this job, not in the context of the 123 negotiations, but in the context of a number of regular dialogues.

Senator MENENDEZ. I appreciate that. But within the context of the 123 agreement, they were not addressed.

Mr. COUNTRYMAN. No.

Senator MENENDEZ. So is that not an opportunity to pressure China to halt these activities?

Mr. COUNTRYMAN. As I said, we press for stronger Chinese performance at all times, not just when we are in the middle of a negotiation. Did this negotiation offer additional leverage? If this were a giveaway program, perhaps. But it is not. It is one that provides mutual benefit to both countries and provides a foundation within which we can cooperate on difficult issues.

Senator MENENDEZ. But clearly it is something that China wants as much as we do. Or do we want it more than China wants?

Mr. COUNTRYMAN. I do not know. Maybe we should ask Frank if he wants to comment.

Do we want it more than China wants it? I think both of us recognize that the failure to renew this agreement would have repercussions throughout the bilateral relationship. I think both countries are fully aware of that.

Senator MENENDEZ. Let me ask you a different question. If the Congress were to place certification conditions on licenses for the export of new reactors, beyond the four that have already been licensed, to the effect that the Government of China is fully and completely cooperating with U.S. requests to halt and prosecute the actions by Chinese companies to export technology and equipment for ballistic missiles to Iran and North Korea, would the administration be able to make such certifications?

Mr. COUNTRYMAN. It is the first time I have heard of the idea. I would have to look at the exact details. I believe the Chinese Government is making an effort. I do not believe the effort is yet sufficient.

Senator MENENDEZ. Well, you had said before in your answer to my previous question that you have raised these issues a series of times outside of the 123. So it would seem to me that you would be deeply engaged in the knowledge as to whether or not the administration could go ahead and certify that the U.S. requests to halt and prosecute the actions by Chinese companies to export technology and equipment for ballistic missiles to Iran and North Korea would be able to be made. So from the knowledge that you have from all of the times that you have raised this with the Chinese, do you believe if we included such a provision, that the certification by the administration could be made to that effect?

Mr. COUNTRYMAN. Again, I would have to look at the exact language. What I could say now is that we could certify that there is an improving trend, that the Chinese have been responsive to us on a number of cases that we have raised, but I could not certify 100 percent satisfaction. No.

Senator MENENDEZ. So we have—your words—an improving trend, but we do not have what we need.

Why would such a certification requirement not be useful for the administration's efforts to persuade China to halt these activities?

Mr. COUNTRYMAN. It would not be useful if it were absolute. Neither China nor a number of other countries with whom we work intensively on such issues are 100 percent efficient and effective in their law enforcement efforts. And if the standard were absolute, I am not sure which country would be able to meet it.

Senator MENENDEZ. Well, you know, I understand maybe some countries where there is a strong private sector that developed its own technology and proliferates in that respect, but China is a pretty command-and-control country. It is not like you raise your hand and say I want to go a different way. So it seems to me that this is a real concern.

Let me ask you this. Curtiss-Wright Corporation produces the pumps that cool the reactors which propel U.S. naval submarines. They also produce a scaled-up version of this pump for the AP1000 reactors Westinghouse is selling to China. Could China reverse engineer the pumps that they are receiving from Westinghouse for their own nuclear submarine program? Is the Chinese military seeking to divert these civilian nuclear technologies to its naval reactor program? Do you have any information on that?

Mr. COUNTRYMAN. I do and we discussed it in some detail in last night's briefing, sir.

Senator MENENDEZ. So you can only respond to that in a classified setting.

Mr. COUNTRYMAN. I think that would be wiser, yes, sir.

Senator MENENDEZ. It would be wiser or necessary?

Mr. COUNTRYMAN. Necessary.

Senator MENENDEZ. Wiser is one thing. Necessary is another.

Mr. COUNTRYMAN. I think it would be not only necessary but also wiser to have someone more expert than me on the topic.

Senator MENENDEZ. All right. We will have to go through that.

One last question then. What measures have been built into the agreement to prevent China from exporting nuclear technology to countries that are a proliferation risk? Because China says it will abide by the Nuclear Suppliers Group's rules for exports, but it is already violating these rules through its continuing work on Pakistani reactors.

Mr. COUNTRYMAN. The agreement prohibits the transfer of any U.S.-provided technology to another country without U.S. consent.

Senator MENENDEZ. But it is already violating these rules through its continuing work on Pakistani reactors.

Mr. COUNTRYMAN. There is, I think, a difference between violating NSG rules—and of course, the Chinese would say their action is a matter of interpretation rather than violation. There is a difference between that and violating a 123 agreement particularly when this agreement, unlike the agreement it replaces, has a specific clause that calls for temporary suspension or permanent suspension in case of violation.

Senator MENENDEZ. Well, you know, in your written testimony, you talk about advancing our global nuclear nonproliferation objectives. And, Mr. Chairman, I begin to what exactly those are and can they be mitigated as we wish them to be instead of having a clear objective. Of course, I am concerned about what we are doing with Iran, but I am concerned here that we seem to be able to look the other way when we want to. So I am trying to figure out what our nuclear nonproliferation objectives are and how much of a standard we are truly setting in the world. I was always an admirer that U.S. policy was about actually stopping nuclear proliferation not managing it. And increasingly, when I see testimony

like this, I get the sense that we are moving away from stopping it, preventing it, to managing it, and that is a whole new world. Thank you, Mr. Chairman.

The CHAIRMAN. You bring an interesting point. When we know they are going to violate the civil military piece, are they going to violate this other piece?

But Senator Johnson.

Senator JOHNSON. Thank you, Mr. Chairman.

Assistant Secretary Countryman, you answered the chairman's question on whether China was committed to nonproliferation with a simple yes. Is that correct?

Mr. COUNTRYMAN. That is the short answer.

Senator JOHNSON. It does not sound very accurate.

Mr. COUNTRYMAN. As all short answers are, yes, sir.

Senator JOHNSON. You said that they are not controlling their exports of nuclear technology. Is that because they are unable or unwilling?

Mr. COUNTRYMAN. Well, first, I would have to disagree that China is purely a command-and-control economy. It has a vibrant private sector. It is something of the wild west in terms of being free from government regulation and government control. And in particular, the high-tech sector does aggressively seek other markets. And in addition, there is a number of Chinese businessmen who seek the opportunity to be brokers between North Korea or Iran and producers in China and elsewhere. And there are such brokers in other countries besides China.

It is our assessment that the Chinese Government simply does not have currently the bureaucratic enforcement capability and does not yet have all the legislation it ought to have in order to adequately control dual-use exports.

Senator JOHNSON. So your answer is that they are unable to control the export.

Mr. COUNTRYMAN. My answer is that they have not yet committed the resources that would be necessary for an economy of that size and sophistication.

Senator JOHNSON. How difficult would it be for them and how many resources would it take?

Mr. COUNTRYMAN. Sorry. I do not have a short answer to that one.

Senator JOHNSON. You seem to indicate in your testimony that if we do not move forward with this, if we do not provide the technology, they will just get it someplace else, and then we will be on the outside looking in, effectively losing whatever influence we have. What are their alternatives in terms of supply?

Mr. KLOTZ. Senator, there are a number of different countries which are in this market space. Countries that immediately come to mind are Russia, France, South Korea, Japan, all of which are looking for opportunities to pick up on the growing interest in using nuclear energy to solve energy demands in a number of countries, but also, as has been pointed out, to move to cleaner types of energy to deal with concerns about global climate change. So we are one of the most sophisticated, one of the most effective in terms of the civil nuclear power industry, but there are other competitors out there.

