

**REVIEWING THE CIVIL NUCLEAR  
AGREEMENT WITH NORWAY**

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**HEARING**

BEFORE THE

**COMMITTEE ON FOREIGN RELATIONS  
UNITED STATES SENATE**

ONE HUNDRED FOURTEENTH CONGRESS

SECOND SESSION

—————  
SEPTEMBER 15, 2016  
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Printed for the use of the Committee on Foreign Relations



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

U.S. GOVERNMENT PUBLISHING OFFICE

27-082 PDF

WASHINGTON : 2017

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## **REVIEWING THE CIVIL NUCLEAR AGREEMENT WITH NORWAY**

**THURSDAY, SEPTEMBER 15, 2016**

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

The committee met, pursuant to notice, at 2:18 p.m. in Room SD-419, Dirksen Senate Office Building, Hon. David Perdue, presiding.

Present: Senators Perdue [presiding], Gardner, and Markey.

### **OPENING STATEMENT OF HON. DAVID PERDUE, U.S. SENATOR FROM GEORGIA**

Senator PERDUE. The Foreign Relations Committee will come to order.

Today we are here to exercise a statutory responsibility for Congress to review agreements related to the cooperation on civil nuclear programs, also known as 123 agreements, between the United States and foreign nations.

The agreement in question is a renewal of the 123 Agreement between the U.S. and the Kingdom of Norway. As a part of our due diligence, we must consider the political, economic, and security aspects of this agreement and weigh the risks and benefits before moving forward.

The initial agreement with Norway was in force from July 1984 until July 2014. Since that time, it has been a lapsed agreement.

The United States and Norway have a longstanding partnership on nuclear cooperation that goes back for more than half a century. Today Norway runs the Halden Reactor Project which serves as a critical asset to the U.S. nuclear industry.

President Obama transmitted the proposed text of a new 30-year agreement for congressional review on June 14, 2016. Today we will examine this agreement and how it advances U.S. strategic, political, and economic interests, if it advances U.S. nonproliferation objectives and any key concerns that the administration has about this agreement, as well as how those concerns might be mitigated.

I am particularly concerned regarding potential issues with export controls and ensuring that none of our agreements help bad actors in getting dual-use technology or other sensitive materials.

I look forward to hearing from our witness, Assistant Secretary Countryman, who is no stranger to this committee. Thank you again for being here.

And with that, I would like to recognize the distinguished ranking member for his comments, Senator Markey.

**STATEMENT OF HON. EDWARD J. MARKEY,  
U.S. SENATOR FROM MASSACHUSETTS**

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

And we thank Secretary Countryman for his visit once again to our committee. He is definitely in the top five all-time visitors to this committee. Nobody has bigger issues more frequently being considered before the committee.

And I thank you, Mr. Chairman, for helping to construct a forum by which we can review this agreement, and it gives us an opportunity to discuss the difficult and vital issues surrounding our global nuclear nonproliferation policies.

Since the 1970s, the United States has tried to discourage other countries from engaging in uranium enrichment and spent fuel processing. These activities can be used to produce fuel either for power plants or for nuclear bombs. Without enrichment or reprocessing, states cannot produce the material needed for nuclear weapons. So the restriction on these technologies represents a powerful tool for global nonproliferation.

Unfortunately, many of our nuclear cooperation agreements depart from the objective of discouraging the production of weapons-usable material by permitting countries to reprocess U.S.-obligated spent fuel.

This recent agreement with Norway is regrettably an example of such an agreement. The agreement does prohibit Norway from enriching U.S.-obligated fuel without our consent, but it provides Norway with advanced consent to retransfer spent fuel for reprocessing to the United Kingdom, France, or any other country that we agree to. This is similar to the consent that we have provided to a number of other countries, including Japan.

Norway's record with respect to nonproliferation is not an issue here. As a founding member of NATO, Norway is one of our closest allies, and it is a member in good standing of virtually every institution comprising the global nonproliferation regime, including the NPT and the IAEA. What is at issue is the decision to sign yet another agreement that legitimizes the continued use of a technology that threatens U.S. national security.

Norway is an exemplary ally, but this agreement is far from exemplary. The United States should not be signing additional nuclear cooperation agreements that encourage reprocessing. Even when we sign agreements with trusted allies like Norway and Japan, we must consider the example that these agreements set for other countries. We must recognize that this sort of nuclear trade with Norway could make it harder for us to say no to the same kind of nuclear trade with other countries. We should be raising global nonproliferation standards, not lowering them.

This agreement comes at a sensitive moment for global nonproliferation. In East Asia, both China and Japan have plans to construct commercial-scale spent fuel reprocessing facilities. If completed, these facilities could produce thousands of pounds of weapons-usable material and trigger a new plutonium arms race.

As Secretary Countryman rightly informed this committee in March, reprocessing, quote, has little, if any, economic justification. And as Secretary Moniz said earlier this year, China's plan to construct a reprocessing facility in cooperation with the French firm Areva, quote, certainly is not a positive in terms of nonproliferation.

That is why Senator Rubio and I introduced legislation earlier this year to condition U.S. nuclear cooperation with China. By tightening our control over China's right to reprocess U.S.-obligated material, we would reinforce Secretary Moniz's message that reprocessing endangers global security.

Unfortunately, that message is not reflected in this proposed nuclear cooperation agreement with Norway. Norway does not even have a nuclear power program. Yet, the United States is providing Norway with advance consent to transfer our spent fuel for reprocessing.

If reprocessing is economically unjustifiable and militarily dangerous, why should any agreement we sign provide advance consent to engage in this activity?

Mr. Chairman, I sincerely hope that this hearing will provide the members of this committee the opportunity to discuss this issue and to discuss broader issues about the risks that agreements like this one can pose to global security.

Thank you, Mr. Chairman.

Senator PERDUE. Thank you, Senator Markey.

Now we will turn to our witness. Our witness today is the Honorable Thomas M. Countryman. He currently serves as the 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.

Thank you so much for being here again and sharing your thoughts and viewpoints with us today.

We would remind you that your full statement will be included in the record, without objection. So if you would please keep your remarks to no more than 5 minutes to start, I would appreciate it. And I will turn it over to you, Secretary Countryman. Thank you.

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

Mr. COUNTRYMAN. Thank you, Mr. Chairman. I want to thank you and Senator Markey for taking the time to hold this hearing. We take very seriously our obligation to keep you fully briefed on nuclear cooperation agreements both at the staff level and at the member level, just as I know you take very seriously your review of these agreements. So I always welcome these opportunities.

