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Nuclear Cooperation with Other Countries: A Primer

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Summary

In order for the United States to engage in significant civilian nuclear cooperation with other states, it must conclude a framework agreement that meets specific requirements under Section 123 of the Atomic Energy Act (AEA). Significant nuclear cooperation includes the export of reactors, critical parts of reactors, and reactor fuel. The AEA also provides for export control licensing procedures and criteria for terminating cooperation. Congressional review is required for Section 123 agreements; the AEA establishes special parliamentary procedures by which Congress may act on a proposed agreement.

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What Is a "Section 123" Agreement?

Under existing law (Atomic Energy Act [AEA] of 1954, as amended; (P.L. 83-703; 42 U.S.C. §2153 et seq.)[1] all significant U.S. nuclear cooperation with other countries requires a peaceful nuclear cooperation agreement.[2] Significant nuclear cooperation includes the transfer of U.S.-origin special nuclear material[3] subject to licensing for commercial, medical, and industrial purposes, and the export of reactors and critical parts of reactors. Section 123 agreements are required for the export of commodities under NRC export licensing authority (10 C.F.R. 110).[4]

Such agreements, which are "congressional-executive agreements" requiring congressional approval, do not guarantee that cooperation will take place or that nuclear material will be transferred, but rather set the terms of reference and authorize cooperation. The AEA includes requirements for an agreement's content, conditions for the President to exempt an agreement from those requirements, presidential determinations and other supporting information to be submitted to Congress, conditions affecting the implementation of an agreement once it takes effect, and procedures for Congress to consider and approve the agreement.

Section 123 of the AEA requires that any agreement for nuclear cooperation meet nine nonproliferation criteria and that the President submit any such agreement to the House Committee on Foreign Affairs and the Senate Committee on Foreign Relations. The Department of State is required to provide the President with an unclassified Nuclear Proliferation Assessment Statement (NPAS), which the President is to submit, along with the agreement, to those two committees. The State Department is also required to provide a classified annex to the NPAS, prepared in consultation with the Director of National Intelligence. The NPAS is meant to explain how the agreement meets the AEA nonproliferation requirements. The President must also make a written determination "that the performance of the proposed agreement will promote and will not constitute an unreasonable risk to, the common defense and security."

[1] The Atomic Energy Act (AEA) was amended by the Nuclear Nonproliferation Act of 1978 (NNPA) (P.L. 95-242) to include stringent nonproliferation requirements for significant U.S. nuclear exports. For example, the act required nonnuclear weapon states to have full-scope International Atomic Energy Agency safeguards as a condition for entering into nuclear cooperation agreements with the United States. For existing and future agreements, the NNPA added a provision for Congress to review export licenses. The act also included a provision for halting exports if a country tested a nuclear device, violated safeguards agreements, or continued nuclear weapons-related activities.

[2] Section 57b. (2) of the AEA allows for limited forms of nuclear cooperation related to the "development or production of any special nuclear material outside of the United States" without a nuclear cooperation agreement if that activity has been authorized by the Secretary of Energy following a determination that it "will not be inimical to the interest of the United States." Agreements governing such cooperation are also known as "Section 810" agreements, after 10 Code of Federal Regulations Part 810. (See "Part 810 Agreements.")

A nuclear cooperation agreement is not required for transmission of nuclear-related information, except for restricted data. "Restricted data," defined by the statute, means "all data concerning (1) design, manufacture, or utilization of atomic weapons; (2) the production of special nuclear material; or (3) the use of special nuclear material in the production of energy." Restricted data, however does not "include data declassified or removed from the Restricted Data [sic] category" pursuant to the AEA. A nuclear cooperation agreement is necessary, though not necessarily sufficient, to permit the transfer of restricted data.

[3] "Special nuclear material," defined by the statute, means (1) plutonium, uranium enriched in the isotopes 233 or 235, and any other material that is determined to be special nuclear material, but does not include source material, or (2) any material artificially enriched by any of the foregoing, but does not include source material.

[4] For a list of commodities, see http://www.nrc.gov/about-nrc/ip/export-import.html.

Requirements Under the Atomic Energy Act

Section 123 of the AEA specifies the necessary steps for engaging in nuclear cooperation with another country.

- **Section 123a.** states that the proposed agreement is to include the terms, conditions, duration, nature, and scope of cooperation and lists nine criteria that the agreement must meet. It also contains provisions for the President to exempt an agreement from any of several criteria described in that section and includes details on the kinds of information the executive branch must provide to Congress.
- **Section 123b.** specifies the process for submitting the text of the agreement to Congress.
- **Section 123c.** specifies the procedure for congressional approval of cooperation agreements that are limited in scope (e.g., do not transfer nuclear material or cover reactors larger than 5 megawatts electric [MWe]). This report does not discuss such agreements.
- **Section 123d.** specifies the procedure for congressional approval of agreements that do cover significant nuclear cooperation (transfer of nuclear material or reactors larger than 5 MWe), including exempted agreements.

