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# **U.S.-Vietnam Nuclear Cooperation Agreement: Issues for Congress**

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March 24, 2014

**Congressional Research Service**

7-5700

[www.crs.gov](http://www.crs.gov)

R43433

## Summary

U.S.-Vietnamese cooperation on nuclear energy and nonproliferation has grown in recent years along with closer bilateral economic, military, and diplomatic ties. In 2010, the two countries signed a Memorandum of Understanding that Obama Administration officials said would be a “stepping stone” to a bilateral nuclear cooperation agreement. This agreement was signed by the two countries in December 2013.

Under section 123 of the Atomic Energy Act of 1954 (as amended), this agreement is subject to congressional review. The nuclear cooperation agreement is expected to comply with all the terms of the Atomic Energy Act as amended and therefore will be a “non-exempt” agreement. This means that it will enter into force upon the 90<sup>th</sup> day of continuous session after its submittal to Congress (a period of 30 plus 60 days of review) unless Congress enacts a Joint Resolution disapproving the agreement.

Vietnam would be the first country in Southeast Asia to operate a nuclear power plant. Vietnam has announced a nuclear energy plan that envisions installing several nuclear plants, capable of producing up to 14,800 megawatts of electric power (MWe), by 2030. Nuclear power is projected to provide 20%-30% of the country’s electricity by 2050. Significant work remains, however, to develop Vietnam’s nuclear energy infrastructure and regulatory framework.

Vietnam’s Law on Atomic Energy, passed in 2008, forbids the development of nuclear weapons and all forms of nuclear proliferation. In 2007, Vietnam signed the IAEA Additional Protocol, a significant nonproliferation safeguard for nuclear power, which entered into force in September 2012. Vietnamese officials have said they have no interest in developing domestic enrichment or reprocessing capabilities, which can potentially be used to make fissile material for nuclear weapons, but they have not made a binding commitment not to do so. Vietnam is exploring the possibility of eventually mining domestic uranium reserves.

At least four issues are expected to be prominent when Congress takes up the agreement: (1) whether the agreement should have included stronger nonproliferation commitments such as a legally-binding commitment by Vietnam not to build uranium enrichment and reprocessing facilities; (2) the extent to which Vietnam’s human rights record should affect the decision to enter into a nuclear energy agreement; (3) the weight that should be given to the growing strategic relationship between the United States and Vietnam; and (4) the extent to which U.S. companies would benefit from an agreement.

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## Overview

Since the United States and Vietnam established diplomatic relations in 1995, the two countries have expanded relations and cooperation across a wide range of sectors. As U.S.-Vietnam bilateral economic, military, and diplomatic ties have grown, so has interest in strengthening cooperation in the nuclear energy sphere. A civilian nuclear cooperation agreement was signed by the two countries in December 2013 under section 123 of the Atomic Energy Act of 1954 (as amended). Such “123 agreements” are necessary for the export of nuclear reactors and components and can help facilitate the transfer of nuclear energy technology.<sup>1</sup> The U.S.-Vietnam 123 agreement is subject to congressional review. It will enter into force upon the 90<sup>th</sup> day of continuous session after its submittal to Congress (a period of 30 plus 60 days of review) unless a Joint Resolution disapproving the agreement is enacted.

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Vietnam also has nuclear cooperation agreements with Russia, France, China, South Korea, Japan, and Canada. The U.S. nuclear industry contends that billions of dollars of exports could result from the Vietnam 123 agreement.<sup>2</sup> While it is unclear what, if any, contracts the U.S. nuclear industry would conclude with Vietnam’s nuclear energy sector, it is likely that U.S. companies would provide services as part of a reactor supply agreement that Vietnam signed with Japan in 2010. Such services would not necessarily require a U.S. 123 agreement, but transfers might be facilitated if one were in place.

## U.S.-Vietnam Nuclear Cooperation

The first major step by the United States and Vietnam toward a 123 agreement was the signing of an agreement to strengthen nuclear safety and the nascent nuclear regulatory framework in Vietnam in 2008. Under that agreement, U.S. Nuclear Regulatory Commission experts have been advising the Vietnam Agency for Radiation and Nuclear Safety and Control (VARANS). The U.S. Department of Energy (DOE) and the Nuclear Regulatory Commission (NRC) train Vietnamese officials on nonproliferation and nuclear safety best practices related to power plant operation, and assisted with the drafting of Vietnam’s Atomic Energy Law, passed by Vietnam’s National Assembly in June 2008. Vietnamese technicians have also attended nonproliferation safeguards training programs at U.S. national laboratories.

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<sup>1</sup> See CRS Report RS22937, *Nuclear Cooperation with Other Countries: A Primer*, by Paul K. Kerr and Mary Beth D. Nikitin

<sup>2</sup> Nuclear Energy Institute, “Nuclear Energy Industry Lauds US-Vietnam Cooperation Agreement,” news release, October 10, 2013, <http://www.nei.org/News-Media/News/News-Archives/Nuclear-Energy-Industry-Lauds-US-Vietnam-Cooperati>.

In March 2010, the United States and Vietnam signed a Memorandum of Understanding Concerning Cooperation in the Civil Nuclear Field that was designed to increase cooperation on nuclear safety and facilitate development of an independent regulatory agency. Then-U.S. Ambassador to Vietnam Michael Michalak said he anticipated the 2010 Memorandum would be a “stepping stone” to a bilateral nuclear energy cooperation (section 123 agreement).