Senator JOHNSON. How advanced is our technology in comparison with those other competitors? Are we a cut above or is it all comparable?

Mr. KLOTZ. Well, I am chauvinistic enough to say that I think we are a cut above. But they are very sophisticated in terms of their technology and the French, the Russians are succeeding in making sales of not only full reactors but also of important components and services associated with the civil nuclear industry around the world.

Senator JOHNSON. Are we a cut above significantly, and is it significant from the standpoint of military conversion?

Mr. KLOTZ. Well, in terms of military conversion, one of the things that we look very, very carefully at under the existing 123 agreement and one of the things that will be strengthened under the 123 agreement, the successor agreement, is to look very carefully at the information, the technology, the materials, the components which we as a Government will review before we give approval for that to be transferred to China.

One of the other things that comes up in this new successor agreement is the fact that both sides will sit down annually and review the inventory of all the shared U.S. and Chinese technologies and determine whether or not that ought to be renewed. So we go into this I think with eyes wide open, understanding the potential risk, but also balancing against the potential benefits of being in this important and expanding commercial market.

Senator JOHNSON. Having come from the private sector and participating in it for over 30 years, actually exporting to China, and evaluating whether we should actually start an operation in China, I have witnessed repeatedly Chinese companies reverse engineer and basically take over the manufacturing themselves. I would assume that would certainly be a risk.

How quickly do you believe China could become self-sufficient?

Mr. KLOTZ. I do not have a good answer for you on that, Senator.

Senator JOHNSON. My concern, obviously—

Mr. KLOTZ. I mean, there are a lot of variables involved in the process in terms of moving forward. Our assumption is that even if they eventually start to manufacture more and more capability indigenously, there will still be a role for U.S. industry and industry of other countries to participate in producing particular components that are necessary and providing particular after-sale services both domestically in China and in those countries to which China might export reactor technology.

Senator JOHNSON. Changing the direction a little bit, Assistant Secretary Countryman, can you just tell me a little bit about what China's attitude is toward the advancement in North Korea of their nuclear capabilities?

Mr. COUNTRYMAN. Very briefly, China says—and I think it is borne out by their actions—that they do not support North Korea as a nuclear weapons state and that they wish to see the entire Korean Peninsula denuclearized.

Senator JOHNSON. How much help has China given to North Korea over the years?

Mr. COUNTRYMAN. I do not know about long-ago history, but in recent years no indication that China is assisting the North Korean nuclear weapons program.

Senator JOHNSON. I have no further questions.

The CHAIRMAN. Senator Markey, who is no stranger to this issue.

Senator MARKEY. Thank you, Mr. Chairman, very much. Thank you for having this hearing.

Back in 1985, I was the chairman of the energy subcommittee in charge of the Nuclear Regulatory Commission and the Nuclear Regulatory Commission, Department of Energy. So that I played a role in the construction of that 1985 123 agreement. And what I worked for was the imposition of two conditions before implementation. The first was the preparation of a report examining Chinese proliferation risks, and second, presidential certification that China was following sufficient nonproliferation policies and practices. During the final floor consideration, I argued that the agreement carried high risk and that the conditions were in fact not as strong as they could have been, but at least it is that minimal mitigation standard, fraud, nonproliferation concerns.

The Reagan administration's efforts to comply with the agreement's conditions revealed substantial Chinese proliferation risk. The agreement was shelved until 1997, when the Clinton administration certified that China was not proliferating nuclear weapons or technology and moved forward to implement the agreement.

And again, I disagreed because of concern about Chinese proliferation to Pakistan and Iran at that time. Together with a bipartisan group of Members of Congress, I attempted to prevent the agreement from going forward.

And here we are today just as we were in 1985 and 1989 and 1996, 1997, 1998. I have deep concerns about whether China is complying with the current 123 agreement and other nonproliferation commitments.

Concerns have been raised that China may be diverting U.S. nuclear power technology to its nuclear naval program. Would such a transfer violate the peaceful use provisions of the 1985 nuclear cooperation agreement?

Mr. COUNTRYMAN. Yes, both the current agreement and the successor agreement. It would be a violation.

Senator MARKEY. During the 1990s China supplied Iran with uranium and during the past 3 years, both the intelligence community and the State Department have expressed continuing concern the Chinese Government and private entities have proliferated technologies concerning and related to nuclear weapons to countries of concern. A glaring example of private sector proliferation is Li Fangwei, also known as Karl Lee, who has been designated, sanctioned, and indicted by the United States as a serial proliferator of nuclear weapons-related technology. China has given repeated assurances that they are investigating but reportedly have not taken enforcement action in this case.

My question is, can you confirm that the United States Government, including the State Department, no longer believe that entities in China are selling dual-use technologies or technologies that could assist with nuclear weapons development or delivery systems to North Korea or other countries?

Mr. COUNTRYMAN. No.

Senator MARKEY. You cannot.

Second, in light of the Karl Lee case, do you believe that China enforces nonproliferation requirements on both public and private Chinese actors to the same standard as the United States does?

Mr. COUNTRYMAN. No.

Senator MARKEY. In May 2014, five members of the Chinese military were indicted on charges of hacking into U.S. companies' systems and stealing trade secrets. These thefts occurred in 2010 and 2011 and included information related to the Westinghouse AP1000 nuclear reactor.

During the identical timeframe that these thefts were taking place, the Nuclear Regulatory Commission authorized dozens of Chinese nationals to have unescorted access to five U.S. nuclear power plants for 2 months. Unescorted access to five U.S. nuclear power plants. I have been told by the Nuclear Regulatory Commission that this matter remains under investigation by the Department of Justice.

Can you tell me whether any of the Chinese nationals who were placed at U.S. nuclear reactors unescorted assisted or attempted to assist the efforts of the members of the Chinese military who were indicted?

Mr. COUNTRYMAN. I am unable to answer a question on the connection between the two. I do know that in terms of Chinese visitors who were allowed access to operating nuclear power plants, in the same way that American experts are allowed access to Chinese nuclear power plants, the NRC I believe has corresponded with you several times on this and noted that it is essentially not a matter of NRC approval of such visits.

Senator MARKEY. Do you know if the investigation has been closed?

Mr. COUNTRYMAN. I do not know that.

Senator MARKEY. So can you give the committee a report on the status of that investigation and when they intend on closing the investigation? Because I think it is directly relevant to the treaty that we are now considering.

Mr. COUNTRYMAN. I will endeavor to get more information, yes, sir.

Senator MARKEY. I think it is very, very important.

In 2013, a DOD report to Congress states, quote, China is using its computer network exploitation capability to support intelligence collection against the United States diplomatic, economic, and defense industrial base sectors that support U.S. national defense programs.

I would like you to tell me whether Chinese Government entities have attempted to hack into either the Department of Energy or the Department of State.

Mr. COUNTRYMAN. As discussed last night, we will give you information on that soon.

Senator MARKEY. General.

Mr. KLOTZ. I agree. We will provide you the information we have.

Senator MARKEY. Yes. I think it is very important so that we understand especially whether or not they have tried to access nuclear weapons information from the Department of Energy or other

sensitive military information, and that would be both Energy and State, but also Defense and other related agencies.

So my concern here, Mr. Chairman, is that it is quite clear that there are entities within China who continue to sell materials that could have dual-use application into this international nuclear weapons and ballistic missiles marketplace in the same way A.Q. Khan was doing it out of Pakistan. The gentleman who I referred to and others inside of China are continuing to do the same thing today. I think it is preposterous to conclude that the Chinese Government is incapable of shutting this down. I think it exists at the sufferance of the Chinese Government. I think that it is absolutely critical that safeguards be put in place to make sure that there are conditions that are attached to this agreement that ensure that there is not a continued recurrence of dangerous activity that will come back to haunt our country and the world because of China's unwillingness to actually police the export of these very dangerous technologies into the hands of those who we know will endanger the world if they gain access to it.

