Market-Based Nonproliferation

By

Henry Sokolski

Executive Director
The Nonproliferation Policy Education Center
1718 M Street, NW, Suite 244
Washington, DC
npec@npec-web.org
202466-4406

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Chairman Lantos, Ranking member Ros-Lehtinen, members of the Committee, I want to thank you for inviting me to testify today on the question of whether the bomb must spread, and, if not, what our best course to prevent such an outcome is. A world full of nuclear weapons-ready states is not inevitable. Nor does avoiding this fate require massive new government spending programs; development of new, advanced technology; or any heroic military effort. It will, however, require the U.S. and other states with nuclear power programs to do two things they should have done long ago but have yet to tackle seriously -- identifying the full costs of nuclear power as compared to its non-nuclear alternatives, and making nuclear power operators secure private financing and insurance to pay for these expenses.

This may seem radical and impractical, but given the increasing political imperative to make the right choices to avoid global warming, the U.S., European Union and many other countries already have good reasons to begin to take such steps.

In fact, identifying nuclear power’s full costs as compared to its alternatives will be difficult to avoid as we move toward a carbon-constrained world with serious carbon taxes. Certainly, if we fail to identify these expenses -- including all the direct and indirect subsidies, and the security and environmental costs that have yet to be internalized -- then imposing such taxes will simply propel nuclear power much further both here and abroad than would otherwise be the case. On the other hand, identifying the full costs of nuclear power and doing the same for non-nuclear alternatives would go a long way to assure that any energy choices would be made on the basis of sound economic comparison rather than whim. Given the potential for using peaceful nuclear programs for military purposes, a state that chooses nuclear power over much cheaper, emission-compliant alternatives should set off both economic and security alarms.

To secure the full benefits of taking this approach, though, ultimately entails taking a second step -- getting private banks and insurers to bear nuclear power’s full costs. To a great extent, we already do this for most non-nuclear forms of electricity. Yet, governments both here and abroad have held off doing this out of concerns that the nuclear industry, after nearly a half-century of government funding and supports, is not quite yet “mature” enough to be subjected to such market forces. In some respects, this has actually kept the nuclear industry from doing its best. Certainly, if nuclear power had to cover all of its insurance costs against accidents and security, the industry would literally place a much higher premium on building and operating only the most modern and safest plants and do even more on their own (rather than wait upon government regulation) to physically secure their plants.

More important, if nuclear operators had to cover all their costs, the most dangerous and economically uncompetitive forms of nuclear energy would have far greater difficulty proceeding as far as they have to date. Certainly, nuclear fuel making, which can bring a state within days or weeks of acquiring nuclear weapons, and large nuclear reactor projects in the energy-rich and unstable regions of the world, such as the Middle East,
would be much harder to sell to private investors and insurers than almost any non-nuclear alternative.

Few, in or out of the nuclear industry, dispute these points. It would be useful to exploit this consensus to promote some level of nuclear restraint. This is a particularly important as more and more countries use the Nuclear Nonproliferation Treaty (NPT), the example of the U.S., and the nuclear power practices of other states as justifications to engage in the most uneconomical and dangerous nuclear activities themselves.

What will be required to discipline such dangerous enthusiasm? Public recognition and emphasis of the following points:

1. **Nuclear energy is not just another way to boil water.** Spreading nuclear power reactors world-wide with nuclear cooperation agreements, generous government-backed export loans, and guaranteed financing, is a sure-fire way to increase the number of nuclear weapons-ready nations. Unfortunately, even “proliferation resistant” light water reactors require tons of lightly enriched fresh fuel to be kept at the site and also produce scores of bomb’s worth of very weapons-usable plutonium that is contained in the reactor’s spent fuel. Research commissioned by my center, which was subsequently authenticated by experts at our national laboratories and U.S. State Department, details just how little is required to take these materials and convert them into weapons fuel. Under one scenario, a state could build a small, covert reprocessing line, divert spent fuel without tipping off International Atomic Energy Agency (IAEA) inspectors, produce its first bomb’s worth of material in less than two weeks, and continue to make a bomb’s worth of material a day.¹ There is no technical fix for this problem in sight for decades or, perhaps, ever. Even the Global Nuclear Energy Partnership (GNEP), which originally claimed it could develop nearly “proliferation proof” fuel-cycles, no longer makes this claim and even warns against spreading its “proliferation resistant” UREX system for fear it too might be diverted to make bombs.² What this means is that large nuclear reactors and even light water reactors ought not to be for everyone; only those states that


² See U.S. Department of Energy, Office of Fuel Cycle Management, *Global Nuclear Energy Partnership Strategic Plan* (Washington, DC: U.S. Department of Energy, GNEP-167312, Rev.0, January 2007), p. 5, where the DoE notes that “there is no technology ‘silver bullet’ that can be built into an enrichment plant or reprocessing plant that can prevent a country from diverting these commercial fuel cycle facilities to non-peaceful use. From the standpoint of resistance to rogue-state proliferation there are limits to the nonproliferation benefits offered by any of the advanced chemical separations technologies, which generally can be modified to produce plutonium….“
we can be confident are out of bomb making business and that can make a compelling case for the economic profitability of these activities.