## **Vietnam’s Current Nuclear Capacity**

Vietnam’s current nuclear infrastructure consists of a research reactor and several research institutes. Under the Atoms for Peace program in the early 1960s, the United States provided South Vietnam with a 250 kilowatt (kw) pool-type TRIGA Mark-II research reactor.<sup>3</sup> This research reactor, located at Dalat, used highly enriched uranium (HEU) fuel and went critical in 1963. It was used for training, research, and radioisotope production. The research reactor was shut down during the Vietnam War. After North Vietnam defeated the South in 1975 and reunified the country, the Vietnam Atomic Energy Commission (VAEC) was established in 1976 for civilian nuclear research. The International Atomic Energy Agency (IAEA) has provided technical cooperation (TC) assistance to Vietnam since it joined the Agency in 1978.<sup>4</sup>

In the early 1980s, the Soviet Union helped Vietnam restore and upgrade the research reactor to a 500 kw Russian VVR-M design. This research reactor was powered with highly enriched uranium, weapons-usable material which is considered to be a potential nuclear security risk. With U.S. assistance under the Department of Energy’s Global Threat Reduction Initiative, since 2007, Vietnam has converted the Dalat research reactor from HEU to low enriched uranium (LEU) fuel, and returned the HEU fresh and spent fuel to Russia. The shipments, which removed a total of 11 kg of HEU, were completed in July 2013.<sup>5</sup> This activity advanced U.S.-Vietnam cooperation in the nuclear nonproliferation sphere.

## **Vietnam’s Nuclear Energy Plans**

As Vietnam’s economy has grown, so have its energy demands, which, according to one source, grew by 15% annually in the first decade of the 2000s.<sup>6</sup> To help keep pace, Vietnam plans to build its first nuclear power plants in the coming decades. Nuclear power is projected to provide 20%-30% of the country’s electricity by 2050.<sup>7</sup> Vietnam first began considering nuclear power as an option in a 1995 government study that recommended the introduction of nuclear energy by 2015.

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<sup>3</sup> From the mid-1950s until 1975, Vietnam was divided into communist-led North Vietnam and U.S.-backed South Vietnam, which fought against a takeover by communist forces, both from within South Vietnam and from North Vietnam. The United States provided significant military and economic assistance to South Vietnam until 1973, when the United States withdrew most of its military forces and when Congress began cutting the Nixon Administration’s requests for aid to South Vietnam.

<sup>4</sup> For a list of TC projects in Vietnam, see the 2010 IAEA country profile for Vietnam, [http://www-pub.iaea.org/MTCD/publications/PDF/CNPP2010\\_CD/countryprofiles/VietNam/CNPP2010Vietnam.htm](http://www-pub.iaea.org/MTCD/publications/PDF/CNPP2010_CD/countryprofiles/VietNam/CNPP2010Vietnam.htm).

<sup>5</sup> “US, International Partners Remove Last Remaining HEU from Vietnam, Set Nuclear Security Milestone,” NNSA Press Release, July 2, 2013. <http://nnsa.energy.gov/mediaroom/pressreleases/heuvietnam7213>.

<sup>6</sup> Economist Intelligence Unit, *Vietnam: Energy Report*, December 16, 2009.

<sup>7</sup> World Nuclear Association, “Nuclear Power in Vietnam,” January 2014, <http://www.world-nuclear.org/info/Country-Profiles/Countries-T-Z/Vietnam/>.

Feasibility studies were conducted in the late 1990s and early 2000s. In 2004, then-Prime Minister Phan Van Khai endorsed the “Strategy for Vietnam’s Electricity Development 2004-2010.”<sup>8</sup> In 2006, the Prime Minister signed the “Strategy for Peaceful Uses of Atomic Energy up to 2020,” which specified a nuclear power target of 2,000 megawatts of electric generating capacity (MWe) by 2020, and an eventual 20,000 MWe by 2040. The latter would represent 25%-30% of Vietnam’s electricity production.<sup>9</sup>

Vietnam’s National Assembly in November 2009 approved plans to build the first two 1,000 MWe reactors at Phuoc Dinh, Ninh Thuan province (*Ninh Thuan 1* plant) which were to come on-line by 2020. Two additional 1,000 MWe reactors are planned to be built in nearby Vinh Hai (*Ninh Thuan 2* plant) and be brought on-line by 2026 (see **Figure 1** below). The country’s nuclear energy plan envisioned a three-phase approach:<sup>10</sup>

- Phase I, 2010-2015: training technical specialists, setting up regulatory frameworks and cooperation agreements, approval of licenses, etc.
- Phase II, 2015-2020: construction phase for first nuclear plants at Phuoc Dinh; beginning construction at Vinh Hai.
- Phase III, 2020-2030: additional reactor construction, up to an additional 6,000 MWe.

The Vietnamese government issued a master plan in July 2011 that called for two additional reactors to be constructed at Phuoc Dinh by 2025 and two more at Vinh Hai by 2027, plus two larger reactors, possibly Korean, at another site to begin operating by 2029. Another 4,000 megawatts of planned capacity would bring the country’s generating capacity to 14,800 megawatts by 2030.<sup>11</sup> However, Vietnam’s Prime Minister announced in January 2014 that it might delay construction of the first plant, at Phuoc Dinh, until 2020, potentially pushing back the planned completion of the first reactor to the mid-2020s. Difficulties in training staff for the planned nuclear power program have been mentioned by news reports as a possible reason for the delay.<sup>12</sup>

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<sup>8</sup> Decision No. 176/2004/QĐ-TTg of October 5, 2004, “Approving the Strategy on Development of Vietnam Electricity Industry in the 2004-2010 Period, with Orientations Towards 2020”; “PM Approves Development Strategy for Power Sector,” Vietnam Business Forum, [http://vccinews.com/news\\_detail.asp?news\\_id=2772](http://vccinews.com/news_detail.asp?news_id=2772).