Section 123a., paragraphs (1) through (9), lists nine criteria that an agreement with a nonnuclear weapon state must meet unless the President determines an exemption is necessary. These include guarantees that

- safeguards on transferred nuclear material and equipment continue in perpetuity;
- International Atomic Energy Agency (IAEA) comprehensive safeguards are applied in nonnuclear weapon states;
- nothing transferred is used for any nuclear explosive device or for any other military purpose; the United States has the right to demand the return of transferred nuclear materials and equipment, as well as any special nuclear material produced through their use, if the cooperating state detonates a nuclear explosive device or terminates or abrogates an IAEA safeguards agreement;
- there is no retransfer of material or classified data without U.S. consent;
- physical security on nuclear material is maintained;
- there is no enrichment or reprocessing by the recipient state of transferred nuclear material or nuclear material produced with materials or facilities transferred pursuant to the agreement without prior approval;
- storage for transferred plutonium and highly enriched uranium is approved in advance by the United States; and
- any material or facility produced or constructed through use of special nuclear technology transferred under the cooperation agreement is subject to all of the above requirements.

Although some experts have advocated requiring governments to forgo enrichment and reprocessing (a nonproliferation commitment sometimes referred to as the "Gold Standard") as a condition for concluding a nuclear cooperation agreement, the Atomic Energy Act does include such a requirement (see **Appendix B**).

Exempted vs. Nonexempted Agreements

The President may exempt an agreement for cooperation from any of the requirements in Section 123a. if he determines that the requirement would be "seriously prejudicial to the achievement of U.S. nonproliferation objectives or otherwise jeopardize the common defense and security." The AEA provides different requirements, conditions, and procedures for exempt and nonexempt agreements.[5] To date, all of the Section 123 agreements in force are nonexempt agreements.[6] Prior to the adoption of P.L. 109-401, the Henry J. Hyde United States-India Peaceful Atomic Energy Cooperation Act of 2006, the President would have needed to exempt the nuclear cooperation agreement with India from some requirements of Section 123a. However, P.L. 109-401 exempted nuclear cooperation with India from some of the AEA's requirements.[7]

Congressional Review

Under the AEA, Congress has the opportunity to review a nuclear cooperation agreement for two time periods totaling 90 days of continuous session.[8] The President must submit the text of the proposed agreement, along with required supporting documents (including the unclassified NPAS) to the House Foreign Affairs Committee and the Senate Foreign Relations Committee. The President is to consult with the committees "for a period of not less than 30 days of continuous session." After this period of consultation, the President is to submit the agreement to Congress, along with the classified annex to the NPAS and a statement of his approval of the agreement and determination that it will not damage U.S. national security interests. This action begins the second period, which consists of 60 days of continuous session. In practice, the President has sent the agreement to Congress at the beginning of the full 90-day period, which begins on the date of transmittal. Typically, the 60-day period has immediately followed the expiration of the 30-day period. The President transmits the text of the proposed agreement along with a letter of support with a national security determination, the unclassified NPAS, its classified annex, and letters of support for the agreement from the Secretary of State and the Nuclear Regulatory Commission.

If the President has not exempted the agreement from any requirements of Section 123a., it may enter into force after the end of the 60-day period unless, during that time, Congress adopts a joint resolution disapproving the agreement and the resolution becomes law. If the agreement is an exempted agreement, Congress must adopt a joint resolution of approval and it must become law by the end of the 60-day period or the agreement may not enter into force. At the beginning of this 60-day period, joint resolutions of approval or disapproval, as appropriate, are to be automatically introduced in each house. During this period, the committees are to hold hearings on the proposed agreement and "submit a report to their respective bodies recommending whether

[5] Nuclear cooperation agreements with nuclear weapon states recognized by the NPT are provided for in the AEA, and are therefore nonexempt agreements. The NPT defines nuclear weapon states as those that exploded a nuclear weapon or other nuclear explosive device prior to January 1, 1967: China, France, Russia, the United Kingdom, and the United States.

[6] The United States has concluded more than 20 bilateral nuclear cooperation agreements, as well as similar agreements with the European Atomic Energy Community and the IAEA. See *Nuclear Commerce: Governmentwide Strategy Could Help Increase Commercial Benefits from U.S. Nuclear Cooperation Agreements with Other Countries*, Government Accountability Office, GAO-11-36, November 2010.

[7] See CRS Report RL33016, *U.S. Nuclear Cooperation with India: Issues for Congress*, by Paul K. Kerr.

[8] When calculating periods of "continuous session" under the AEA, every calendar day is counted, including Saturdays and Sundays. Only days on which either chamber has adjourned for more than three days pursuant to the adoption a concurrent resolution authorizing the adjournment do not count toward the total. If Congress adjourns its final session *sine die*, continuity of session is broken, and the count must start anew when it reconvenes.

it should be approved or disapproved." If either committee has not reported the requisite joint resolution of approval or disapproval by the end of 45 days, it is automatically discharged from further consideration of the measure. After the joint resolution is reported or discharged, Congress is to consider it under expedited procedures, as established by Section 130.i. of the AEA. Congress has used procedures outside the above-described process to adopt legislation approving some nuclear cooperation agreements (see **Appendix C**).

