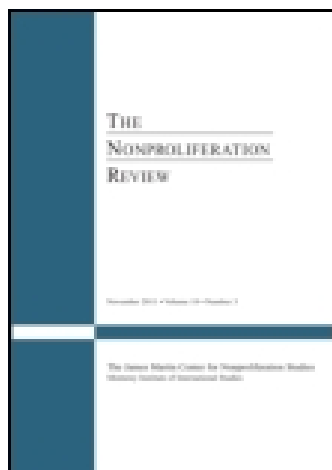


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ATOMS FOR PEACE

Catalyzing Bombs for Cheats

Henry Sokolski © 2013

Atomic Assistance: How "Atoms for Peace" Programs Cause Nuclear Insecurity, by Matthew Fuhrmann, Cornell University Press, 2012, 344 pages, \$29.95.

KEYWORDS: Nuclear energy; nuclear power; proliferation

In a world where officials presume there is a clear, bright line between generating nuclear electricity and producing nuclear weapons, Matthew Fuhrmann's *Atomic Assistance: How "Atoms for Peace" Programs Cause Nuclear Insecurity* is a sorely needed slap of reality. His thesis, captured in the book's title, certainly is timely: recent assessments of North Korea's experimental light water reactor and the use of American drone flights to check on weapons-grade, plutonium-laden spent fuel discharged from Iran's Bushehr reactor underscore how even purported proliferation-resistant nuclear power plants can produce nuclear weapons-usable plutonium and how their fresh fuel can be used to accelerate weapons uranium production.¹

There also is the broader point that "peaceful" power programs unavoidably bring states quite far toward the development of a nuclear weapons option, affording them relevant dual-use training, staffing, nuclear supplies, and technology transfers. It is not, as Fuhrmann explains, that most countries that maintain "peaceful" nuclear programs get bombs, but rather that most countries that get bombs develop civilian nuclear energy programs first. After states master the technical challenges relating to the production of "peaceful" nuclear energy, Fuhrmann notes, getting a bomb option is a decision that would be easier than otherwise to make (i.e., far less expensive, time consuming, and technically risky than starting from scratch).

The historical examples Fuhrmann highlights to make this point—India's and South Africa's nuclear programs—are forceful. Once India and South Africa gained the "peaceful" nuclear infrastructure, staffing, and nuclear fuel-making plants needed to support their civilian programs, the political, technical, and financial costs of taking the momentous step of making nuclear weapons were so low, there was little or no resistance to doing so. Prime Minister Indira Gandhi's specific reasons for giving the final approval when she did, Fuhrmann notes, are still unknown, other than that the costs of acquiring a bomb by 1972 were so low that her decision to proceed seemed irresistible. He also explains that in South Africa's case, the decision to develop nuclear weapons came after its civilian nuclear program was complete, but well before the Soviets posed any security threat to Pretoria.

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This may not sit well with academics and officials who insist that the ultimate way to stem proliferation is to reduce the security threats that encourage proliferators to acquire nuclear weapons. Their case is tautologically sensible. Yet Fuhrmann's analysis suggests that other, less pressing factors can also tip the scales prompting states to go nuclear.

Fuhrmann's proof here (both historical and statistical) is new. Long ago, however, many sensible officials presumed the same point. As Fuhrmann himself notes, in May 1968, a member of the State Department's policy planning staff, Richard Rosecrance, explained to Secretary of State Dean Rusk that building a civilian nuclear program makes it "possible for a nation to proceed a considerable distance toward a bomb capability, to achieve an advanced state of nuclear 'pregnancy.'" Negotiators of the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) also focused on this point. When Irish Foreign Minister Frank Aiken first proposed the NPT half a decade before, he emphasized that the nuclear power reactors so many states wanted to build were virtually indistinguishable from military plutonium production plants. Because of this, Aiken warned, implementation of any nonproliferation treaty would require extremely intrusive inspections to verify against military diversions. Later, other NPT negotiators, including Swedish representative Alva Myrdal, urged limits be placed on the spread of nuclear fuel-making technologies lest the promotion of "peaceful" nuclear energy be an engine for nuclear weapons proliferation.²