So I am not confident that I can support this agreement. I think it needs additional strengthening if we are going to be confident that the policy that we have right now does not help China far, far more than it is going to harm the long-term nuclear and ballistic missile nonproliferation agenda, which we put at the highest pinnacle of American public policy.

Thank you, Mr. Chairman.

The CHAIRMAN. Well, we look forward to your input in that regard, and it is fascinating that our witnesses clearly state that China is in violation of the existing agreement and yet we are extending the relationship with a new agreement.

Senator Perdue.

Senator PERDUE. Thank you, Mr. Chairman.

And thank you, General and Mr. Secretary, for your lifelong dedication and service to this country. And thank you for your testimony last night in a classified environment.

I will be very brief, Mr. Chairman. I agree with Senator Markey. I have done business in China, and if it was consistent with their strategic initiatives and objectives, I believe they could police this.

You have touched on several of these proliferation questions already, so I will not belabor the point. But in 1997, China pledge to the United States that it would not begin new nuclear projects in Iran. The 2011 Worldwide Threat Assessment by the Director of National Intelligence listed missile proliferation from Chinese entities as a concern at that point. Again in 2011, the same threat assessment said, quote, "North Korea and entities in Russia and China continue to sell technologies and components to the Middle East and South Asia that are dual-use and could support WMD and missile programs." The 2015 statement did not include similar language.

General, could you just give us again just a highlight of your perception now, your assessment on the current proliferation activity in the region that China is initiating between Iran specifically and North Korea?

Mr. KLOTZ. Senator, that is just not an area that falls under the purview of what we deal with.

I think the issues, in terms of Chinese activities in other parts of the world, more properly falls under the State Department and the intelligence community.

Senator PERDUE. Thank you.

Mr. Secretary.

Mr. COUNTRYMAN. I guess that is me.

First to be clear, the 1997 agreement was about official Chinese Government support to research and development activities and construction of facilities in Iran that could have contributed to a nuclear weapons program in Iran. In keeping with the terms of its pledge in 1997, China terminated those activities.

The separate question of whether every entity, every crooked businessman in China has stopped attempting to sell dual-use materials to Iran and North Korea is a very different question. And I agree that it requires both additional resources and additional political will in China in order to put a stop to such activities. But it is a separate question from direct Chinese Government assistance to a nuclear research program in Iran.

Senator PERDUE. In this deal, do you think that we could influence them to change their ability to detect that? I understand it takes investment, but is that not really the question behind what we are trying to do here? It is either they are going to do business with us and proliferate, or they will do business with someone else and proliferate. And so engagement is the higher objective here. I get that.

But before we get to that point, is it not possible to influence them to actually enhance their detection capabilities?

Mr. KLOTZ. Well, I mean, that is an extraordinarily important question, Senator.

And just let me give you one vignette. The Department of Energy and NNSA has had an export control outreach program that relies upon the 123 agreement and the PUNT framework that I mentioned earlier. And it has been working since 2007 in China to train over 100 government officials each year from six different Chinese agencies that have a various role to play in export control, internal compliance responsibilities. We have also trained dozens of additional industry personnel on subjects of export control, internal compliance, and best practices, and provided that this successor 123 agreement comes into force, we expect to expand significantly the number of industry officials that are engaged in "train the trainer" approach to drive home that nondiversion to peaceful and military purposes as outlined under the 123 agreement are issues that the Chinese have to focus on.

So, again, if we are going to engage, if we are going to continue the journey of bringing the Chinese more into what we consider to be the international norm and standard related to nonproliferation, related to nuclear security, and related to nuclear safety standards, it involves us interacting with them from the Department of Energy's perspective at the level of the technicians and the plant managers and the scientists that actually have to carry out this work. We cannot do that unless we have the legal framework that allows us to engage in those types of discussions.

Senator PERDUE. I understand, and I have supported engagement over the last 30 years personally. And I think I agree with

you technically that that is a better way to go if in fact we can influence through that engagement.

Specifically on a CAP1400 reactor, this is one that the Chinese might reverse engineer off of one of our reactors. Is there any way to police that? Would we consider that a U.S. design even though it was, let us just say, reversed engineered off of our design, and would that come under the restrictions that we have on our products?

Mr. KLOTZ. Well, without talking about the specifics of that, I mean, it is ultimately up to industry to decide which of its technology, its patents, its trademarks it is willing to part with in essentially a commercial business deal. They have to make the business case for what makes the most sense either in terms of the immediate sale or in terms of what they expect to gather from the sale of spare parts or services down the road.

What happens at the U.S. Government level is all of those requests to transfer a particular type of technology, a component, material, know-how has to go through the Department of Energy. We consult with the rest of Government to—again, eyes wide open—try to understand what the implications of that are from our national security nonproliferation perspectives before that goes forward. Under this new agreement, any decisions along those lines will be published in the Federal Register and it will take a waiting period to make sure that we have dotted all the “T’s” and crossed all the “T’s” with respect to technology transfer.

Senator PERDUE. Very quickly on that one point, when we detect violations, what can we do to bring them back into compliance, if anything at all?

Mr. KLOTZ. Well, within the terms of this new framework agreement, either party has the right to raise it with the other party and to ultimately suspend the agreement if they are not satisfied with the response.

Senator PERDUE. Thank you, Mr. Chairman.

The CHAIRMAN. Very good questioning.

Ranking Member Cardin, thank you so much.

Senator CARDIN. Thank you, Mr. Chairman.

Again, I thank both of you for not only being here but for the important public service that you are providing to people of this country. These are extremely important issues.

I am somewhat troubled by why there was not an effort made in these negotiations to deal with cooperation from China in regards to proliferation to Iran and North Korea by Chinese companies. We all acknowledge that there are Chinese companies that are violating the international norms on transfer of material and equipment to North Korea and Iran. We have spent a great deal of effort to try to prevent Iran from becoming a nuclear weapon state, and it would seem to me that we would want to use every opportunity we could. So why was there not a greater effort made to use the 123 agreement, which admittedly benefits both sides—do not get me wrong—but to use this as an opportunity to advance an important goal of nonproliferation?

Mr. COUNTRYMAN. No, it is a very good question, Senator. Let me talk about it first in the past tense with the current agreement and then in the negotiation of the successor agreement.

In the 1990s, when the 123 was in effect but before any exports were approved, as a consequence of the standards that the Congress asked us to certify, China made a number of specific commitments on nuclear nonproliferation and export control, which they fulfilled. And they included joining the Nuclear Suppliers Group and adhering to those standards. It included ending the cooperation that they had initiated with Iran. It included ending certain forms of cooperation with Pakistan, and crucially it included them publishing for the first time the list of both nuclear material and dual-use materials that were controlled under their national legislation. Prior to that time, they had no definition of what it was they were seeking to control. That is an example of the kind of dialogue within the context of a 123, but not in the context of a 123 negotiation, that brought about a demonstrable, concrete improvement in Chinese performance.

What we seek to do today is the same, and so well before my tenure began in 2011, but aggressively under my tenure, we have engaged with the Chinese not with a general complaint that you got to do more, but with a combination of very specific bits of information upon which we expect them to act, as well as concrete offers of cooperation, of training in customs enforcement, of training in border security, of discussion of ways to change legislation and to change national control lists to make them more effective. And as a consequence, we see more and more cases in which Chinese authorities have taken action on specific bits of information, not only from the United States, but that they have developed themselves in order to prevent transfer of dual-use material.

