

# NUCLEAR ENERGY FUTURES

Research Project Publication

## GNEP Watch: Developments in the Global Nuclear Energy Partnership

Number 2, November 2007

### GNEP Challenged: Countries Emphasize Uranium Enrichment over Spent Fuel Reprocessing

*A monthly report prepared by Miles Pomper in Washington DC for the CIGI Nuclear Futures Project*

Taking advantage of Washington's new fiscal year, the Bush administration has approved funds for a series of studies to advance its controversial Global Nuclear Energy Partnership (GNEP). And a key Bush administration official is calling for a new international framework to manage the program. But the US Department of Energy has yet to overcome the significant challenges the initiative faces overseas and at home.

Administration officials have claimed that the initiative—which seeks to both develop new nuclear technologies and new international arrangements—will both reduce nuclear waste and decrease the risk that an anticipated growth in the use of nuclear energy worldwide could spur nuclear proliferation. Critics, however, assert that the administration's course will create immediate proliferation dangers and waste disposal requirements without any certainty that the claimed technologies will ever be developed.

Last month, administration officials celebrated a tripling in the number of GNEP partners. But the Energy Department has yet to convince key committees in Congress that the program will accomplish its stated goals. Moreover, despite administration steps to ease membership criteria and broaden participation, some important nuclear producers, including Canada, the

United Kingdom, and Germany, are still weighing whether to join the partnership. (See GNEP Watch, No. 1.)

Instead of GNEP, countries are putting more emphasis on other efforts to control the nuclear fuel cycle, primarily aiming at the "front end" of the nuclear cycle. These include efforts to limit the spread of technologies such as uranium enrichment, which can produce fresh nuclear fuel. GNEP by contrast primarily focuses on "back end" technologies that address how to deal with spent fuel from nuclear reactors. The administration hopes to develop technologies that it claims would allow countries to make further reactor fuel out of plutonium and other elements in spent fuel in a more proliferation-resistant manner than current methods.

In addition to providing fuel, both uranium enrichment and spent fuel reprocessing can be used to produce the fissile material (highly enriched uranium or plutonium) for nuclear weapons. Concerns about Iran's nuclear ambitions primarily centre around its uranium enrichment program; North Korea used reprocessed spent fuel to detonate a nuclear device last year. Because of such concerns, the United States had shied away from spent fuel reprocessing for nearly three decades until GNEP was launched a year ago.

### Legislation on Hold

Funding for GNEP in the current US fiscal year (2008), which began 1 October 2007, is still undecided as Congress has yet to pass annual spending legislation governing the Energy Department. Instead, funds are being provided under a continuing resolution that keeps spending at fiscal year 2007 levels.

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Moreover, the legislation has not advanced beyond the spending committees to the full Senate or House of Representatives. Both the House and Senate panels cut funding substantially for the program and called for a narrowing of its focus to research. Most likely, funding for GNEP will be included in an omnibus funding bill that takes in spending for nearly all government agencies and may not pass until close to the end of the calendar year.

### US Administration Plunges Ahead

Still, US Nuclear Regulatory Commission Chief Dale Klein in a 19 September 2007 speech in Vienna said that a new international regulatory framework for the oversight of advanced reactors would be needed if GNEP moves forward.

Klein urged that countries work together to develop internationally-accepted design standards and safety and security requirements in order to enhance safety and reduce costs. In particular, countries should plan to allow inspectors to operate in an international role, saying "this might be similar to the standards for commercial airline pilots today, who may, for instance, live in Vienna, but are certified to fly anywhere—from Venezuela to Vietnam."

### Contracts Awarded

On 1 October 2007, the department announced that specific contracts had been negotiated for four consortia to provide information about the technologies needed for GNEP, designs for a reprocessing centre and reactor that would use the resulting fuel, and business plans for running, commercializing, and communicating about these operations. The US\$16.3 million worth of contracts went to consortia led by the French nuclear giant Areva

(US\$5.6 million), US-based Energy Solutions including Atomic Energy of Canada (US\$ 4.3 million), GE-Hitachi Nuclear Americas (US\$4.8 million), and General Atomics (US\$1.8 million).