This agreement is straightforward. It contains all of the requirements that are in the Atomic Energy Act of the United States legislation. It includes the necessary reference to additional safeguards under the IAEA, the International Atomic Energy Agency. It has a 30-year duration. And as Senator Markey has already noted, it has one clause that is not in every 123 agreement but that is far

from unprecedented having to do with the retransfer of irradiated nuclear material to the U.K. or France. I will be surprised if you find anything surprising in this agreement.

It is straightforward, but it is far from insignificant for two reasons.

First, Norway is an important U.S. ally. Beyond that, I would say it would be difficult to find a country with a better record as a model citizen of the world than Norway, not only in their commitment to the security of Europe as a NATO member, but in their generosity in helping to address issues as diverse as environmental, developmental, and nonproliferation issues around the world.

Secondly, it is significant because the Halden Research Reactor that you mentioned, which is a center for nuclear research of benefit not only to the U.S. Government—and several U.S. agencies under the Department of Energy are partners with Norway—but also for U.S. commercial industry in the nuclear field. In this agreement, its primary effect will be to facilitate that research.

For both these reasons, we consider the agreement to be important.

If I may take just a moment to address Senator Markey's concern. First, I would note that the advance consent to permit transfer of irradiated nuclear material to the U.K. and France is not unprecedented. As noted, it is contained in other places in agreements with other countries. In the case of Norway, there are no power reactors. There is not a significant amount of waste generated that it cannot be compared to that of a power generation reactor.

Secondly, the transfer of such material for reprocessing or for storage to the U.K. or France means it is transferred to our most trusted partners. It does not become available for any kind of nuclear weapons use.

I am happy to go into this in more detail, but I look forward to answering these and any other questions you have.

[Mr. Countryman's prepared statement follows:]

#### PREPARED STATEMENT OF THOMAS M. COUNTRYMAN

Mr. Chairman and Ranking Member Cardin, 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 Norway. As you know, Norway is a long standing strategic ally and political partner of the United States, and this Agreement is an example of the strength of our bilateral relationship.

The United States and Norway have had a strong partnership in the field of peaceful nuclear cooperation for more than half a century, and the United States is pleased to renew this cooperation with an updated 123 agreement. The terms of the new U.S.-Norway Agreement strongly reaffirm the two governments' shared commitment to nonproliferation as the cornerstone of our nuclear cooperation relationship. Norway has a strong track record on and has consistently reiterated its commitment to nonproliferation. It has been an extremely active partner with the United States across a wide breadth of bilateral and multilateral activities designed to ensure the implementation of the highest standards of nuclear safety, security, and nonproliferation worldwide.

#### DESCRIPTION OF AGREEMENT

As with all our 123 agreements, this Agreement is first and foremost an asset that advances U.S. nonproliferation policy objectives. The President's transmittal of the Agreement, and the Nuclear Proliferation Assessment Statement that accompanied it, include a detailed description of the contents of the Agreement. I will not

repeat that here, but the Agreement contains all the U.S. nonproliferation guarantees 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 establishes the legal framework for the transfer of information, material, equipment, and components for nuclear research and nuclear power production. It does not permit transfers of Restricted Data, sensitive nuclear technology, sensitive nuclear facilities or major critical components of such facilities.

Norway has no nuclear power program, and no current plans for establishing one, but the Agreement would facilitate cooperation on such a program if Norway's plans change in the future. Norway does have an active nuclear research program and the focus of cooperation under the proposed agreement is expected to be in the area of nuclear research. Its Halden boiling heavy water reactor went online in 1958 and continues to operate as a multinational research and development facility. Operating on low enriched uranium, the reactor is devoted to many types of safety research including fuel and cladding development, material research, and plant aging and degradation. The United States provided the initial heavy water for the Halden reactor, and many U.S. companies and organizations have utilized the facilities of the Halden Reactor Project, including the U.S. Department of Energy, Oak Ridge National Laboratory, and Idaho National Laboratory. Several other private firms such as General Electric Global Nuclear Fuel, Westinghouse Nuclear, and research institutions such as the Electric Power Research Institute have also participated in activities at the Halden Reactor Project.

One feature of the Agreement that is not found in all of our 123 agreements, although it is also not unusual, is that it provides advance, long-term ("programmatically") consent to Norway for the retransfer of irradiated nuclear material (spent fuel) to France, the United Kingdom, or other countries for storage or reprocessing subject to our consent and that of the recipient. The 123 Agreement would give the United States the option to revoke the advance consent if it considers it to be required by exceptional circumstances of concern from a nonproliferation or security standpoint; for example, if it believes that the arrangements cannot be continued without a significant increase of the risk of proliferation or without jeopardizing national security.

The Agreement has a term of 30 years, although it can be terminated by either party on one year's advance written notice. In the event of termination or expiration of the agreement, key nonproliferation conditions and controls will continue in effect as long as any material, equipment, or component subject to the agreement remains in the territory of the party concerned or under its jurisdiction or control anywhere, or until such time as the parties agree such items are no longer usable for any nuclear activity relevant from the point of view of safeguards.

#### NORWAY AS A NONPROLIFERATION PARTNER

Norway has a strong nonproliferation record. It is an original party to the Treaty on the Non-Proliferation of Nuclear Weapons ("NPT"). Its safeguards agreement with the International Atomic Energy Agency ("IAEA") entered into force on March 1, 1972. The Additional Protocol to its safeguards agreement entered into force on May 16, 2000, and the IAEA has concluded that all nuclear material in Norway remains in peaceful uses. Norway has been a vocal proponent for universal accession to the Additional Protocol, which grants the IAEA expanded safeguards authorities. It is a party to the amended Convention on the Physical Protection of Nuclear Material and Nuclear Facilities, and has signed and ratified the Comprehensive Test Ban Treaty and the International Convention for the Suppression of Acts of Nuclear Terrorism. It is also a member of the Nuclear Suppliers Group, whose non-legally binding guidelines set forth standards for the responsible export of nuclear commodities for peaceful use.

Norway has also pledged more than one million U.S. dollars to support the IAEA's verification activities under the Joint Comprehensive Plan of Action (JCPOA), makes frequent contributions to the IAEA's Nuclear Security Fund, and is an active participant in the Global Initiative to Combat Nuclear Terrorism. Norway contributed \$5 million to the IAEA's low-enriched uranium bank, a mechanism that will help prevent proliferation by reducing incentives for countries to pursue uranium enrichment. Additionally, in December 2015, it provided support valued at approximately \$6 million for supply of 60,000 kilograms of natural uranium (uranium concentrate) and its transportation from Kazakhstan to Iran as part of a broader transaction related to export of Iran's enriched uranium in accordance with the JCPOA.