More importantly, over the last 15 years or 20 years, if you prefer, what we have seen is that Chinese state-owned enterprises are out of the business of proliferating technology to North Korea and Iran. It is rather a very dynamic, very high-tech private sector in China, which the state has not yet shown the capability and, as Senator Markey, I would agree—not yet shown the political will to control adequately.

Senator CARDIN. But is it your view that the successful completion of the 123 agreement will end up making China more sensitive to and more effective in blocking the export of dual-use technology?

Mr. COUNTRYMAN. Yes, and I think this hearing will also contribute to the same goal.

Senator CARDIN. Thank you. I appreciate that.

I would like to talk a little bit about—one of the selling points of a 123 agreement is jobs here in the United States because a lot of the reactor work is done by Americans, and we have companies that are located here. But the technology will be absorbed in China. China is interested in producing reactors for export. And there is some fear that we are accelerating the international competition from China which may end up costing American jobs, knowing the way that Chinese use their trade practices in the international marketplace.

Can you give us any assurances that this 123 agreement will not end up costing us our domestic jobs in this area because we may instead be inadvertently accelerating the Chinese ability to compete internationally using American technology?

Mr. KLOTZ. Thank you, Senator.

Our sense is, again, the decision as to what specific aspects of what is U.S. origin technology, patented, trademarked, that U.S. companies decide in their engagement in the Chinese market or working with the Chinese in the export market is a decision which——

Senator CARDIN. Just to interrupt for one second. Part of the entry into China very much is negotiated with the private companies, which could very well affect China's ability to use technology. Would it not?

Mr. KLOTZ. It does. But even if the Chinese are engaged in building reactors within their own country indigenously or if they are making for export reactors, there is still U.S. Content in that. There are still specialized components that the United States has a comparative advantage and a technological lead in providing after-sale services, consulting, engineering. There is just a whole range of things which U.S. industry, not just the major manufacturers of reactors but a whole range of sub-vendors will benefit from by being involved in this expanding and growing market.

Senator CARDIN. It makes me a little nervous. I hear what you are saying.

Let me ask one final question, if I might, on safety issues, which is something we have not touched on. And that is, what type of assessment can you give us that the use of nuclear power in China will be with the highest safety standards, recognizing the uncertainty of climate conditions, as well as national security issues?

Mr. KLOTZ. Well, for us, the Department of Energy and the NNSA, of course safety and security are paramount in all of our engagements, both with our own laboratories and production plants and facilities here in the States, but also in China.

As I said in the opening oral statement, we just had a meeting under the PUNT Joint Coordinating Committee, the Peaceful Uses of Nuclear Technology Committee, in China in which a whole range of safety and security-related safeguard issues, environmental concerns, waste management concerns were raised. And indeed, this is one of the reasons why we think it is important as the Department of Energy and NNSA to be involved in this process is to ensure that we communicate with other countries, including China, best practices in the safety and security area, including lessons learned from the Fukushima accident several years ago. There are a lot of things which we are implementing domestically. There are a lot of things which power plants overseas are implementing that draw from that.

But, again, it gets back to the comment that was made earlier, and it is that engagement of the nuclear safety experts, the technicians, the laboratory experts in dealing with very, very complex and technical issues associated with that that helps promote safety and security across the globe.

Senator CARDIN. Thank you.

The CHAIRMAN. Thank you very much.

Senator Gardner.

Senator GARDNER. Thank you, Mr. Chairman. Thanks for holding this hearing today, and thank you to the witnesses for being part of the briefing last night as well.

This is obviously a very important strategic discussion that we are having, securing peaceful nuclear cooperation with China to create significant business opportunities for U.S. exporters. China has right now about 26 nuclear reactors—is that correct—with an additional 23 reactors under construction. It plans to build up to about 100 more by 2030. For comparison, there are only 99 nuclear reactors currently in the United States.

China announced in December of last year that it would spend about \$11.2 billion on reactor construction during the next 10 years. It is an incredible amount of money to spend to invest in nuclear technology and for U.S. businesses to plan that activity.

But I think you have heard concern from others on this panel, and I would like to echo that concern about the past proliferation record of certain entities in China and what may portend as China's nuclear and ballistic programs grow. We need an ironclad commitment from China that sensitive U.S. technology will be secure for the duration of this agreement and not be used for nefarious purposes by either the Chinese Government or third parties.

And so as we look at the strategic implications of this agreement, we must also use it as an opportunity to raise with China a pressing need to curb North Korea's growing nuclear program and to stop Pyongyang's belligerence toward our allies in the region. After the ascent of Kim Jong-Un as North Korea's leader, there seems to be a significant cooling in Beijing toward Pyongyang, though the fundamental policy has remained the same.

Most recently, we have heard from Chinese nuclear scientists that North Korea has as many as 20 nuclear warheads, which could double by next year. That is a much more aggressive estimate than what we and our own intelligence community have said and perhaps a sign that Beijing may finally have had enough of Pyongyang's antics. American diplomats—and I hope this will continue—must try and exploit this potential opening at every level.

And so to Assistant Secretary Countryman, the 2011, as discussed on the panel today, Director of National Intelligence Worldwide Threat Assessment report stated that North Korea and entities in Russia and China continue to sell technologies and components in the Middle East and South Asia that are dual-use and could support WMD and missile programs. But as we have discussed on the panel, the 2015 DNI report made no mention of these concerns.

I think there have been answers to the question of whether or not the Chinese entities are currently engaged in these types of activities.

And so I guess I would ask a specific question of you, and I do not think I have heard this answer today. Which Chinese individuals and companies remain under U.S. sanctions related to proliferation of weapons of mass destruction or missile technology?

Mr. COUNTRYMAN. No, it is a good question, and I will get you a detailed list as rapidly as possible. They are primarily not state-owned enterprises but rather individual brokers and technology firms that are not under direct state control.

Senator GARDNER. And you will get that list to us.

Mr. COUNTRYMAN. I shall.

Senator GARDNER. Thank you.

And in talking about the terms of the agreement entered into, if we do not enforce the terms of the bargain, does that not lead to a conditioned willingness to ignore the plain letter of the agreement?

Mr. COUNTRYMAN. Absolutely. That is why we enforce it strictly.

Senator GARDNER. The message that the President sent to Congress states this. This is again from the message that the President sent on the announcement of the agreement for cooperation. And I quote. "It does not permit transfers of any restricted data. Transfers of sensitive nuclear technology, sensitive nuclear facilities, and major critical components of such facilities may only occur if the agreement is amended to such transfers."

In this conversation that we are having today, it sounds like this is not—that this statement is at odds with your testimony. Would you agree with that?

Mr. COUNTRYMAN. No, Senator. Sensitive nuclear technology has a particular meaning in the Argo of nonproliferation, and it is defined elsewhere in the text. It does not refer, for example, to the major components of a reactor since it is reactors we are selling. It could refer to other kinds of technology with noncivilian applications.

Senator GARDNER. The State Department's 2014 report on adherence to and compliance with arms control nonproliferation and disarmament agreements and commitments stated—and I quote—"in 2013, Chinese entities continued to supply missile programs in countries of concern."

In this open setting, can you share more information of the type of missile programs in countries of concern?

Mr. COUNTRYMAN. Yes. As has already been mentioned, a gentleman named Li Fangwei, who uses the name Karl Lee as well, has been a primary procurement agent for Iran's nuclear ballistic missile program and has provided a variety of dual-use equipment from China and from other destinations to the Iranian ballistic missile program. So that would be the number one individual that we would be concerned with in that category.

Senator GARDNER. Any countries including North Korea—conversations?