<sup>9</sup> For an analysis of Vietnam’s electricity mix and projected growth, see the 2010 IAEA country profile for Vietnam, [http://www-pub.iaea.org/MTCD/publications/PDF/CNPP2010\\_CD/countryprofiles/VietNam/CNPP2010Vietnam.htm](http://www-pub.iaea.org/MTCD/publications/PDF/CNPP2010_CD/countryprofiles/VietNam/CNPP2010Vietnam.htm).

<sup>10</sup> IISS, *Ibid.*; “Vietnam Plans Ambitious Nuclear Program,” *ASEAN Nuclear News*, June 24, 2010, <http://asean-online.blogspot.com/2010/06/vietnam-plans-ambitious-nuclear-program.html>.

<sup>11</sup> World Nuclear Association, *op. cit.*

<sup>12</sup> NucNet, “PM Says Vietnam Might Delay Construction of First Nuclear Plant,” January 16, 2014, <http://www.nucnet.org/all-the-news/2014/01/16/pm-says-vietnam-might-delay-construction-of-first-nuclear-plant>.

Figure I. Vietnam's Nuclear Facilities



**Source:** By CRS with data from ESRI; "Preventing Nuclear Dangers in Southeast Asia and Australasia," IISS Strategic Dossier, 2009.

The Russian firm AtomStroyExport is to build two 1,200 MWe light-water reactors (standard commercial reactors) at the *Ninh Thuan 1* power plant at Phuoc Dinh. They will be built on a turnkey basis,<sup>13</sup> and will be operated by state-owned utility Electricity of Vietnam (EVN). As with other Russian-built nuclear power plants in non-nuclear weapon states, the contract includes a provision to both supply fuel and take back spent (used) fuel. The Russian atomic energy agency, Rosatom, will set up a training center in Vietnam to help prepare nuclear specialists. Cost estimates for the power plants vary; Rosatom reportedly has forecast the cost of the first two-reactor plants as up to \$8 billion, but some press reports that included related infrastructure development estimate a total of \$10 billion. Russia's Ministry of Finance is expected to finance the majority of these costs. Under the 2011 master plan, AtomStroyExport is to build two additional reactors at the site as well.

Up to four light-water reactors at *Ninh Thuan 2* are to be built by the Japanese consortium International Nuclear Energy Development of Japan Company (JINED).<sup>14</sup> The Japanese government has offered low-interest and preferential loans for the project, as well as assistance in waste treatment and infrastructure support.

According to the IAEA, Vietnam has no plans for developing a full fuel cycle capability.<sup>15</sup> Current plans would store spent nuclear fuel on-site for at least 30 years, and studies on more permanent disposal are underway. As mentioned above, Russia will take back the spent fuel from the Russian-built plants. Other suppliers, such as Japan, do not usually do so, so Vietnam will need to explore spent fuel storage options.

Vietnam is now exploring how to exploit its domestic uranium reserves in the north of the country, and is cooperating with Canadian and Japanese firms on initial exploration. Vietnam has signed a memorandum of understanding with India on uranium ore processing technologies.

As of early 2014, Vietnam's nuclear energy plans do not appear to have generated significant domestic opposition. If accurate, it is unclear if this absence of opposition is due to widespread support for the government's energy vision, apathy or a lack of awareness, and/or a reluctance to challenge the government on one of its significant priorities.

## **Role of the U.S. Nuclear Industry**

The United States nuclear industry may have a role in the reactor projects in Vietnam. The Japanese supply consortium, JINED, is offering boiling water reactor (BWR) and pressurized water reactor (PWR) designs for *Ninh Thuan 2*, and Vietnam has not yet selected which type it will use. Japanese BWR designs are based on General Electric (GE) technology, while Japanese PWR designs originally came from Westinghouse (now mostly owned by Toshiba). Japan is

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<sup>13</sup> Plants built on a "turnkey" basis are designed and built by the manufacturer, without the local operator's involvement. Once the reactor is operational, the plant is turned over to the operator.

<sup>14</sup> "Japan and Russia to Build Ninh Thuan Nuclear Power Plants for Vietnam," *Global Energy Magazine*, November 3, 2010.

<sup>15</sup> A full fuel cycle would generally include the ability to produce fuel (such as through uranium enrichment) and to process waste into new fuel (through reprocessing). Some countries possess other parts of the fuel cycle such as fuel fabrication or uranium mining but do not produce enriched product. For reference, see CRS Report RL34234, *Managing the Nuclear Fuel Cycle: Policy Implications of Expanding Global Access to Nuclear Power*, coordinated by Mary Beth D. Nikitin.



largely self-sufficient in nuclear technology, but it is possible that some U.S. components and services would be used for the Vietnam project. JINED member Hitachi, for example, conducts nuclear business in Japan and around the world through joint ventures with GE. A U.S.-Vietnam 123 agreement would be helpful or even necessary for U.S. participation in *Ninh Thuan 2*, depending on the types of components and services involved. This is because certain major reactor components would require Nuclear Regulatory Commission export licenses that cannot be approved without a 123 agreement, and approvals for other components and services that do not require export licenses could be more complicated without a 123 agreement.

