

The Other Energy Crisis

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As nuclear energy becomes a viable alternative to carbon-based fuels, security is a vital concern. Here's how private markets might be able to help.

by Debra Decker and Erwann Michel-Kerjan

As both concern over global warming and worldwide energy consumption continue to mount, nuclear energy is back on the agenda. It is a renewable, non-carbon-based energy source, and its safety record since Three Mile Island and Chernobyl is much improved. To answer rising demand, 28 nuclear plants are currently under construction, 64 more are planned, and another 158 are proposed — and that activity is now raising new concerns. Much of the construction is taking place in regions that already have nuclear capacity, such as China, India, and Russia. But serious consideration of the nuclear energy option is also under way in countries such as Turkey and Vietnam that are new to the game.

The problem, of course, is that in order to produce nuclear energy, new plants will need access to commercially enriched uranium — and some newly nuclear nations are already fearful that they could be excluded by the only six countries that commercially produce it (France, Germany, the Netherlands, Russia, the United Kingdom, and the United States). That could be one of the reasons Brazil and Iran are already looking to develop their own uranium enrichment facilities, and they will probably not be the last to do so. Considering that the same process used to enrich uranium for fuel in power plants can also produce weapons-grade nuclear

material, the international threat becomes obvious: The more countries develop their own enrichment capacity, the more countries can build nuclear arsenals, which could generate a multi-state race for nuclear weapons that would be extremely difficult to control. The paradox of nuclear energy, then, is that from an environmental and economic perspective, it's beneficial for as many countries as possible to have access to enriched uranium for energy; but in terms of security, as few countries as possible should have enriching capacity.

The International Atomic Energy Agency (IAEA) may have one answer to the dilemma of how to ensure the supply of nuclear energy while minimizing nuclear proliferation: It is establishing an enriched uranium fuel bank to guarantee nondiscriminatory availability of that material. Although the IAEA and governments are grappling with many aspects of this emerging energy security crisis, no one is discussing a complementary initiative that could leverage the insurance and finance industries — and therein lies a unique opportunity. One solution to the dual security problem could be an innovative partnership between these industries and governments that would create the world's first international nuclear fuel insurance fund.

The fund is a straightforward concept. Premiums, collected from all member countries, would be deposited

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in a mutual insurance company (MIC), which, in turn, would use some of the funds to build a cash reserve and to purchase supply options. The rest of the funds would go to a consortium of insurers and reinsurers that would provide layered financial protection to all participating countries. The IAEA member governments would serve as a financial backstop for the consortium. In the event of a fuel disruption, the MIC would exercise its options and work with fuel suppliers, fabricators, and transporters to arrange a timely fuel delivery or alternative electricity purchases off the energy grid (if available). The insurance consortium would compensate member countries and others involved in replacing fuel for any loss of efficiency beyond a previously agreed upon deductible. As with all insurance, the incentive for member countries would be that they all pay a little now against the day when one or a few might need a lot to cover losses.

The benefit of this idea is that it recognizes and embraces broad interdependencies. It does not rely solely on the existing enrichment states and the IAEA to guarantee the supply of enriched uranium, but allows additional suppliers to emerge within clearly established norms, such as multinational ownership of enrichment facilities. Furthermore, it applies to the whole nuclear fuel cycle — not just enrichment, but also conversion, fabrication, and transportation — and therefore addresses other potential supply risks, and it is an efficient market-based approach.

Nothing in this proposal, of course, could prevent states from enriching their own uranium. The goal of the fund, however, would be to dramatically reduce the incentive for countries to do so, and thus keep the enrichment capability limited to a small number of countries that can be more easily monitored. The fund

could assure the full nuclear fuel cycle against political interruptions and other risks, such as natural disasters. Essentially a form of business interruption insurance, the fund would offer countries a cheaper, more attractive alternative to the significant technological and capital-intensive investments involved in enriching uranium on their own. Rising fuel demand and lagging supply, which are expected to keep uranium prices high and markets tight, will become additional incentives for countries to join the fuel insurance fund.