Mr. COUNTRYMAN. There are other procurement agents in China who work knowingly or unknowingly on behalf of North Korea to acquire technology in China.

Senator GARDNER. Thank you, Mr. Chairman.

The CHAIRMAN. Thank you very much for that question.

Just to follow up on that, what is China specifically doing? We are all aware of the Karl Lee situation. What are they specifically doing, to really get back to some of Senator Perdue's questioning, to end that?

Mr. COUNTRYMAN. We are engaged in an intensive dialogue. Well, it is a longstanding dialogue about Karl Lee that has intensified recently in which we are seeking to understand better each other's information and the capabilities in our legal system, for example, why we are able to indict him in the United States and whether the Chinese would be able to do something similar in China. I will be happy to come back when it produces some meaningful results.

The CHAIRMAN. Again, in questioning with Senator Perdue, the mention of the agreement being suspended if they violate it—is that threat real? I sit here and I am just going to add to that question with another question.

First of all, you all have been great witnesses, and I think last night and today, you were very transparent on the things that—even more so last night—that we have concerns about, obviously in a different setting.

So we have U.S. interests that want to do business. We have a country like China that is not honoring the spirit of the law. They are not honoring previous agreements with the Nuclear Suppliers Group. We know they are going to take this information and use it for military purposes. We know that, even though the agreement says they will not do it.

So we have companies that want to do business with them that are U.S.-based and have superior technology, and we also know, by the way, they are going to use that technology in ways that they should not.

So talk to me a little bit about the dynamics. You have Westinghouse, a division of Toshiba, pressing you to do business, pressing you to allow this agreement to go forward. We have other companies that want to do business. You also have to consider our national interests, if you will. You have a country that—let us face it—does not honor agreements. Talk to us a little bit about the internal dynamic, if you will, to give us a flavor of the various pressures that you are dealing with because it does feel a little bit like mercantilism is trumping the specifics of agreements being honored relative to nonproliferation.

Mr. COUNTRYMAN. Sir, let me repeat. I will ask General Klotz if he wants to comment on economic and commercial issues.

But my job is to look after the nonproliferation policy of the U.S. that has been consistent across administrations, supported by Congresses, and that is why negotiation of these treaties falls within my bureau. And I repeat. We would still be negotiating if I were not satisfied that this is in the best interests of promoting our strong nonproliferation policy. Jobs are important. The relationship with China is important. But my job, entrusted when confirmed by the Senate, is to look after nonproliferation policy. And as we briefed a year ago on our general 123 policy, that is the primary topic in all of our negotiations.

Mr. KLOTZ. I guess, Senator, I would look at it this way. Our well-being as a nation rests on a number of different pillars or foundations. It rests on our national security and defense capabilities. It also rests on our economic strength as a country both domestically and in the international markets, and it depends upon our scientific, technical, engineering infrastructure that underlies that.

And so, you know, the difficult challenge we face as decision-makers, whether it be in the executive branch or in the legislative branch, is to strike the right balance between all of those competing interests. I think what this agreement does is it sets up a mechanism by which licensing goes through the Nuclear Regulatory Commission. The approval to transfer various and sundry information and materials and components goes through the Depart-

ment of Energy in consultation with the rest of the Government. I know for a fact, having spent 38 years in the military in the Defense Department, that our colleagues over there will look very carefully and very closely, as will the intelligence community, when the issues of licenses and the issues of approval for transfer come up, and as they are reviewed, as they will, under this new agreement on an annual basis in terms of what has been transferred and what is on the inventory list.

The CHAIRMAN. Senator Cardin.

Senator CARDIN. Thank you again very much.

Senator MARKEY. Mr. Chairman?

The CHAIRMAN. Yes, sir.

Senator MARKEY. Thank you, Mr. Chairman, very much.

A little bit on Karl Lee. Karl Lee is wanted by the Department of Justice as a principal contributor of Iranian ballistic missile programs. Recent U.S. sanctions have confiscated \$8.6 million in funds from Chinese bank accounts. He is linked to manufacturing and exporting missile guidance components, has an extensive network of shell companies inside and outside of China to hide his activity. What they have done over time is every time we catch him, they change the name of the firm. So he has had a relationship with 12 to 26 firms, many of which were just shell companies, again in sending ballistic missile technology to Iran. He has had 16 aliases, multiple bank accounts. But he is kind of running this nuclear eBay out of China selling into countries in the world that we do not want to have access to these materials.

We have a \$5 million reward for information leading to his arrest. In April of 2014, he was charged with conspiring to commit fraud and bank wire fraud and bank fraud and money laundering in Manhattan. He has a large network of industrial companies based in eastern China.

So the Chinese Government says they cannot figure this out. They cannot figure out how to shut him down or guys like him. But the good news is they can figure out other things in China. They figured out how to arrest five women who belonged to a feminist organization last year. They figured out how to jail 44 journalists last year. They figured out how to put 27,000 Muslim minorities in the Uighur region in prison last year. They can figure that out. That they can do. But they cannot figure out Karl Lee. It is just too hard for them. Maybe it is too much evidence, too many shell companies, too many times.

On the other hand, maybe China has just subcontracted this out to the private sector. It is a trend in America for cost-cutting reasons. Maybe China has done this in order to protect the guilty, you know, the Chinese Government, the Peoples Liberation Army, so their fingers are not on it, but yet they can do the favors for Iran or Pakistan or other countries. That is what I think is going on. I think it is pretty clear what is going on.

When they want to crack down, they know how to crack down. If they want to crack down on Facebook, they want to crack down on Twitter, they do it. It is shut down overnight. They shut that site down. They move in.

They have got military all over these other areas of Chinese life that they believe are threats to their regime. But when it comes

to threats to a nuclear nonproliferation regime, they just shrug their shoulders. They cannot figure it out. It is too hard. And the reason it is too hard is that they have subcontracted this out to Karl Lee. He would be in prison right now. He would be paying a big price.

The Pakistanis could not figure it out with A.Q. Khan for like 25 years. We know why. We know why he is living in a nice private residence in Pakistan, not under arrest. He was a hero, not a felon in the eyes of the establishment.

That is how we are going to get in trouble here. China gets a lot out of this. China in nuclear power is a lot like the Japanese were in the automotive industry in the 1950s. We were laughing at them. But I have had the honor—very few of us can say this. I have had the honor of bailing out Chrysler twice with votes in Congress, 1979 and then again in 2009. The Japanese just kept coming. The rest of the world just kept coming.

So they want this technology. They want to reverse engineer it. They want to be the big marketer of nuclear power plants. They will use the ostensible guise of their concern about climate change. And we are going to pay a big price in the long term.

So we got to start out now where we want to wind up in the long run because it will be prettier that way from a policy perspective. Much prettier if we insist on very tough standards now on the Chinese before we finalize anything with them. They have to prove to us that they are serious about this, that people who violate nuclear nonproliferation policy, ballistic missile policy pay a price. And if we pretend that they cannot do it, if we pretend that they do not have an authoritarian government, if we pretend that they are a capitalist and not a Communist nation, which they are with state control over everything at a certain level, then we are just going to pretend away on nuclear nonproliferation policy.

So this is a big moment for us. We have to attach conditions to this that do not allow them to derive the commercial long-term benefits of having access to our top-of-the-line nuclear technology while simultaneously turning a blind eye to what we know is a simultaneous geopolitical agenda which they have and which is a constant throughout the last 4 or 5 decades in Pakistan, in Iran, and other places.

So I guess what I would say to you is that from my perspective, we have a big responsibility here to condition this in the tightest possible way, to expect action from China and not words, to not allow the short-term diplomatic, commercial interests of any administration to trump the long-term nonproliferation goals, which we all say are at the highest level. We are here today because we short-changed nonproliferation policy.