South Korea has also proposed building a nuclear power plant in Vietnam, for which the two countries are jointly preparing a feasibility study.<sup>16</sup> The proposed South Korean reactors are based on designs licensed from the U.S. firm Combustion Engineering, which combined with Westinghouse in 2000. As a result, Westinghouse now controls the marketing of the design that South Korea plans to use in Vietnam. South Korea's only previous nuclear power plant export project, consisting of four reactors being built in the United Arab Emirates (UAE), is being implemented by a consortium that includes Westinghouse. Westinghouse and other U.S.-based firms are expected to receive 10% of the \$20 billion UAE deal. If South Korea replicates that consortium for the proposed Vietnam project, a U.S.-Vietnam 123 agreement would probably be necessary. The UAE project also required a Part 810 technology transfer authorization by the Secretary of Energy.<sup>17</sup>

The number of potential U.S. jobs that may result from nuclear power projects in Vietnam is difficult to estimate, but the Barakah project now under construction by a Korean-led consortium in the UAE could provide a model. As noted above, Westinghouse and other U.S. companies are expected to carry out about 10% of the work on Barakah. The Export-Import Bank of the United States in September 2012 approved \$2 billion in financing for U.S. equipment and services for Barakah, mostly to be provided by Westinghouse and its U.S. sub-suppliers. "The Barakah project will allow us to maintain about 600 U.S. jobs," Westinghouse said after the Ex-Im Bank financing approval. The Ex-Im Bank estimated that, overall, the \$2 billion in financing would "support approximately 5,000 American jobs across 17 states." Items to be supplied by Westinghouse and other U.S. companies include reactor coolant pumps, reactor components, controls, engineering services, and training.<sup>18</sup>

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<sup>16</sup> World Nuclear Association, "Nuclear Power in Vietnam," January 2014, <http://www.world-nuclear.org/info/Country-Profiles/Countries-T-Z/Vietnam/>.

<sup>17</sup> "810 Authorizations" are issued by the Secretary of Energy under 10 CFR Part 810. These regulations implement section 57 b.(2) of the Atomic Energy Act of 1954, as amended by section 302 of the Nuclear Nonproliferation Act of 1978, and control the export of unclassified nuclear technology and assistance for peaceful purposes. Such transfers of nuclear technology under Part 810 do not include exports of nuclear reactors, components, and materials, which require export licenses from the Nuclear Regulatory Commission. Part 810 regulations differentiate activities that require "specific authorization" by the Secretary of Energy from those that can be "generally authorized" by the Secretary. For more background, see <http://nnsa.energy.gov/aboutus/ourprograms/nonproliferation/programoffices/officenonproliferationinternationalsecurity-3-0>.

<sup>18</sup> Export-Import Bank of the United States, "Ex-Im Approves \$2 Billion in Financing for Nuclear Power Plant in U.A.E.," news release, September 7, 2012, <http://www.exim.gov/newsandevents/releases/2012/ex-im-approves-2-billion-in-financing-for-nuclear-power-plant-in-u-a-e.cfm>.

## Safety Concerns

The nuclear disaster at the Fukushima Daichi nuclear plant in Japan in March 2011 raised concerns around the globe about the readiness of new nuclear energy countries to have sufficient safety and regulatory infrastructure to prevent such disasters. The accident also raised worries about Vietnam's capacity to administer and regulate a nuclear energy sector. The authorities in Vietnam reacted to the Fukushima disaster by reaffirming Vietnam's commitment to pursuing nuclear power.<sup>19</sup> In general, the situation sparked a global reexamination of emergency preparedness and risk assessment for nuclear power plants. Vietnam's coast has been subject to tsunamis in the past, and one study suggests more investigation is still needed on seismic conditions and tsunami risk.<sup>20</sup> Also, in climate modeling exercises, Vietnam is often listed as one of the world's most vulnerable countries to the possible effects of climate change, particularly to rising sea levels. The nuclear disaster in Japan also heightened concerns about how to ensure adequate infrastructure, planning, and technical expertise and personnel in new nuclear power states.<sup>21</sup>

Vietnam is working closely with the International Atomic Energy Agency to meet all international safety standards and regulatory practices. The IAEA's Integrated Nuclear Infrastructure Review (INIR) mission has visited Vietnam multiple times and has developed milestones on the basis of international standards and expert recommendations.<sup>22</sup> After the latest visit in 2014, the Vietnamese government announced a delay in the estimated start-up date for the first reactors, which experts view as giving Vietnam more time to develop its nuclear regulatory infrastructure and train technical personnel.

## Regional Energy Dynamics

Vietnam would be the first country in Southeast Asia to operate a nuclear power plant. As of early 2014, it was unclear whether other countries in the region have expressed concerns about Vietnam's nuclear energy plans. It is also unclear to what extent Vietnamese nuclear power planners are considering the energy needs and infrastructure projects of Vietnam's neighbors. Laos, for instance, is building or proposing to build dams for generating hydroelectric power along tributaries and the main stem of the Mekong River, which terminates in Vietnam. Plants such as these could generate power that could be sold to other countries in the region. Vietnam generally has opposed these dams, in part because of their possible negative impacts on the ecology, economies, and food security of downstream communities.