Section 202 of P.L. 110-369, the United States-India Nuclear Cooperation Approval and Nonproliferation Enhancement Act, which President Bush signed into law October 8, 2008, amended Section 123 of the AEA to require the President to keep the Senate Foreign Relations Committee and the House Foreign Affairs Committee "fully and currently informed of any initiative or negotiations relating to a new or amended agreement for peaceful nuclear cooperation."

Export Licensing

The AEA sets out procedures for licensing exports to states with which the United States has nuclear cooperation agreements. (Sections 126, 127, and 128 codified as amended at 42 U.S.C. 2155, 2156, 2157.) Each export of nuclear material, equipment, or technology requires a specific export license or other authorization. The Nuclear Regulatory Commission (NRC) is required to meet criteria in Sections 127 and 128 in authorizing export licenses. These criteria are as follows:

- Application of IAEA safeguards to any material or facilities proposed to be exported, material or facilities previously exported, and to any special nuclear material used in or produced through the use thereof (these are not full-scope safeguards, but safeguards required under Article III.2 of the nuclear Nonproliferation Treaty [NPT]).
- Nothing exported can be used for any nuclear explosive device or for research on or development of any nuclear explosive device.
- Recipient states must have adequate physical security on "such material or facilities proposed to be exported and to any special nuclear material used in or produced through the use thereof."
- Recipient states are not to retransfer exported nuclear materials, facilities, sensitive nuclear technology, or "special nuclear material produced through the use of such material" without prior U.S. approval.
- Recipient states may not reprocess or alter in form or content exported nuclear material or special nuclear material produced though the use of exported nuclear material without prior U.S. approval.
- The foregoing conditions must be applied to any nuclear material or equipment that is produced or constructed under the jurisdiction of the recipient by or through the use of any exported sensitive nuclear technology.
- Section 128 requires that recipient nonnuclear weapon states must have full-scope IAEA safeguards.

The President must judge that the proposed export or exemption will "not be inimical to the common defense and security" or that any export of that type "would not be inimical to the common defense and security because it lacks significance for nuclear explosive purposes." The executive branch may also consider other factors, such as "whether the license or exemption will materially advance the nonproliferation policy of the United States by encouraging the recipient

nation to adhere" to the NPT; whether "failure to issue the license or grant the exemption would otherwise be seriously prejudicial" to U.S. nonproliferation objectives; and whether the recipient nation has agreed to conditions identical to those laid out in Section 127.

Section 126b.(2) contains a provision for the President to authorize an export in the event that the NRC deems that the export would not meet Section 127 and 128 criteria. The President must determine "that failure to approve an export would be seriously prejudicial to the achievement of U.S. nonproliferation objectives or otherwise jeopardize the common defense and security." In that case, the President would submit his executive order, along with a detailed assessment and other documentation, to Congress for 60 days of continuous session. After 60 days of continuous session, the export would go through unless Congress were to adopt a concurrent resolution of disapproval.[9]

Section 128b.(2) contains a provision for the President to waive termination of exports by notifying Congress that the state has adopted full-scope safeguards or that the state has made significant progress toward adopting such safeguards, or that U.S. foreign policy interests dictate reconsideration. Such a determination would become effective unless Congress were to adopt a concurrent resolution of disapproval within 60 days of continuous session.

Additionally, Section 129b.(1) forbids the export of "nuclear materials and equipment or sensitive nuclear technology" to any country designated as a state sponsor of terrorism.[10] Section 129b.(3) allows the President to waive this provision.

Iran-Related Restrictions

The Comprehensive Iran Sanctions, Accountability, and Divestment Act (CISADA) of 2010 (P.L. 111-195), which became law July 1, 2010, contains additional restrictions on licensing nuclear exports to countries with entities that have been sanctioned for conducting certain types of nuclear weapons-related transactions with Iran. Section 102a.(2)(A) of the law states that "no license may be issued for the export, and no approval may be given for the transfer or retransfer" of "any nuclear material, facilities, components, or other goods, services, or technology that are or would be subject to an agreement for cooperation between the United States" and such countries. Section 102 a.(2)(B), however, allows the President to waive these restrictions. Section 102a.(2)(C) allows the President to authorize licenses for nuclear exports "on a case-by-case basis" to entities (which have not been sanctioned) in countries subject to the restrictions described above.[11]

Subsequent Arrangements

Section 131 of the AEA details procedures for subsequent arrangements to nuclear cooperation agreements concluded pursuant to Section 123. Such arrangements are required for forms of nuclear cooperation requiring additional congressional approval, such as transfers of nuclear

[9] In light of the Supreme Court's 1983 decision in *INS v. Chadha*, passing a concurrent resolution could invite a legal challenge because it is arguably unconstitutional. Although not provided for in the AEA, Congress could choose to pass a joint resolution of disapproval or a bill stating in substance it did not approve.

[10] Section 129b. (2) states that the prohibitions described in the previous section "shall not apply to exports, reexports, transfers, or retransfers of radiation monitoring technologies, surveillance equipment, seals, cameras, tamper-indication devices, nuclear detectors, monitoring systems, or equipment necessary to safely store, transport, or remove hazardous materials ... except to the extent that such technologies, equipment, seals, cameras, devices, detectors, or systems are available for use in the design or construction of nuclear reactors or nuclear weapons."