Norway is a party to the Biological Weapons Convention and the Chemical Weapons Convention. It is also a member of the Conference on Disarmament, the Missile Technology Control Regime, and the Wassenaar Arrangement, and a participant in the Australia Group.

#### CONCLUSION

In sum, we believe the nonproliferation and economic benefits of this agreement demonstrate that strengthening our nuclear cooperation with Norway is in the best interests of the United States. Research conducted at the Halden reactor will benefit the United States and Norway and advance global nuclear safety, security, and nonproliferation objectives. Once it enters into force, this Agreement will be a significant achievement for both our governments and provide a strong foundation for our shared peaceful nuclear cooperation and nonproliferation objectives for decades to come.

Mr. Chairman and Ranking Member, thank you.

Senator PERDUE. Thank you, Mr. Secretary.

Let me follow up on that last comment very quickly, if I may. This is just my own question. I have got several I want to get to here, and we will go back and forth. We have plenty of time. So thank you so much for your remarks and for being here and for all your hard work in this area. Senator Nunn is a friend of mine, and he praises the work that you do and you make our world safer. So thank you.

The transfer you are talking about—there is a coalition potential, as I understand it, the trilateral agreement possibility. Is there any possibility that other countries that this material could be transferred under this potential agreement?

Mr. COUNTRYMAN. Spent fuel, that is, irradiated nuclear material, could be transferred from Norway to another country with our consent. We have not given advance consent except in the case of transfer to the U.K. and France.

Senator PERDUE. Great.

As you mentioned, the current agreement lapsed. The new agreement was transmitted in June, and now we are up against a clock it looks like in terms of the 90-day continuous days in session, as I understand it.

I have got several questions around that agreement.

A, why did it take 2 years to renegotiate?

Two, how have we been operating in the 2 years while we have been negotiating?

Three, what are the economic and scientific implications of that 2-year period?

And then lastly, how would a new agreement benefit both the U.S. and its security issues but also international trade and U.S. interests there?

Mr. COUNTRYMAN. As you were so kind to note, I have been up here to discuss several 123 agreements, ones that were far more complex and time-consuming to negotiate than the agreement with Norway. It was, quite frankly, a low priority and neither the Norwegian Government nor the U.S. institutions that make use of the Halden Research Reactor identified it to us as an urgent priority. As soon as they did, we commenced negotiations. They were completed faster than with any other country. But you are correct that they were not completed in time to have the agreement go into effect by normal procedures before the end of this year.

This does not have a significant effect either on the reactor or upon U.S. companies for two reasons.

One, the primary export that we are talking about from the United States is research material, that is, fuel assembly plates, for example, that a private U.S. civil nuclear company would want to test in this reactor.

Secondly, we have the alternative mechanism, which we have employed in other cases, primarily involving research reactors where we can do a project supply agreement through the International Atomic Energy Agency, and the same safeguards and controls that are contained in our 123 agreement with that agency are applied directly to the export.

So while I would have been happier to have finished this sooner, I do not believe it will have a significant effect upon our cooperation or upon the success of the research efforts that U.S. agencies and U.S. companies undertake with the help of Norway.

Senator PERDUE. Can we go back to the agreement and what it says about transferring for storage or reprocessing? The U.K. and France—those are identified in here. But other countries or destinations as may be agreed upon in writing is also—I think that is the specific language. Does Norway have plans to transfer spent fuel for storage or reprocessing? If not, what is the purpose of this provision? I am just curious.

Mr. COUNTRYMAN. It has no plans that I am aware of. I think that the purpose of the provision is to make explicit that they will not transfer to another country without our consent. I would not want to leave it ambiguous that if they went somewhere other than the U.K. and France, they would not need our consent.

Senator PERDUE. Russia is a member of this consortium I just mentioned relative to the Halden research facility. I am not clear on how many countries are in that consortium. But would the administration support shipping spent fuel to Russia for reprocessing or China, for that matter?

Mr. COUNTRYMAN. First, I would note that all research activities that occur at the Halden Research Reactor are peaceful in nature. They are in full compliance with the International Atomic Agency's safeguards, and that includes any Russian or another country's research projects that occur there.

Secondly, I am not aware of any intent or any reason for Norway to seek to send irradiated nuclear material to Russia or China when they have a satisfactory arrangement for these small quantities with the United Kingdom and France.

Senator PERDUE. Thank you. I have got other questions, but I will defer to the ranking member at this point. Senator Markey?

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

Thank you again for testifying before our committee.

Again, I want to start by returning to the issue I raised in my opening remarks, which is the danger of spent fuel reprocessing. As you testified in March, reprocessing makes no financial sense, but it is not only economically unjustifiable, it is also dangerous. And that is particularly true in East Asia where additional plutonium stockpiling would destabilize the region and increase the risk of diplomatic and military confrontation.

What concerns me about this proposed agreement is not that Norway could acquire nuclear weapons. Norway has unambiguously renounced nuclear weapons. And it is deeply embedded in global nonproliferation institutions.

What concerns me is that by allowing Norway to export our spent nuclear fuel to other countries for reprocessing, we are as a country promoting a technology that is bad for nonproliferation. That makes it even more difficult for us to persuade other countries, including those in East Asia and the Middle East, not to pursue this technology or to build large-scale facilities that use it. And it makes it hard for us to discourage other nuclear suppliers like France from proliferating reprocessing technology.

So my first question to you, Mr. Secretary, is do you agree that discouraging spent fuel reprocessing would strengthen the global nonproliferation regime?

Mr. COUNTRYMAN. Yes. If I might make a couple of comments. I hope you can accept that I agree with many of your premises but not all of your conclusions.

First, I am previously on the record in this room in saying that reprocessing, that is, the production of plutonium, has little economic justification and it raises serious concerns about nonproliferation. That remains our policy. It remains our policy to discourage additional countries from developing enrichment and reprocessing technology when there is no economic or security need to do so and it only enhances questions of both nuclear security and proliferation.

I do not agree that this agreement in any way encourages Norway to pursue such technology. There is no intent of Norway that I have ever heard of to develop an indigenous enrichment or reprocessing capability. The fact is that we do trust the United Kingdom and France because of a long record of operating transparently and under IAEA safeguards, that there is no possibility that the minute quantities of spent fuel that might be transferred from Norway have any risk of ending up as a proliferation threat.

Senator MARKEY. And again, it is not about Norway. It is about an example which is set. It is about a precedent that is set. It is about further momentum which is created towards a reprocessing world that ultimately increases the likelihood of these nuclear materials falling into the hands of those who would use them for purposes that our nonproliferation policy is intended to stop.