Ms. Myrdal and other key NPT negotiators had reason to know how tight the link between nuclear power and nuclear weapons might be. Sweden, Italy, Switzerland, and India secretly were considering or developing covert nuclear weapons programs that exploited civilian nuclear energy plants. These reactors would be connected to these states' civilian electrical grids. Exploiting reactors to make bomb material and electricity was a standard approach also taken by states that already had nuclear weapons. The United States operated a dual-use reactor in Richland, Washington. The United Kingdom operated a similar machine at Calder Hall, and the Soviet Union had multiple dual-use reactors, the *Reaktor Bolshoi Moschnosti Kipyashchiy*, or RBMK.³

At the time, this nuclear duality was discussed in more than a few published works. In 1965, Princeton University Press published Lawrence Scheinman's *Atomic Energy Policy in France under the Fourth Republic*, which detailed how French officials incrementally reached their country's decision to acquire nuclear weapons. First, they established a plutonium-producing civilian nuclear program that produced electricity. Then, they separated plutonium usable for making bombs and stockpiled it. Finally, after the 1956 Suez crisis, when acquiring nuclear weapons was technically and financially relatively easy to accomplish, they decided to produce nuclear weapons.⁴

In addition to Scheinman's excellent history, an extensive nuclear proliferation literature clearly identified the link between nuclear power and nuclear weapons. Among the most prescient were Leonard Beaton's *Must the Bomb Spread?*, Mason Willrich's *Non-Proliferation Treaty: Framework for Nuclear Arms Control*, and Victor Gilinsky's path-breaking analyses for the RAND Corporation's nuclear proliferation project.⁵ All of these studies, published between 1965 and 1970, warned that the spread of large civilian nuclear programs would only increase the risks of nuclear weapons proliferation. To be sure, most of the analyses and statements made regarding the nuclear proliferation dangers of nuclear power necessarily were more foreboding warnings than they were

clear evidence. Truly dedicated civilian nuclear reactors, after all, were few and far between before the 1960s.

Yet, following India's 1974 test of a "peaceful" nuclear explosive—which exploited Canadian and US civilian nuclear cooperative assistance—speculation became all too real. Clearly, there was a major misunderstanding about what the United States, Canada, and India understood to be "peaceful" when India agreed not to use the nuclear aid for military purposes.⁶ This forced the United States and Canada to reexamine their nuclear export policies and to tighten both national and international rules governing such trade.

That was then. Today, however, Washington officials' astonishment regarding the 1974 (and later the 1998) Indian tests still raises questions. If the connection between nuclear power and nuclear weapons proliferation and the weaknesses of nuclear controls was so clearly identified and detailed before and after 1974, why did the United States and other nuclear supplier states persist in supplying dual-use nuclear technology internationally? Nuclear supplier states certainly had clear reason (and warnings) to know that it was risky.

The short answer, which Fuhrmann provides in detailed statistical regression and historical analyses, is that nuclear supplier states consciously took these risks to fortify security alliance ties and to cement arms and oil trade deals. These interests, in turn, encouraged officials to downplay the nuclear weapons proliferation risks and to oversell the effectiveness of whatever nuclear safeguards were available.

One can clearly see this with US nuclear assistance to Iran—under Mohammad Reza Shah Pahlavi—in the 1960s and 1970s (part of a US bid to make Iran the US proxy in the Persian Gulf and to help assure US energy security), and with US nuclear cooperation with India in the 1960s and today (designed, respectively to draw India out of the Soviet orbit, and to help India serve as a balance against America's potential adversary, China). Similarly, Fuhrmann details how French, Italian, and Brazilian nuclear assistance to Iraq was driven by hopes to secure arms and oil trade as much as Chinese nuclear assistance to Pakistan has been driven by China's desire to counterbalance India.

For many policy insiders, Fuhrmann's discovery that states frequently fail to realize their ulterior motives in exporting dual-use nuclear technology would hardly be surprising. Nor would it startle them that international nuclear safeguards are not as effective as they need to be. Why, then, are Fuhrmann's statistical and historical clarifications of these points necessary and useful? They help counterbalance two disturbing trends.

