

POLICY PERSPECTIVES

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The U.S.-UAE Peaceful Nuclear Cooperation Agreement: A Gold Standard or Fool's Gold?

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It is hard to know what is more disturbing—Iran's continued defiance of UN Security Council Resolutions ordering Tehran to cease its uranium enrichment activities and to cooperate with the International Atomic Energy Agency (IAEA), or the tour that North Korea recently gave to U.S. scientists of its new uranium enrichment plant. Policymakers fear that these programs will enable these states to produce more fissile materials for nuclear weapons.

Restraining the spread of reprocessing and enrichment capabilities must be a fundamental component of any nuclear nonproliferation policy. In past decades, the United States pursued policies that proved reasonably effective in limiting the dispersion of these capabilities. However, recent U.S. proposals to deny these technologies to certain classes of states have generated strong opposition and widespread suspicions that the United States is trying to expand disparities between nuclear haves and have-nots. The United States may now be on the verge of embarking upon a new and unilateral initiative to require U.S. nuclear trade partners to undertake a legal commitment to forswear enrichment and reprocessing technology as a condition of U.S. nuclear supply—a policy that has been described as “the gold standard” for future U.S. civil nuclear agreements. Such a policy risks depriving the United States of what has been an important tool for promoting its nonproliferation interests and threatens to damage the prospects of using other tools that are likely to be more effective.

**Past Policies**

Enrichment and reprocessing plants produce fuel for nuclear reactors, but they can also produce nuclear materials—highly enriched uranium and plutonium—that may be used directly in nuclear weapons. These facilities are challenging and expensive for the IAEA to inspect. In addition, the presence of weapons-usable materials offer tempting targets for terrorists bent on acquiring nuclear weapons.

For these reasons, the United States has long sought to prevent the spread of these technologies by using diplomatic strategies and export controls that proved reasonably effective, if not perfect. In the 1970s, the United States put in place stringent controls on U.S. exports of enrichment and reprocessing and convinced European suppliers to abandon plans to transfer reprocessing technology to Pakistan, South Korea, and Taiwan because of the proliferation risks they entailed. However, when the Carter administration tried to press major industrial states with large nuclear programs to halt their reprocessing plans, such as those in Japan and EURATOM, it produced strong resistance from these countries and tense relations between the United States and its closest allies. Ultimately, the Carter policy had to be modified and eventually abandoned. Nevertheless, the United States was also able to forge agreement among the Nuclear Suppliers Group (NSG)—now numbering the 46 major nuclear exporting countries—to exercise restraint and impose special constraints on transfers of enrichment and reprocessing technologies. In subsequent years, a small number of countries such as Pakistan and Iraq acquired sensitive nuclear facilities through illicit procurement methods, while a few others like Argentina and South Africa built such capabilities largely on their own. However, for the past 30 years, no member of the NSG has transferred enrichment or reprocessing technologies to countries that did not already possess these capabilities. Today only a few countries possess enrichment or reprocessing plants, and

these either already have nuclear weapons or have made comprehensive nonproliferation commitments. With the possible exception of South Korea, no countries have expressed specific, near-term interest in acquiring enrichment or reprocessing in the foreseeable future.

Denial Initiatives and Pushback

In recent years, two developments have changed the dynamics of this issue. First, the Pakistani network of A.Q. Khan and North Korea used clandestine and illicit methods to transfer sensitive nuclear technologies to such countries as Iran, Libya, and Syria to advance their nuclear weapons ambitions. Second, the growing interest in civil nuclear power around the globe has led to fears that some countries may seek enrichment and reprocessing capabilities.



These concerns have led to new U.S. strategies to combat the risks of enrichment and reprocessing. Some of these can be effective. For example, devoting greater resources to intelligence collection on clandestine nuclear transfers and strengthened interdiction efforts, such as the Proliferation Security Initiative, offer the promise of preventing illicit transfers of sensitive nuclear technology. The establishment of enhanced nuclear fuel assurances, such as an international fuel bank, could provide some incentive for small countries to avoid wasting their limited resources on costly national enrichment capabilities in order to be assured of reliable nuclear fuel supplies.