So if we take the case of France, which will be allowed to receive the Norway nuclear materials, right now both in China and Japan reprocessing facilities are being constructed with the help of France. So from my perspective, we should be trying to discourage Japan and China. The French are helping to construct reprocessing facilities in China.

By saying that we give permission for Norway to take our nuclear materials to France, we are just sending a dual message that would be hard to miss by the French that with a little bit of a wink here, it is all fine, we appreciate your business, and that we are going to actually, I guess at the end of this session of Congress, somehow or other urgently have to pass a 123 agreement.

And so from my perspective, I think that, again, it raises these longer-term issues where nuclear nonproliferation is supposed to be

our highest goal, trumping all other issues because of what the consequences are if we ever face that day. But simultaneously we just piece by piece kind of chip away at it and then not expect other countries in the world to just wonder about the depth of our sincerity and especially when you are partnering with France that sees this as an area of enormous commercial benefit for them even though we have already established that it is not economic as a technology.

So that is the core of my problem, Mr. Secretary. It always has been and it continues to be where we kind of preach temperance but from a bar stool, saying do not do it, but yet here, once again, we are going to allow Norway to take our materials and take it to France which is itself a country that does believe in this reprocessing technology. So at the end of the day, we wind up being part of this with that wink and nod to this ultimately very dangerous technology that some day very well could come back to haunt the whole planet.

Mr. COUNTRYMAN. If I may, I would first note that China, of course, has long had a capacity for reprocessing. The project that you referred to to construct a large civilian reprocessing plant, as opposed to their military reprocessing plants, has been on the books for a number of years. It has not been concluded. Construction has not begun. It remains an intent rather than a construction project.

Senator MARKEY. Can I just say the same is true for Norway?

Mr. COUNTRYMAN. No. I do not agree at all.

Senator MARKEY. Well, they do not have an intent to do it right now you said. Right?

Mr. COUNTRYMAN. They do not have an intent to do it. They do not have a capability to do it. They do not have a need to do it. They do not have permission to involve U.S. technology in order to do it. It is a completely different situation.

In terms of what encourages or not, as I said, we do not see a need for any new country to develop enrichment or reprocessing technology. If we were to say to countries we do not want you to have enrichment technology and, in fact, we do not want you to use the enrichment capabilities that already exist in other countries, it would be a self-defeating argument. And the same is true for reprocessing, that if it would not be effective to say to any country reprocessing is so horrible that you cannot use existing safeguarded facilities in order to reduce the level of waste that must be stored.

Finally, I will do my best to get you an accurate number on what quantity of irradiated fuel is actually produced annually by this reactor and where it goes to. I apologize. I do not have that today at my fingertips.

Senator MARKEY. That is fine.

Now, in your view, do additional advance consent agreements make it easier or harder for the United States to discourage other countries from engaging in spent fuel reprocessing?

Mr. COUNTRYMAN. I would have to know which country you are talking about and what size of program we are talking about.

Senator MARKEY. My answer would be, of course, it makes it harder to discourage other countries, the deeper we get involved in the industry ourselves even indirectly, as you are saying here.

How does granting advance consent affect our ability to discourage nuclear suppliers from signing their own agreements that allow for reprocessing?

Mr. COUNTRYMAN. Sorry. Could you say that once more?

Senator MARKEY. How does granting advance consent affect our ability to discourage nuclear suppliers from signing their own agreements that allow for reprocessing?

Mr. COUNTRYMAN. Well, I think a couple of things got mixed in that question. Again, there is nothing in this agreement that says Norway has advance consent to build a reprocessing facility. And mixing that with advance consent to build reprocessing, I do not understand the connection, honestly.

Senator MARKEY. Well, why does nuclear research with Norway require reprocessing?

Mr. COUNTRYMAN. I am not aware that it does.

Senator MARKEY. Why are we considering legislation?

Mr. COUNTRYMAN. First, the nuclear research—and again, I will do my best to get you a more detailed description of the research that goes on at Halden, but it is a wide range of research, just as at U.S. nuclear facilities as well. And the research includes important data about health and safety issues and about the—what do you call it—endurance or wear issues for nuclear components. Those are essential for the nuclear industry.

I am not aware that they produce large quantities of waste. In the United States, most of any spent material from a research reactor is likely to go to dry cask storage rather than to reprocessing. I will find out for you if Norway has done anything that requires reprocessing. I will look into it.

Senator MARKEY. And I just apologize. I will just finish, if you do not mind.

Are there other alternatives to reprocessing that we could suggest to the Norwegians, including the United States playing a role in the storage of that spent fuel?

Mr. COUNTRYMAN. I certainly have no authority to offer to other countries storage of their spent fuel in the United States.

Senator MARKEY. Well, again, I would say that we are giving them permission to reprocess it in other countries. Providing an alternative to avoid the reprocessing option, which has proliferation implications, and offering other alternatives, it seems to me, should be explored as a way of solving Norway's problem without actually yet creating another exception to the nonproliferation policy.

Mr. COUNTRYMAN. Let me make a general statement that probably needs to be more specific, which is U.S. legislation would not allow the executive branch to offer other countries the option to store spent fuel in the United States.

Senator MARKEY. Would it prohibit us helping Norway to store it in their own country?

Mr. COUNTRYMAN. No.

Senator MARKEY. No. So would that be a safe alternative?

Mr. COUNTRYMAN. Yes.

Senator MARKEY. Yes. So we are trying to encourage people, I would think, to not act in a way that is uneconomic, which is reprocessing, to also act in a way which can provide a safe alternative, which I think is available, and to not further go down this

pathway of passing 123 agreements, which unfortunately send the wrong signal to the rest of the world. That is what my conclusion would be.

Thank you, Mr. Chairman.

Senator PERDUE. Senator Gardner?

Senator GARDNER. Thank you, Mr. Chairman.

Thank you, Secretary Countryman, for being here. I appreciate the opportunity to visit with you again and multiple times before the committee over the past year, 2 years. So thank you.

I am wondering if I could shift topics from the current discussion right now, if you do not mind, to North Korea, if we could. In light of the recent nuclear detonation again in North Korea, could you perhaps explain or tell the committee what you see in terms of the North Korean nuclear program developments thus far? Do you believe this is fully indigenized at this point? Have they made advancements? I would appreciate the opportunity to receive the update.

Mr. COUNTRYMAN. What if I said I did not want to talk about—  
[Laughter.]

Mr. COUNTRYMAN. All right. I am happy to, sir.

First, in terms of a description of the North Korean nuclear program, we would be happy to get the best analysts from various agencies here for a closed briefing who could give you far better detail than I could.