[11] For details on these sanctions, see CRS Report RS20871, *Iran Sanctions*, by Kenneth Katzman.

material or technology and recipient states' enrichment or reprocessing of nuclear materials transferred pursuant to the agreement. Subsequent arrangements may also include arrangements for physical security, storage, or disposition of spent nuclear fuel; the application of safeguards on nuclear materials or equipment; or "any other arrangement which the President finds to be important from the standpoint of preventing proliferation."

Before entering into a subsequent arrangement, the Secretary of Energy must publish in the *Federal Register* a determination that the arrangement "will not be inimical to the common defense and security." A proposed subsequent arrangement shall not take effect before 15 days after publication of both this determination and notice of the proposed arrangement. The Secretary of State is required to prepare an unclassified Nuclear Proliferation Assessment Statement (NPAS) if, "in the view of" the Secretary of State, Secretary of Energy, Secretary of Defense, or the Nuclear Regulatory Commission, a proposed subsequent arrangement "might significantly contribute to proliferation." The Secretary of State is to submit the NPAS to the Secretary of Energy within 60 days of receiving a copy of the proposed subsequent arrangement. The President may waive the 60-day requirement if the Secretary of State so requests, but must notify both the House Foreign Affairs Committee and Senate Foreign Relations Committee of any such waiver and the justification for it. The Secretary of Energy may not enter into the subsequent arrangement before receiving the NPAS.

Section 131 specifies requirements for certain types of subsequent arrangements. Section 131b. describes procedures for the executive branch to follow before entering into a subsequent arrangement involving the reprocessing of U.S.-origin nuclear material or nuclear material produced with U.S.-supplied nuclear technology. These procedures also cover subsequent arrangements allowing the retransfer of such material to a "third country for reprocessing" or "the subsequent retransfer" of more than 500 grams of any plutonium produced by reprocessing such material. The Secretary of Energy must provide both the House Foreign Affairs Committee and Senate Foreign Relations Committee with a report describing the reasons for entering into the arrangement. Additionally, 15 days of continuous session must elapse before the Secretary may enter into the arrangement, unless the President judges that "an emergency exists due to unforeseen circumstances requiring immediate entry" into the arrangement. In such a case, the waiting period would be 15 calendar days.

If a subsequent arrangement described in the above paragraph involves a facility that has not processed spent nuclear reactor fuel prior to March 10, 1978 (when the Nuclear Nonproliferation Act of 1978 was enacted), the Secretaries of State and Energy must judge that the arrangement "will not result in a significant increase of the risk of proliferation." In making this judgment, the Secretaries are to give "foremost consideration ... to whether or not the reprocessing or retransfer will take place under conditions that will ensure timely warning to the United States of any diversion well in advance of the time at which the non-nuclear weapon state could transform the diverted material into a nuclear explosive device."[12] For a subsequent arrangement involving reprocessing in a facility that has processed spent nuclear reactor fuel prior to March 10, 1978, the Secretary of Energy will "attempt to ensure" that reprocessing "shall take place under conditions" that would satisfy the timely-warning conditions described above. Section 131f. specifies procedures for congressional approval of subsequent arrangements involving the storage or disposition of foreign spent nuclear fuel in the United States.

[12] These provisions also apply to facilities that, prior to March 18, 1978, did not have a subsequent arrangement for reprocessing.

Section 133 states that, before approving a subsequent arrangement involving certain transfers of special nuclear material, the Secretary of Energy must consult with the Secretary of Defense "on whether the physical protection of that material during the export or transfer will be adequate to deter theft, sabotage, and other acts of international terrorism which would result in the diversion of that material."[13] If the Secretary of Defense determines that "the export or transfer might be subject to a genuine terrorist threat," that Secretary is required to provide a written risk assessment of the risk and a "description of the actions" that he or she "considers necessary to upgrade physical protection measures."

Examples of Subsequent Arrangements

U.S.-Japan Agreement

The first test of the subsequent arrangement provisions came in August 1978, when the Department of Energy informed the House and Senate foreign relations committees of a Japanese request for approval of the transfer of spent fuel assemblies from Japan to the United Kingdom for reprocessing. This was the first "subsequent arrangement" approved. The United States and Japan entered into similar arrangements until 1988, when the two governments revised their nuclear cooperation agreement. That agreement included an "implementing agreement," which provided 30-year advance consent for the transfer of spent fuel from Japan to Europe for reprocessing. While controversial, Congress did not block the nuclear cooperation agreement.

A subsequent arrangement was also necessary for the sea transport from Europe to Japan of plutonium that had been separated from the Japanese spent fuel. The Department of Energy approved a Japanese request for 30-year advance consent for the sea transport of plutonium. It was submitted to Congress as a subsequent arrangement, and took effect in October 1988.