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<sup>19</sup> "Vietnam to Proceed with Nuclear Power Plants," *Thanh Nien News*, March 17, 2011, <http://www.thanhniennews.com/2010/Pages/20110317154038.aspx>

<sup>20</sup> "Overview on Tsunami Risk Evaluation and NPP Project in Vietnam," Presentation by Lee Dai Dien, to the Kashiwazaki International Symposium on Seismic Safety of Nuclear Installations, November 24-26, 2010, [http://www.jnes.go.jp/seismic-symposium10/presentationdata/3\\_sessionB/B-09.pdf](http://www.jnes.go.jp/seismic-symposium10/presentationdata/3_sessionB/B-09.pdf).

<sup>21</sup> James Acton, et al., "After Fukushima: Early Implications for Nuclear Industry and Policy Makers," Carnegie Nuclear Policy Program Statement, March 2011.

<sup>22</sup> <http://www.iaea.org/newscenter/news/2013/vietnamnp.html>

## Vietnam and the Nonproliferation Regime

Obama Administration officials have stated that the prospect of concluding a nuclear cooperation agreement with the United States spurred Vietnam to strengthen its nonproliferation policies.<sup>23</sup> Vietnam has been a vocal supporter of nuclear disarmament and nonproliferation in international fora, and as a member of the Non-Aligned Movement. Vietnam’s Law on Atomic Energy passed in 2008 forbids the development of nuclear weapons and all forms of nuclear proliferation.<sup>24</sup> Vietnam is party to the major nonproliferation treaties (see **Table 1**), including the Nuclear Non-Proliferation Treaty (NPT) which it joined in 1982 as a non-nuclear weapon state. It has been an IAEA member since 1978 and its comprehensive safeguards agreement has been in force since 1990. Vietnam signed the Additional Protocol to its safeguards agreement in 2007, and it entered into force in 2012. Also, in cooperation with the IAEA and South Korea, Vietnam is developing a real-time tracking system for the movement of radiological materials in the country.<sup>25</sup>

**Table 1. Vietnam’s Membership in International Nonproliferation Agreements and Regimes**

	Signature	Ratification	Entry into Force
Nuclear Non-Proliferation Treaty (NPT)		Acceded 6/14/82	
Treaty of Bangkok or Southeast Asian Nuclear-Weapon-Free Zone (SEANWFZ)	12/15/95	11/26/96	3/28/97
IAEA Comprehensive Safeguards Agreement			2/23/90
IAEA Additional Protocol	08/10/07		09/17/12
Comprehensive Nuclear Test-Ban Treaty (CTBT)	9/25/96	3/10/06	
Chemical Weapons Convention (CWC)	1/02/98	9/30/98	10/30/98
Biological and Toxin Weapons Convention (BTWC)		Acceded 6/20/80	

<sup>23</sup> Assistant Secretary of State Thomas M. Countryman, Testimony to the Senate Foreign Relations Committee, January 30, 2014.

<sup>24</sup> *Preventing Nuclear Dangers in Southeast Asia and Australasia*, An IISS Strategic Dossier, The International Institute for Strategic Studies, 2009. <http://www.iiss.org/publications/strategic-dossiers/preventing-nuclear-dangers-in-southeast-asia-and-australasia/read-the-dossier/>.

<sup>25</sup> “Highlights of Achievements and Commitments by Participating States,” Seoul Nuclear Security Summit, 2012, [http://www.thenuclearsecuritysummit.org/userfiles/Highlights%20of%20the%20Seoul%20Nuclear%20Security%20Summit\(120403\).pdf](http://www.thenuclearsecuritysummit.org/userfiles/Highlights%20of%20the%20Seoul%20Nuclear%20Security%20Summit(120403).pdf).

Signature	Ratification	Entry into Force
Amendment to the Convention on the Physical Protection of Nuclear Material	11/3/2012	
Convention on Nuclear Safety	Acceded 4/16/10	7/15/10

Vietnam is also a member of the U.S.-led Global Nuclear Energy Partnership (GNEP), now called the International Framework for Nuclear Energy Cooperation (IFNEC). Vietnam has also joined the U.S.-led Global Initiative to Combat Nuclear Terrorism. It does not participate in the Proliferation Security Initiative (PSI), because that effort is outside the United Nations system, but official statements from Hanoi have supported PSI’s goals of stopping illicit trafficking of weapons of mass destruction. As part of Vietnam’s pledges at Nuclear Security Summits, it has removed all weapons-usable nuclear material from the country. In December 2010, the United States and Vietnam established a legal framework for U.S.-Vietnam cooperation for full conversion of its HEU-fueled research reactor to LEU fuel, and the return of HEU spent fuel from Dalat to Russia under the Department of Energy’s Global Threat Reduction Initiative (GTRI).<sup>26</sup> As noted, fresh HEU fuel was removed in 2007. The research reactor has been converted to LEU fuel, and the last shipment of HEU was completed in July 2013.<sup>27</sup>

Vietnam continues to develop its export control system. The U.S. State Department’s Export Control and Border Security Program provides assistance to Vietnam to strengthen export controls in the country. In 2010, Vietnam issued regulations that would make any trafficking of nuclear materials in the country illegal.<sup>28</sup> When reviewing the proposed agreement with Vietnam, Congress may wish to examine the extent to which Vietnam’s export control system can prevent illicit transfers of nuclear materials and technologies.