The first of these is the premature policy fatalism (aka "realism") that increasingly pervades implementation of the nuclear nonproliferation policies of the United States and its allies. This outlook presumes the spread of dual-use nuclear technology is inevitable as states strain to achieve energy security and to prevent global warming. It also assumes nuclear supplier states have a legal obligation under the NPT to share any nuclear technology if it has a conceivable "peaceful" application, is declared, and is occasionally inspected. Such sharing, it is argued, is necessary to maintain the NPT "bargain" struck to get states to forswear acquiring nuclear weapons.

That this "obligation" (along with the NPT pledge to disarm), is a questionable, self-defeating interpretation of the NPT or that there currently may be cheaper, quicker, non-nuclear ways to reduce carbon emissions and increase energy security are all points that

are downplayed or ignored.⁷ Yet, as Fuhrmann points out, there are very real nuclear weapons proliferation risks attendant to expanding existing nuclear assistance programs and these can only be dealt by implementing much tougher nuclear rules, several of which Fuhrmann details in his book's conclusion.

The second worrisome trend that makes Fuhrmann's book all too relevant is the increasing academic fascination with arguments that nuclear proliferation can reduce military miscalculation and war. The latest version of this old saw is that nonproliferation efforts (e.g., against Iraq and Iran), in fact, encourage wars and harm economic development, whereas tolerating nuclear proliferation is more likely to promote just the opposite.

Much of this new wisdom seems over argued. More important, there is good reason to conclude it is wrong. Again, Fuhrmann's own analysis of the number of times states have planned or launched preemptive attacks against military and supposedly "peaceful" nuclear plants tells quite a tale. None of these stories—whether it be of US, Iranian, or Israeli strikes against Iraq's safeguarded reactor at Osirak, or of current Israeli and US military threats against Iran's nuclear program—bolsters the notion that increasing the number of states operating nuclear plants will produce more peace. Getting to the point where one has a nuclear bomb is actually a risky journey that could well prompt acts of war.

All of this brings us back to the need for much tougher nuclear controls over civilian nuclear activities. Fuhrmann lists several that make perfect sense. If one continues to offer nuclear assistance, he recommends that it should not be done to promote grand strategy (e.g., in the case of US and Russian nuclear assistance to India) over nonproliferation. His calls for demanding more intrusive inspections and to limit the amount of training and technology transfers in any future nuclear cooperative endeavors also make sense, as do his recommendations for tougher enforcement of the NPT and raising the costs of withdrawing from the treaty.

These recommendations are a start. If we are to believe the rest of Fuhrmann's sound analysis, though, much more would have to be tackled to make the world safe for nuclear power's expansion. In specific, we should redraw the line between nuclear activities and materials that are safe (i.e., so distant from nuclear bomb making as to allow for inspections that could warn of possible military diversions in time to prevent them from producing a bomb) and those that are not.

Enriching uranium in a 1945 gaseous diffusion plant would be nearly impossible to hide today. Also, it takes nearly a year after one starts such a plant to produce one bomb's worth of weapons-grade plutonium and some time to move from enriching at low levels to producing weapon-grade uranium. As such, one might be able to detect a good number of illicit nuclear activities in a timely manner in the case of gaseous diffusion plants. Timely detection or warning, however, is not possible with the latest centrifuge and laser-based uranium enrichment technologies.

One could also argue that, since it is nearly impossible to detect covert enrichment or reprocessing plants reliably, far more than International Atomic Energy Agency Additional Protocol inspections need to be in place to safeguard large reactors. After all, most "peaceful" reactors use low-enriched uranium that can be enriched to

weapon-grade. These reactors also produce nuclear weapons usable plutonium that can be chemically separated out relatively quickly.⁸ Indeed, this is the argument for doing more to promote international adoption of the “gold standard” of nonproliferation conditions, those contained in the US–United Arab Emirates nuclear cooperation agreement of 2009.⁹ In the very hardest cases, like North Korea, though, it may be necessary simply to refuse any offers of nuclear assistance.

Amplifying these points, however, is hardly as important to nonproliferation’s future as conveying what the dangers of spreading “peaceful” nuclear technology are. In this regard, one of the very best places to begin is *Atomic Assistance*.