U.S.-India Agreement

The U.S. nuclear cooperation agreement with India grants New Delhi consent to reprocess nuclear material transferred pursuant to the agreement, as well as "nuclear material and by-product material used in or produced through the use of nuclear material, non-nuclear material, or equipment so transferred." However, the agreement also includes a requirement that India first build a new national reprocessing facility to be operated under IAEA safeguards. The two countries signed a subsequent arrangement July 30, 2010, which governs the procedures for operating two new reprocessing facilities in India. The agreement also describes procedures for U.S. officials to inspect and receive information about physical protection measures at the new facilities. The arrangement would not have taken effect if Congress had adopted a joint resolution of disapproval within 30 days of continuous session; Congress did not adopt such a resolution.[14] If India were to construct any additional facilities to reprocess fuel from U.S.-supplied reactors, a new subsequent arrangement would need to be submitted to Congress.

[13] This section applies to "the export or transfer of more than 2 kilograms of plutonium or more than 5 kilograms of uranium enriched to more than 20 percent in the isotope 233 or the isotope 235."

[14] Section 201 of the United States-India Nuclear Cooperation Approval and Nonproliferation Enhancement Act (P.L. 110-369), which approved the U.S.-India cooperation agreement, specifies procedures (different from those described in the Atomic Energy Act) for Congress to consider subsequent arrangements to that agreement.

Termination of Cooperation

Section 129a. of the AEA requires that the United States end exports of nuclear materials and equipment or sensitive nuclear technology to any nonnuclear weapon state that, after March 10, 1978, the President determines to have detonated a nuclear explosive device; terminated or abrogated IAEA safeguards; materially violated an IAEA safeguards agreement; or engaged in activities involving source or special nuclear material and having "direct significance" for the manufacture or acquisition of nuclear explosive devices, and "has failed to take steps which, in the President's judgment, represent sufficient progress toward terminating such activities."

Section 129a. also requires that the United States halt exports to any nation the President determines to have materially violated the terms of an agreement for cooperation with the United States; assisted, encouraged, or induced any nonnuclear weapon state to obtain nuclear explosives or the materials and technologies needed to manufacture them; or retransferred or entered into an agreement for exporting reprocessing equipment, materials, or technology to a nonnuclear weapon state, unless in connection with an international agreement to which the United States subscribes.

The President can waive termination of exports if he determines that "cessation of such exports would be seriously prejudicial to the achievement of United States nonproliferation objectives or otherwise jeopardize the common defense and security." The President must submit his determination to Congress, which is then referred to the House Committee on Foreign Affairs and the Senate Foreign Relations Committee for 60 days of continuous session. The determination becomes effective unless Congress adopts a joint resolution opposing the determination.

Part 810 Agreements

Section 57.b. (2) of the Atomic Energy Act allows for limited forms of nuclear cooperation related to the "development or production of any special nuclear material outside of the United States" if that activity has been authorized by the Secretary of Energy following a determination that it "will not be inimical to the interest of the United States." The Secretary may only make such a finding with "the concurrence of the Department of State, and after consultation with the Nuclear Regulatory Commission [NRC], the Department of Commerce, and the Department of Defense."[15] Authorizations of such activities are also known as "Part 810 authorizations," after 10 Code of Federal Regulations (C.F.R.) Part 810. Part 810 regulations describe activities that are "generally authorized" by the Secretary of Energy and activities that require "specific authorization" by the Secretary. Some "generally authorized activities" are limited to a list of "generally authorized destinations."[16] These regulations also detail "reporting requirements for authorized activities."

Part 810 authorizations mostly involve unclassified nuclear technology transfer and services, such as nuclear reactor designs, nuclear facility operational information and training, and nuclear fuel fabrication. Such an authorization is not required for exports of components and materials licensed by NRC governed by 10 C.F.R. Part 110. Civilian nuclear cooperation agreements under Section 123 of the Atomic Energy Act of 1954, as amended (hereinafter Atomic Energy Act or AEA), are not required for an 810 authorization or for transmission of nuclear-related

[15] The Secretary must also consult the Office of the Director of National Intelligence in the case of transfers to China or Russia.

[16] A list of such destinations is available at https://www.law.cornell.edu/cfr/text/10/appendix-A_to_part_810.

information, except for restricted data. Such agreements are, however, required for such forms of nuclear cooperation as the transfer of U.S.-origin special nuclear material subject to licensing for commercial, medical, and industrial purposes; the export of reactors and critical parts of reactors; and other commodities under NRC export licensing authority (10 C.F.R. 110).[17] The NRC may also authorize activities governed by Part 810 authorizations under a 123 agreement or under a subsequent arrangement to such an agreement.

It is worth noting that Part 810.9 includes "[w]hether the United States has an agreement for cooperation in force covering exports to the country or entity involved" as a factor for the Secretary of Energy to use in determining that an activity "will not be inimical to the interest [sic] of the United States." Moreover, the list of "generally authorized destinations" is "based principally on the United States agreements for civil nuclear cooperation," according to guidance from the National Nuclear Security Administration.[18]

Recent Legislative Activity

In recent years, Congress has intensely debated the requirements of the Atomic Energy Act for nuclear cooperation agreements, most notably following the approval of the 2008 U.S.-India nuclear cooperation agreement. Congress has held several hearings to discuss whether stronger nonproliferation standards and congressional oversight for nuclear cooperation agreements are desirable.