## Enrichment and Reprocessing Debate

Enrichment and reprocessing (ENR) technology can be used both to make fuel for nuclear reactors or material for nuclear weapons. For the past several years, there has been some debate over whether the United States should ask countries, including Vietnam, to explicitly renounce enrichment and reprocessing as part of a civilian nuclear cooperation agreement. In early August 2010, the *Wall Street Journal* reported that the United States and Vietnam had discussed a proposed nuclear cooperation agreement that would not specifically commit Vietnam to refrain from enriching uranium.<sup>29</sup> Responding to the *Wall Street Journal* report, the State Department spokesman said that the United States would welcome a commitment by Vietnam to refrain from

<sup>26</sup> U.S. Embassy Hanoi, “U.S. and Vietnam Cooperation on Nuclear Non-Proliferation in Dalat,” December 8, 2010.

<sup>27</sup> US, International Partners Remove Last Remaining HEU from Vietnam, Set Nuclear Security Milestone,” NNSA Press Release, July 2, 2013. <http://nnsa.energy.gov/mediaroom/pressreleases/heuvietnam7213>.

<sup>28</sup> “Vietnam Bans Illegal Use, Storage of Nuclear Materials, Equipment,” *Xinhua General News Service*, June 15, 2010.

<sup>29</sup> Jay Solomon, “U.S., Hanoi in Nuclear Talks,” *The Wall Street Journal*, August 5, 2010. Uranium enrichment facilities can produce fuel for nuclear reactors, as well as fissile material for nuclear weapons. Highly enriched uranium and plutonium are the types of fissile material used in nuclear weapons.

pursuing enrichment, but added that such a commitment would be Vietnam's decision.<sup>30</sup> A senior DOE official said in September 2010, that it would be "inappropriate" at this stage to ask Vietnam to forswear its fuel cycle options as part of a nuclear energy cooperation agreement.<sup>31</sup> Vietnamese Atomic Energy Institute Director Vuong Huu Tan has said that Vietnam does not plan to pursue uranium enrichment.<sup>32</sup>

A commitment to forgo enrichment is not required for bilateral nuclear cooperation agreements under U.S. law, and most past 123 agreements have not included such a pledge. The recent agreement with the United Arab Emirates included a provision that would preclude enrichment or reprocessing in the UAE, and the United States has pursued similar pledges from other states in the Middle East.<sup>33</sup> However, whether this policy would apply to other regions of the world was the subject of an Obama Administration interagency review from 2010-2013. Some Members of Congress and outside experts have argued that including a promise not to build enrichment and reprocessing facilities should be emulated in other agreements. The U.S.-Taiwan 123 agreement submitted to Congress on January 7, 2014, includes such "gold standard" prohibitions on enrichment and reprocessing within Taiwanese territory.

Administration officials announced in December 2013 that the internal review had been completed, and there would be no change to U.S. policy. In other words, renouncing a domestic fuel-making capability would not be a prerequisite to concluding a nuclear cooperation agreement for all countries, and each partner country would be considered individually. At the same time, U.S. officials emphasize that while civilian nuclear cooperation agreements are one possible way to discourage additional countries from developing their own fuel-making (enrichment or reprocessing) technology, the United States will continue to pursue other incentives such as multilateral fuel banks to bolster partner countries' confidence in fuel supply. The Nuclear Suppliers Group (NSG) has also tightened restrictions on transfers of these technologies.<sup>34</sup> Assistant Secretary of State Thomas Countryman testified on January 30, 2014:

Make no mistake, our policy is to pursue 123 agreements that minimize the further proliferation of ENR technologies worldwide. The United States wants all nations interested in developing civil nuclear power to rely on the international market for fuel services rather than seek indigenous ENR capabilities. These capabilities are expensive and unnecessary, and reliable supply alternatives are available in the global fuel cycle market.<sup>35</sup>

The agreement with Vietnam which was signed in December has not been transmitted to Congress and the text has not been made public. However, Administration officials have said that the agreement includes a side note that says Vietnam would rely on international markets for its nuclear fuel supply. This implies that Vietnam would not seek its own fuel-making capability through enrichment or reprocessing. In addition, the agreement itself is said to contain an

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<sup>30</sup> State Department Briefing, August 5, 2010.

<sup>31</sup> Daniel Horner, "Lawmakers Eye Fixes to Law on Nuclear Pacts," *Arms Control Today*, October 2010.

<sup>32</sup> "US-Vietnam Nuke Deal Will Likely Allow Enrichment," *Associated Press*, August 7, 2010.

<sup>33</sup> CRS Report R40344, *The United Arab Emirates Nuclear Program and Proposed U.S. Nuclear Cooperation*, by Christopher M. Blanchard and Paul K. Kerr.

<sup>34</sup> See "Nuclear Suppliers Group" in CRS Report RL34234, *Managing the Nuclear Fuel Cycle: Policy Implications of Expanding Global Access to Nuclear Power*, coordinated by Mary Beth D. Nikitin.