2. *Adam Smith’s “Invisible Hand” is trying to help us* since the most dangerous nuclear activities -- fuel making and large reactors in energy-rich regions of the Middle East -- are also the most uncompetitive economically against their alternatives. Rather than fight this natural and helpful selection of the financially and economically fittest by pushing government-guaranteed financing for nuclear exports and government-funded nuclear commercialization projects, states interested in pursuing nuclear programs should encourage private firms to finance and insure nuclear and non-nuclear power projects entirely, and allow these firms to determine which of these projects is most cost effective.

3. *In this regard, pushing government-backed nuclear sales and subsidized fuel assurances can be self-defeating both for nonproliferation and nuclear power’s own long-term health.* Backing the construction of large nuclear reactors in Libya, Jordan, Egypt, and Turkey (as the U.S. is currently doing) and the construction of similar plants in Saudi Arabia and Yemen (as Russia and the IAEA are) is not only uneconomic in the near and mid-term when compared with developing fossil-fuel-fired alternatives, but also could easily prompt a not-so-peaceful nuclear competition in one of the world’s most war-torn regions. The nuclear industry may benefit initially from the construction of a few additional reactors, but the security fallout from any war could more than wipe these gains out.³ As for extending fuel assurances to nations that do not currently make their own fuel, these offers, if not properly caveated, these could increase the pace of proliferation. This is particularly so if they are designed to deal less with narrowly defined “market disruptions” caused by natural disasters, breach of contract, and terrorism than to make fuel “affordable.” In fact, some nuclear fuel market observers believe that nuclear ore and fuel products are about to come into much more demand even if the world’s current fleet of nuclear reactors does not expand. Their projections focus on how relatively cheap Russian blend-down uranium; and U.S. surplus uranium supply fuel contracts; and older, lower cost fuel contracts associated with terminated reactor projects, are about to run out over the next two to five years. Meanwhile, the licensed operating-lives of many reactors are being extended by 20 or more years. As a result, uranium prices have doubled in just the last few months. This squeeze, nuclear fuel market experts argue, may continue for a decade or more.⁴ Fuel assurances or fuel

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3. 2006 saw 13 new, additional nations announce their intention to construct and operate large power reactors on their soil. To get some idea of how large a jump this is, one need only consider that that number constitutes a 42 percent increase in the number of nations (31) currently operating large reactors within their borders. The nations in question were Turkey, Egypt, Saudi Arabia, Libya, Yemen, Jordan, Vietnam, Australia, Bangladesh, Morocco, Tunisia, Indonesia, and Nigeria.

banks ought not to be designed to address such market trends. Certainly, if they emphasize the need to assure “affordable” fuel and “financial incentives,” they will act on nuclear proliferation much as throwing kerosene on a smoldering fire might -- as an acellerant rather than as a moderator. Much like a loss leader in a department store, the effect of such subsidized assurances will be to get more nations to explore acquiring reactors that might have otherwise. With the reactors will come all the nuclear training, which will not stop at just lessons on running nuclear power plants. Indeed, even as the IAEA develops its own fuel bank proposals to reduce the need for nations to make their own nuclear fuel, the Agency is adamant that no nation should give up what the IAEA currently believes is their natural right to do — make nuclear fuel. This means that any nation that might take advantage of fuel assurances could, at any time, change its mind and proceed to make nuclear fuel. Finally, even narrowly defined assurances once offered are likely to prompt demands for more generous subsidized assurances. For these reasons, it is important that any Congressional effort to back the further development of fuel assurances stay clear of any effort to make nuclear fuel “more affordable” or to encourage the development of “financial incentives” to get nations to avail themselves of such assurances. The draft legislation, which Senators Lugar and Bayh have developed, is careful to avoid any encouragement of any financial subsidies, and furthermore helps the IAEA meet its safeguarding mission as well. Nor does it rush to fund any specific fuel assurance option as there are several still under development. These desirable features deserve Congress’ consideration.5