On March 21, 2018, Representative Ileana Ros-Lehtinen introduced H.R. 5357, the Nuclear Cooperation Reform Act of 2018, which would amend the Atomic Energy Act to require nonexempt nuclear cooperation agreements to include several additional provisions. These provisions include a legally binding "commitment" from the cooperating government stipulating that "no enrichment or reprocessing activities, or acquisition or construction of such facilities, [would] occur within the territory over which the cooperating party exercises sovereignty"; "a guaranty by the cooperating party that no nationals of a third country" would be "permitted access to any reactor, related equipment, or sensitive materials transferred under" the agreement without prior U.S. consent; and a "commitment to maintain" or enact "a legal regime providing for adequate protection from civil liability that will allow for the participation of United States suppliers in any effort by the country to develop civilian nuclear power."

The bill would also require a cooperating party to sign, ratify, and implement an additional protocol to its IAEA safeguards agreement; implement a number of export control-related measures specified by the bill; comply with "all United Nations conventions to which the United States is a party and all [UN] Security Council resolutions regarding the prevention of the proliferation of weapons of mass destruction"; and be party to, as well as fully implement, "the provisions and guidelines" of the Biological Weapons Convention and the Chemical Weapons Convention, as well as "all other international agreements to which the United States is a party regarding the export of nuclear, chemical, biological, and advanced conventional weapons, including missiles and other delivery systems."

H.R. 5357 contains provisions concerning U.S. foreign assistance. For example, the bill would prohibit "assistance (other than humanitarian assistance) under any provision of law ... to a country that has withdrawn" from the NPT. The United States would be required to "seek the

[17] Lists of exports governed by this authority are available at https://www.nrc.gov/about-nrc/ip/export-import.html.

[18] https://nnsa.energy.gov/sites/default/files/nnsa/inlinefiles/nei_faqs_final_9-12-16_final_gc-53_adh.pdf.

return of any material, equipment, or components transferred under" a nuclear cooperation agreement. In addition, the bill would prohibit any assistance

> under the Foreign Assistance Act of 1961, the Arms Export Control Act, the Foreign Military Sales Act, the Food for Peace Act, the Peace Corps Act, or the Export-Import Bank Act of 1945 to any country if the Secretary of State determines that the government of the country has repeatedly provided support for acts of proliferation of equipment, technology, or materials to support the design, acquisition, manufacture, or use of weapons of mass destruction or the acquisition or development of missiles to carry such weapons.

This section of the bill includes a presidential waiver provision. H.R. 5357 would also permit joint resolutions approving nuclear cooperation agreements to "include any other provisions to accompany such proposed agreement for cooperation."

Moreover, H.R. 5357 amends the AEA's congressional notification provisions concerning ongoing nuclear cooperation agreement negotiations. Specifically, the bill requires the President to "consult" with the Senate Foreign Relations Committee and the House Foreign Affairs Committee "concerning such initiative or negotiations beginning not later than 15 calendar days after the initiation of any such negotiations, or the receipt or transmission of a draft agreement, whichever occurs first, and monthly thereafter until such time as the negotiations are concluded." These consultations are to include the provision of "current working drafts and proposed text put forward for negotiation by the parties for inclusion in such agreement."

Appendix A. Key Dates for Bilateral Civilian Nuclear Cooperation ("Section 123") Agreements

Table A-1. Key Dates

Country	Most Recent Agreement Signed	Entered into Force	Duration	Expiration	Renewal Terms[a]	Original Agreement[b]
Argentina	February 29, 1996	October 16, 1997	30 years	October 16, 2027	Extension by agreement of the parties	
Australia	May 4, 2010	December 22, 2010	30 years	December 22, 2040	Automatic 5-yr renewals after 30 years	1956
Brazil	October 14, 1997	September 15, 1999	30 years	September 15, 2029	Extension by agreement of the parties	1972
Canada	June 23, 1999	December 13, 1999	30 years	January 1, 2030	Automatic 5-yr renewals after 30 years	1955
China[c]	April 13, 2015	November 10, 2015	30 years	2045	None specified	1985
Egypt	June 29, 1981	December 29, 1981	40 years	December 29, 2021	None specified	
European Atomic Energy Community (Euratom)[d]	November 7, 1995	March 29, 1996	30 years	March 29, 2026	Automatic 5-yr renewals after 30 years	1958
India[e]	October 10, 2008	December 6, 2008	40 years	December 6, 2048	Automatic 10-yr renewals after 40 years	
Indonesia	June 30, 1980	December 30, 1981	50 years	December 30, 2031	None specified	1960
International Atomic Energy Agency (IAEA)	May 11, 1959	August 7, 1959	95 years (Amended in 1974, 1980, Renewed in 2014)	August 7, 2054	None specified	1959
Japan	November 4, 1987	July 17, 1988	30 years	July 16, 2018	Remains in force until terminated by a party	1968
Kazakhstan	November 18, 1997	November 5, 1999	30 years	November 5, 2029	None specified	

