

# NUCLEAR ENERGY FUTURES

Research Project Publication

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

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

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### US House Panel Slashes GNEP Funding, but Bush Administration Continues Supporting Expansive Vision

The Bush administration's Global Nuclear Energy Partnership (GNEP) suffered a fresh blow in the US Congress in June. Nonetheless, the program won the endorsement of a US Department of State advisory panel examining ways to expand worldwide use of nuclear energy without spurring nuclear weapons proliferation. Meanwhile, the US Department of Energy (DOE) laid out an expansive vision for its domestic leg.

Administration officials have claimed that GNEP, which seeks to develop new nuclear technologies and new international nuclear fuel arrangements, will cut nuclear waste and decrease the risk that an anticipated growth in the use of nuclear energy worldwide could spur nuclear proliferation. Critics assert that the administration's course would exacerbate the proliferation risks posed by the spread of spent fuel reprocessing technology, be prohibitively expensive, and fail to significantly ease waste disposal challenges without any certainty that the claimed technologies will ever be developed.

Current reprocessing technologies yield pure or nearly pure plutonium that can be used in fuel for nuclear reactors or to provide fissile material for nuclear weapons. GNEP proposes eventually to build facilities that would retain other elements in the spent fuel along

with the plutonium, making it less attractive for weapons production than pure plutonium. But critics note that this fuel would still not be as proliferation-resistant as when the spent fuel is left intact and point out that GNEP's near-term plans include more proliferation-prone technologies.

### House Panel Cuts GNEP (again)

Congress has largely sided with the critics and last year sharply cut the administration's proposed budget for the program and restricted it to research (see GNEP Watch, No. 3). Capitol Hill appears to be on a similar course this year.

Marking up annual energy spending legislation for fiscal year 2009 (which begins on 1 October 2008), the Appropriations Committee of the House of Representatives on 25 June 2008 cut specific funds for GNEP and approved only US\$120 million for the Advanced Fuel Cycle Initiative (AFCI), which funds reprocessing technology research integral to the program (Visclosky, 2008). In February 2008, the administration had requested US\$302 million for AFCI (see GNEP Watch, No.5).

In its accompanying report, the committee called for the AFCI funds to be spent only on research into the reduction of waste streams related to reprocessing, the design of safeguard measures for reprocessing facilities, and research on reducing the proliferation risk of reprocessing. As it did last year, it prohibited any funds from being spent on the design or construction of proposed facilities.

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In addition, the House panel blocked the administration's request for tens of millions of dollars in funds directly linked to the partnership including those for smaller or "grid appropriate reactors" and those needed to manage the partnership, particularly efforts to recruit developing countries without nuclear capabilities (such as Ghana, Jordan, and Senegal) to join the partnership.

The bill now goes to the House floor and to the Senate. The House panel made similar cuts last year and ultimately a final House-Senate compromise led to a major cut in proposed funding for the program, although less severe than the House had proposed.

In May, armed services panels in both chambers zeroed out about US\$7 million in nonproliferation funds the administration had requested in their spending bills for GNEP (see GNEP Watch, No. 7).

## State Department Advisory Panel Supports GNEP

Nonetheless, in a report publicly released in June, the US State Department's International Security Advisory Board offered a strong endorsement for GNEP (ISAB, 2008). The report claimed that US fuel reprocessing could be a "key step toward undermining other nations' rationale for obtaining reprocessing and/or enrichment technologies" and thus serve a nonproliferation purpose.

First, it claimed that reprocessing would reduce the volume and difficulty of storing spent fuel in the United States. The US has long planned to store such wastes in a permanent repository at Yucca Mountain, Nevada, but has been hampered by legal and political obstacles.

Second, the report indicated that once the disposition of spent fuel from US nuclear reactors was resolved, the United States should be prepared to accept the return of spent US fuel that has been irradiated in foreign reactors: "Only when these issues are resolved will it be possible to return US-supplied fuel to the United States (or perhaps to a shared, international repository) significantly increasing protections against its being stolen, diverted, or attacked."

Until President George W. Bush launched GNEP in 2006, the United States had discouraged reprocessing at home and abroad for nearly three decades, with US officials contending that by refraining from pursuing such technologies, the United States could lead by example and persuade other countries to do so as well. The panel contended that this is "a notion has that history has proven to be naïve," noting that European countries and Japan (and Russia) have not abandoned their reprocessing plans.

The report did not note, however, that some countries such as the United Kingdom are planning to shut down or scale back their reprocessing facilities, viewing them as uneconomical. Nor did the panel note that the technology has not spread beyond those states to the much wider number of countries that have nuclear power plants, but not nuclear weapons (IPFM, 2007).

## DOE's Domestic Vision for GNEP

Meanwhile, drawing on technical and business studies by four industry consortia (GNEP, 2008), DOE officials have been laying out their broad vision for the domestic side of GNEP. It includes dramatic technological, organizational, and financial changes in the US nuclear energy industry and in the way spent nuclear fuel is handled (Stout, 2008).

### 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.

To begin with, the plan would shift much of the responsibility for handling spent nuclear fuel to a government-owned corporation akin to the Tennessee Valley Authority. This "new government entity" (NGE) would be responsible for construction and operation of nuclear waste repositories, contracting with industry for construction and operation of reprocessing facilities, and contracting for the secure transport of nuclear fuel and waste. DOE would only be tasked with research and development of new reprocessing technologies and reactors that would handle the new fuels they would produce.

This new entity would not rely on annual appropriations from the US Congress, but instead depend on fees for handling nuclear waste and reprocessing and profits from the sales of the resulting fuels and uranium. Dennis Spurgeon, DOE's leading nuclear energy official, had hinted at such a step in November 2007 (see GNEP Watch, No. 3).

The entity would be charged with bringing to fruition a two-stage plan for reprocessing. The first stage would involve technologies that are nearly ready for commercial deployment but that offer few additional proliferation benefits to current technology. These technologies would separate the uranium and plutonium together from spent fuel and reprocess them into mixed-oxide (fuel) that can be used in current light water reactors. The aim would be to have such a fairly basic US reprocessing facility in place by 2020-2025.

The second stage, which DOE officials said they did not expect to take place before 2050, would involve taking the spent MOX fuel and again reprocessing it. This process, however, would involve separating out of this spent fuel not only plutonium and uranium but other minor transuranic elements such as americium and neptunium. This fuel would burn in still-to-be-developed fast reactors that would rely on "fast neutrons" to fission plutonium and other elements in the spent fuel. These neutrons differ from "thermal neutrons" that have been slowed down by a moderator in a reactor, such as the water used in many North American nuclear plants that rely on fresh uranium fuel.

This two-track approach has drawn criticism from independent experts such as the US National Research Council and Congress's Government Accountability Office (see GNEP Watch No's 3 and 7).

Still, nuclear plant operators have welcomed some of DOE's suggestions, particularly those for an NGE. These operators complain that despite paying a fee to the government that is supposed to be used to fund storage of their nuclear waste in a permanent repository, the money has instead flowed into the general federal budget, while the Yucca Mountain permanent repository has yet to open. On the other hand, Henry B. "Brew" Barron, chief executive officer of the Constellation Nuclear Energy Group, which operates several US nuclear power plants, told a Washington, DC audience on 24 June 2008 that he could either support the reprocessing elements of GNEP or other less ambitious and expensive alternatives such as building interim storage facilities until a permanent repository begins operation (Barron, 2008).

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