However, other initiatives the United States has pursued have run into strong opposition, led to charges of discrimination, and created suspicions about U.S. intentions. The first initiative was the February 2004 proposal of President George W. Bush that (a) the members of the NSG should refuse to sell enrichment and

reprocessing equipment and technologies to any state that does not already possess full-scale, functioning enrichment and reprocessing plants and (b) the world's leading nuclear exporters should ensure that states have reliable access at reasonable cost to fuel for civilian reactors, so long as those states renounce enrichment and reprocessing. Members of the NSG rejected the first proposal. Among other things the ban would have applied to most NSG members themselves, a proposition they found unacceptable. Nonnuclear-weapon states that are party to the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) denounced both proposals as assaults on their sovereign rights and their rights as set out in article IV of the NPT for access to peaceful nuclear technology without discrimination.

The United States also proposed the Global Nuclear Energy Partnership (GNEP), a key component of which was to divide the world into so-called fuel-cycle states and reactor states—the latter category to consist of states that did not possess enrichment or reprocessing capabilities. Nonnuclear-weapon states and developing countries saw U.S. proposals as blatant efforts to divide the nuclear world into two separate but unequal parts, as a repudiation of the basic bargain of the NPT and as a tactic to widen the divide between nuclear haves and have-nots.

In response to these reactions, the United States began to take a slightly more flexible position by allowing that consumer states could take advantage of new fuel supply assurances as long as they had not built enrichment or reprocessing facilities, without renouncing any of their rights. By 2008, the United States abandoned its efforts for a new NSG guideline banning transfers of enrichment and reprocessing and agreed to go along with a more flexible criteria-based approach for governing transfers of these technologies. But lingering suspicions and NSG members' rejection of any scheme that would threaten their rights to nuclear technology has made agreement thus far impossible even on the more moderate criteria-based approach. Consensus on these new criteria may eventually emerge, but it will not entail a prohibition on transfers of enrichment and reprocessing to states that do not already possess such capabilities. Similarly neither the Russian arrangement for guaranteed reserves of low-enriched uranium at its international nuclear center in Angarsk, which has already been approved by the IAEA Board of Governors, nor the international nuclear fuel bank under consideration by the board will require potential users to forgo enrichment and reprocessing.

The opposition to any effort to deny enrichment and reprocessing to NPT states has been most vocal among developing countries who view such efforts as a form of

nuclear apartheid and a scheme to relegate them to a position of technical inferiority. The Non-Aligned Movement (NAM) made its concerns known in strongly worded statement in a working paper submitted to the 2010 NPT Review Conference, which emphasized:

[T]he Treaty does not prohibit the transfer or use of nuclear equipment or material for peaceful purposes based on their “sensitivity,” and only stipulates that such equipment and material must be subject to full-scope IAEA safeguards.

The final document of the 2010 NPT Review Conference reaffirmed the inalienable rights of parties to the treaty to nuclear energy for peaceful purposes. It also stated:

[E]ach country’s choices and decisions in the field of peaceful uses of nuclear energy should be respected without jeopardizing its policies for international cooperation agreements and arrangements for peaceful uses of nuclear energy and its fuel cycle choices.

Opposition to efforts to ban transfers of enrichment and reprocessing come not only from developing countries but also from advanced industrialized countries, nonnuclear-weapon states and nuclear-weapon states. Nonnuclear-weapons states party to the treaty take the position that article IV of the NPT entitles a party to acquire its own independent fuel cycle, including enrichment and reprocessing, so long as it fully abides by the nonproliferation obligations of the treaty. Moreover, while most states may not have specific plans to build enrichment or reprocessing plants in the foreseeable future, they refuse to foreclose the opportunity for acquiring such technology either to help meet their own nuclear fuel needs or to provide enrichment or reprocessing services in the international market.

New Directions and New Confusion

President Barack Obama seemed to have recognized the fissures in the international community that past U.S. initiatives had caused and sought to repair the damage. In his nonproliferation speech in Prague on April 5, 2009, he said,

And we should build a new framework for civil nuclear cooperation, including an international fuel bank, so that countries can access peaceful power without increasing the risks of proliferation. That must be the right of every nation that renounces nuclear weapons, especially developing countries embarking on peaceful programs. And no approach will succeed if it's based on the denial of rights to nations that play by the rules.