What I would say is clearly every time you do a nuclear test, you advance in knowledge. It is why the United States did several hundred nuclear tests. What exactly they have learned from the latest nuclear test, again I would have to get experts here to talk to you about that.

It is primarily an indigenous program. It does rely upon supply of some material from outside North Korea, and that is why my bureau, in cooperation with a number of other government agencies, work so hard to aggravate at every turn North Korean efforts at procurement or at earning hard currency to fund such procurement.

The fact remains that the United States has not, will not accept North Korea as a nuclear state.

Senator GARDNER. There is some material outside of North Korea. Where is the primary source of that outside material coming from?

Mr. COUNTRYMAN. I think primarily from private dealers in China and Russia but not limited to those two states.

Senator GARDNER. And what type of material are we talking about, if you can here?

Mr. COUNTRYMAN. I would rather do that in a classified briefing.

Senator GARDNER. Very good.

And in terms of China's provisions, these companies, these private sources in China, are these front businesses, North Korean front businesses, or are they actual China businesses that are being allowed to move forward or just illicit actors doing illicit things?

Mr. COUNTRYMAN. I think it is all of the above. North Korea runs an extensive network of front companies not only in China but in other countries around the world. Their business contacts extend to

a number of non-state-owned companies in China, as well as in other countries. And those companies may or may not be aware that they are dealing with a North Korean entity.

Senator GARDNER. And these sources that are providing material to North Korea for the nuclear program in China—do you know if they are currently under investigation under the North Korea Sanctions Enhancement Act that we passed?

Mr. COUNTRYMAN. I am sorry. Which entities exactly?

Senator GARDNER. The entities that are providing from China the nuclear material or the nuclear-related material.

Mr. COUNTRYMAN. The United States has previously designated North Korean front companies in various countries and will continue to do so as the evidence warrants.

In addition, we have a regular and I think a productive dialogue with the Chinese Government about more effective enforcement of sanctions resolutions.

Senator GARDNER. In terms of Pakistan and North Korea, we had a hearing last week/earlier this week on Pakistan, some discussion about past activities between the two nations in proliferation and the A.Q. Khan network. Any indication that that relationship exists today at a nuclear level?

Mr. COUNTRYMAN. I do not have any.

Senator GARDNER. Thank you, Mr. Chairman.

Senator PERDUE. Thank you.

I want to go back to the Norway deal just a minute. You know, with the clock being what it is and the 90-day continuous session situation, is the administration considering a trilateral supply agreement between U.S., Norway, and IAEA? If they are, why would they consider that versus resubmitting a 123 agreement in the next Congress?

The second thing is would Norway approve of that?

And could a trilateral agreement be reached in time for approval in September or at the September or November board meeting of the IAEA?

And would you predict that this agreement would be approved by the IAEA board?

And lastly, if a trilateral agreement were accomplished, what would be our role? Would the Senate be consulted about that?

Mr. COUNTRYMAN. Okay. Several questions there.

Senator PERDUE. Right.

Mr. COUNTRYMAN. In what you refer to as a trilateral, I call a PSA, a project supply agreement. As I noted, we have used this mechanism previously because it allows us to take the very strong 123 agreement we have with the International Atomic Energy Agency and transfer through the IAEA the material in question with all the controls that are contained in that agreement.

Senator PERDUE. I am sorry to interrupt. Is there any difference in the quantity and the procedures of transfer under a 123 versus a trilateral?

Mr. COUNTRYMAN. We prefer to do it under a 123. It is more straightforward. You do not need to involve the IAEA, and you do not need the approval of the Board of Governors of the IAEA. And that is why we do 123's.

There is a meeting of the Board of Governors next week. The project supply agreement will not be ready to submit to them. I expect it will be submitted, and I see no obstacle to it being approved at a Board of Governors meeting in November. Whenever we employ a project and supply agreement, we brief congressional staff on this, as we do on developments under the 123.

Senator PERDUE. Sorry to interrupt again. If we were to do that, if the administration were to do that, would that preclude then a 123 being negotiated and presented to the next Congress after the first of the year?

Mr. COUNTRYMAN. No.

Senator PERDUE. Would that be the current administration's intent? In other words, what I am asking is we have had 2 years of lapse of this. We have not done a PSA, or a trilateral, in that 2 years. Why rush into that now relative to the fact that we are a couple months away from a new administration?

Mr. COUNTRYMAN. Honestly, I am not trying to rush anybody.

Senator PERDUE. Well, I apologize for use of the word rush."

Mr. COUNTRYMAN. No, no, no.

Senator PERDUE. But we are in a 90-day period or a period where we really do not have time to do the normal oversight of this agreement. So that brings into play the need possibly to do a PSA, as you say.

Mr. COUNTRYMAN. Yes.

Why did we submit it now instead of waiting until next year? First, because it was ready.

Senator PERDUE. No, that is not my question. My question is whether you go to a PSA now versus this agreement. I see the 123 agreement. Then the question is, as I understand it, the administration is considering a trilateral, or a PSA agreement, in the interim. And I have two questions. One is would that preclude us from doing a 123? And the second question is why do a PSA now at all.

Mr. COUNTRYMAN. Okay. On the first question, absolutely the PSA does not preclude the need for the 123.

On the second question, the reason to do it now is because of specific research projects that U.S. private companies have made arrangements with the research reactor in Norway. What we would need to export under the PSA is not a reactor or a reload of the fuel. It is actually the research material that is going to be tested in the reactor.

In general, it should be possible to predict those things longer in advance, and that is why I would have been happier if we had finished the 123 earlier this year. But it is a need that will arise not necessarily on a regular, predictable basis, but will arise more than once over the next 30 years. So the 123 that allows the direct transfer of research materials without going through the IAEA is obviously preferable.

Senator PERDUE. Have they transferred material during the 2-year period of the lapsed agreement?

Mr. COUNTRYMAN. Not to my knowledge. We have not done a PSA, no.

Senator PERDUE. Thank you.

Mr. COUNTRYMAN. And that gives you an indication of how frequently we need it.

Senator PERDUE. Right. That is why I was asking. So there is a need now. That is the purpose of the potential PSA. I understand.

Would you be willing to provide an assessment of Norway's improvements on their export controls? And are you comfortable with that, given some of their history in recent times?

Mr. COUNTRYMAN. The short answer is, yes, I am comfortable with the professionalism and the diligence of Norwegian export controls. There was one particular case that you may be aware of that I will not go into detail here that we raised with the Norwegian Government and the answer was fully satisfactory both in terms of the action taken in that particular case and in reviewing their procedures. So I have no concerns about their capabilities.

Senator PERDUE. Since Russia is a member of the Halden research consortium, can you tell us a little bit about how they interact in that consortium and give us some comfort that there is no risk to U.S. technology in that relationship?

