Why Doesn't U.S. Recycle Nuclear Fuel?

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The chattering class's call for action on "climate change" overlooks a crucial point: to succeed, we need to increase reliance on nuclear power, the cleanest technology available, despite the vocal opposition from those who fear another Three-Mile Island or a more-serious disaster like Chernobyl or Fukushima.

Compared to electric generating plants fueled by coal and other fossil fuels, nuclear plants have a very light "carbon footprint." Current public policy, however, favors solar, wind and other "green" energy sources, largely because used nuclear fuel remains radioactive, and policy-makers can't decide what to do with it.

What we ought to do is what other countries do: recycle it. Doing so would provide a huge amount of zero-carbon energy that would help us reduce greenhouse-gas emissions.

A major obstacle to nuclear fuel recycling in the United States has been the perception that it's not cost-effective and that it could lead to the proliferation of nuclear weapons. Those were the reasons President Jimmy Carter gave in 1977 when he prohibited it, preferring instead to bury spent nuclear fuel deep underground. Thirty-seven years later we're no closer to doing that than we were in 1977.

France, Great Britain and Japan, among other nations, rejected Carter's solution. Those countries realized that spent nuclear fuel is a valuable asset, not simply waste requiring disposal.

As a result, France today generates 80 percent of its electricity needs with nuclear power, much of it generated through recycling.

As for concerns about proliferation, the reality is that no nuclear materials ever have been obtained from the spent fuel of a nuclear power plant, owing both to the substantial cost and technical difficulty of doing so and because of effective oversight by the national governments and the International Atomic Energy Agency.

The nuclear fuel recycling process is straightforward. It involves converting spent plutonium and uranium into a "mixed oxide" that can be reused in

nuclear power plants to produce more electricity. In France, spent fuel from that country's 58 nuclear power plants is shipped to a recycling facility at Cap La Hague overlooking the English Channel, where it sits and cools down in demineralized water for three years. Only then is it separated for recycling into mixed-oxide fuel.

The nuclear material that cannot be recycled is imbedded in glass logs, where it will remain until France builds a deep-underground repository for unusable waste.

The United States now stores more than 70,000 metric tons of spent fuel at nuclear plants around the country. Disposing of "used" fuel in a deep-geologic repository as if it were worthless waste – and not a valuable resource for clean-energy production – is folly.

Twelve states have banned the construction of nuclear plants until the waste problem is resolved. But there is no enthusiasm for building the proposed waste depository. In fact, the Obama administration pulled the plug on the one high-level waste depository that was under construction at Nevada's Yucca Mountain.

The outlook might be different if Congress were to lift the ban on nuclear-fuel recycling, which would cut the amount of waste requiring disposal by more than half. Instead of requiring a political consensus on multiple repository sites to store nuclear plant waste, one facility would be sufficient, reducing disposal costs by billions of dollars.

Some will say the United States can't afford to build a nuclear recycling facility. But such a plant already is under construction at the Department of Energy's Savannah River nuclear reservation in South Carolina. That facility will produce mixed-oxide fuel for generating electric power, not from power-plant waste, but from surplus plutonium now in U.S. weapons stockpiles.

By lifting the ban on spent fuel recycling we could make use of a valuable resource, provide an answer to the nuclear waste problem, open the way for a new generation of nuclear plants to meet America's growing electricity needs, and put the United States in a leadership position on climate-change action.

If France and other nations can do it, why can't we?