Under Secretary of State for Arms Control and International Security Ellen Tauscher elaborated on this

theme in her remarks at Stanford University on January 19, 2010, when she stated,

The previous administration proposed to ban these technologies for states that do not already possess them. The problem was that all other countries opposed this approach because they viewed it as an infringement on their sovereignty and on their Non-Proliferation Treaty rights to peaceful nuclear technology. Moreover, the very insistence that others not obtain such capabilities increased demand for them by creating the impression that we are seeking to establish a suppliers’ cartel. Instead of reassurance, this had the opposite effect.

As President Obama said in Prague, “no approach will succeed if it’s based on the denial of rights to nations that play by the rules.” So the administration is focusing on creating incentives for states considering nuclear energy to choose not to pursue sensitive fuel cycle technologies.

However, the Obama administration has been sending mixed signals on this issue and does not seem to be of one mind on what to do next. In 2009, the United States concluded a bilateral agreement for cooperation with the United Arab Emirates (UAE) that contained a UAE obligation not to possess enrichment and reprocessing technologies. Article 7 of the U.S.-UAE agreement explicitly provides that,

The United Arab Emirates 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 alteration in form or content, (except by irradiation or further irradiation or, if agreed to by the parties, post-irradiation examination) of plutonium, uranium 233, high enriched uranium, or, if agreed to by the parties, irradiated source or special fissionable material.

This is the first time that a cooperating partner of the United States has made a legal commitment in a peaceful nuclear cooperation agreement to forgo enrichment and reprocessing. The agreed minute to the UAE agreement contains most-favored-nation-treatment clause in the event the United States were to negotiate an agreement with another state in the Middle East that contained more favorable terms,¹ suggesting that the United States is

¹ The agreed minute to the U.S.-UAE agreement provides, “The Government of the United States of America confirms that the fields of cooperation, terms and conditions accorded by the United States of America to the United Arab Emirates for cooperation in the peaceful uses of nuclear energy shall be no less favorable in scope and effect than those which may be

seeking to establish the U.S.-UAE agreement as the model for U.S. peaceful nuclear cooperation agreements with other states in the Middle East.²

However, the position that the Obama administration should take on requiring future cooperating partners to forswear enrichment and reprocessing seems the subject of considerable confusion and disarray. Administration spokespersons have dubbed the UAE agreement the “gold standard” for agreements. Some congressional staff members told the press that administration officials first said that the restrictions on enrichment and reprocessing in the UAE agreement would be the model for all future agreements and then subsequently disavowed this. (Administration officials have denied this.) In any event the administration is not of one mind on this issue and appears to be in a debate on whether to make the U.S.-UAE agreement a model for agreements only with the countries in the Middle East, for future U.S. agreements with all countries, or some undefined mix of strategies.

However divided and confused the Obama administration may appear on this issue, there seems little doubt what key members of the House Foreign Affairs Committee (HFAC) want to do. At a September 24, 2010, HFAC hearing, Chairman Howard Berman (D-CA) and Ranking Minority Member (and soon to be Chairperson) Ileana Ros-Lehtinen (R-FL) signaled in no uncertain terms their intention to introduce legislation that would mandate that future agreements conform to the provisions of the U.S.-UAE agreement, namely obliging all future cooperating partners to legally forswear enrichment and reprocessing.

The United States is presently negotiating agreements with Vietnam and Jordan. Both countries are resisting an undertaking to forswear enrichment and reprocessing. Several members of the House of Representatives have

accorded, from time to time, to any other non-nuclear-weapon State in the Middle East in a peaceful nuclear cooperation agreement. If this is, at any time, not the case, at the request of the Government of the United Arab Emirates the Government of the United States of America will provide full details of the improved terms agreed with another non-nuclear-weapon State in the Middle East, to the extent consistent with its national legislation and regulations and any relevant agreements with such other non-nuclear weapon State, and if requested by the Government of the United Arab Emirates, will consult with the Government of the United Arab Emirates regarding the possibility of amending this Agreement so that the position described above is restored.”