<sup>35</sup> Testimony of Assistant Secretary of State Thomas M. Countryman on Administration Policy Related to Agreements for Peaceful Nuclear Cooperation (123 Agreements), Senate Foreign Relations Committee, January 30, 2014, p. 12, [http://www.foreign.senate.gov/imo/media/doc/Countryman\\_Testimony2.pdf](http://www.foreign.senate.gov/imo/media/doc/Countryman_Testimony2.pdf).

assurance by the United States that it would ensure a nuclear fuel supply for Vietnam.<sup>36</sup> Although Vietnam apparently does not forswear ENR in the text of its 123 agreement, neither does the United States grant advance consent for those activities, according to the Administration. As a result, Vietnam could not enrich or reprocess U.S.-obligated nuclear materials<sup>37</sup> without specific future U.S. consent.<sup>38</sup>

## **U.S.-Vietnam Nuclear Cooperation in Context**

### **Bilateral Relations**

In recent years, overlapping strategic and economic interests have led the United States and Vietnam to improve relations across a wide spectrum of issues.<sup>39</sup> Obama Administration officials identify Vietnam as one of the new strategic partners they are cultivating as part of their “rebalancing” of U.S. priorities toward the Asia-Pacific, a move commonly referred to as the United States’ “pivot” to the Pacific. In July 2013, President Obama and his Vietnamese counterpart, President Truong Tan Sang, announced in Washington, DC, a bilateral “comprehensive partnership” that is to provide an “overarching framework” for moving the relationship to a “new phase” in many areas, including science and technology cooperation in the field of nuclear energy.<sup>40</sup>

The United States and Vietnam share a concern over the rising strength of China, and they have cooperated in opposing China’s perceived attempts to assert its claims to disputed waters and islands in the South China Sea. In December 2013, Secretary of State John Kerry in Vietnam announced that the United States would be providing Vietnam with \$18 million in assistance, including five fast patrol vessels, to enhance Vietnam’s maritime security capacity.

The rise in bilateral economic ties also has strengthened the countries’ interests in each other. Bilateral trade in 2013 was over \$29 billion, nearly a 20-fold increase since the United States extended “normal trade relations” (NTR) treatment to Vietnam in 2001. The United States and Vietnam are 2 of 12 countries negotiating a Trans-Pacific Partnership (TPP) trade agreement.<sup>41</sup> In order for the TPP agreement to go into effect, both houses of Congress would have to pass

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<sup>36</sup> Daniel Horner, “U.S. Policy on Nuclear Pacts Detailed,” *Arms Control Today*, January/February 2014. [http://armscontrol.org/act/2014\\_01-02/US-Policy-on-Nuclear-Pacts-Detailed](http://armscontrol.org/act/2014_01-02/US-Policy-on-Nuclear-Pacts-Detailed)

<sup>37</sup> U.S.-obligated nuclear materials are nuclear materials transferred from the United States, as well as special nuclear material produced overseas through the use of U.S.-supplied nuclear material or reactors. Even if the reactor is partially supplied by the United States, the resulting spent fuel would be U.S.-obligated. Australia has similar conditions on its uranium exports.

<sup>38</sup> Controversy over the Vietnam ENR provisions, therefore, is different from the controversy over a new 123 agreement that is currently being negotiated with South Korea, which is seeking U.S. advance consent for ENR activities within South Korea. Vietnam did not seek such consent. The United States has not publicly pressed South Korea to forswear enrichment and reprocessing in its new 123 agreement.

<sup>39</sup> See also CRS Report R40208, *U.S.-Vietnam Relations in 2013: Current Issues and Implications for U.S. Policy*, by Mark E. Manyin.

<sup>40</sup> The White House, “Joint Statement by President Barack Obama of the United States of America and President Truong Tan Sang of the Socialist Republic of Vietnam,” July 25, 2013.

<sup>41</sup> For more on U.S.-Vietnam economic relations, see CRS Report R41550, *U.S.-Vietnam Economic and Trade Relations: Issues for the 113<sup>th</sup> Congress*, by Michael F. Martin.

implementing legislation.<sup>42</sup> The Obama Administration has also increased the priority given to cleaning up sites contaminated by Agent Orange/dioxin used by U.S. troops during the Vietnam War, an issue that several Members of Congress have championed.<sup>7</sup>

The U.S.-Vietnam nuclear cooperation agreement has been the end-goal of engagement in the nuclear field since the 2010 Memorandum of Understanding and is seen by many as expanding another bridge in the growing network of links between the two countries. Thus, those who question the direction, extent, or pace of recent improvements in U.S.-Vietnam relations may oppose the 123 agreement. A rejection of the agreement by Congress could have an impact on future U.S.-Vietnamese cooperation, including in the nuclear area, and could be interpreted by the Vietnamese as a symbolic rebuke of the new U.S.-Vietnam comprehensive partnership.

## **Human Rights Issues**

The biggest obstacle to the two countries taking a dramatic step forward in their relationship is disagreement over Vietnam's human rights record. For more than a decade and a half, the ruling Vietnamese Communist Party (VCP) appears to have followed a strategy of permitting most forms of personal and religious expression while selectively repressing individuals and organizations that it deems a threat to the party's monopoly on power. For the past several years, according to many observers, repression against dissenters and protestors has worsened. The government increasingly has targeted bloggers and lawyers who represent human rights and religious freedom activists, particularly those linked to a network of pro-democracy activists. Many of the targeted blogs, bloggers, and lawyers have criticized Vietnam's policy toward China or have links to pro-democracy activist groups.

