Global Nuclear Energy Partnership:

A COSTLY RADIOACTIVE WASTE SHELL GAME

A summary of

"Radioactive Wastes and the Global Nuclear Energy Partnership"

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in collaboration with Friends of the Earth
and the Government Accountability Project

The Department of Energy (DOE) is now heralding the Global Nuclear Energy Partnership (GNEP) as the fulfillment of the government's decades-long effort to diminish the environmental footprint of nuclear byproducts so they no longer pose a public health threat. This review has found, however, that the program is likely to squander billions in taxpayer dollars on an unproven reprocessing technology that will generate unprecedented and unmanageable amounts of highly radioactive wastes without plausible disposition paths.

To reduce the amount of radioactive wastes slated for a deep geological repository, the DOE is seeking to store the vast majority of radioactive byproducts in shallow burial. Far from containing toxins, however, this proposal would pose threats to nearby water supplies. The site selected for the GNEP reprocessing facility would become a de-facto waste dump, creating unprecedented public health and security threats.

- The amount of long-lived radioactivity disposed of into the environment at a reprocessing site could be thousands of times greater than from nuclear weapons production. Much smaller concentrations of similar wastes at the DOE's Savannah River Site have been characterized by the National Academy of Sciences as representing "a long term safety concern."
- More than four thousand shipments of spent nuclear reactor fuel will be transported on rails and highways through cities and farmlands to the reprocessing site, posing unprecedented emergency response and security challenges.
- DOE plans to separate cesium and strontium for storage and disposal, after 300 years, in shallow land burial at the reprocessing site. This would result in the largest, lethal source of high-heat radioactivity in the United States and possibly the world. If placed in a crowded area, a few grams of radioactive cesium would deliver lethal doses in a matter of seconds. Concentrations of strontium and cesium could be so large that if they were disposed of in shallow land burial as low-level wastes, shortly after separation they would have to be diluted to a volume as large as 500 million cubic meters, enough to fill 500 Empire State Buildings.

Despite DOE's claims that recycling of reactor spent fuel will solve the nuclear waste disposal problem, a small fraction is likely to be recycled.

- Even though uranium constitutes more than 95 percent of the materials in spent nuclear fuel by weight, it will require costly treatment for reuse in reactors – estimated in the billions of dollars. As a result, DOE's plans include the landfill disposal of tens of thousands of tons of recovered uranium.
- Due to cost and safety concerns, less than one-third of global plutonium stocks separated by other nations has been used as fuel in power reactors. The remaining unused plutonium is enough to fuel more than 30,000 nuclear weapons.

Reprocessing nuclear spent fuel requires the separation of nuclear explosive materials, increasing proliferation dangers.

- DOE claims that a new reprocessing technology under development would generate "proliferation resistant" materials. However, all transuranic materials that would be separated under GNEP could be used in a nuclear explosive.
- The amount of plutonium contained in separated transuranic materials proposed under GNEP could be as much as 638 metric tons – more than two and a half times the amount in world-wide nuclear arsenals.

The DOE's record with high-level wastes does not inspire confidence and should serve as a warning.

- After 25 years and an estimated liability of more than $100 billion, the DOE has treated less than one percent of the radioactivity from past reprocessing for geological disposal.
- The GNEP plan rests on unproven and untested technology to chemically reprocess spent fuel from power reactors in the United States and possibly other nations.

The projected costs for the GNEP program combined with technical uncertainty place undue economic strain on the federal government and taxpayers.

- Full federal financing, in the tens of billions of dollars, followed by debt forgiveness are essential to establishing GNEP.
- The National Academy of Sciences (NAS) advised the DOE in 1996 that capital and operating costs for a reprocessing plant could range from $30 to $150 billion. The NAS panel also concluded that if major elements of the GNEP program were fully funded it would cost $500 billon and take 150 years.
- Analysis done for the DOE in 2006 indicates that reprocessing, waste management and transmutation costs would add as much as 33 percent to the price of nuclear generated electricity.

DOE lacks a credible plan for management and disposal of radioactive wastes stemming from the GNEP program, particularly regarding waste volumes, site specific impacts, regulatory requirements and life-cycle costs. Given DOE's long record of ignoring waste disposal problems before they were created, the U.S. Congress should suspend funds to deploy the GNEP program.

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