² Ironically, the United States concluded a nuclear cooperation agreement with Egypt in 1981 that contained no Egyptian renunciation of enrichment and reprocessing technology, but had a similar most-favored-treatment clause.

demanded that both agreements include such requirements.³

However well intentioned this new approach may be, it is, for a number of reasons, seriously misguided and threatens serious damage to U.S. nonproliferation interests.

Challenging Countries’ Rights Will only Backfire

The UAE agreed to a ban on enrichment and reprocessing for its own reasons. These may be unique but probably include a perception that, as the first state in the strife-torn Middle East (opposite Iran) to acquire civilian nuclear power, the UAE had to walk the proverbial extra mile. Other states are not likely to view the issues in the same way. States often value the conclusion of an agreement with the United States as a validation of their nonproliferation credentials. But they are not likely to renounce their rights for this perceived benefit. NPT parties of all stripes view demands to forswear enrichment and reprocessing as a threat to their rights under the treaty. This was most recently made clear during negotiations between the United States and Jordan on a new peaceful nuclear cooperation agreement. The Obama administration has been trying to persuade Jordan to agree to follow the example of the UAE and commit to abstain from domestic enrichment and reprocessing. However, Jordanian officials have made clear in a very public way that Amman will not forfeit its right to enrich uranium. Khaled Toukan, chairman of the Jordan Atomic Energy Commission, told the press: “We believe in the universality of the NPT. We do not agree on applying conditions and restrictions outside of the NPT on a regional basis or a country-by-country basis.”⁴

The United States has never supported the view that, regardless of the sensitivity of their national situations, parties to the NPT have an inherent right to acquire enrichment and reprocessing plants. Nor has the United States taken the position that article IV of the treaty obliges supplier states to share enrichment and reprocessing technologies. However, until now we have never asked NPT parties to forgo their rights under article IV. It is useful to recall the remarks of then-Director of the Arms Control and Disarmament Agency William Foster during the Senate hearings on the ratification of the NPT in 1968, in which he said,

It may be useful to point out, for illustrative purposes, several activities which the United States would not

³ “Obama Deputies to Debate Nuclear Trade Terms,” *Global Security Newswire*, October 8, 2010.

⁴ Jay Solomon, “Jordan’s Nuclear Ambitions Pose Quandary for the U.S.,” *Wall Street Journal*, June 14, 2010.

consider per se to be violations of the prohibitions in Article II. Neither uranium enrichment nor the stockpiling of fissionable material in connection with a peaceful program would violate Article II so long as these activities were safeguarded under Article III. Also clearly permitted would be the development, under safeguards of plutonium fueled power reactors, including research on the properties of metallic plutonium, nor would Article II interfere with the development or use of fast breeder reactors under safeguards.⁵

One can argue that times have changed and that the further spread of enrichment and reprocessing facilities will put great strains on the nonproliferation regime. However, the NPT represents a delicate bargain in which nonnuclear-weapon-state parties to the treaty agreed to forswear the manufacture and acquisition of nuclear weapons and accept IAEA safeguards on all their peaceful nuclear activities in exchange for the right to obtain the full benefits of the peaceful uses of nuclear energy. Several parties to the treaty take the position that article IV entitles a party in good-standing to acquire its own independent fuel cycle, including enrichment and reprocessing, so long as it fully abides by the treaty's provisions.

As recent years have shown, pressing countries to forswear what they regard as their sovereign rights as states and their rights as enshrined in the NPT, or banning transfers of enrichment and technology except to existing technology holders, stiffens the resolve of states to resist such demands and leads to discord and acrimony, hardly a recipe for building a consensus on strengthening the nonproliferation regime. Preventing the spread of enrichment and reprocessing requires a different approach.

“Look over your shoulder now and then to be sure someone is following you.”