Country	Most Recent Agreement Signed	Entered into Force	Duration	Expiration	Renewal Terms[a]	Original Agreement[b]
Republic of Korea	November 24, 1972 [proposed renewal agreement signed June 15, 2015]	November 25, 2015	20 years	November 24, 2035	Automatic 5-yr renewals after 20 years	1956
Mexico	May 7, 2018	Under congressional review	30 years		None specified	
Morocco	May 30, 1980	May 16, 1981	30 years	May 16, 2021	Automatic 5-yr renewals after 30 years	
Norway[f]	June 11, 2016		30 years	Thirty years after entry into force	None specified	1984
Russian Federation	May 6, 2008	January 11, 2011	30 years	January 11, 2041	None specified	
South Africa	August 25, 1995	December 4, 1997	25 years	December 4, 2022	None specified	1957
Switzerland	October 31, 1997	June 23, 1998	30 years	June 23, 2028	Automatic 5-yr renewals after 30 years	1965
Taiwan (TECRO)	December 20, 2013	June 22, 2014	amended in 1974, to 30 years; renewed in 2014 to indefinite duration	none	n/a	1955
Turkey	July 26, 2000	June 2, 2008	15 years	June 2, 2023	Automatic 5-yr renewals after 15 years	
Ukraine	May 6, 1998	May 28, 1999	30 years	May 28, 2029	None specified	
United Arab Emirates	May 21, 2009	December 17, 2009	30 years	December 17, 2039	None specified	
United Kingdom	May 4, 2018	Under congressional review	30 years		None specified	Formerly under EURATOM agreement
Vietnam	May 6, 2014	October 3, 2014	30 years	October 3, 2044	Automatic 5-yr renewals after 30 years	

Sources: CRS; Text of Agreements; U.S. Department of State Fact Sheet, "U.S. Bilateral Agreements for Peaceful Nuclear Cooperation Pursuant to Section 123 of the U.S. Atomic Energy Act of 1954, as amended," December 5, 2013.

a. If renewal terms are not specified, then a new Section 123 agreement would need to be negotiated and submitted to Congress for the required review.

b. The "Original Agreement" field refers to the year that the first civilian nuclear cooperation agreement was concluded with that country. If it is blank, the current agreement is the first such agreement.

c. P.L. 99-183 approved the original 1985 agreement but prohibited licenses from being issued until the President certified that transferred items would be used for solely peaceful purposes and reported to Congress on China's nonproliferation policies. Following the Tiananmen Square crackdown, P.L. 101-246 (FY1990 Foreign Relations Authorization Act) also suspended nuclear cooperation with China. President Clinton issued the required waiver, report, and certification in January 1998. The required congressional review period ended on March 18, 1998, and implementation of the agreement was then allowed. See also CRS Report RL33192, *U.S.-China Nuclear Cooperation Agreement*, by Mark Holt, Mary Beth D. Nikitin, and Paul K. Kerr.

d. Euratom member states include Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, and the United Kingdom.

e. P.L. 109-401 and P.L. 110-369 approved the agreement with conditions. See CRS Report CRS Report RL33016, *U.S. Nuclear Cooperation with India: Issues for Congress*, by Paul K. Kerr.

f. P.L. 114-320 approved the 2016 renewal agreement.

Appendix B. Enrichment and Reprocessing Restrictions

Although some experts have advocated requiring governments to forgo enrichment and reprocessing (a nonproliferation commitment sometimes referred to as the "Gold Standard") as a condition for concluding a nuclear cooperation agreement, the Atomic Energy Act (AEA) does not include such a requirement. In recent years, the United States has attempted to persuade certain countries with which it is negotiating nuclear cooperation agreements to forgo enrichment and reprocessing and conclude additional protocols to their International Atomic Energy Agency (IAEA) safeguards agreements; past U.S. nuclear cooperation agreements have not included these additional components. The AEA does mandate that U.S. nuclear cooperation agreements require U.S. consent for any "alteration in form or content" (to include enrichment or reprocessing) of U.S.-origin material or any material processed in a plant containing transferred U.S. nuclear technology. Such agreements also require U.S. consent for any retransfer of material or technology.

The United States has argued that its December 2009 nuclear cooperation agreement with the United Arab Emirates (UAE) could set a useful precedent for mitigating the dangers of nuclear proliferation.[19] For example, President Barack Obama's May 21, 2009, letter transmitting the agreement to Congress argued that the agreement had "the potential to serve as a model for other countries in the region that wish to pursue responsible nuclear energy development." Similarly, then-State Department spokesperson P.J. Crowley described the agreement as "the gold standard" during an August 5, 2010, press briefing, although the Obama Administration generally did not use this term when describing its nuclear cooperation policies.