That is why you, Mr. Chairman, and the ranking member had to do such a great job on this Iran resolution. We just turned a blind eye to it. We were selling six nuclear power plants to the Shah of Iran in 1977, 1978, and 1979. Thank God we did not transfer it before he fell. That was Jimmy Carter policy.

So in each iteration so far, we have kind of dodged the big bullet, but each year that goes by, every compromise of the policy, especially when we are dealing with Pakistan and Iran, we are running a big risk. And so all I can say here is I am going to work very

hard to make sure the conditions that are attached to this reflect the seriousness with which we should take the lack of seriousness that the Chinese Government has evinced in their nuclear non-proliferation policy.

And I thank you, Mr. Chairman.

The CHAIRMAN. Thank you.

And the ranking member shares the input we have from all of our members. I think we have an outstanding committee. And it is interesting on different topics, the different input that members weigh in with. I really appreciate Senator Markey's contribution, as I do everyone's, here today.

I see your light on. I do not know if you want to follow up on something.

Senator CARDIN. No. I just wanted to point out, of course, this is the second day of our hearings. The first day was in a closed session. And I think the information we have received will be very helpful to us, and I do appreciate the participation of all our members, particularly Senator Markey's history on this and the work that you did when you were in the House of Representatives.

The CHAIRMAN. Just to follow up on his question before we close this out, on the Karl Lee issue with China, do you think it is a lack of capacity or a lack of desire to end that particular situation?

Mr. COUNTRYMAN. I think it is a little bit of both. I think the quibbles I would have with Senator Markey's description is, first, he is not a nuclear e-Bay. He is more a primary agent for the Iranian ballistic missile program, rather than all kinds of programs in all kinds of places. He has got a primary sponsor.

The second point. I do not think it is so much a question of subcontracting government functions to a private facility. You are right. That happens in a lot of countries. I think it is a different problem that again is not unique to China. Mr. Lee has money and lawyers, and the Uighurs and the women's NGO's and the others do not.

The CHAIRMAN. Well, listen, my sense is that as we move ahead, there may be a series of conditions that the Senate may want to place on this particular agreement. And I would encourage members and staffs who are here to work with us to see if, indeed, that is the case.

But, again, I want to thank you both for your transparency always in answering questions in the way that you do. And I want to thank you for being here.

The record will be open until Thursday afternoon. So if you receive additional questions, please answer them promptly.

Thank you for your service to our country.

And with that, the committee will be adjourned.

[Whereupon, at 4:12 p.m., the hearing was adjourned.]

ADDITIONAL MATERIAL SUBMITTED FOR THE RECORD

RESPONSES OF THOMAS M. COUNTRYMAN TO QUESTIONS SUBMITTED BY SENATOR BOB CORKER

Question. How does the 123 agreement with China advance U.S. nonproliferation objectives?

Answer. This successor 123 agreement advances U.S. nonproliferation objectives and strengthens the legal framework for peaceful nuclear energy cooperation relative to the 1985 China 123 agreement. The agreement establishes clear U.S. consent rights on the storage, retransfer, enrichment, and reprocessing of U.S.-obligated nuclear material, and it contains additional, elevated controls on unclassified civilian nuclear technology that may be transferred to China. This agreement also requires the two Parties to enhance their efforts to familiarize commercial entities with the requirements of the agreement, relevant national export controls, and other policies applicable to imports and exports subject to the agreement—a requirement that will be implemented by U.S. and Chinese officials through joint training of commercial entities in both countries. And unlike the 1985 agreement, this agreement requires China to make all U.S.-supplied nuclear material and all nuclear material used in or produced through U.S.-supplied equipment, components, and technology subject to the terms of China's safeguards agreement with the International Atomic Energy Agency.

Continuing U.S.-Chinese nuclear cooperation would allow for deepened cooperation on nonproliferation, threat reduction, export control, and border security issues. Without the agreement, China may not be willing to engage in current bilateral dialogues to discuss these important nonproliferation issues. We believe that continuing cooperation with China under the successor 123 agreement will allow us to push China further to adhere to international norms in this area and meet U.S. standards of nonproliferation, nuclear safety and security.

Question. The U.S. relationship with China is marked by ups and downs. When addressing issues as important as continuing a civil nuclear relationship, why should we not review the whole of the relationship instead of compartmentalizing as we are being asked to do?

Answer. This agreement intersects multiple areas of U.S.-China engagement and as such, we looked across the range of relevant energy, environment, economic, nonproliferation, and national security issues when approaching the negotiations of a successor agreement. Our relations with China are very complex and are marked by elements of both cooperation and competition. We seek to expand areas of cooperation where our interests are in accord and to effectively manage and narrow areas of difference and disagreement. The United States has much to gain by continuing civil nuclear cooperation with China and as such, it is in the national interest to approach the agreement through this lens. Thus, we do not suggest that the committee should ignore the wider U.S.-China relationship; on the contrary, we believe that such consideration provides further support for this agreement.

We strongly believe that implementing this agreement will better position the United States to influence the Chinese Government to act in a manner that advances our global nuclear nonproliferation objectives and adheres to international norms. We also believe that this agreement will improve not only our bilateral nonproliferation relationship, but also our overall bilateral relationship, thus reflecting the U.S. Government effort to better rebalance our foreign policy priorities in Asia.

We believe that the strategic, nonproliferation, economic, and environmental benefits of this agreement demonstrate that continuing nuclear cooperation with China is in the overall best interests of the United States. We are mindful of the challenges that this relationship and this agreement present, and yet we firmly believe the clear path forward is to remain engaged with China, constructively manage our differences, and work collaboratively to advance our numerous common objectives while bringing China toward international norms of behavior.

Question. What are the key administration concerns regarding this agreement and what measures will be taken to mitigate those concerns?

Answer. The U.S.-China relationship is complex and is marked by elements of cooperation and competition across many issues, and nonproliferation is no exception. Looking at China's nonproliferation record and position over the course of the last 30 years, it has been well demonstrated that U.S. engagement with China has improved China's proliferation behavior. We recognize that challenges do remain, including those we discussed with the committee in closed session such as China's continued supply of civil nuclear technology to Pakistan.

To mitigate those challenges, this agreement enhances several U.S. nonproliferation controls beyond those contained in the 1985 U.S.-China 123 agreement. This agreement contains additional controls on the transfer of unclassified civilian nuclear technology to China, including a requirement for additional assurances from the Chinese Government pursuant to the agreement. It also requires China to make all U.S.-supplied nuclear material and all nuclear material used in or produced through U.S.-supplied equipment, components, and technology subject to the terms

of China's safeguards agreement with the International Atomic Energy Agency (IAEA).

China has agreed to work together with the United States to enhance its efforts to jointly train all commercial entities transferring technology under the agreement to ensure they understand the requirements of the agreement, relevant national export controls, and the need for strong export compliance to ensure that all of the terms of the 123 agreement are met. Finally, beyond the standards in the agreement, we will have the opportunity to continuously review Chinese adherence to end user commitments throughout the term of the Agreement and, as we review new export license applications over the course of the agreement, make adjustments as necessary to mitigate this risk. The agreement requires the Parties meet annually to review lists of technology approved for exchange.

Question. What does it mean to be a "safeguarded facility" in China? Is it subject to the same regular and rigorous inspections and reporting as a "safeguarded facility" in a nonweapon state? Only applied at eligible sites at the request of the supplier state.