As noted earlier, some have characterized the U.S.-UAE agreement as a “gold standard” and as a model for future U.S. agreements. The United States clearly needs to take a leadership role in preventing the risks of the spread of sensitive nuclear technologies. But we should remember the adage that if you are trying to lead, you should, “Look over your shoulder now and then to be sure someone’s following you.” (Henry Gilmer). The widespread

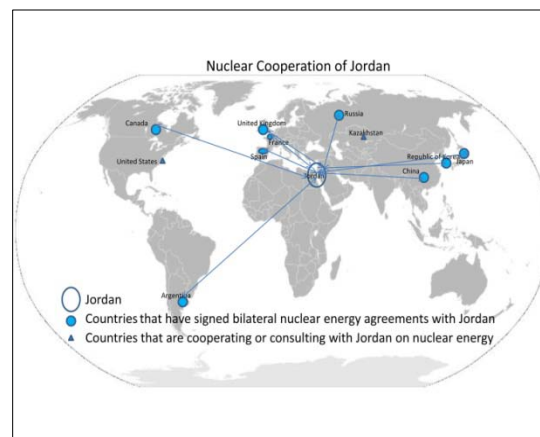
⁵ “Extension of Remarks by Mr. Foster in Response to Question Regarding Nuclear Explosive Devices,” Hearings before the Committee on Foreign Relations, U.S. Senate on the Treaty on the Nonproliferation of Nuclear Weapons, July 10, 11, 12, and 17, 1968, p. 39.

opposition to the Bush proposal in the NSG demonstrates that none of the other major nuclear suppliers are willing to ban transfers of enrichment and reprocessing to countries that do not already have such capabilities. While suppliers have been cautious about exporting such technologies and most consumers have shown no immediate interest in acquiring these capabilities, there is no evidence that nuclear-weapon states, nonnuclear-weapon states, industrialized countries, or developing nations support the notion that countries in good nonproliferation standing should be pressed to undertake a legal obligation to abstain from enrichment and reprocessing. Other suppliers are simply not going to impose the UAE model on their cooperating partners.

“The Rise of the Rest”

In his insightful book, *The Post-American World*, Fareed Zakaria wrote that we are living through a great power shift, which he dubbed “the rise of the rest,” in which the distribution of industrial, financial, social, and cultural power is moving away from American dominance. This is true in spades in international civil nuclear affairs. In the 1950s and 1960s, the United States was in effect the monopoly supplier of nuclear materials, equipment, and technology, and it remained a major player for some years after that. Now the United States is one among many nuclear suppliers and not even a major one at that.

Let’s look at some of the facts of today’s international nuclear market, particularly in those countries that are embarking on new nuclear programs.



- Algeria—Algeria has nuclear energy agreements with Argentina, China, and France and has been in talks with Russia and South Africa. (The United States has no agreement with Algeria.)
- Jordan—Jordan has signed nuclear cooperation agreements with nine countries: Japan, France, Spain, China, South Korea, Canada, Russia, the United

Kingdom, and Argentina. Rosatom has recently proposed a partnership model for construction of a nuclear power plant in Jordan. According to Khaled Toukan, chairman of the Jordan Atomic Energy Commission, the government of Jordan and Rosatom agreed on a partnership model for nuclear power plant construction. Toukan told the *Nuclear Industry Reporter* that Jordan is currently considering three partners for the construction, among them Rosatom, a Canadian company introducing the Canada Deuterium Uranium (CANDU) reactor design, and the AREVA of France.⁶

- Egypt—Egypt has invited tender from AREVA and engineering group Alstom and Westinghouse Electric Co. for its first nuclear power plant. Egypt has an agreement with the United States, but it contains only a pledge that Egypt will not reprocess U.S.-supplied material in country.
- Qatar—French electricity giant EDF signed a memorandum with Qatar in early 2008 for cooperation on development of a peaceful civilian nuclear power program.
- Saudi Arabia—Last summer the Saudi cabinet agreed to sign a nuclear cooperation accord with France. Saudi Arabia also announced a joint initiative with Japan's Toshiba and American firms the Shaw Group and Exelon to build and operate at least two nuclear power plants in the country. Saudi Arabia is also discussing a nuclear power deal with Russia.
- Turkey—Korea's state-run Korea Electric Power Corporation reached a preliminary agreement with Turkish state power company EUAS in March 2010 to jointly bid for the contract to build a \$20-billion nuclear power plant. These talks have apparently hit a snag, and Turkey is now talking to Toshiba about a possible bid. The United States has an agreement for cooperation with Turkey that does not contain a Turkish commitment to abstain from enrichment and reprocessing.
- UAE—The UAE has concluded a \$20-billion deal for four nuclear plants with Korea Electric Power Corporation. Losing out were General Electric and France's AREVA.
- Vietnam—Russia and Vietnam signed a \$5.6-billion deal on October 31, 2010, to build two Russian VVER 1,000-megawatt (MW) reactors. Russia will also be supplying nuclear fuel for the new Vietnamese reactors, as well as removing it for

⁶ "U.S. nuclear supply chain spools up," Nuclear Blog, July 19, 2010, <http://www.coolhandnuke.com/Cool-Hand-Blog/article/Type/ArticleView/articleId/44/US-nuclear-supply-chain-spools-up.aspx>.

reprocessing. Japan is also closing a deal with Vietnam for two new reactors. The United States has yet to complete negotiations on an agreement with Vietnam.

