

Nuclear Waste Reprocessing and the Global Nuclear Energy Partnership (GNEP): A Failed Approach

Impacts on Nuclear Proliferation, the Environment and Costs

The Department of Energy (DOE)'s plan for spent fuel reprocessing and plutonium fuel use in light-water reactors and fast reactors pursuant to the Global Nuclear Energy Partnership (GNEP) raises many concerns, including the damage to U.S. non-proliferation efforts, the cost to U.S. taxpayers, DOE's rush to construct commercial-scale facilities, and unanswered questions about managing the waste streams resulting from reprocessing.

- **Reprocessing undercuts U.S. and international non-proliferation efforts**

Terrorist threat: Commercial reprocessing in the United Kingdom, France, Japan and Russia has resulted in the accumulation of over 150 metric tons of separated plutonium that can be used to make nuclear weapons, exacerbating the risk of terrorists gaining access to this material. Similarly, DOE's proposed technologies would separate material that could also be used to make a nuclear weapon or could be processed easily to yield pure plutonium.

Bad example and undermines international non-proliferation efforts: At a time when the United States is seeking to limit the spread of reprocessing technology and expertise to other countries resuming reprocessing would reverse decades of U.S. and international leadership which contributed to countries such as Argentina, Brazil, South Korea and Taiwan abandoning their reprocessing ambitions. Germany has stopped reprocessing its waste in France. However, GNEP has resulted in countries, such as Canada and South Korea, expressing an interest in reprocessing and sensitive fuel cycle technologies. Therefore, GNEP has already started to undermine nuclear non-proliferation, contrary to the stated goals of the program.

- **DOE plans have been criticized and Congress has reduced funding for GNEP**

In FY2008, Congress cut funding for the GNEP to \$179 million, a cut of more than 50% to the Administration's \$405 million- request. In FY2007, DOE received \$167 million, down from its \$250-million request. In the FY2008 omnibus appropriations bill, Congress barred any use of funds for construction of facilities, and the House Appropriations press release on the Energy & Water Appropriations stated that GNEP was "a controversial initiative to reprocess spent nuclear fuel and burn long-lived radioactive materials" and that "[t]his project will cost tens of billions of dollars and last for decades but it continues to raise concerns among scientists and has only weak support from industry."

A National Academy of Sciences study in 2007 criticized DOE's plan for reprocessing, and recommended that DOE stop its commercial-sale plans.

- **Reprocessing and plutonium fuel use could cost taxpayers \$200 billion and is unnecessary:**

DOE has failed to give Congress any lifecycle cost analysis for GNEP, even though, if fully funded in FY2008, DOE will have spent more than \$1 billion since FY2001 on reprocessing. National Academy of Sciences study in 2007 criticized DOE's plan for reprocessing and recommended that DOE stop its commercial-sale plans. A 1996 NAS

study concluded that a reprocessing and plutonium fuel program would cost U.S. taxpayers \$100 billion (in addition to the cost of a permanent nuclear waste repository); however, this estimate applied to only 62,000 tons of US spent fuel – equivalent to about half the amount that has been produced by existing reactors in the United States.

To date, no private funding has been publicly committed to this endeavor.

Alternatives such as a permanent geological repository and interim dry-cask storage are safer and cheaper options to effectively deal with nuclear waste.

Requested funding FY 2008: \$405 million

Congressional Omnibus Appropriations FY 2008: \$179 million

FY 2009 request: over \$300 million

- **Reprocessing does not solve the nuclear waste problem.**

Reprocessing and plutonium fuel use would divert attention away from a viable long-term solution to nuclear waste.

Countries, such as France and the United Kingdom, that have reprocessed for thirty years still have no viable nuclear waste disposal plan, and are left with worse toxic and radioactive waste and costly contamination.

Much of the technology that would be needed to meet the stated goals of GNEP will not be viable for 40-50 years at best as GNEP hinges on the development and deployment of dozens of fast reactors, a type of reactor that has not been successfully commercialized anywhere despite 50 years of U.S. and international research.

- **GNEP will create more highly radioactive waste streams.**

Reprocessing is the most polluting part of the nuclear fuel cycle. The only private commercial reprocessing facility in the United States, West Valley, NY, which was shut down after only six years of operation resulted in radioactive waste that still threatens the groundwater and the Great Lakes watershed more than 30 years later. DOE's 1996 cost estimate for cleaning up the reprocessing part of the site is \$5.2 billion and the clean-up effort is still on-going. Reprocessing also resulted in highly radioactive liquid waste in tanks at Hanford, Savannah River Site, and Idaho National Laboratory that continues to threaten important water resources, including the Columbia and Savannah Rivers and the Snake River Plain Aquifer.

- **A reprocessing site will become a de facto nuclear waste dump.**

While the Department of Energy proposes to re-use the plutonium created through reprocessing in new reactors, the likely result will be increased contamination at the site, and indefinite stockpile of toxic and radioactive nuclear waste streams at the site. Fast reactors which are essential to "re-use the plutonium," are not developed and have been failures worldwide. Without fast reactors, the U.S. will end up in the same place as the other reprocessing countries: spending hundreds of billions of dollars to end up with separated weapons-usable material and spent plutonium fuel without any permanent and effective solution to the nuclear waste problem.

Countries, including the United States, have been trying unsuccessfully to develop fast reactors for 50 years and the results have been technical and economic failures.

Even if the effort to re-use the plutonium is successful, many of the waste streams from nuclear waste reprocessing are radioactive and toxic and would remain on the site.

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