In November 2013, the United Nations General Assembly elected Vietnam to a seat on the United Nations Human Rights Council. That same month, Vietnam's National Assembly ratified new amendments to the country's constitution. Many voices called for lessening the VCP's role in society and policy. However, according to many observers, the final changes did little to weaken the Party's and the government's monopoly on power and legal ability to deny basic freedoms. Some sources argued the changes strengthened the VCP's authority and that new clauses added to protect basic rights were negated by other provisions in the revised constitution.<sup>43</sup>

## **Human Rights in U.S.-Vietnam Relations**

As was true of their predecessors, Obama Administration officials have continuously expressed concerns—including via public criticisms—about human rights in Vietnam. Additionally, the two countries reportedly have often disagreed in the formal human rights dialogue that generally occurs every year. In general, however, bilateral differences over human rights have not prevented the United States and Vietnam from improving the overall relationship. Barring a dramatic

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<sup>42</sup> Additionally, during the TPP negotiating process, Congress has a formal and informal role in influencing U.S. negotiating positions, including through the process of granting new trade promotion authority (TPA) to the President. TPA, which expired in 2007, is the authority that Congress gives to the President to negotiate trade agreements that would receive expedited legislative consideration. In January 2014, legislation to renew TPA was introduced in the House (H.R. 3830) and in the Senate (S. 1900). For more on TPA, see CRS Report RL33743, *Trade Promotion Authority (TPA) and the Role of Congress in Trade Policy*, by William H. Cooper.

<sup>43</sup> See, for instance, Human Rights Watch, "Vietnam: Amended Constitution a Missed Opportunity on Rights," December 3, 2013.

downturn in Vietnam's human rights situation, U.S. officials appear to see the matter not as an impediment to short-term cooperation on various issues, but rather as a ceiling on what might be accomplished in the longer term.

Over the past five years, criticisms of Vietnam's human rights record, including from Members of Congress, appear to have played a significant role in convincing the Administration to delay or oppose a number of items desired by Hanoi. Additionally, concerns about Vietnam's human rights record are likely to complicate Congress' debate over a TPP agreement, if the current negotiations are successful.<sup>44</sup> It is unclear to what extent the Obama Administration has attempted to link the TPP negotiations directly to Hanoi making changes in its human rights conditions. Analysts offer different opinions about the extent to which such U.S. pressure would affect Vietnam's domestic policies, particularly when many in the Vietnamese polity view expressions of dissent as an existential threat to the current regime.

Differences over human rights do not appear to have spilled over into the 123 agreement negotiations between the two governments. Human rights activists and other Vietnam watchers have argued that the United States should not advance bilateral ties with Vietnam on any level, including a nuclear cooperation agreement, until progress is made on the human rights agenda. Since Vietnam has other commercial partners in the nuclear energy field, however, a delay or lack of agreement with the United States would not be likely to have a significant impact on its nuclear energy plans.

## **Role of Congress and Legislation**

The nuclear cooperation agreement is expected to comply with all the terms of the Atomic Energy Act as amended and therefore will be a "non-exempt" agreement. This means that it will enter into force upon the 90<sup>th</sup> day of continuous session after its submittal to Congress (a period of 30 plus 60 days of review) unless a Joint Resolution disapproving the agreement is enacted.<sup>45</sup>

Members of Congress have weighed in on the debate over the U.S.-Vietnam nuclear cooperation agreement and section 123 agreements generally. In December 2013, Representatives Ileana Ros-Lehtinen and Brad Sherman introduced a bill (H.R. 3766) that would strengthen congressional approval procedures for agreements that did not include certain nonproliferation standards, including the pledge not to enrich or reprocess. The Senate Foreign Relations Committee held a hearing on January 30, 2014, on section 123 agreements. Debate during the hearing spent some time on the issues surrounding the Vietnam nuclear cooperation accord. Some Senators said that a human rights bill on Vietnam would need to be passed if a nuclear cooperation agreement was to go forward.

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<sup>44</sup> During a December 16, 2013, joint press appearance with Vietnamese Foreign Minister Pham Binh Minh in Hanoi, Secretary Kerry said about Vietnam's human rights conditions that "I made it clear that TPP, the 123 agreement, the congressional readiness to move forward on any number of initiatives will be, obviously, affected by the degree of progress [on human rights] that is perceived." State Department, "Joint Press Availability With Vietnamese Deputy Prime Minister and Foreign Minister Pham Binh Minh," Government Guest House, Hanoi, Vietnam, December 16, 2013.

<sup>45</sup> For detailed information, see CRS Report RS22937, *Nuclear Cooperation with Other Countries: A Primer*, by Paul K. Kerr and Mary Beth D. Nikitin.



As required by section 123b of the Atomic Energy Act, the President announced in February 2014 his determination that a nuclear cooperation agreement with Vietnam “will promote, and will not constitute an unreasonable risk to, the common defense and security.”<sup>46</sup> The next step is for the White House to transmit a package of documents to the Senate Foreign Relations Committee and the House Foreign Affairs Committee, to include the text of the agreement itself, a Nonproliferation Assessment statement (unclassified and classified), the Presidential determination, and letters of concurrence by the Secretaries of Energy and State, and the Nuclear Regulatory Commission Chairman. Once those have been received, the first review period of 30 days of continuous session begins, to be followed by another 60 days of review. Members of Congress may introduce resolutions of disapproval (or approval) during this time. If no resolution of disapproval is passed into law, then the agreement will automatically enter into force after the 90-day review period is concluded.

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<sup>46</sup> <http://www.whitehouse.gov/the-press-office/2014/02/24/presidential-determination-proposed-nuclear-agreement-vietnam>