- Bangladesh—Russia signed up the first nuclear plant in Bangladesh this year.

China, India, and Japan are also poised to enter the international market.⁷

The United States Has Some Catching Up to Do

What this brief, if incomplete, survey demonstrates is the United States is today only one among many nuclear suppliers. No new nuclear plant orders have been placed in the United States for over 30 years, leading to a serious erosion of the U.S. nuclear infrastructure. In fact U.S. nuclear capabilities have so deteriorated in the last decades that the United States will have to make up a lot of ground to compete effectively in the international nuclear market. Most of the U.S. nuclear manufacturing base and trained manpower have disappeared. One report on the state of the U.S. nuclear industry concluded that construction of the first several new units in the United States would have to rely on foreign-supplied major components. The report concluded that "major equipment (reactor pressure vessels, steam generators and moisture separator reheaters) for the near-term deployment of [new] units would not be manufactured by United States facilities." The same report found that "reactor pressure vessel (RPV) fabrication could be delayed by the limited availability of the large nuclear-grade forgings that are currently only available from one Japanese supplier (Japan Steel Works, Limited)."⁸ The only country that presently makes the ultra heavy forgings that are required for large reactor pressure vessels is Japan. South Korea, India, and the United Kingdom are building large forge manufacturing capabilities. The United States is not.

If it wants to compete, then U.S. suppliers will need to build new manufacturing capabilities for components such as steam generators, pressurizers, coolant pumps, control rod drive mechanisms etc. The United States is developing these capabilities with the help of foreign

⁷ Christopher Stephens, "America's Asian Nuclear Challenge," *Wall Street Journal*, November, 10, 2010; "Japan agrees to Middle Eastern cooperation," *World Nuclear News*, September 9, 2010; Ayesha Daya, "Japan Nuclear Venture to Target Mideast If Vietnam Expansion Is Successful," Bloomberg, August 9, 2010; "Thorium-fuelled exports coming from India," *World Nuclear News*, September 17, 2009.

⁸ DOE NP 2010 Nuclear Power Plant Construction Infrastructure Assessment, October 21, 2005, MPR-2776, p. 2-2.

firms such as AREVA.⁹ During the 1960s, the United States supplied virtually 100 percent of the Western market for uranium enrichment services. Today the U.S. enrichment company, USEC, has a world market share of less than 30 percent of the uranium enrichment market. The world has other enrichment suppliers—AREVA, Russia, URENCO. Foreign firms are also helping to increase U.S.-based enrichment capacity. All but one of the U.S. nuclear steam supply system and nuclear fuel designers and manufacturers for light water reactors have now been acquired by their non-U.S.-based competitors.¹⁰

On November 14, 2010, a number of experts in the nonproliferation field wrote the president urging him not to provide “US federal energy loan guarantees, federal contracts, or other subsidies or assistance to help foreign government-backed nuclear firms expand their nuclear business in the US unless they have committed to apply the nonproliferation standards (including with respect to enrichment and spent fuel recycling) established in the U.S.-United Arab Emirates (UAE) civilian nuclear cooperation agreement in all of their future civilian nuclear cooperation agreements.”¹¹ However, any such proposal would not only compromise our ability to rebuild our own nuclear industry and to compete in the international market, but it would also alienate close allies whose cooperation is essential for strengthening the global nonproliferation regime.

⁹ “U.S. nuclear supply chain spools up,” Nuclear Blog.

