Global Nuclear Energy Partnership:
Environmental and Security Risks

The U.S. Department of Energy (DOE) has asked Congress for $405 million in fiscal year 2008 for the Global Nuclear Energy Partnership (GNEP), a Bush Administration scheme to revive the dangerous practice of reprocessing spent nuclear fuel. If it goes forward, GNEP will endanger the environment across the globe, encourage nuclear bomb-making around the world, squander U.S. taxpayers' money, and deepen the nuclear waste problem.

Under the GNEP plan, some countries (most with nuclear weapons arsenals) would supply and fuel nuclear reactors for other, as-yet-unnamed countries that would agree to forgo uranium enrichment and reprocessing, the two technologies that result in nuclear weapons-usable materials. Once the fuel rods were irradiated, they would be sent back to the suppliers for eventual reprocessing.

Reprocessing is the fundamental link between a nuclear reactor and a plutonium bomb. Irradiated, or "spent," fuel is dissolved in acid so targeted ingredients can be chemically separated.

One of the ingredients, plutonium, can be used to make reactor fuel — or nuclear bombs. Due to the risk of nuclear proliferation, President Ford halted the export of reprocessing technologies. U.S. commercial reprocessing was outlawed in 1977 by President Carter. Even though the domestic ban has since been lifted, reprocessing is so expensive that the U.S. nuclear power industry has shown no interest in paying for its resumption.

Recommendations

- Congress should reject the $405 million FY 2008 budget request for the DOE GNEP reprocessing program.
- Transfer funding requested for GNEP to environmental cleanup at levels required to comply with all environmental laws and cleanup agreements.

GNEP Would Increase Nuclear Contamination

Reprocessing is inherently dangerous and has substantial, difficult-to-handle waste products. The liquid acid used to dissolve irradiated fuel results in intensely radioactive, toxic, thermally hot, and difficult to contain waste. The tanks used to store this high-level waste must be cooled or they will explode. In 1957, a similar tank exploded in Russia, contaminating 6,000 square miles. Liquid high-level waste from Cold War reprocessing presents the greatest contamination threat and cleanup challenge in the U.S. nuclear weapons complex.

DOE has failed to meet this cleanup challenge because of inadequate funding and poor project management, and has instead turned to legislative attempts to weaken environmental standards. At Hanford, Washington; Savannah River, South Carolina; and the Idaho National Laboratory, millions of gallons of liquid high-level waste languish in aging, leak-prone tanks, defying permanent disposal efforts and threatening crucial river and groundwater resources. All three of these sites, the most contaminated in the DOE complex, are under consideration for resumed reprocessing under GNEP.

GNEP Would Encourage Nuclear Bomb-making

Under GNEP, reprocessed plutonium would be used in "fast" reactors, a particularly dangerous and expensive kind of nuclear reactor. Proponents of GNEP

Liquid high-level waste is one of the many hazardous byproducts of reprocessing. Waste tanks from Cold War reprocessing are leaking and threatening nearby rivers and aquifers.

claim it is a way to control nuclear materials proliferation, but the opposite is true. Use of fast reactors and reprocessing adds to the worldwide surplus of separated, weapons-usable civilian plutonium: currently 250 tons – enough to make approximately 30,000 nuclear bombs.

Irradiated fuel that has not been reprocessed is "self protecting" because the fuel is heavy, bulky, and intensely radioactive. But separated plutonium is a concentrated powder, and only 20 pounds are required to make a bomb. Alarmingly, loss or theft of this dangerous material would not be immediately evident in the complex plutonium separation factories where it is very difficult to track plutonium through each step of the process.

GNEP Would Waste Billions of Dollars

DOE has never provided a total cost estimate for GNEP, though it could surpass $200 billion, more than twice the cost of direct disposal in a repository. In 1996, the National Academy of Sciences estimated that reprocessing the current amount of spent fuel in the U.S. could easily cost $100 billion. The cost of a geologic repository – still necessary, even with reprocessing – must be factored in. Each of the new fast reactors would cost several billion more. On top of all these costs, approximately $100 billion more will be needed to bring some level of cleanup to the four former reprocessing sites in the U.S. These are all costs the taxpayer – not the nuclear power industry – would bear.

GNEP Would Not Solve the Nuclear Waste Problem

Because efforts to open a spent fuel and high-level waste repository at Yucca Mountain in Nevada are clearly failing, DOE is trying to paint GNEP as a "recycling" solution. But reprocessing spent fuel does not conserve resources or reduce waste. If spent fuel is reprocessed once, as it is in France, it does not appreciably reduce the space needed in a deep geologic repository and produces other radioactive wastes that remain hazardous for thousands of years. Even if spent fuel is repeatedly reprocessed and burned in dangerous fast reactors, there will still be a portion that requires geologic disposal.

Current Situation

The DOE has given $10.5 million to 11 nuclear industry consortia to study the suitability of government and privately owned sites in Idaho, Illinois, Kentucky, New Mexico, Ohio, South Carolina, Tennessee, and Washington to host the first long-term spent fuel storage facility, commercial-scale reprocessing plant, and fast reactor for GNEP. Congress has warned those states they must be prepared to store intensely radioactive spent fuel for a century or more. DOE wants to fast track the decision so it is made before the end of the Bush Administration.

Congress is increasingly skeptical of GNEP. Despite its rapidly expanding budget requests, DOE has not yet told Congress crucial details of the program, including the total cost, how it would manage waste streams, and which countries would be included. DOE has repeatedly shifted specific technology decisions, particularly in its fruitless search for a reprocessing plan that meets nuclear nonproliferation standards. FY 2008 is the time for Congress to zero out GNEP before billions of U.S. taxpayer dollars are wasted.

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