4. We should make nuclear operators pay the full costs of engaging in dangerous nuclear activities rather than subsidizing or protecting them to pay less. Fortunately, the nuclear activities that are most dangerous -- making nuclear fuel and making nuclear power in regions where there is ready access to natural gas and oil -- are also the most difficult to justify economically as compared to their nonnuclear alternatives. Internalizing as many of the external security costs associated with operating such plants would help to keep this so. Because civilian fuel-making is virtually indistinguishable from bomb fuel-making, it would make sense to demand that physical security requirements for such plants be equivalent to that of nuclear weapons facilities. These additional costs should be borne by the owners of these facilities. Because even the IAEA’s own safeguards reviewers admit that nuclear fuel making cannot be inspected to detect diversions in a timely fashion,6 it would be reasonable to insist on monitoring them


more extensively. Such increased monitoring -- which the owners of these facilities, again, should pay for -- is unlikely ever to provide for timely detection of diversions but would, at least, make detection of diversions more likely. Also, ultimately the full cost of insuring nuclear plants against attacks and accidents should be borne by their owners. The Price-Anderson Nuclear Industries Indemnity Act, which capped the amount of insurance coverage for nuclear accidents, was originally intended to last only for 10 years. That was a half century ago. All of these costs should be identified and internalized into the price of nuclear power. The less economic sense paying the full costs of a civilian nuclear project makes as compared to paying the full costs of non-nuclear alternatives and the more that a government chooses nonetheless to subsidize such nuclear activities, the more international security alarms should be set off.

5. Identifying and charging for the full costs of civilian projects should help us return to a saner reading of the nuclear rules. Currently, many governments (including our own) have mistakenly read the NPT as entitling nations to a per se right to any nuclear activity no matter how uneconomic or unsafeguardable it is. This has bedeviled our dealings with nations such as Iran. In fact, a proper understanding of the negotiating history, law and technology of safeguards makes clear that there is no per se right to engage in unbeneﬁcial (read, money-losing) activities that can bring one within days or weeks of acquiring nuclear weapons. We already understand that sharing the potential beneﬁts of peaceful nuclear explosives under the NPT has been a nonstarter because there are no economic beneﬁts to using nuclear explosives for excavation. The same economic discipline needs to be applied to the sharing of the beneﬁts of the applications of peaceful nuclear energy.7 So far, members of the NPT have not been so disciplined

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because they see the potential security benefits of acquiring a near nuclear-weapons option through development of peaceful nuclear power. If we are serious about preventing the spread of nuclear weapons, though, we should be much more active in smoking this motive out by being much stricter about economic rationales.

6. **We have always spoken about the need to meet certain economic criteria before developing large nuclear energy programs;** we need to do more. The French, U.S., and the IAEA have all quietly noted that nuclear power programs only make sense for nations that have a large electrical grid, a major nuclear regulatory and science infrastructure, and proper financing. The British government, after an extensive analysis, concluded last year that if carbon emissions are properly priced (or taxed), then British nuclear power operators should be able to cover nearly all of their own costs without government support. The E.U. is currently considering a complaint against subsidies to the ill-starred Finnish nuclear power plant being constructed by AREVA. U.S. officials rightly noted the absurdly negative economics for Iran of building the Bushehr reactor, as well as the nuclear fuel making plant at Natanz, as compared to using natural gas. Critics did the same to reverse U.S. policy in backing the building large nuclear power plants in North Korea. Bank analysts in the U.S., meanwhile, are still divided over whether to invest heavily into nuclear power construction in the U.S. They and the nuclear industry would feel more comfortable moving forward if they were able to secure more government guarantees and subsidies. Economic judgments and criteria, in short, are already being used by several key governments, private firms, and institutions in judging the merits of proposed nuclear projects. More can be done to cost these projects much more honestly and to compare them against non-nuclear alternatives. Here, internationally, two good places to start would be to back the principles contained in the Energy Charter Treaty and the Charter on Sustainable Energy Development. In concert, these international agreements encourage countries to open their energy sectors to fair competition and to state the full price of any energy option. In addition, it is not too early to consider what

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might be developed as a follow-on to the Kyoto Protocol after 2012. Whatever is finally agreed to here would be improved if it fostered the principles of full costing and international open-market competitions.

7. Promoting market-based nonproliferation is worthwhile, but it will not solve all problems. Would a market-fortified NPT regime of this sort eliminate the problems already posed by a nuclear-ready Iran or a nuclear-armed North Korea? Unfortunately, the answer is no. Those problems can now only be dealt with by military, economic and diplomatic efforts to squeeze Iran and North Korea -- such as those used on the Soviet Union during the Cold War. But the market-fortified system suggested would help prevent Iran’s and North Korea’s patently uneconomic ploys from becoming an international model of nuclear behavior for countries now professing an earnest desire to back peaceful nuclear power development. These countries include Indonesia, Libya, Saudi Arabia, South Korea, Nigeria, Egypt, Turkey, Morocco, Jordan and Yemen (all of which are bizarrely receiving active U.S. or IAEA nuclear cooperative technical assistance to complete their first large power stations). Also, unlike the situation under today’s interpretation of the NPT, which ignores suspicious “civilian” nuclear undertakings even when they obviously lack any economic rationale, the market-fortified system described above would help to flag worrisome nuclear activities far sooner -- well before a nation came anywhere near to making bombs. Such an approach, in short, would encourage an NPT-centered world worthy of the name, a world in which the NPT would clearly restrain the further spread of nuclear weapons-related technology rather than foster it.