¹⁰ Exxon Nuclear (Richland, WA) was acquired by Siemens (Germany); the nuclear services and commercial fuel businesses of the Babcock & Wilcox Company (Lynchburg, VA) were acquired by Framatome (AREVA-France); then Siemens and Framatome formed a joint venture that is effectively controlled by AREVA. Combustion Engineering (Windsor, CT) and Westinghouse (Pittsburgh, PA, and Columbia, SC) were acquired by BNFL (United Kingdom) and most recently by Toshiba (Japan) in partnership with the Shaw Group (Baton Rouge, LA). General Electric Company (Wilmington, NC) formed Global Nuclear Fuel, retaining 51 percent ownership, while Hitachi and Toshiba (Japan) hold the balance. See Bengelsdorf, McGoldrick and Associates, *The U.S. Domestic Civil Nuclear Infrastructure and U.S. Nonproliferation Policy* (Washington, D.C.: American Council on Global Nuclear Competitiveness, May 2007), http://www.nuclearcompetitiveness.org/images/COUNCIL_WHITE_PAPER_Final.pdf.

¹¹ “Bipartisan Group to Prez: Block Edf-Areva Nuclear Loan Guarantees if France Refuses to Support America’s Global Nonproliferation,” Nonproliferation Policy Education Center, November 14, 2010, <http://www.npolicy.org/node/1379>.

In sum, the United States is facing an uphill battle to compete in the international nuclear market and cannot dictate nonproliferation conditions that others will find unacceptable. Nations embarking on new nuclear programs do not need to rely on the United States for their nuclear fuel, equipment, components, or technology. They have alternatives and lots of them, as other states with nuclear programs have steadily built up their nuclear export capacities, which in some cases are state run or state supported.

“Sanctions always accomplish their principal objective, which is to make those who impose them feel good.”

The statement above was made by a retired U.S. official named Douglas Paal to David Ignatius of the *Washington Post*. The statement may have a touch of cynicism, since sanctions can make an important contribution to nonproliferation and other foreign policy goals. However, there is a core truth to Paal’s statement, and that truth can be applied to a U.S. nonproliferation policy that insists that other states forswear their rights to enrichment and reprocessing. It may make some in Washington feel good, but it will only destroy U.S. goodwill, create discord, and alienate allies and countries whose cooperation we will need to promote our nonproliferation agenda.

Can We Put the Toothpaste Back in the Tube?

If the United States seeks as a matter of law or policy to impose an UAE-type ban on enrichment and reprocessing in its nuclear cooperation agreements, it will have to grapple with some tough questions about its existing agreements. The United States presently has agreements with 22 individual countries plus Taiwan, as well as agreements with the European Atomic Energy Agency (and its 27 member states) and the International Atomic Energy Agency. These range from advanced, industrialized countries in Europe and Japan to developing nations from the Middle East, South America, and Asia that have not yet launched civil nuclear power programs (e.g., Bangladesh, Columbia, Egypt, Morocco, Peru, Thailand, and Turkey). None of them contains a UAE-type ban on enrichment or reprocessing, although they do contain U.S. rights to consent to enrichment and reprocessing of materials subject to those agreements. A few of these recently entered into effect without any objections from Congress. Do we grandfather existing agreements? If so, how do we explain to other countries the rationale for such discrimination between old and new agreements? Or, do we try to renegotiate existing agreements to incorporate a ban on enrichment and reprocessing? And if so, what are the chances that any of them would agree to such an amendment? What will

happen when these agreements expire? What incentive would these states have to negotiate replacement agreements that contain a legal pledge to forswear enrichment and reprocessing? Is it possible to come up with coherent answers to these questions, and how do we explain them to the rest of the world?

A New Strategy—One Size Does Not Fit All

A nonproliferation strategy must rely on a mix of tools. We have to take a tough and unrelenting stance in dealing with states like North Korea and Iran that violate international nonproliferation norms. We need to employ a wide range of tools, including carrots and sticks, diplomatic isolation, sanctions, and if justified, legally sanctioned and cost-effective, perhaps even preemptive, military action to deal with countries that seek enrichment and reprocessing technologies as a cover for nuclear weapons programs. And we should intervene aggressively on the diplomatic front in those cases where the acquisition of such capabilities would present an unacceptable proliferation risk.