Mr. COUNTRYMAN. I did not bring any research physicists with me.

Let me get you a more precise answer. Let me give you an unscientific answer, but I think it has the essence of the situation. And that is, in a research reactor, you normally are doing one or possibly two or three projects at a time. If there is a project that is sponsored by an American company, they are the ones using the reactor in cooperation with the Norwegian authorities. If it is the Department of Energy that is researching a particular issue, they are the ones involved. If it is a Russian research center that is doing it, they do their thing. Each country that contracts for use of the reactor for a research project manages their own project.

Senator PERDUE. Thank you.

Mr. COUNTRYMAN. But I will give you an answer with longer words.

Senator PERDUE. Okay. Thank you.

One last quick question before I turn it back over to the ranking member. Let us move to Norway's role in the JCPOA, if we could briefly.

You mentioned in your testimony that Norway has pledged over \$1 million to support the IAEA's verification activities under the JCPOA. You also mentioned the Norway provided support to swap natural uranium for Iran's enriched uranium in accordance with the JCPOA in December of 2015.

Given the earlier contribution to the implementation of JCPOA, how else might Norway participate in the implementation or otherwise reap benefits of the JCPOA?

Mr. COUNTRYMAN. I am not aware that Norway is looking to reap benefits from the JCPOA. I think, rather, it has in keeping with their generosity to all kinds of important causes around the world—the fact is that they contribute a higher percentage of their GDP to development goals than just about any country on earth. Maybe it is the highest—they saw that there was a need for funding in order to complete a transportation process that would make it possible for us to achieve our goal of moving enriched uranium out of Iran and allow the Iranians to reach implementation day.

And as I know from experience on other such projects, the Norwegians can approve funding projects such as that far faster than Brussels or Washington or any other capital you can name.

Senator PERDUE. That is a low bar. [Laughter.]

Mr. COUNTRYMAN. Well, I meant to make it more impressive. [Laughter.]

Senator PERDUE. Understood. Thank you.

Senator Markey?

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

So the need for the joint research between the United States and Norway at Halden in Norway appears to be the main reason for a new 123 agreement. And our projects at Halden include a Department of Energy-run program for testing accident tolerant nuclear fuel, testing of aging reactor components and other safety research by NRC, irradiation testing of advanced nuclear fuels developed by Lightbridge Corporation of McLean, Virginia, and the Nuclear Energy Institute, the lobbying arm of the nuclear power industry in the U.S., has argued that without a 123 agreement, U.S. access to Halden Research Reactor will be severely limited.

So tell us a little bit about what this company Lightbridge will be doing in Norway, please.

Mr. COUNTRYMAN. I will check and I will get you additional details, but my understanding is that they are facilitating testing of fuel assembly plates. Am I off? Yes. Lightbridge has submitted a request to the NRC, the Nuclear Regulatory Commission, here to review a fuel design developed for U.S. utilities, that is, use in the U.S. nuclear fleet, in anticipation of an application for the use of that fuel assembly in a U.S. pressurized water reactor in the near future.

Senator MARKEY. Right. And so I guess my question is why can they not do that in the United States. Why do we have to pass a 123 agreement that blows another hole through our nonproliferation policy when it is the—did you say it is the Nuclear Energy Institute, the Edison Electric Institute? In other words, the domestic nuclear power industry is the wealthiest industry in the United States, and they have research capacity all over this country. Why can they not just do it here so that we do not have to, in the Senate Foreign Relations Committee, pass a 123 agreement to allow them to do it in Norway?

I guess what you are saying is they are doing it for U.S. military and civilian nuclear power plants. Is that what you are saying?

Mr. COUNTRYMAN. It is research that is related to the effectiveness and safety of fuel assemblies for use in civilian reactors—

Senator MARKEY. Here.

Mr. COUNTRYMAN [continuing.] In the U.S.

Senator MARKEY. And we do not have that capacity?

Mr. COUNTRYMAN. I do not know.

Senator MARKEY. I think we do. So I do not understand why, again, we would move to our nonproliferation policy as a solution for a private sector problem that is, from the definition of what they are going to be doing with it, strictly contained within the United States.

Mr. COUNTRYMAN. I would line up with you if I thought that this agreement in any way undermined our strong stand on non-proliferation, but we will continue to disagree.

Senator MARKEY. Again, that is a philosophical disagreement. Every time we do it, there should be a good reason for it. That is my view. We just should not be doing this because a company just finds it convenient when you could probably find a capacity in the United States to do the same thing. There is a vast industry in America doing nuclear reactor research work.

And the Nuclear Regulatory Commission is arguing that they have to go to Sweden in order to test aging reactor components and they cannot do that here in the United States? We do not have the capacity? I mean, Norway does not have a nuclear domestic industry. We have 100 nuclear power plants here in America, and we do not have a capacity here to test aging nuclear components?

Mr. COUNTRYMAN. Normally you do not run tests in operating nuclear reactors. The Soviets tried that in 1986 in Chernobyl. It did not end happily.

The Nuclear Regulatory Commission does not enter into it. It is not their decision that Lightbridge ought to do the testing in Norway or in another location. It is, I presume, a combination of a commercial and a scientific decision.

Senator MARKEY. Right. Well, again, the Russians in Chernobyl did not have a containment dome. So they did not have safety requirements in Russia at that time. So in the United States, we have a huge Nuclear Regulatory Commission safety infrastructure in place in order to actually help countries like Russia or other countries that might wind up with a nuclear power plant that has gone awry. So we are infinitely more sophisticated than the Russians are in this.

You know, the question again—I keep coming back to this—is why does helping Lightbridge require advance prior consent of the United States Government. That is a big step to take to give a country the ability to transfer these nuclear materials. Would any of these materials be American materials that we are potentially talking about?

Mr. COUNTRYMAN. I will find out for you.

Senator MARKEY. I think we have to know that. We are doing it for a private sector reason. I mean, the urgency here comes from it sounds to me like the Nuclear Energy Institute, this company Lightbridge. They are all up and active and saying, you know, Senate Foreign Relations Committee, please process this thing. And I understand they are probably sitting out in the room right now. There is probably someone from Lightbridge or the Nuclear Energy Institute sitting out here. But they should be the ones testifying why they cannot do it here domestically. You know, it should not be you. They should be the ones making the case for a 123 agreement, not you. It is a private sector-driven piece of legislation at the very end of the session.