The U.S.-UAE agreement's status as a potential model is grounded in two nonproliferation provisions not found in other U.S. nuclear cooperation agreements. First, the agreement requires the country to bring into force the additional protocol to its safeguards agreement before the United States licenses "exports of nuclear material, equipment, components, or technology" pursuant to the agreement.[20] Second, the agreement states that the UAE

> shall not possess sensitive nuclear facilities within its territory or otherwise engage in activities within its territory for, or relating to, the enrichment or reprocessing of material, or for the alteration in form or content (except by irradiation or further irradiation or, if agreed by the Parties, post-irradiation examination) of plutonium, uranium 233, high enriched uranium, or irradiated source or special fissionable material.

The U.S.-UAE agreement also provides the United States with the right to terminate nuclear cooperation and to require the return of any nuclear "material, equipment or components ... and any special fissionable material produced through their use" if, after the agreement's entry into force, the UAE "possesses sensitive nuclear facilities within its territory or otherwise engages in activities within its territory relating to enrichment of uranium or reprocessing of nuclear fuel."[21]

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[19] For more information, see CRS Report R40344, *The United Arab Emirates Nuclear Program and Proposed U.S. Nuclear Cooperation*, by Christopher M. Blanchard and Paul K. Kerr.

[20] The IAEA Board of Governors approved the Protocol March 3, 2009. The UAE signed it the next month, and brought it into force December 20, 2010.

[21] The AEA requires that there is no enrichment or reprocessing by the recipient state of transferred nuclear material or nuclear material produced with materials or facilities transferred pursuant to the agreement without prior approval.

Notwithstanding its characterization of the U.S.-UAE agreement, the Obama Administration announced in December 2013 after an interagency review that renouncing domestic enrichment and reprocessing would not be a prerequisite to concluding a nuclear cooperation agreement for all countries, and each partner country would be considered individually.[22] The U.S. nuclear cooperation agreement with Vietnam, which the two governments concluded in 2014, did not include a provision requiring the country to forgo enrichment and reprocessing, although the agreement's preamble includes a political commitment stating that Vietnam intends to rely on international markets for its nuclear fuel supply, rather than acquiring sensitive nuclear technologies.[23]

[22] Daniel Horner, "U.S. Policy of Nuclear Pacts Detailed," *Arms Control Today*, January/February 2014.

[23] For more information about the Vietnam agreement, see CRS Report R43433, *U.S.-Vietnam Nuclear Cooperation Agreement: Issues for Congress*, by Mary Beth D. Nikitin, Mark Holt, and Mark E. Manyin.

Appendix C. Nuclear Cooperation Agreements Approved Outside Atomic Energy Act Process

Congress has used legislation to approve nuclear cooperation agreements that did not use the legislative process mandated by the Atomic Energy Act (AEA) of 1954, as amended.

Australia[24]

On May 5, 2010, President Barack Obama submitted a renewed U.S.-Australia nuclear cooperation agreement to Congress for approval. H.R. 6411, which the House adopted on November 30, 2010, would have approved the agreement even if there had not been sufficient legislative days remaining in the 111th Congress; the Senate did not adopt its version of the bill (S. 3844). These bills were not needed because the 111th Congress contained a sufficient number of days for the agreement to enter into force.

China[25]

In 1985, President Ronald Reagan submitted the first U.S.-China nuclear cooperation agreement to Congress, which adopted a joint resolution, P.L. 99-183, requiring that the President make certain nonproliferation-related certifications in order for the agreement to be implemented. P.L. 99-183 required a presidential certification and a report followed by a period of 30 days of continuous session of Congress. P.L. 101-246, the Foreign Relations Authorization Act for Fiscal Years 1990 and 1991, imposed sanctions on China, including suspending nuclear cooperation and requiring an additional presidential certification on Beijing's nuclear nonproliferation assurances. Before a summit with China, President William Clinton on January 12, 1998, signed the required certifications regarding China's nuclear nonproliferation policy and practices. Clinton also issued a certification and waived a sanction imposed under P.L. 101-246. Congressional review ended on March 18, 1998, allowing the agreement to be implemented.

India[26]

P.L. 109-401, which became law on December 18, 2006, permitted the President to waive several provisions of the AEA with respect to a nuclear cooperation agreement with India. On September 10, 2008, President George W. Bush submitted to Congress a determination that P.L. 109-401's requirements for such an agreement to proceed had been met. President Bush signed P.L. 110-369, which approved the agreement, into law on October 8, 2008.

Norway

The President submitted an extension of the U.S.-Norway nuclear cooperation agreement to Congress on June 14, 2016. P.L. 114-320, which became law on December 16, 2016, approved the agreement "[n]otwithstanding the provisions for congressional consideration" in the AEA,

[24] For more information, see CRS Report R41312, *U.S.-Australia Civilian Nuclear Cooperation: Issues for Congress*, by Mary Beth D. Nikitin and Bruce Vaughn.

[25] For more information, see CRS Report RL33192, *U.S.-China Nuclear Cooperation Agreement*, by Mark Holt, Mary Beth D. Nikitin, and Paul K. Kerr.

[26] For more information, see CRS Report RL33016, *U.S. Nuclear Cooperation with India: Issues for Congress*, by Paul K. Kerr.

thereby addressing concerns that that there was an insufficient number of legislative days remaining in the 114th Congress for congressional consideration.

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