However, building the elements of an effective global nonproliferation regime requires cooperation and consensus building, not confrontation or insistence that countries renounce what they regard as their legitimate rights and economic interests. Recent policies have led to deep and widespread suspicions about U.S. intentions. So we have a lot of work to do to rebuild trust and clarify our motivations. We need to work closely with other countries to construct effective nonproliferation structures, including systems for limiting the risks of enrichment and reprocessing. Perhaps other countries for their own reasons may choose to follow the UAE model and forswear enrichment and reprocessing or perhaps state their intention not to acquire such capabilities. However, these are likely to be few in number. We need to propose strategies that most countries can embrace, endorse, and support.

We do not suffer from a paucity of good ideas, but implementing them will require significant effort. Following are some recommendations.

- We should continue to promote credible and effective international fuel assurance schemes.
- We should be working to placing enrichment and reprocessing plants under some form of multinational auspices or control as advocated by former IAEA Director General Mohamed El Baradei. Enrichment technology holders could invite states to participate in multinational enrichment plants with policymaking roles but without access to classified technology. Russia has done this with its enrichment facility at Angarsk. Other enrichment enterprises, such as

AREVA, URENCO, and USEC, could offer small countries the opportunity to participate in their enrichment plants without according them access to sensitive technology. Some of these enterprises are multinational in nature, but except for the Russian facility, participation has been limited to industrialized states.

- We should explore regional multinational enrichment enterprises. A few years ago, Saudi Arabia made a creative proposal for a multinational enrichment enterprise to meet the nuclear fuel needs of countries in the Middle East, but the facility itself would be located outside the Middle East. It generated no response. Someone ought to take it seriously.
- We should try to devise effective multinational controls on all sensitive nuclear fuel cycle activities. Perhaps the nuclear weapon states could start by placing their enrichment facilities under IAEA safeguards and by financing such safeguards.
- Suppliers should explore ways to offer so-called cradle-to-grave fuel cycle services in which they would commit to manage the spent fuel of their customers. At the moment Russia appears to be the only country in a legal and political position to offer such services, but others should give serious consideration to this option. The recent MIT report on the nuclear fuel cycle advocated that the United States and other nuclear supplier countries should actively pursue fuel leasing options for countries with small nuclear programs. Accepting only limited quantities of spent fuel from countries with small programs should help overcome the admittedly difficult public opposition to importing other nations' nuclear wastes. Publics will need to be educated, however, on the international benefits of this approach.

All such steps will take time and patience. However, there is time, and there are factors favoring an approach that emphasizes such positive and cooperative approaches. Countries hoping to launch new nuclear programs are starting from scratch and will take many years to build up the trained workforce, institutions, or infrastructures to make a nuclear program possible. None of these countries has expressed concrete intentions to develop enrichment or reprocessing programs. They are far from having the capability to construct such sophisticated and expensive facilities and would need to build more than two dozen large nuclear reactors before they could make economic sense. So the barbarians are not at the gate, and we have time to build up institutions and structures for the international fuel cycle that can receive the support of the vast majority of states. What we need is the patience.

Finally, while we have many ways to promote nonproliferation objectives, one important nonproliferation tool that we cannot afford to lose is our ability to enter into peaceful nuclear cooperation agreements with other countries. This capability, among others, has allowed the United States to promote widespread acceptance of nonproliferation norms and restraints, including international safeguards and physical protection measures and the NPT. U.S. agreements for cooperation in peaceful nuclear energy with other states require strict nonproliferation controls that go beyond those of other suppliers, such as consent rights on reprocessing, enrichment, and storage of weapons-usable materials subject to our agreements. They also provide a framework for establishing invaluable person-to-person and institution-to-institution contacts and collaboration that can help advance our nonproliferation objectives.

If we insist that our cooperating partners forswear enrichment and reprocessing, we risk losing out on nuclear sales and the jobs that go with them—no small matter in current economic conditions. But more to the point of this article, we cannot afford to lose this important nonproliferation tool by trying to impose conditions that others will reject. Requiring the UAE

conditions in future U.S. peaceful nuclear cooperation agreements will further erode, if not shut out, the United States from the international nuclear arena and deprive it of the influence that peaceful nuclear cooperation agreements provide in strengthening the global nonproliferation regime. This so-called gold standard may turn out to be fool's gold.

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