Key members of the nonproliferation community have endorsed this concept. Graham Allison, former assistant secretary of defense and author of *Nuclear Terrorism: The Ultimate Preventable Catastrophe*, has said it “presents an innovative way to assure countries of their fuel supplies, thereby removing one of the reasons for countries to establish their own, costly enrichment facilities.... Starting in the nuclear arena, the concept could lead to a breakthrough in how countries approach overall fuel security.” Former Senator Sam Nunn, cochairman of the Nuclear Threat Initiative (NTI), recommended to the U.S. House Foreign Affairs Committee in May 2007 that it give serious consideration to this proposal, because strengthening the international marketplace for fuel supplies is very much a part of the solution to fuel assurance. Finally, Joe Cirincione, director for nuclear policy at the Center for American Progress and author of *Bomb Scare: The History and Future of Nuclear Weapons*, says simply, “It’s a great idea.... This is certainly worth trying and could well be part of the solution.”

Indeed, the idea is starting to gain traction. The London-based Commonwealth Disaster Management Agency (CDMA) is interested in launching a working group on the concept of nuclear fuel continuity compris-

ing experts in finance, insurance, nuclear power, and international law. Jack Taylor, advisor to CDMA and the proposed cochair of the working group, hopes to make progress toward having “a mutual insurance fund in some form up and running in 2008.” Gerald Doucet, secretary general of the World Energy Council, commends the effort and states that “governments need to explore innovative ways to work with private-industry partners.”

What’s clear is that the financial and insurance communities are interested in working with governments to provide fuel supply coverage. “We are not able to cover such exposures alone,” says Sebastiaan Reitsma, manager of nuclear risks for SwissRe. However, he adds, “we are prepared to consider covers granted in cooperation with governments.”

If this concept of insurance for assuring security is such a good idea, why isn’t the market already doing it? It is likely because there is no logical individual player to lead the effort, especially given the up-front costs in time and consultative fees to further this program. Certain players — the insurers, the nuclear utilities, and states — must band together to form a sufficient critical mass to make the proposal work. Private markets will not take this forward without the involvement of states and international organizations, states need to provide new contractual approvals for exports, state subsidies may be needed to attractively price the product, and states must provide the ultimate backstopping to the insurance mechanism. But it is the private insurers that will ultimately provide an efficient and profitable mechanism to decrease the cost and risk of supply disruptions.

What’s needed at this early stage most of all is leadership. At a recent IAEA meeting in Vienna, for instance, investor Warren Buffett pledged US\$50 million via the NTI to the IAEA to help create a low-enriched uranium stockpile. Even though the plan required the IAEA to obtain matching funds of \$100 million and would ensure a supply of less than 1 percent of the enriched uranium used globally each year, it was, nevertheless, just the kind of bold, public gesture by a high-profile individual that can make a difference. Other insurance and business leaders could similarly join leaders at the U.S. Department of Energy or other government agencies to raise the profile of the nuclear fuel insurance fund. With the right people gathered around a table, and a strong commitment to succeed, in a few years’ time the nuclear insurance fund could become — like the Price-Anderson Act, which governs liabilities in U.S. nuclear facilities, and the Terrorism

Risk Insurance Act, which created a federal backstop for insurance claims related to terrorism — another example of a public-private initiative that both engages the engines of business enterprise and serves the common good. The challenge, but also the beauty, of that solution is that it would address the security of not just one country, but many clearly interdependent nations.

With the globalization of economic and social activities comes new global risks, which need to be addressed through well-defined global responses. In that sense, the real crisis we are facing is not merely energy independence, but rather energy interdependence across nations. And, as is often the case, the leaders of a response will be the first ones to glean the benefits of action. Although this concept has been developed in the context of nuclear fuel supplies, there is nothing to stop it from being expanded into a larger mutual insurance company that focuses on interdependence across different sources of energy. The impact on foreign policy could be considerable, and the market opportunities are undoubtedly significant. +

Resources

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Nuclear Threat Initiative Web site: A nonprofit organization led by Ted Turner and Sam Nunn, with the goal of reducing the nuclear threat. www.nti.org/

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