Assistant Secretary of Energy for Nuclear Energy Dennis Spurgeon acknowledged in an 1 October interview that these technologies were unlikely to be revolutionary, saying the Energy Department hoped to sign a contract next summer for facilities "using current technologies, since more advanced technologies are not yet proven on a commercial-size scale with an appropriate degree of reliability."

An open question, then, is how different the technology will be from current reprocessing programs in France and Japan that separate plutonium from spent fuel and then combine it with depleted uranium in mixed oxide fuel (MOX).

GNEP's statement of principles calls for pursuing technologies that do not lead to separated plutonium, with the long-term goal of ceasing such separations. In the long view, the GNEP principles call for ceasing separation of plutonium and eliminating burgeoning stockpiles of civilian separated plutonium. GNEP seeks to do this by including other elements in a fuel mix in addition to uranium and plutonium, with the aim of making such fuel more proliferation-resistant.

Moreover, French Atomic Energy Commission (CEA) Administrator General Alain Bugat told Platts Nuclear Fuel in September that GNEP partners have yet to agree on whether countries that had fuel reprocessing would get it in MOX form or pure elements.

### About GNEP Watch

GNEP Watch reports on current developments in the Global Nuclear Energy Partnership (GNEP). GNEP is a US government-led international initiative aimed at encouraging the expansion of domestic and international nuclear energy production while working toward the reduction of proliferation and environmental risks.

### CIGI Nuclear Energy Futures Project

The Nuclear Energy Futures project investigates the implications of the purported nuclear energy revival for nuclear safety, security and nonproliferation over the coming two decades and will propose recommendations for consideration by the international community, particularly in the area of global governance.

And it is not clear how much interest there is in such reprocessing. A World Energy Council survey released in September reports most countries with nuclear power programs have yet to decide whether to reprocess spent fuel or store it pending disposal.

## International Focus on Enrichment

In September 2007, the US administration had indicated that although the program was conceived in the wake of President George W. Bush's February 2004 call to halt the spread of enrichment or reprocessing facilities to new countries, it would not require such forbearance as a condition of GNEP membership.

"We're not asking countries to sign a statement that they will never enrich or never reprocess," Spurgeon said.

And the administration has taken other steps to encourage participation in the partnership, saying a multinational steering committee, not the United States, will dictate GNEP's direction and that the partnership will operate by consensus.

Nonetheless, multinational enrichment efforts seem to be moving more rapidly in the international arena than GNEP's focus on reprocessing.

Nicholas Spasskiy, the Deputy Head of Russia's atomic energy agency (Rosatom), told reporters after the September GNEP meeting that the US initiative was one of only several such efforts and its importance should not be overemphasized.

Russia and Kazakhstan on 5 September announced that they had inaugurated the use of an enrichment facility in Angarsk, Siberia as an international centre with joint ownership. The centre is eventually envisaged as a multinational operation under IAEA monitoring.

Spasskiy told Platts Nuclear Fuel in September that he expected Ukraine to join the venture before the end of the year and that Armenia, Mongolia, and South Korea are closely studying participation.

South Africa declined to participate in GNEP in September, dealing a serious blow to US ambitions for the program. Spurgeon claims that South Africa may still participate, saying its representatives "had a lot of questions" and a "misunderstanding" about GNEP's requirements, particularly whether it would have to forgo enrichment or reprocessing.

But Tseliso Maqubela, Chief Director for Nuclear at the South African Department of Minerals and Energy, told Platts Nuclear Fuel in September that South Africa wished to set up a centrifuge enrichment facility on its territory in which it could utilize the shared technology of foreign partners, and that if South Africa was unable to do so it would develop the technology domestically. Major international enrichment companies have generally balked at providing foreign countries with access to the proliferation-sensitive technology.

The members of the European enrichment consortium URENCO (Germany, the Netherlands, and the United Kingdom) said after the September GNEP meeting that in the short-term they favored a British proposal for enrichment bonds, legal guarantees that states would not interfere for political reasons with the ability of companies to provide nuclear fuel to other countries. In the long term, the three states expressed support for a German proposal to have an enrichment facility under exclusive IAEA control.

And in the Nuclear Fuel interview, Bugat said that France would open a new centrifuge enrichment plant under construction to "international partnerships" and would provide details within a few months. The French enrichment company Eurodif has involved Belgium, Spain, and Italy (and formerly Iran) as international partners in its gaseous diffusion plant at Tricastin.

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