Answer. The implementation of safeguards for a State is governed by a comprehensive safeguards agreement and, where applicable, the Additional Protocol (AP), concluded between the International Atomic Energy Agency (IAEA) and the State or States concerned. For a nuclear weapon state Party to the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) like China and the United States, the main safeguards agreement is a so-called Voluntary Offer Agreement (VOA). China entered into its VOA with the IAEA, INFCIRC/369, in October 1989. For VOA States, safeguards are applied on nuclear material in facilities selected under each VOA. Under its VOA, China provides a declaration of facilities to the IAEA that are eligible for safeguards. The IAEA, in turn, may select a facility or facilities to apply safeguards; however, it is not obligated to do so. If a facility is selected under China's VOA, the IAEA will apply safeguards in order to detect any withdrawal of nuclear material from safeguards in that facility, as provided for in the agreement.

The most likely location where U.S.-obligated material would be enriched in China is one of two Russian-constructed enrichment facilities where safeguards are currently being applied. Regarding reprocessing, the agreement provides U.S. advance consent for the reprocessing or alteration in form or content of U.S.-obligated material only after both sides agree on a set of arrangements and procedures under which such these activities will occur. These arrangements and procedures would establish the location(s) where reprocessing may take place. As China and France are continuing negotiations regarding the construction of an Areva reprocessing facility to be built in China at which IAEA safeguards would be applied, the United States expects that any such activities would occur at the French facility. If they do, the French reprocessing facility would be subject to the same level of IAEA safeguards as those in a nonnuclear weapons state.

Question. The Agreed Minute includes right to appoint personnel for inspection and installation of device. How will this provision be used by the United States?

Answer. In accordance with the terms of paragraph 3 of Article 9 of the agreement, the provisions in the Safeguards section of the Agreed Minute, including the right to appoint personnel for inspection and the installation of essential devices, would only come into effect in the event that the Safeguards Agreement between China and the International Atomic Energy Agency is not being implemented. In this hypothetical situation, the United States and China would consult and establish a mutually acceptable alternative to the China-International Atomic Energy Agency (IAEA) Safeguards Agreement. However, the United States considers this to be an unlikely scenario. Nonetheless, the United States includes such bilateral safeguards arrangements in all 123 agreements to ensure that the safeguards requirements of the agreement are met through bilateral measures even if the relevant IAEA safeguards agreement is not being implemented.

Question. What tangible outcomes have been gained by investment in training Chinese officials on detection and interdiction?

Answer. Training Chinese officials on detection and interdiction is a critical component of our nonproliferation engagement with China. In 2011 the National Nuclear Security Administration (NNSA) signed a memorandum of understanding with China to open a Radiation Detection Training Center (RDTC). Commissioned in 2014, the RDTC has developed a curriculum, classrooms, and a mock port of entry. The RDTC offers China Customs a national level training center to provide uniform and specialized training for officers in the detection of smuggled nuclear materials. The radiation detection techniques being taught at the RDTC are already being applied at ports of entry across China, thereby helping to prevent the smug-

gling of nuclear materials to proliferators and terrorists. To date, China Customs has trained over 200 officers at the RDTC.

Along with the RDTC, through the Nuclear Smuggling Detection and Deterrence program we were able in 2015 to transition a radiation detection system to Chinese Customs at the Port of Yangshan. These two programs have served as important confidence building measures between our two governments. China Customs is also now working, at its own cost, to add additional detection equipment at the Ports of Yangshan and Tianjin. NSDD is providing technical advice and guidance for these efforts. Overall, NNSA believes that its initial investments in training and detection have prompted China to adopt this mission and complete additional deployments and training courses on their own and at their own cost.

Training and outreach is also being conducted directly with Chinese companies. Over the years we have held meetings and training workshops with a number of Chinese companies to help in their development of internal compliance programs.

RESPONSES OF LT. GEN. FRANK G. KLOTZ TO QUESTIONS
SUBMITTED BY SENATOR BOB CORKER

Question. China is seeking to indigenize the AP1000. How will this impact the U.S. competitiveness in China and globally? Will this capability, derived originally from U.S. technology, directly compete with the AP1000?

Answer. The Department of Energy and our interagency partners are not privy to the full commercial terms of Westinghouse's contracts. Westinghouse itself, however, would be the appropriate party to discuss details on Westinghouse's business plans and arrangements in China. China's energy plan calls for continued expansion/installation of nuclear energy plants with an expected announcement pace of 6–10 units per year, which could involve up to \$14 billion in U.S. company contracts and over 50,000 U.S. jobs over the program's duration, per the Department of Commerce.

Question. How much of the current program of construction and the provision of services could be accomplished by license under the Part 810 rule? Specifically identify what aspects of cooperation with China's civil nuclear program cannot be achieved absent a 123 agreement.

Answer. In order for U.S. companies to construct reactors outside of the United States, vendors must be able to provide all the technical elements of nuclear reactors including: technology, hands-on assistance, and major and minor components. Absent a 123 agreement, technology and assistance could be provided upon approval and a license from the Department of Energy and the Department of Commerce for minor, dual-use components. The AEA requires a 123 agreement be in place for the Nuclear Regulatory Commission to authorize the export of nuclear reactors, major reactor components, and nuclear material.

The specific amount of construction that could be completed without U.S.-supplied major reactor components is dependent upon how much China is able to indigenize from the technology and other non-U.S. assistance that might be provided from countries that do not have the same requirements in their nuclear cooperation agreements.

Question. What can be expected, what is the role of, the Nuclear Security Center of Excellence currently under construction outside of Beijing?

Answer. Among its primary missions, the Center of Excellence (COE) will address China's domestic nuclear security training requirements, provide a forum for bilateral and regional best practice exchanges, and serve as a venue for demonstrating advanced technologies related to nuclear security. First, it is a key component in meeting the domestic nuclear security training needs of China's civilian nuclear complex, which is expected to experience significant growth in the number of nuclear power plants and related fuel cycle facilities. Second, the COE is expected to serve as a regional facility, hosting partners from around Asia and the International Atomic Energy Agency (IAEA) for nuclear security forums, workshops and training. Finally, China hopes the COE will be able to host demonstrations of new technologies (their own and from other partners) and approaches to nuclear security, through future regional and international forums and partnerships. Ultimately, the United States is seeking to indigenize nuclear security trainings to improve and sustain nuclear security practices in China.

For the United States, the focus is on promoting Chinese adoption of modern nuclear security best practices by supporting the training mission of the COE.

Question. The United States has been generous in its support for and contributions to providing training and a range of equipment to the Chinese. What investment, using national funds, is China making toward nuclear security and safety?

Answer. As China makes progress on the rapid expansion of its nuclear power program, it is working to develop the nuclear safety and security culture and capacity to ensure that its program can be adequately maintained. In October 2012, the State Council approved the “12th Five-Year Plan for Nuclear Safety and Radioactive Pollution Prevention and Vision for 2020,” in which China stated its plans to spend CNY 79.8 billion (US\$13billion) over a 3-year period toward programs meant to address safety improvements or correctness measures for existing nuclear facilities, radioactive waste treatment, nuclear safety, science and technology innovation, emergency response and nuclear regulatory capability-building. In addition, the China National Nuclear Safety Administration (C-NNSA) issued a policy statement requiring all future nuclear power plants to develop probabilistic safety assessments (PSA) for potential accidents. In response, most Chinese nuclear power plants have spent considerable resources on developing PSA capabilities, including equipment reliability databases, human reliability analyses, and risk-informed regulations.

Since 2010, the Department of Energy has conducted training workshops with Chinese utilities on PSA applications that have generated increasing interest throughout the Chinese Government. Recently, C-NNSA has organized and conducted its own workshops within China to disseminate the lessons learned from the DOE workshops to a broader audience. In early 2014, C-NNSA began building a national Equipment Reliability Database, to which all operating plants in China will submit their data.