NOTES

1. See David Albright and Christina Walrond, *North Korea’s Estimated Stocks of Plutonium and Weapon-Grade Uranium*, Institute for Science and International Security, August 16, 2012, <http://isis-online.org/uploads/isis-reports/documents/dprk_fissile_material_production_16Aug2012.pdf>; Jay Solomon and Julian E. Barnes, “U.S. Raises Monitoring of Iranian Reactor,” *Wall Street Journal*, December 2, 2012, p. 1, <<http://online.wsj.com/article/SB10001424127887323717004578155510372482102.html>>; and “From Bushehr to the Bomb: Add Plutonium to Iran’s Nuclear Weapons Risks,” *Wall Street Journal*, December 5, 2012, <<http://online.wsj.com/article/SB10001424127887324355904578159550372337228.html>>.
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3. On these points, see *50 Years of Public Power* (Energy Northwest, 2007), <www.energy-northwest.com/downloads/EN_Annual_Report_2007_small.pdf>; “RBMK Reactor,” GlobalSecurity.org, <www.globalsecurity.org/wmd/world/russia/rbmk.htm>; Central Intelligence Agency, “The French Nuclear Reactor Fuel Reprocessing Program: An Intelligence Assessment,” September 1984, approved for release July 1992, <www.gwu.edu/~nsarchiv/NSAEBB/NSAEBB184/FR30.pdf>; Paul Brown, “First Nuclear Power Plant to Close,” *Guardian*, March 21, 2010, <www.guardian.co.uk/2003/mar/21/nuclear.world>; The Nuclear Weapon Archive, “British Nuclear Facilities,” <<http://nuclearweaponarchive.org/Uk/UKFacility.html>>; and Zia Mian, A.H. Nayyar, R. Rajaraman, and M.V. Ramana, “Fissile Materials in South Asia and the Implications of the US-India Nuclear Deal,” *International Panel on Fissile Materials Research Report*, September 2006, <www.fissilematerials.org/library/southasia.pdf>.
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5. Leonard Beaton, *Must the Bomb Spread?* (Harmondsworth, UK: Penguin Books, 1966); Mason Willrich, *Non-proliferation Treaty: Framework for Nuclear Arms Control* (Charlottesville, VA: The Michie Co., 1969); and Victor Gilinsky and William Hoehn, *Nonproliferation Treaty Safeguards and the Spread of Nuclear Technology* (Santa Monica, CA: RAND Corporation, May 1970, R-501), <www.rand.org/pubs/reports/2006/R501.pdf>.
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7. This popular interpretation of the NPT is referred to as the “three pillars of the NPT.” On its rebuttable quality and that of the environmental and energy security arguments made to promote new nuclear power plant construction, see John W. Rowe, “Energy Policy: Above All, Do No Harm,” presentation made before the American Enterprise Institute, Washington, DC, March 8, 2011, <www.exeloncorp.com/assets/newsroom/speeches/docs/spch_Rowe_AEI2011.pdf>; Henry Sokolski, “Needed: A New Narrative for Peaceful Nuclear Energy,” in Henry Sokolski, ed., *Nuclear Nonproliferation: Moving Beyond Pretense* (Arlington, VA: The Nonproliferation Policy Education Center, 2012), pp. 1–10, <[www.npolicy.org/userfiles/image/oving%20Beyond%20Pretense%20Introduction\(2\).pdf](http://www.npolicy.org/userfiles/image/oving%20Beyond%20Pretense%20Introduction(2).pdf)>; and Henry Sokolski, “The

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 9. See "Letter to the Honorable Barack Obama from Congressman Howard L. Berman et al," September 20, 2012, <www.npolicy.org/article_file/Gold_Standard_Letter_to_President_Sept_20_2012.pdf> and Jessica C. Varnum, "U.S. Nuclear Cooperation as Nonproliferation: Reforms, or the Devil You Know?" Nuclear Threat Initiative—Analysis, November 27, 2012, <www.nti.org/analysis/articles/us-nuclear-cooperation-nonproliferation-reforms-or-devil-you-know/>.