Mr. COUNTRYMAN. No, sir. It is not a private sector-driven piece of legislation. It is one that the Government of Norway believes is important and that we believe is important. It is an agreement that promotes scientific cooperation that has been beneficial to both countries for 60 years that has both scientific and commercial ap-

plications. If I feel a lot better about fuel assembly plates that have been tested other than in an operating civilian reactor, the safety implications are great. The commercial implications are important. And the Department of Energy—I am sorry they were not able to be here today—would tell you as well in far more clarity than I could what are the scientific benefits that we get from this agreement.

I do not feel that including the same provision on advance consent for retransfer to the U.K. and France, the same provision that we had in the 1984 agreement with Norway, led in any way to an increased risk of proliferation. If I thought it did, I would be making a very different argument. But I just do not see it.

Senator MARKEY. Well, you know, from my perspective, it is very disturbing to find that the United States does not have the indigenous capacity to test aging components.

Mr. COUNTRYMAN. That is not what I said.

Senator MARKEY. Excuse me?

Mr. COUNTRYMAN. I did not say that we do not have the capacity.

Senator MARKEY. Well, then that our capacity would then be used in order to test these aging components in our nuclear power plants without the need for us to have a 123 agreement with Norway. So that is my point.

If we are at this point where we need Norway with no nuclear to help a country that has 100 nuclear power plants and we have been doing it for 70 years to test aging components in our nuclear power plants, you are right. We are more like Russia. We are a lot like Russia. The nuclear industry in America is a lot like Russia that way because honestly nuclear power plants are like human beings. You know, they run down. Their parts internally start to wear out, which is why they have to replace so many parts inside of nuclear power plants.

But to think from my perspective that Norway has to do it for us and that we have to have a 123 agreement to have Norway help us to me, as a justification for this, is pretty low. It is pretty low. And I just say that quite clearly unless we just want to keep good relations with them, which is fine, and Norway wants to have a partnership with this company. That is fine. Norway wants to have a partnership with the Nuclear Energy Institute in the United States. That is fine.

But from my perspective, I am shocked that we do not have the indigenous capacity in the United States to do the testing of aging nuclear parts in a nuclear power plant. I have Seabrook serving my constituents, the Pilgrim nuclear power plant. To think that we are dependent upon the Norwegians to do this research to make sure that now these aging plants do not endanger the public is a little bit frightening. I did not come to this hearing really understanding why we are doing this, but it is becoming more clear to me what is going on here.

And I guess I would say, again, as an alternative to reprocessing, I would prefer dry cask storage, some form of storage for our own materials. We have learned how to do that long, long, long ago.

The Norwegians actually have a global seed vault on the island of Spitsbergen. It is very secure. All the seeds of the world. Maybe we could put a couple of spent fuel casks there and we would not

have to reprocess it. It is such a small amount, it sounds like, that we would not have to do this kind of a change in the law.

But this linkage between the Nuclear Energy Institute and this company, which I never heard of until today, Lightbridge and its linkage to this, I think it requires its own hearing. Who are these people? And what do they want? And if there is anyone from Lightbridge here or Edison Electric Institute—is there anyone here from Edison Electric Institute by any chance? Anyone here? Okay. Well, maybe that would be a good hearing for us to have so that we can discuss why we are making this exception.

Thank you, Mr. Chairman.

Mr. COUNTRYMAN. If I might, first I just want to make clear for the record that at no point did I compare the United States nuclear industry to the Russian nuclear industry.

Secondly, I do not believe I said anything that would lead the conclusion that the United States has no research reactors or is incapable of doing the same kind of research here. That is not something either you or I know.

Senator MARKEY. I think they do have the capacity. I think they do. That is why it is called the Nuclear Energy Institute. They pay for this vast amount of research that is done for the entire industry, and I think they have the capacity.

Mr. COUNTRYMAN. Fine.

I strongly disagree that the agreement is intended only for one company or for one research project. I would be very happy to come back with a 90-minute presentation about all the research that has been done at this reactor.

I do not believe that it is in the United States' interest to pursue an autarchic policy of avoiding scientific and technical cooperation in the civilian nuclear field. I think that we have reliable, responsible partners, and Norway is at the top of the list.

Senator MARKEY. If I just may add, it is not that—I guess I would use the word “apocalyptic,” not—what is the word you used?

Mr. COUNTRYMAN. Autarchic.

Senator MARKEY. Autarchic. “Autarchic” is a good word.

But my side of the argument is apocalyptic. You know, why do we continue to take baby steps towards that moment in time, if it is unnecessary? So I think that justification, that argument just has to be made.

So thank you, Mr. Chairman.

Senator PERDUE. Thank you, Senator Markey.

I would like to look at what is coming. I think we have undressed this one pretty well today.

Can you give us an update on the ongoing negotiations with Saudi Arabia and Jordan and their 123 agreements? What are the major issues on those two, briefly?

And then lastly, have rights that have been granted to Iran, specifically enrichment rights, under the JCPOA come into play with these conversations with either Jordan or Saudi Arabia?

Mr. COUNTRYMAN. First, for both Jordan and Saudi Arabia, I would say that we continue to be in discussions on this issue but not in negotiations. We are not working on text at the moment.

The wonderful thing about discussions as opposed to negotiations is that all kinds of issues come up, including—

Senator PERDUE. For the record, I should say—I just want to make clear for the record we do not have an existing 123 with either of these countries today. Is that correct?

Mr. COUNTRYMAN. That is correct.

When you have discussions, all kinds of questions can come up, including their views of the Joint Comprehensive Program of Action, of what Iran is doing, of what the U.S. should do in response. It can be difficult to get down to the actual business of putting in the technical requirements that need to be there.

It remains the fact that the JCPOA is not a 123 agreement. The JCPOA does not create civilian nuclear cooperation between the United States and Iran. And I think trying to transfer clauses or arguments from one agreement to an agreement that has a totally different purpose is not productive. That does not mean it is not a frequent subject of rhetoric.

Senator PERDUE. Have the Saudis brought it up specifically? And would the administration be receptive to acquiescing on that?

Mr. COUNTRYMAN. To having them bring it up?

Senator PERDUE. No. To giving them the right or negotiating the right to allow them to enrich.

Mr. COUNTRYMAN. No.

Senator PERDUE. The administration would not be supportive of that.

Mr. COUNTRYMAN. There is no need.

Senator PERDUE. What about Jordan? Is that progressing as well? And what is the anticipated timeline of either of these? Is anything anticipated there?

Mr. COUNTRYMAN. Nothing is anticipated in the immediate future.

Senator PERDUE. Okay. Thank you very much. That concludes my questions. Do you have follow-up?

Senator MARKEY. Yes, thank you, Mr. Chairman.

So, again, I would just conclude by saying that we have our own research reactors in the United States. We have our own brilliant scientists here in the United States. The Edison Electric Institute has its own vast research capacity here in the United States. We can disagree about the cost of advance consent.