Since the Fukushima accident, China has developed an R&D program on accident tolerant fuels with improved performance, reliability, and safety characteristics during normal operations and accident conditions. DOE has a similar research program and is engaging with China on common areas for collaboration.

China’s significant contribution to its Center of Excellence (COE) demonstrates the growing emphasis it places on nuclear security in China and in the region. Under a cost-sharing arrangement, China is responsible for the majority of expenditures on the COE, including the costs of procuring the land and developing the detailed design for the COE, as well as for constructing, operating, and staffing the facility. The United States is responsible for providing technical advice during the design and construction phase and some assistance in equipping the facility.

China has stated its investment in constructing the COE is approximately \$80–\$120 million, but the Department of Energy/National Nuclear Security Administration (DOE/NNSA) estimates their costs are likely much higher if staffing and operations are taken into account. DOE/NNSA is investing \$35 million in equipment and support for development of the COE, which represents less than 30 percent of the total reported investment by the United States and China. Once the facility is operational, the United States will continue to support nuclear security best practices engagement through workshops and training at the COE.

RESPONSE OF LT. GEN. FRANK G. KLOTZ TO QUESTIONS
SUBMITTED BY SENATOR MARCO RUBIO

Question. 1. Is it correct that exports of nuclear technology and expertise could continue to China even if the nuclear cooperation lapsed, given the Department of Energy’s Part 810 approval process?

2. If that is incorrect, then what types of cooperation would not be allowed to continue under Part 810?

Answer 1 and 2. Although the Atomic Energy Act (AEA) requires a 123 agreement to be in place for transfers of nuclear material, nuclear reactors, and major components of reactors, transfers of nuclear technology and assistance could proceed to China under DOE Regulations at 10 CFR Part 810, which implement subsection 57 b.2 of the AEA, even if the proposed U.S.-China 123 agreement is not brought into force before the current agreement expires. The types of technology transfers covered by Part 810 regulations include consulting services, blueprints, computer-added drawings, etc. One of the key features of the 2015 U.S.-China 123 Agreement, however, is the expectation that technology transfers will also be authorized under the agreement. Pursuant to subsection 57b of the AEA, the Secretary of Energy may authorize U.S. persons to engage in direct or indirect assistance in the production of Special Nuclear Material (SNM). There are two separate pathways created by the AEA—assistance authorized under a section 123 agreement for cooperation including through a section 131 subsequent arrangement (subsection 57b.1) or assistance authorized by the Secretary of Energy after a determination that it will not be inim-

ical to the interest of the United States (subsection 57b.2). The text you have before you—the successor U.S.-China 123 agreement—does not commit the United States to any specific exports of nuclear material, equipment, technology, or other cooperative activities. Rather, the proposed agreement establishes a framework to govern subsequent commercial and governmental transactions and will expedite legitimate nuclear trade with China.

RESPONSES OF THOMAS M. COUNTRYMAN TO QUESTIONS
SUBMITTED BY SENATOR MARCO RUBIO

Question. A/S Countryman indicated that transfers of civilian technology to China's nuclear naval program would violate the peaceful use provisions of the 1985 Nuclear Cooperation Agreement. Were U.S. concerns about this issue raised with China during the negotiations of the new nuclear cooperation agreement? If not, why not?

Answer. Throughout the 123 agreement negotiations, U.S. negotiators stressed to Chinese officials the importance the U.S. Government places on all of the non-proliferation guarantees contained in the agreement, and specifically highlighted the significant concern the United States would have about any potential diversion of U.S. technology for nonpeaceful purposes.

Question. In President Obama's nonproliferation speech in Prague on April 5, 2009, he stated that countries that break the rules "will face consequences" and that "Rules must be binding. Violations must be punished. Words must mean something." Is it the view of the administration that these words apply to a nuclear cooperation agreement with China? If so, what consequences will the United States impose for any violation of the nuclear cooperation agreement by China?

Answer. The successor U.S.-China 123 agreement is consistent with the President's nonproliferation and peaceful nuclear cooperation policy objectives. If the United States had reason to believe that China may have violated the terms of the agreement, the United States would have a wide variety of potential responses it could employ. For example, in accordance with Article 12 of the successor agreement, the United States could exercise its right to temporarily suspend or cease further cooperation if China does not comply with the agreement. The United States also retains the right to terminate the agreement at any time for any reason upon at least 1 year's written notice.

Question. Given concerns about potential violations, was any thought given to making this agreement shorter in duration than 30 years?

Answer. A 30-year duration for the agreement provides U.S. suppliers (and potential investors in those suppliers) a higher degree of certainty and reliability for their commercial activities than would be permitted under a shorter agreement. The agreement is solely a framework for cooperation and does not require any specific activities to be performed. The terms of the agreement are designed to protect U.S. interests over the entire 30-year length of the agreement. In addition, Article 12 of the agreement gives the United States the right to temporarily suspend or cease further cooperation if China does not comply with the agreement. The United States also retains the right to terminate the agreement at any time upon at least 1 year's written notice. As a result, arbitrarily shortening the duration of the framework for cooperation would not create new benefits for U.S. interests, but it would reduce the certainty and predictability faced by U.S. companies looking to pursue commercial opportunities that are also compatible with U.S. national security interests.

Question. When did the U.S. Government first learn about the potential diversion of U.S. civilian technology to China's military sector? When was Congress first notified of any potential diversion?

Answer. The risk of diversion of U.S. civilian technology to China's military is a common challenge across all dimensions of U.S. trade engagement with China and we have approached all technology transfers related to civil nuclear cooperation with this reality in mind. I refer you to the Intelligence Community for questions about potential Chinese diversion.

RESPONSE OF THOMAS M. COUNTRYMAN TO QUESTION
SUBMITTED BY SENATOR TIM KAINE

Question. In addition to the China 123 agreement, three Protocols to Nuclear Weapon Free Zone Treaties are now before the Senate, which cover South Pacific,

Africa, and Central Asia. When joined together with the Latin American Zone, which the United States ratified under President Reagan in 1981, the entire Southern Hemisphere will be covered under nuclear weapons-free zones. These clearly protect U.S. national security interests, while also demonstrating our commitment to global nuclear nonproliferation.

- ♦ How do these protocols fit into the larger U.S. Government strategy to advance nonproliferation, and how do they complement or enhance agreements such as the China 123 agreement or other 123 agreements?

Answer. The President transmitted the African and South Pacific Nuclear-Weapon-Free Zone Treaty protocols to the Senate in May 2011. On April 27, the President also transmitted the protocol to the Treaty on a Nuclear-Weapon-Free Zone in Central Asia to the Senate for its advice and consent to ratification. We support ratification of the protocols as a measure that advances regional security, the goals of the Nuclear Non-Proliferation Treaty (NPT) and broader international nonproliferation efforts.

These protocols and our bilateral 123 agreements are mutually complementary in advancing U.S. nonproliferation objectives. Both of them establish nonproliferation standards that complement and in some cases go beyond those established by the NPT. For example, the Central Asia Treaty limits nuclear trade with any state that has not concluded an Additional Protocol with the IAEA, reinforcing U.S. efforts to promote the Additional Protocol as an instrument for nonproliferation. Similarly, the Africa Treaty, like our 123 agreements, establishes research on and development of nuclear explosive devices as prohibited activity. Taken together, support for nuclear weapon free zone treaty protocols and 123 agreements create added momentum for strict observance of the highest nonproliferation standards.

We hope the Senate can agree to favorably consider all three pending treaty protocols as a measure of long-standing U.S. support and leadership for nonproliferation.