We do not know the benefits or the need for it. We do not have the answers to those questions yet. Why do we need to do this? What are the benefits of us doing this? So we still have not laid that out yet for who they are or what those benefits are and why we have to act so soon without having a more comprehensive understanding of why we are doing this except that we could.

But I just think that that case should be made and why that domestic capacity does not exist for us to be able to do it if an exception has to be made and a 123 agreement has to be done. There must be a compelling reason for this and we should hear that reason and we should hear about the deficiencies in the U.S. infrastructure to do that kind of nuclear research capacity here, especially on a commercial level because that seems to be most of what this is about. And I would like to hear that because of this direct correlation between what we are trying to preach here and what we could perhaps avoid ever having to give as permission to Norway if we could just solve the problem here domestically.

So I think it is an energy issue first and a research issue, and if there is some capacity that Norway has that we do not have, I would like to hear it. If they have scientists that have greater capacity than American scientists, I would like someone to tell us that. If their facility is more sophisticated in Norway than any we have in the United States, I would like to hear that as well. That is just the other argument made and I think that is the precondition to us understanding why a 123 agreement should be passed.

So I thank you, Mr. Chairman, very much, and I thank you, Mr. Countryman, as usual. You know, you are the man.

Mr. COUNTRYMAN. Two quick comments. Just to be clear, I am not demanding, rushing, pushing, encouraging either body to take action on this. Take the time you want. If we have not answered your questions well enough, as I said, we will come back with a more detailed briefing.

I particularly make that offer because I feel that I have not served you well today because I do not have the specific answers to your questions about quantities. It is not hard to find out what has happened to the small amounts of spent fuel that have come out of that reactor over the last 50 years. I will find that out. We can do this again at your convenience. And I thank you.

Senator MARKEY. Thank you, sir.

Senator PERDUE. It would be nice to put that in perspective, but I will remind us all that there is no quantity too small to pay attention to in this area, for sure, as you well said.

Thank you so much again. And I would ask you to do what you have always done. You have been very gracious and helpful in responding to these open issues. Thank you for that.

And for the information of members, the record will remain open until close of business Monday, including for members to submit questions for the record.

Again, thank you so much for your work. Thank you for being here today.

With that, we are adjourned.

[Whereupon, at 3:22 p.m., the hearing was adjourned.]

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#### ADDITIONAL MATERIAL SUBMITTED FOR THE RECORD

##### RESPONSES TO QUESTIONS FOR THE RECORD SUBMITTED TO ASSISTANT SECRETARY THOMAS M. COUNTRYMAN BY SENATOR MARCO RUBIO

*Question 1.* The previous section 123 agreement with Norway expired over two years ago. Why did it take two years to renegotiate and transmit to Congress?

Answer. When the 1984 U.S.-Norway 123 Agreement was on the verge of expiration in 2014, neither U.S. industry nor the Government of Norway expressed a strong desire to conclude a new agreement. Since that time, we have received multiple requests from the U.S. nuclear industry for the reestablishment of a legal foundation to facilitate exports to Norway, so we have taken steps to put in place a new agreement.

*Question 2.* If the clock runs out on the review period before the end of this Congress, why would the administration choose to conclude a trilateral supply agreement with the IAEA instead of waiting to resubmit the agreement to the next Congress? Does Norway approve of this option?

Answer. If we are required to resubmit the Norway 123 Agreement in the 115th Congress, we may not receive an adequate number of days of review to enter the

agreement into force until the spring or summer of 2017. At least one U.S. nuclear supplier has indicated it wishes to send nuclear material for testing purposes to Norway's Halden reactor in early 2017. Accordingly, a U.S.-Norway-International Atomic Energy Agency Project & Supply Agreement is seen as a stop gap measure to allow this early 2017 shipment to occur until the 123 agreement may be entered into force. Norway supports the establishment of the Project & Supply Agreement.

*Question 3.* Please provide an update on other pending 123 agreements the administration is now negotiating.

Answer. The United States continues to be in active 123 agreement negotiations with both Saudi Arabia and Jordan. The United States has also conducted one round of 123 agreement negotiations with Mexico in September. The negotiations made significant progress and we are hopeful to complete negotiations before the end of the year.

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RESPONSES TO QUESTIONS FOR THE RECORD SUBMITTED TO ASSISTANT SECRETARY  
THOMAS M. COUNTRYMAN BY SENATOR EDWARD MARKEY

*Question 1.* Secretary Countryman, unlike the previous 123 agreement between Norway and the United States, the proposed new agreement prohibits enrichment of U.S.-obligated material without our consent. However, like the previous agreement, the new agreement provides Norway with advance consent to retransfer U.S.-obligated spent fuel to the U.K. or France for reprocessing.

- ◆ During our negotiations with Norway, did the United States seek to remove the provision allowing for advance consent? If not, why not? If yes, why was the provision not struck?

*Question 2.* If there is no research need that is fulfilled by providing advance consent to Norway to retransfer U.S.-obligated spent fuel for reprocessing, why does the proposed agreement provide such consent?

Answer. The United States inserts this language into its 123 agreements in order to provide certainty to our nuclear trading partners that they have an alternative to keeping their spent fuel. Providing our trading partners with the ability to retransfer their spent fuel serves as an additional inducement not to consider reprocessing it themselves and thereby accrue separated plutonium.

*Question 3.* What, if anything, did Norway disclose to our negotiating team about its intent to exercise its rights under this provision by retransferring spent fuel for reprocessing?

Answer. United States and Norwegian negotiators did not discuss whether or when Norway might send U.S.-obligated spent fuel to the United Kingdom or France. I would note that only a very small amount of nuclear material, less than two kilograms, is scheduled to be transferred from the United States to Norway over the course of the next year. Further, the United States would need to provide consent to Norway to receive any separated plutonium resulting from reprocessing U.S.-obligated material in the United Kingdom or France.

*Question 4.* What is your understanding of how much U.S.-obligated spent fuel Norway intends to reprocess under this provision, if any?

Answer. Norway did not state any intention to reprocess any U.S.-obligated nuclear material. I would also note that only a very small amount of nuclear material, less than two kilograms, is scheduled to be transferred from the United States to Norway over the course of the next year.

*Question 5.* What will be the intended use for any separated plutonium that results from such reprocessing?

Answer. Any separated plutonium that might result from any reprocessing to occur in the United Kingdom or France would remain in storage in one of those two nations absent written consent of the United States to transfer it elsewhere, including back to Norway. The Norwegian government has not indicated any interest in obtaining any separated plutonium.